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Rapid wage digitization in the Bangladesh ready-made garment sector during COVID-19:

A mixed-methods study of the barriers and facilitators of wage digitization for women workers

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List of acronyms

A2I	Access to Information
ATM	automated teller machine
B2G	business-to-government payment
B2P	business-to-person payment
BGMEA	Bangladesh Garment Manufacturers and Exporter Association
BKMEA	Bangladesh Knitwear Manufacturers Export Association
BTCA	Better Than Cash Alliance
CICO	cash-in cash-out
CPD	Center for Policy Design
DFS	digital financial services
e-KYC	electronic know-your-customer
FGD	focus group discussion
FinTech	financial technology
FSP	Financial Services for the Poor
G2P	government-to-person payment
GoB	Government of Bangladesh
GWD	Garment Worker Diaries
IDEA	Identification System for Enhancing Access to Services
ILO	International Labor Organization
KII	key informant interview
MEL	measurement, evaluation, and learning
MFO	Microfinance Opportunities
MFS	mobile financial services
MFSP	mobile financial services provider
MoF	Ministry of Finance
NID	national identification document
P2B	person-to-business payment
P2P	person-to-person payment
P2G	person-to-government payment
PC	worker participation committee
PIN	personal identification number
RAPID	Research and Policy Integration for Development
RMG	ready-made garment
ToC	Theory of Change
UNDP	United Nations Development Programme

Executive Summary

This report presents results from a study of the rapid digitization of low-income women workers' wages in the ready-made garment (RMG) industry in Bangladesh at the beginning of the COVID-19 pandemic, as a result of a government-issued stimulus package. This policy change catalyzed the opening of 2.2 million digital accounts for garment workers, the majority of which are women, and resulted in sustained payroll digitization for half of the workers in export-oriented factories who had previously received wages in cash. We examine the key barriers and enablers to wage digitization before, during, and after the stimulus, and analyze women worker and factory experiences with and perceptions regarding digital pay. This enables us to identify ongoing challenges and opportunities to scale and sustain future wage digitization in the RMG sector in Bangladesh, and to make its impacts more meaningful for women workers and factories.

We find that the stimulus package successfully lifted several critical barriers related to opening digital accounts—including challenges around worker identification, and fees to open accounts and cash out. The stimulus also effectively bypassed any reluctance from mid-level factory management about increased transparency from digital pay, since the government made digital payments directly to workers during the stimulus. The stimulus package led to a rapid increase in women's account ownership that allowed women garment workers to receive their wages during a time of crisis. Digital financial ecosystem improvements by regulators and mobile financial service providers (MFSPs) prior to the stimulus enabled them to rise to the challenge of paying wage subsidies digitally for millions of workers. This demonstrated that the digital payments can enable access to critical funds during an emergency, and that the DFS system was reliable—generating trust in the system.

However, the impact on women's financial inclusion was limited: most women only used their accounts to cash out wages or to transfer money, and many continued to prefer cash. After the stimulus payments ended, a majority of factories elected to pay wages digitally, and a majority of women's accounts remained open and functional—regardless of whether they continued to receive digital wages from their factories. However, digital payments could not be used for many routine transactions, such as rent, school fees, or micro-merchant payments, and some women needed assistance to use their accounts. Most women workers (regardless of whether they received digital wages from their factories) did not use their digital accounts beyond cashing-out and making intra-household transfers, contributing to an enduring preference for cash payments. Additional re-emerging barriers also contributed to this– including cash-out fees, ATM and agent accessibility and time burdens. Factories that continued paying in cash after the stimulus primarily cited workers' cash preferences as driving their choice; however, workers (in these factories and overall) did not feel their preferences were considered. Factory concerns around transparency likely also re-emerged as a deterrent to wage digitization. Factories that chose to digitize payroll after the stimulus were primarily motivated by the potential for production efficiencies. Workers in these factories were more likely to have received information and support during the stimulus, and to perceive advantages of digital pay (such as the ability to save, the ease of making transactions, and improved payment timeliness and security).

We conclude that, in order for wage digitization to have a more meaningful impact on women Bangladeshi RMG workers' lives, additional government incentives to strengthen the digital financial ecosystem and build women-specific digital use cases are needed (such as transactions with and products related to micro-merchants, landlords, or schools; and expanded mobile account functionality). Similarly, factory- and bank-level incentives to provide gender-sensitive financial literacy training and capacity

building could increase women garment workers' access to, use of, and control over digital accounts. In addition, to scale wage digitization, factories that elected not to digitize (as well as smaller, non-brand-facing factories) need to be convinced of its value proposition, including the potential for production efficiencies and the benefits of supply-chain transparency.

I. Introduction

Mathematica partnered with Microfinance Opportunities (MFO) and Research and Policy Integration for Development (RAPID) to study the rapid digitization of women workers' wages in the RMG industry in Bangladesh at the beginning of the COVID-19 pandemic. This digitization occurred because the Government of Bangladesh (GoB) issued a stimulus package that provided interest-free loans to factories to cover workers' back pay for four months (May to August 2020) following a government-mandated lockdown, conditional upon the wages being paid digitally. This unique policy change catalyzed the rapid opening of more than 2.2 million mobile financial services (MFS) accounts and the digital payment of wages to 3.8 million workers in nearly 2,000 factories (Bangladesh Bank interview).[1] Although factories did not actually digitize their payrolls to disburse the stimulus payments—Bangladesh Bank disbursed payments directly to workers' accounts via MFSPs or local banks)—the stimulus package facilitated a subsequent spike in factory payroll digitization. This policy change offers a unique opportunity to learn about the effects of rapid wage digitization for women RMG workers, a group that had historically been financially excluded.[2]

The objectives of this study are to:

1. Document lessons learned about the enablers of wage digitization prior to the pandemic.
2. Examine implementation of the stimulus package and barriers to wage digitization that were lifted.
3. Explore factors that facilitated and hindered adoption of wage digitization by factories after the stimulus period.
4. Identify strategies for adopting, sustaining, and scaling wage digitization in the RMG sector in Bangladesh and in other contexts.

In the remainder of this chapter, we present an overview of the policy change created by the stimulus package, and we summarize existing literature on the effects of wage digitization in Bangladesh. Chapter II outlines our research questions, study design, and analytic approach. Chapter III presents findings related to pre-pandemic enablers of and barriers to wage digitization. Chapter IV discusses how the 2020 COVID-19 stimulus package for the RMG sector was implemented, the barriers to wage digitization it lifted, and how it affected workers' experiences with digital pay. Chapter V explores the extent to which (and factors influencing whether) factories decided to digitize payroll after the stimulus period. In Chapter VI, we summarize our key learnings and discuss broader policy implications related to ongoing challenges that need to be addressed to scale and sustain wage digitization.

A. Policy change overview: COVID-19 stimulus package for the RMG sector

Women's financial inclusion in Bangladesh has increased substantially over the last decade, in part due to the digitization of bulk payments—including both government-to-person (G2P) payments and business-to-person (B2P) wages. Between 2014 and 2021, the share of adult women in Bangladesh who owned a bank account increased by 17 percentage points (from 26 to 43 percent), and the share of women making or receiving digital payments grew by 29 percentage points (from 6 to 34 percent) (Demirgüç-Kunt et al 2021) (**Figure 1**). However, Bangladesh has large and increasing gender gaps in overall account ownership and the use of digital payments (20 and 24 percentage points, respectively, in 2021) (ibid).

[1] Bangladesh Bank estimated that 1.62 million MFS accounts existed in the RMG sector prior to the pandemic.
[2] Financial inclusion refers to individuals' access to financial products and services (i.e., bank accounts that provide services such as transactions, payments, savings, credit, and insurance).

This may be due to increasing gender gaps in access to mobile phones (25 percent as of 2020) and internet usage (17 percent in 2020)—which are key to account ownership and digital payments (Better than Cash Alliance [BTCA] 2022a).[3] By 2021, 10 percent of adults said that the reason they opened their first financial institution account was to receive a wage payment or money from the government, and 11.4 percent reported receiving government payments into an account. However, only 4.9 percent of adults received wages into an account (Demirgüç-Kunt et al 2021)—indicating that wage digitization is likely an on-ramp to financial inclusion for a limited population in the formal workforce. [4]

However, one population that has been dramatically impacted by wage digitization is women workers in the Bangladeshi garment industry: the COVID-19 stimulus package served as an unprecedented catalyst for wage digitization for women factory workers, and as a result, for their financial inclusion.[5] The RMG sector in Bangladesh employs approximately 3.6 million people (of whom 53 percent are women) in 3,856 operational factories (Moazzem and Radia 2018) and it contributed to over 9 percent of GDP and 83 percent of the country's exports from 2019–2020—making it the industry with largest share of women workers and the largest contribution to exports (BTCA 2022a).

In order to combat increasing rates of COVID-19 infections, the GoB announced a nationwide lockdown from March 26 to May 31, 2020. As a result, the Bangladesh Garment Manufacturers and Exporter Association (BGMEA) instructed their 4,500 member factories to close.[6] Subsequently, millions of RMG workers were furloughed.

To pay workers' wages during the lockdown and prevent factories from making layoffs, the Ministry of Finance (MoF) issued a stimulus package of BDT 50 billion (US $595 million) to provide loans to the RMG and other export-oriented industries.[7] The funds were initially provided to remunerate workers' wages for a maximum of three months (April, May, and June) (Bangladesh Bank 2020a), and later were extended to a fourth month (July) (Bangladesh Bank 2020e).[8] Bangladesh Bank did not charge any interest on the funds disbursed to banks; however, banks provided loans for eligible factories at 2 percent interest from the funds to cover their operating costs.

[3] Other possible causes highlighted by BTCA (2022a) include the gender gap in literacy rates (5.1 percent as of 2019) and in national identification (NID) coverage (3.4 percent as of 2019), in addition to gender norms around ownership of digital devices by men and women's reliance on spouses or male guardians to make transactions, given that most women are unemployed and as such lack payroll accounts.

[4] Findex does not include gender-disaggregated data on these indicators. Just 3.5 percent of adults received private sector wages into an account and 1.4 percent received public sector wages into an account.

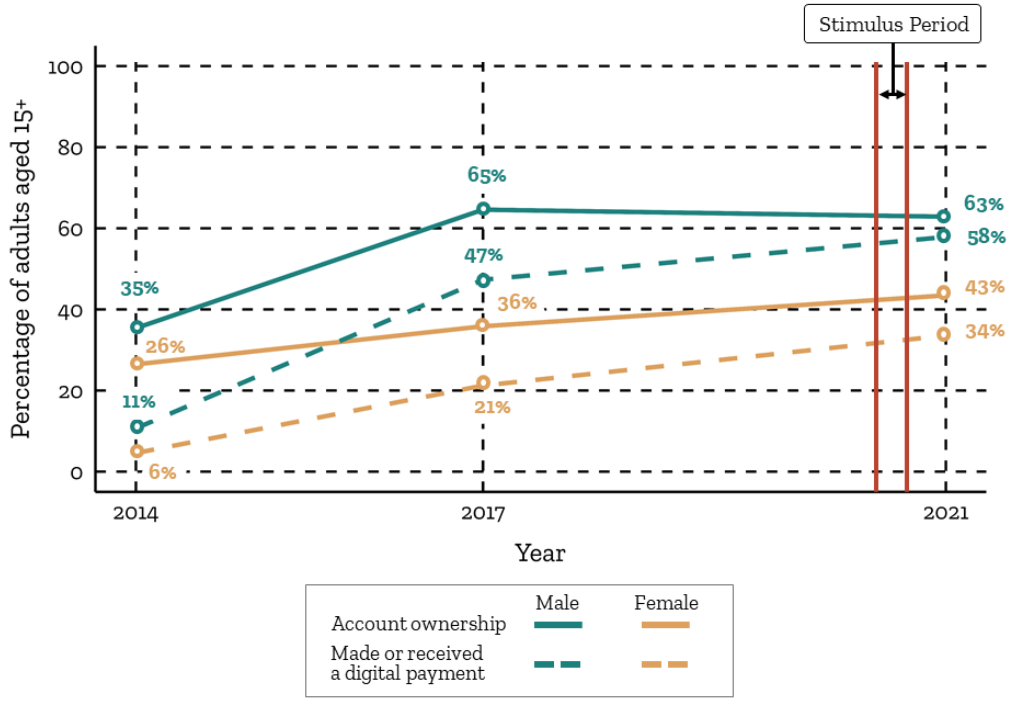
[5] Additional policy changes that enabled the COVID-19 stimulus package and contributed to wider financial inclusion for women are presented in Section III.

[6] Nonetheless, millions of workers broke isolation guidelines to return to their hometowns, amid fears they would be unable to support themselves in the capital city of Dhaka without work. On May 31, 2020, factories were allowed to operate on a limited scale, subject to their compliance with health and safety guidelines, and workers returned en masse to Dhaka (Kabir et al. 2020).

[7] An estimated 360,000 RMG workers were laid off during the lockdown: this included 16 percent of factories that received stimulus funds, even though layoffs were prohibited as a precondition of receiving the funds (Moazzem and Ahmed 2021).

[8] While the stimulus package covered wages from April through July, these payments were paid to workers between May and August: hence, we refer to the "stimulus period" as May–August 2020.

Figure 1. Gender gap in account ownership and digital payments over time in Bangladesh



Source: Global Findex Database. Indicators: "Account: women/male (% age 15+)" and "Made or received a digital payment: women/male (% age 15+)."

The funds were available only for factories that met all of the following criteria (Bangladesh Bank 2020a):

- Active export-oriented factories that exported at least 80 percent of their production and could verify salary payments to workers from December 2019 to February 2020.
- Factories with an established relationship with a bank (i.e., factories that had carried out transactions with the bank from December 2019 to February 2020).
- Factories whose workers had mobile money or bank accounts by April 20, 2020.

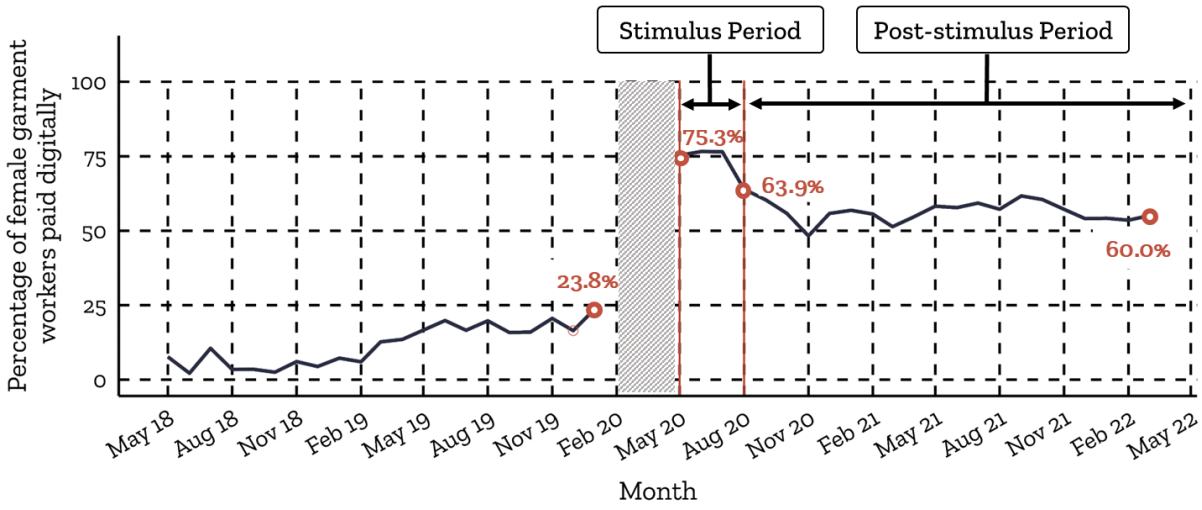
Given these eligibility criteria, primarily large factories with strong banking track records and membership in trade organizations (BGMEA or the Bangladesh Knitwear Manufacturers Export Association [BKMEA]) benefited, and most smaller factories were not eligible. An estimated 67.6 percent of all RMG factories applied for the stimulus, and 62.7 percent received a loan. In addition, 17.6 percent were ineligible and could not apply, and 12.7 percent were eligible but did not apply (Moazzem and Ahmed 2021).

Bangladesh Bank mandated that the stimulus funds be disbursed digitally from scheduled banks into RMG workers' bank or MFS accounts, resulting in a sharp increase in account ownership and digital wage payments during the stimulus period.[9] Prior to the COVID-19 pandemic, most RMG workers were paid in cash: according to our analysis of MFO's data, just 23.8 percent of women garment workers received digital wage payments in January 2020, prior to the pandemic. When the stimulus package was offered, that number jumped to 75 percent. After the stimulus payments ended, most workers (63.9

[9] Scheduled banks in Bangladesh operate under full control and supervision of Bangladesh Bank which is empowered to do so through Bangladesh Bank Order, 1972 and Bank Company Act, 1991.

percent) continued to be paid by their factories digitally (dropping to 60 percent by February 2022) (**Figure 2**). This indicates that digital pay to women workers increased by 287 percent between the pre- and post-stimulus periods.[10]

Figure 2. Women garment worker wage digitization before and after the COVID-19 stimulus



Source: Microfinance Opportunities garment worker diaries (GWD) panel dataset (May 2018–January 2020; May 2020–March 2022); sub-sample 1 (N = 633) as described in Table 3 of the Approach Section.

Note: GWD data collection was temporarily stopped from February 2020 through April 2020 due to a lack of funding.

B. Evidence on the effects of wage digitization in Bangladesh

A small number of empirical studies from Bangladesh show that wage digitization can lead to financial inclusion and economic empowerment for women, as well as beneficial impacts for employers. Just two studies (that we are aware of) found positive impacts of wage digitization on workers using experimental or quasi-experimental methods. Breza, Kanz, and Klapper (2020) find that workers who were randomly assigned to open an account and receive digital payments experienced large increases in savings relative to those who had an account opened but continued to receive cash payments. However, women workers who received digital wages tended to be "savers" who cut discretionary consumption to generate new savings, but were not necessarily able to learn to use their account without assistance (men with some prior financial access were more likely than women to learn to use their account without assistance). Similarly, researchers at Intermedia (2019) studied neighborhoods surrounding RMG factories that adopted digital wages (relative to neighborhoods surrounding factories that paid by cash) and found an increase in adoption of mobile money by relatively less-economically empowered women (including the

[10] There are no comprehensive national data on the number of workers who received wages digitally during and after the pandemic. However, our findings are comparable to those from a CPD 2021 study, which surveyed 102 RMG factories and found that 32.4 percent paid workers digitally through MFS prior to the pandemic (in December 2019), increasing to 70.6 percent during the stimulus period (by June 2020). Their data show a larger decline in digital pay after the stimulus: dropping down to 43 percent by December 2020 (Moazzem and Ahmed 2021). Data from Bangladesh Bank are more conservative, but largely corroborate our findings: salary disbursements through MFS from private sector organizations and factories increased by 122 percent, from 1,025 million transactions in the six months prior to the lockdown (October 2019–March 2020) to 2,273 million transactions in the six months following the stimulus period (July–December 2020) (Bangladesh Bank Open Data Initiative, BTCA 2022a).

RMG workers themselves), an increase in active users of mobile money accounts, and spillovers via person-to-person (P2P) transfers. RISE (formerly BSR) has also researched the effects of wage digitization through their HERfinance Digital Wages Program, which supported 64 factories in Bangladesh to adopt digital wages for more than 100,000 workers from 2015 to 2020. They found that wage digitization (along with their program package, which also included training) increased mobile money account ownership among women workers by 50 percentage points, increased the share of workers saving regularly by 19 percentage points, and improved women's control over and participation in how to use their salary (BSR 2020).

Two studies have documented the costs and benefits of wage digitization in Bangladesh from a factory perspective. BSR (2020) conducted a survey with a subset of the factories participating in their HERfinance Digital Wages Program and found that, after digitization, factories experienced a 59 percent reduction in administrative hours spent on payroll and a 78 percent reduction in lost worker production-time on payday. On behalf of BTCA, the World Bank surveyed 21 factories that had transitioned to digital wages between 2011 and 2016 and found positive effects of digitization in terms of employer time and cost savings, as well as employee satisfaction, transparency, and accuracy of payments (BTCA 2017).

The majority of these studies were conducted in controlled environments in which additional supports and resources were provided to workers and factories to increase uptake and usage of digital payroll accounts (for example, Breza, Kanz, and Klapper [2020] installed ATMs and stationary mobile money agents on the factory premises; and BSR's HERfinance Digital Wages Program provides comprehensive support and DFS training to workers, and financial planning and in-person support to factory management staff).

In contrast, our study assesses wage digitization in the context of a policy change that led to wage digitization in the garment factory sector that occurred rapidly and at a large scale during the COVID-19 pandemic. To our knowledge, research conducted by our partner MFO provides the only existing analysis of the effects of wage digitization in Bangladesh on worker outcomes during COVID-19: they found that digital wages led to greater economic resilience during the pandemic among women who were paid digitally before the pandemic, and to greater passive savings (due to workers leaving money in their digital accounts after withdrawing what they needed for regular expenses [MFO 2022]).

Our study builds on MFO's initial research by more deeply exploring women workers' experiences with and perceptions regarding wage digitization during and after the stimulus period, in addition to assessing challenges and facilitators of wage digitization from the perspective of factory management, trade unions, MFSPs and banks, government, and other key stakeholders. Our study approach is described in more detail in Chapter II.

II. Overview of the study

A. Research questions and study design

This study seeks to address the following research questions:

1. What were the key pre-pandemic enablers of and barriers to wage digitization at the policy, digital financial services (DFS) ecosystem,[11] and factory levels?
2. How was the 2020 COVID-19 stimulus package for the RMG sector implemented, and how did implementation affect women workers' experience with and perceptions of receiving wages digitally?
3. To what extent were women workers' wages digitized after the stimulus period, and what factors influenced whether wage digitization occurred and was sustained after the stimulus period?
4. What re-emerging challenges or barriers need to be addressed to scale and sustain wage digitization?

To answer these questions, we use a mixed-methods approach drawing primarily on qualitative data and using quantitative data to validate qualitative findings.

Our qualitative analysis seeks to understand the process of, experiences with, and perceptions regarding the stimulus and wage digitization, as well as key policy and supply-side enablers. Focus groups and interviews allow us to achieve targeted *depth* of information about experiences and perceptions of factory workers and management. To contextualize these experiences and understand key enablers of wage digitization—in terms of both policy and the digital financial ecosystem and infrastructure—we conducted a document review as well as key informant interviews (KIIs) with GoB representatives, trade organizations, MFSPs, local banks, and DFS ecosystem stakeholders.

Our quantitative analysis seeks to validate whether themes that were prevalent in our qualitative data can be generalized and to define and explore trends across a wider sample. We aimed to achieve *breadth* of understanding about the range and variation in women workers' experiences by drawing on the weekly Garment Worker Diaries (GWD) quantitative panel dataset collected by MFO, as well as special cross-sectional surveys. These quantitative data allowed us to define the key trends in wage digitization over the study period, analyze key outcomes for workers receiving digital versus cash wages, and further explore and validate themes from our qualitative interviews.

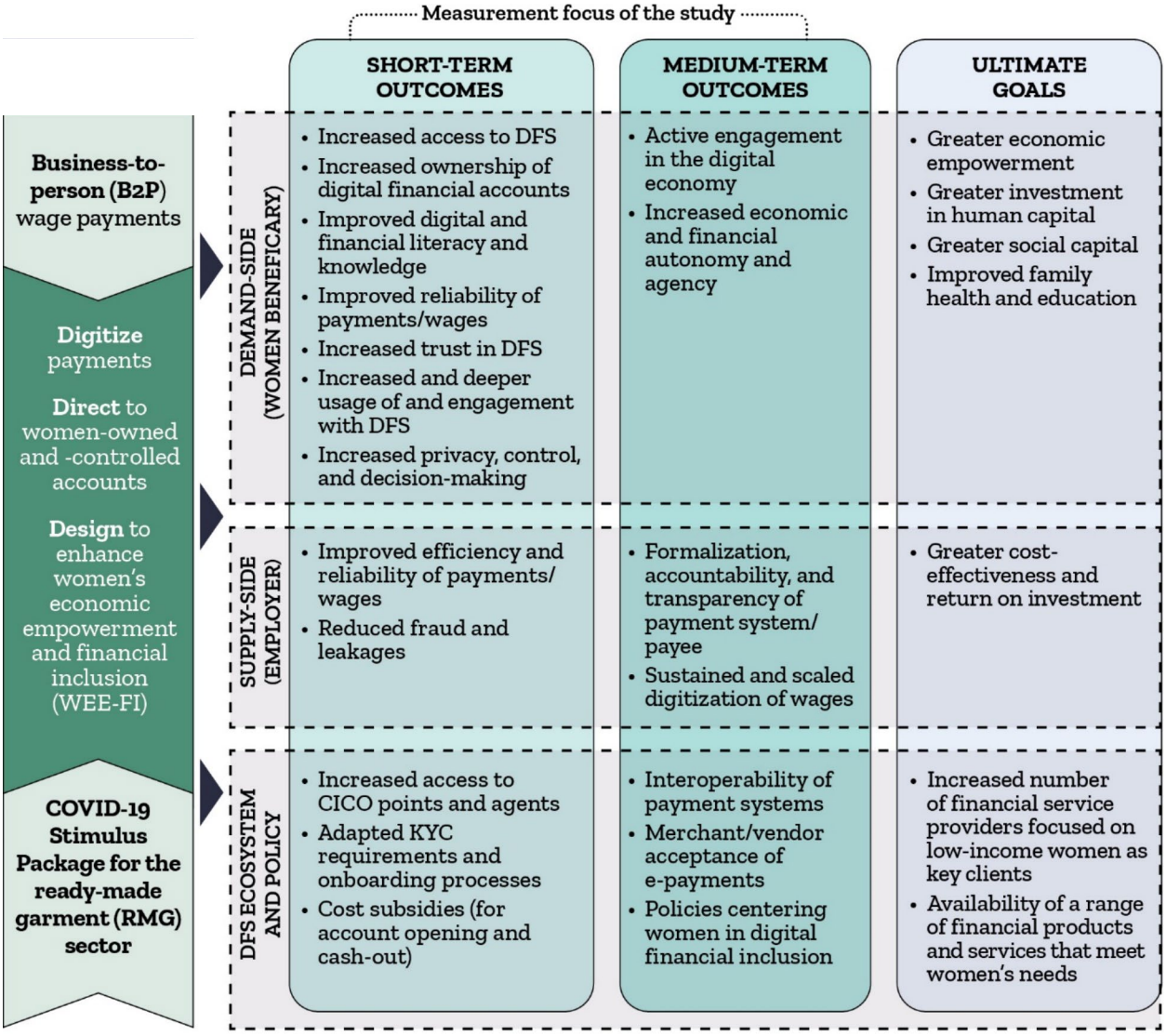
Our analysis draws on data collected from women workers and management in RMG factories that applied for and received the stimulus loans digitally, but varied in their decisions to digitize their payroll before and after the stimulus. By exploring the perspectives and experiences of workers and management within these sub-groups, we tried to better understand the factors that affected decisions about whether to digitize at different points in time.

Our analysis draws on a Theory of Change (ToC) to understand the extent to which women workers and factories experienced key outcomes following the stimulus and subsequent wage digitization and contributed to reducing the gender gap in financial inclusion and driving greater women's economic empowerment (**Figure 3**).

[11] DFS refer to various financial services accessible using digital platforms, including basic transaction accounts, savings, credit, and mobile money. The DFS ecosystem comprises consumers; providers (banks, financial institutions, mobile network operators, and other payments service providers); infrastructure (including telecommunications, mobile, and agent networks); digital technology and product developers (including FinTech); and government policies and regulations that support and enable the development and provision of those services and products.

The ToC hypothesizes that, when RMG women workers opened bank accounts and began receiving wages digitally, this experience should have provided an on-ramp to digital financial inclusion and greater women's economic empowerment. The ToC would also posit that these beneficial outcomes for women (on the demand-side) are contingent upon positive outcomes also being realized by factories and brands (on the supply-side), and upon key enablers within the DFS ecosystem and policy environment. For wage digitization to be sustainable, factories should have experienced production efficiencies and been convinced of the business case for digital wages. Similarly, for women workers to use their digital accounts in meaningful ways, they should have had access to financial products and services in the DFS ecosystem that meet their needs. Our findings and discussion sections describe the extent to which these positive outcomes manifested in this context.

Figure 3. Theory of change: Bangladesh wage digitization



B. Data, sample, and analytic approach

During the stimulus period, workers in factories that received stimulus loans received their wages digitally. Subsequently, factories elected to either digitize their payrolls or continue paying workers' wages in cash. Our study sample only includes women workers and is representative of two main sub-groups of digitization trends (for both qualitative and quantitative analyses):

- Women workers in factories that paid in cash before the stimulus period, but elected to digitize their payroll after the stimulus (hereafter referred to as the "**majority digitized payroll**" group).
- Women workers in factories that paid in cash before the stimulus period and continued to pay wages in cash even after their workers received the stimulus payments digitally (the "**majority cash payroll**" group).

Our qualitative analysis also includes factories and women workers representing less common digitization trends:

- Factories that elected to digitize their payroll before the stimulus period, and continued to make digital payments after the stimulus period (hereafter referred to as the "**always digital**" group).
- Factories that digitized payroll before the stimulus, and either reverted to cash or made some payments digitally and some in cash after the stimulus period (the "**mixed payments/reverted to cash**" group).

Women workers in factories in all four sub-groups received payments digitally from the government during the stimulus period. The wage digitization trends represented in our study samples are presented in **Table 1**, and sample sizes within these groups/trends are described in more detail in the remainder of this section.

Table 1. Wage digitization trend sub-groups represented in the study samples

Factory payroll prior to stimulus	Worker pay during stimulus	Factory payroll after stimulus	Name of group/trend
Cash	Digital	Cash	Majority cash payroll
		Digital	Majority digital payroll
			Digitized payroll immediately after stimulus[a]
			Digitized payroll later[a]
Digital		Cash	Mixed/reverted to cash
			Mixed payroll after stimulus
			Revert to cash
		Digital	Always digital

[a] We do not know the specific month in which factories in our sample digitized; however, some factory managers said they "immediately" digitized after the stimulus, while others said they continued paying in cash immediately after the stimulus, but eventually digitized (months or even a year later).

1. Qualitative data and analytic approach

We collected qualitative data from a variety of sources, to understand women worker and factory experiences and perceptions regarding wage digitization, as well as the process of implementing the stimulus package and key enablers of wage digitization.

Desk review. To understand how the stimulus package was implemented, we reviewed key Bangladesh Bank Circulars describing the stimulus package application criteria and guidelines, as well as media reports from April through July 2020 that provide context on these circulars.

KIIs. We selected the following key stakeholders from which to gather rich information on the implementation of the stimulus package, as well as key policy and DFS ecosystem enablers. Mathematica and our local data collection partner RAPID recruited respondents via email and phone and conducted the interviews between December 2021 and May 2022. These included:

- GoB officials from the Bangladesh Bank and MoF who oversaw the design and implementation of the stimulus package, as well as from Access to Information (A2I), which spearheaded the GoB's G2P digitization efforts.
- Representatives of the BGMEA and BKMEA trade organizations who worked with factories to apply for the stimulus.
- Staff from the three main MFSPs (bKash, Nagad, and Rocket) in Bangladesh, as well as one of the local banks with whom factories worked to open accounts for workers during the stimulus period.
- Staff from RISE and BTCA, who played instrumental roles in promoting and researching wage digitization in the RMG sector before and during the pandemic.

Factory management interviews. RAPID, with support from MFO, recruited 23 factories representing each of the key digitization trends or subgroups described above, in the main five industrial areas of Chittagong, Dhaka City, Gazipur, Narayanganj, and Savar. [12] We identified these factories by extrapolating factory-level wage digitization trends from MFO's worker-level GWD quantitative dataset described in the next section. Following the stimulus period, eight factories (34 percent) from our qualitative sample fell in the "majority cash payroll" group. Nine factories (39 percent) fell in the "majority digital payroll" group (five factories digitized payroll immediately following the stimulus and 4 digitized later). Six factories (26 percent) digitized their payroll before the stimulus; four remained digitized afterwards, one reverted to cash, and one had a mixed payroll after the stimulus (paying wages both digitally and in cash). RAPID recruited and conducted one interview per factory with human resources staff or administrative managers between January and May 2022.

Women worker interviews and FGDs. From the 23 factories in which we interviewed management, we chose 9 factories in which to conduct FGDs with five to six women workers each and 3 factories in which to conduct in-depth interviews with one woman worker[13] each, based on an initial analysis of transcripts from factory management interviews. We selected these factories based not only on digitization trend, but also on factory characteristics (such as location, size, and gender composition of workers) and a range of experiences during the stimulus (for example, which MFS provider they worked with, the level of training

[12] The RAPID team contacted 30 factory representatives; 7 refused to participate in the interview. Representatives from 4 factories asked RAPID's team for a letter from trade organizations explaining the objective of the study to conduct the interview. RAPID contacted trade organizations requesting the letter but was only able to obtain a letter from BGMEA (not BKMEA).

[13] We selected workers who were identified by the GWD field team as being relatively well-informed and with a large social network of fellow factory workers. We were interested in capturing their perspectives as they were likely to understand broad, common sentiments among workers within a factory.

and support provided to open and use accounts, the prevalence of worker unions, and workers' preferences for payment type as initially reported by employers). RAPID conducted these interviews and FGDs between April and June 2022.

In **Table 2**, we provide detailed information on the qualitative data collection method, respondent characteristics, and key interview topics.

Table 2. Qualitative data collection method, respondent characteristics, and key topics

Data collection method	Respondent characteristics	Key topics
Key stakeholder interviews	11 interviews with staff from: – Bangladesh Bank – Ministry of Finance – Trade organizations (BKMEA and BGMEA), – MFSPs (bKash, Nagad, and Rocket), a local bank – DFS ecosystem stakeholders (RISE, BTCA, A2I)	– Policy/DFS ecosystem barriers and enablers around wage digitization and expanding ownership, access, and use of DFS – Wage payment trends over time – Design of the stimulus package – Role of key partners in implementing the stimulus package
Factory management interviews	23 interviews with HR staff or administrative managers – 8 factories in the "majority cash payroll" group – 9 in the "majority digital payroll" group – 6 in the "always digital" group	– Pre-pandemic experience using DFS – Implementation of stimulus payments – Choice to digitize payroll or continue paying in cash after stimulus period
Women worker focus group discussions	FGDs in 9 factories with 5 to 6 women RMG workers in each factory: – 4 in the "majority cash payroll" group – 2 in the "majority digital payroll" group – 2 in the "always digital" group, 1 in the "mixed" group 3 in-depth interviews with RMG women workers: – 1 interview in the "majority cash payroll" group – 2 interviews in the "majority digital" group	– Pre-pandemic experience using DFS – Implementation of wage digitization during the stimulus period – Sustained wage digitization and use of digital services after stimulus period – Perceived changes to workers from wage digitization

We used two primary methods of analyzing qualitative data from interviews and FGDs to address our research questions: (1) thematic framing and (2) data triangulation.

Thematic framing. The team coded the transcripts using qualitative analysis software (NVivo) based on a coding scheme designed to capture information about the rollout of the stimulus package, implementation of wage digitization during and after the pandemic, contextual factors influencing wage digitization such as support/training workers received to open and use accounts, and employer and worker perceptions of digital wage payments. We produced detailed internal summary memos for each code, allowing for an in-depth examination of common responses, any unusual or outlying responses, and similarities or differences by respondent type.

Data triangulation. Our qualitative analysis sought to identify similarities and differences in perspectives across respondents. We triangulated the findings from the qualitative data with findings from the quantitative GWD data to test for the strength of and inconsistencies in findings (as described in the next section). Drawing on these analyses, we developed findings related to wage digitization trends, challenges and facilitators to open and use bank or mobile money accounts, and factors that supported and inhibited wage digitization during and after the pandemic.

2. Quantitative data and analytic approach

Our quantitative data analysis draws on MFO's GWD data: a weekly panel dataset launched in 2018 consisting of around 1,300 garment workers, 76 percent of whom are women. The workers are employed in factories in five industrial areas: Chittagong, Dhaka City, Gazipur, Narayanganj, and Savar. These workers are surveyed weekly by MFO on a series of core questions related to their employment, income, and resource allocation. "Special survey rounds" with additional questions on other topics are periodically asked of the GWD respondents. Most of our analysis is based on data from two special survey rounds designed by Mathematica, administered in April and May 2022 and included only women workers. The first special survey round (950 women workers) focused on account ownership before the pandemic, experiences with wage digitization during and after the stimulus, and the process to open bank or mobile money accounts during the stimulus period. The second special survey round (administered to 922 women workers) focused on how workers received wage payments after the stimulus period, whether workers influenced factory decisions about whether to digitize in the post-stimulus period, account use in the period after the stimulus, and perceived advantages and disadvantages of receiving wage payments digitally.

From these special survey rounds, we constructed four analysis samples (one primary sample and three sub-samples), described in more detail below and in **Table 3**.

- Our **primary sample** consists of women workers in the GWD panel who participated in either or both of our special survey rounds in April and May 2022. While we cannot be sure that our sample is representative of the entire population of women RMG workers' experiences, our primary sample includes women workers from factories representing each of the four sub-groups: (1) majority cash payroll after the stimulus, (2) majority digital payroll after the stimulus, (3) mixed/reverted to cash, and (4) always digital. These data were used for our **overall analysis of worker experiences and perceptions** regarding implementation of the stimulus package and subsequent wage digitization.

Because of the panel nature of the GWD dataset, the respondent sample is not perfectly consistent over time (the response rate varies from week to week, and in some cases, workers dropped out of the sample when they left the RMG sector). As a result, we constructed three sub-samples from our primary sample in order to analyze trends and conduct sub-group analyses:

- **Sub-sample 1** of the GWD respondents is used for **trends analysis of the type of payments (cash versus digital) over time**. This sub-sample includes workers who received at least one payment in each of the key time periods we are interested in (before the pandemic, during the stimulus period, in the six months following the stimulus period, and in the year after that).
- **Sub-samples 2 and 3** are used to analyze outcomes within **two key sub-groups: workers in factories with "majority cash payroll," and workers in factories with "majority digital payroll after the stimulus."** This enables us to understand worker experiences within each of these groups and to assess whether findings from our overall analysis are unique to one of these groups. For this analysis, we provide descriptive statistics to cross-reference the qualitative findings and examine trends within each digitization group at the worker level. As described below, we refrain from making cross-group quantitative comparisons due to concerns around endogeneity bias.

Finally, we also constructed a **sub-sample 4** using data from an MFO special survey round (not designed by Mathematica) conducted in September 2020, which included **additional data on worker experiences**

and preferences during the stimulus period regarding the use of digital accounts. **Appendix Table A.1** shows the characteristics of the women RMG workers included in our analysis.

Table 3. Quantitative data sources, samples, and key topics

Sample and purpose	Data source	Number	Key topics
Primary sample: *Overall analysis of workers' experiences and perceptions*	Sample of women workers who responded to the two special survey rounds designed and added by Mathematica to the GWD in April and in May 2022	950 workers in the first special survey round in April 2022 922 workers in the second special survey round in May 2022	Experiences with wage digitization during and after the stimulus: – Account ownership and use (including challenges) – Support/training received to open and use accounts Stakeholders who influenced factory payment method Perceived advantages or disadvantages of receiving wages digitally
Sub-sample 1: *Trends analysis of wage digitization*	Sub-sample of workers from our primary sample with sufficient responses in each time period to construct trends over time	633 women workers who received at least one wage payment each in each key time period[a]	Trends in type of payment (cash versus digital)
Sub-samples 2 and 3: *Sub-group analysis*	Sub-sample of workers from our primary sample with sufficient responses to categorize into two key groups of interest	Sub-sample 2: 51 workers in the "majority cash payroll after the stimulus" group Sub-sample 3: 144 workers in the "majority digital payroll after the stimulus" group[a]	– Experiences with wage digitization during and after the stimulus – Perceived advantages or disadvantages of receiving wages digitally
Sub-sample 4: *Supplementary information on workers' experiences during the stimulus period*	Sub-sample of workers from our primary sample who also responded to the GWD special survey round in September 2020 (not designed by Mathematica)	503 women workers who indicated that they received digital wages in September 2020	Information and/or assistance received during the stimulus: – Topics covered – How workers received information Perceptions of wage digitization: – Comfort using accounts – Reasons for liking (or not liking) the change to digital wages

[a] To construct sub-samples 1–3, we created a set of indicators for wage digitization status during each of four time periods: the pre-stimulus period from February 2019 to January 2020 (12 months), the stimulus period from May to August 2020 (4 months), the immediate post-stimulus period from September 2020 to February 2021 (6 months), and the more recent post-stimulus period from March 2021 to February 2022 (12 months). (The GWD panel data collection was stopped after January 2020 when MFO's initial grant funding ended, and started again in May 2020 once the pandemic began and MFO received additional grant funding.) For workers who were not enrolled in the sample during the pre-stimulus period, we imputed pre-stimulus wage digitization status based on responses to a special survey administered in August 2021 that asked when workers first received digital wages from their current factory (if workers did not switch factories since the beginning of the stimulus period). We then limited sub-sample 1 to workers who received at least one payment in each of these time periods. We limited sub-samples 2 and 3 to workers for whom we were confident in their payment type trends: first, we limited the sub-samples to workers who were paid in at least 2/3 of the months of each time period. We then defined a period as digital if at least 3/4 of a worker's wage payments in that period were digital, or as cash if at least 3/4 of the payments in that period were cash. We then limited these sub-samples to workers with cash pay prior to the stimulus and digital pay during the stimulus. Sub-sample 2 (the "majority cash payroll after the stimulus" group) was then limited to workers who received at least 3/4 cash pay in both periods after the stimulus; and sub-sample 3 (the "majority digital payroll after the stimulus" group) was limited to workers who received at least 3/4 digital pay in either or both periods after the stimulus. If neither of those conditions were met, we categorized the worker as being in the "mixed digitization" category. However, this sample was not sufficiently large to include in our sub-group analysis.

C. Limitations and steps taken to mitigate them

We mitigated recall issues stemming from the timing of our data collection by including prompts about key events in question phrasing, by validating quantitative findings using sensitivity checks, and by excluding certain indicators from our results. Questions about workers' experiences with wage digitization before and during the pandemic were administered in February and May 2022, about two years after the start of the pandemic. To mitigate the risk of bias from the long recall period, we asked respondents about pandemic and post-pandemic periods by prompting with key events, such as before or after the 2020 "COVID-19 lockdown" or after "Eid al Adha." Enumerators clarified that "Do not recall" was a valid response and encouraged respondents to use this option instead of guessing. Additionally, we constructed "trust indicators" to validate special survey data with time-specific question phrasing. We compared these data to similar questions asked in the GWD panel dataset during the corresponding time period and then re-ran the analysis including only trusted data as a sensitivity check. We found that the data trends in both analyses were generally similar, confirming the validity of both the analyzed results of the special survey rounds and the raw GWD panel data. For example, we relied on pre-stimulus account ownership data from the GWD panel, rather than our special survey round, which was more likely to suffer from recall bias. Similarly, we cross-referenced our findings from special survey rounds on account usage with weekly transaction data in the GWD panel, and only reported validated indicators.

Given challenges around identifying digitization trends at the factory level for the full GWD sample, we limited our quantitative analysis to the worker level. Our quantitative analysis was conducted at the worker level because, in some cases, the GWD panel data only include one or two workers with employment and type of payment data from any given factory. Since we cannot reliably identify the digitization trend quantitatively for all factories, we conducted our quantitative analysis of digitization trends at the worker level. All analysis at the factory level was done via our qualitative analysis by confirming trends through factory management and worker interviews.

We faced some challenges with factory management recruitment and willingness to participate but were able to obtain a representative sample. We had a low phone response rate from factory management. RAPID followed up numerous times both by phone and in person and was ultimately able to interview enough factory representatives in each key digitization trend category to achieve saturation. A few factory managers were reluctant to give their time or even a place to interview, so RAPID interviewed them at the "factory gate" (outside factories and with no private room for interview).

Due to potential endogeneity bias in digitization decisions of factories, we made within-group observations, but refrained from making causal comparisons across digitization sub-groups. The characteristics (observed and unobserved) of workers and factories may be different for those who received/made mostly digital payments than for those who received/made mostly cash or mixed payments after the stimulus period. For example, factories that paid wages digitally after the stimulus period may have more resources or the infrastructure to support digital payments (e.g., trainings or grievance redressal services) compared to factories that paid in cash after the stimulus. To mitigate endogeneity bias, we analyzed workers' experiences and perceptions within each digitization sub-group, but refrained from making causal hypotheses about worker outcomes within or across these groups (for example, we could not state that workers in factories that digitized saved more money than workers in other factories *because* their factories digitized).

III. Pre-pandemic enablers of and barriers to wage digitization

In this chapter, we present findings related to key pre-pandemic enablers of and barriers to wage digitization at the policy, DFS ecosystem, and factory or employer levels. As outlined in the Theory of Change in Chapter II, for wage digitization to occur and result in meaningful outcomes for women workers, the regulatory and policy environment needs to provide incentives and guidelines to make the DFS ecosystem more accessible and inclusive, and employers must be convinced of the business case for digital wages. We find that several regulatory and policy changes (related to worker identification documentation, MFSPs, and agent networks) in the decade leading up to the pandemic laid the foundational groundwork for rapid wage digitization in Bangladesh, although barriers remained around cash-out fees. Similarly, while several global brands had committed to wage digitization to improve supply-chain transparency and efficiency, mid-level factory management remained reluctant. Below, we discuss these pre-pandemic enablers and barriers in more detail: first on the policy and DFS ecosystem side, and then on the employer side.

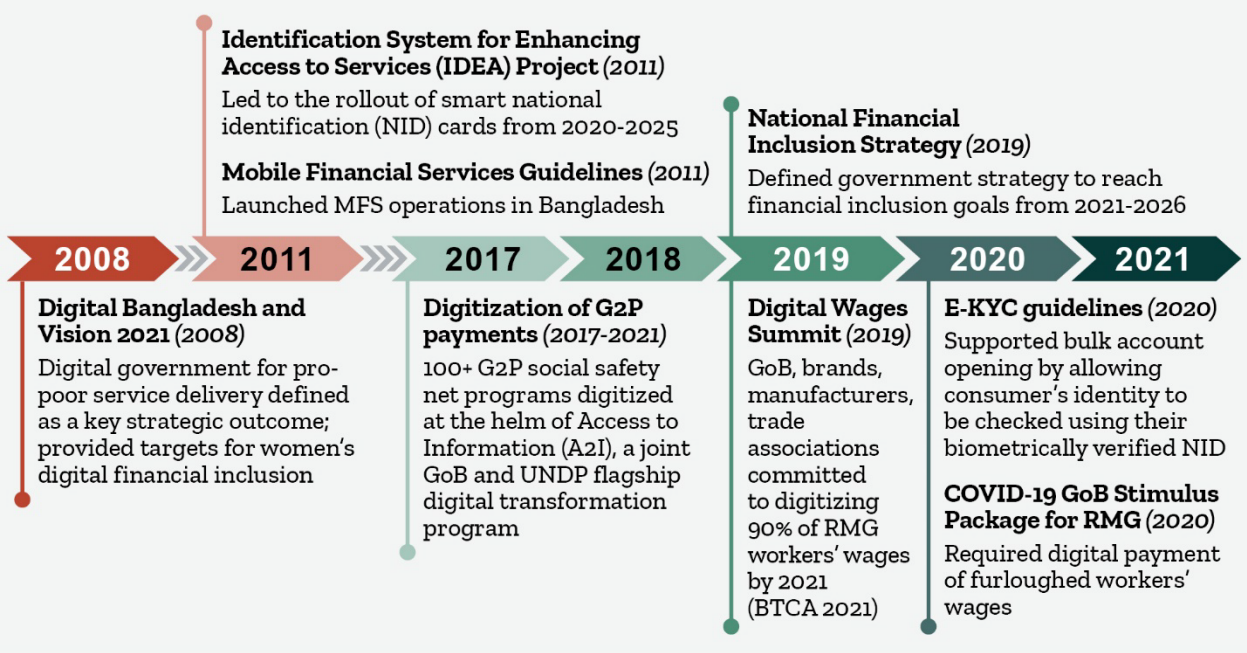
Key findings

1. Several key policy changes leading up to the pandemic **made digital financial inclusion for women and the poor a government priority**.
2. Policy changes around **documentation of identification** made digital account onboarding easier and more accessible.
3. The **DFS infrastructure rapidly expanded** and became more inclusive through the proliferation of MFSPs, cash-in-cash-out (CICO) points, and agents, but **cash-out fees remained prohibitive for many**.
4. A **public-private commitment to (and coordination around) wage digitization was brokered** between global brands, trade and labor organizations, and the GoB.
5. **Mid-level factory management remained reluctant** to digitize wages, likely due to concerns around transparency.

A. Policy and DFS ecosystem enablers and barriers

Several policy changes in the decade prior to the pandemic laid the infrastructural and regulatory groundwork to promote both wage digitization and women's digital financial inclusion, culminating in the COVID-19 stimulus package for the RMG industry (illustrated in **Figure 4** and described in more detail below).[14]

Figure 4. Timeline of key policy enablers of wage digitization in Bangladesh



Notes: G2P = Government-to-person; GoB = Government of Bangladesh; E-KYC = electronic know-your-customer; NID = National Identification; RMG = ready-made garment; UNDP = United Nations Development Programme.

Digital financial inclusion for women and the poor became a policy priority before the pandemic, which set in motion efforts that laid the foundation for wage digitization. One of the primary policy-side enabling factors for wage digitization prior to the pandemic was the "Digital Bangladesh Vision 2021," the manifesto of the Prime Minister during the 2008 general elections in Bangladesh, which included a commitment to accelerate digital payments. While the vision was not specific to wage payments, it made developing a "digital government for pro-poor service delivery" a key strategic outcome, provided targets for women's digital financial inclusion, and spurred the creation of A2I, the government's flagship digital transformation program (A2I 2011). Between 2017 and 2021, A2I worked to digitize Bangladesh's more than 100 government-to-person (G2P) social safety net payment programs, laying much of the regulatory and infrastructural groundwork for wage digitization to later take place.

[14] For a comprehensive review of key policies that have shaped the digital payments ecosystem in Bangladesh over the past five years, see BTCA (2022).

The 2019 National Financial Inclusion Strategy also defined government strategy to reach financial inclusion goals from 2021–2026, and emphasized the importance of creating a digital ecosystem for marginalized people, both through digital G2P payments and by increasing banking access in rural areas.

> "When we started in 2017, the digitization effort was in the pilot stage. Different ministries were trying to develop systems [and] piloting with different banks and financial service providers to digitize the cash transfer programs. In the last three or four years, we worked with the Ministry of Finance, central bank, and other stakeholders, and today, most of our cash transfer programs are digitized… we also started policy advocacy for digital KYC… during COVID, garment workers' wage [digitization] was entirely possible because of e-KYC… COVID boosted the whole digitization process. Whereas in the last three years we achieved 25% digitization, in the last one year [during COVID] we have done 70%. It may have taken 2 or 3 years otherwise to do this… the infrastructure was ready… FSPs also adopted digital channels [and e-KYC], like bKash and banks." - A2I

The rollout of biometric national identification cards (NIDs) and Bangladesh Bank's e-KYC guidelines in January 2020 paved the way for opening bulk digital accounts, although NIDs were not ubiquitous among RMG workers before the pandemic. The World Bank-funded Identification System for Enhancing Access to Services (IDEA) project in 2011 set a goal that all citizens over 14 years old would receive smart NID cards. By 2017, 16.5 million citizens (a third of whom were women; about 10 percent of the population) had obtained NIDs (World Bank 2018). While this lagged far behind the project's targets, it set in motion the rollout of NIDs. Earlier in that year, the GoB issued e-KYC guidelines, which allow for consumers' identities to be authenticated electronically using their NID. The manual process used before was a large barrier to opening digital accounts, as it required paper KYC forms and supporting documents to be submitted along with a photo ID and customer signature in person (Bangladesh Bank 2020f). However, not all women garment workers had access to NIDs prior to the pandemic.

Another key enabling factor was the public-private commitment to (and coordination around) wage digitization brokered through the 2019 Digital Wages Summit. BTCA and the BGMEA co-hosted the Summit (Better Than Cash Alliance 2020). The Summit brought together the GoB (including A2I), global RMG brands working in Bangladesh (including Gap, H&M, Inditex, and M&S), and other key stakeholders such as the International Labor Organization (ILO), BSR's HERproject, and Better Work. These stakeholders committed to ensuring that 90 percent of RMG workers would be paid digitally by 2021, by removing key roadblocks to wage digitization. According to the BTCA, while these stakeholders were already motivated to digitize wages, the summit helped to align them and to clarify their roles and a strategy for coordinating on digital payments. For example, while the BGMEA was already interested in wage digitization (because digital wages increase compliance with and transparency around labor regulations), the Summit clarified that it was not their role to work directly with factories to digitize by creating their own platform to support e-KYC for workers. Similarly, while the GoB was already motivated to demonstrate the value of digitized payments as a business use case (especially in a sector with the possibility of reaching millions of workers), the Summit helped clarify the need to mandate digital wages as a solution (interview with BTCA).

MFSPs expanded significantly prior to the pandemic although they had not fully penetrated the RMG sector. Bangladesh Bank issued Mobile Financial Services Guidelines in 2011, which launched MFS operations in Bangladesh. The MFS market presence expanded in the 5 years prior to the COVID-19 pandemic (from 50 percent in 2016 to 60 percent by 2021), including the creation of Nagad by the GoB in 2019, which operates under the authority of Bangladesh Post Office (BTCA 2022a). Nonetheless, MFSPs largely had not penetrated the RMG sector—just 25 percent of women garment workers in the GWD dataset owned digital financial accounts prior to the pandemic. Although there are 15 licensed MFSPs in Bangladesh, as of 2020, only bKash, Rocket, and Nagad were actively digitizing wages for RMG workers; however, these three companies represent the majority of the market share for mobile financial services in Bangladesh, at 75 percent, 12 percent, and 10 percent, respectively (BTCA 2022a). Yet given the size of the industry, MFS stakeholders acknowledged that wage digitization in the RMG sector represented a large business opportunity, albeit one that may not be a huge revenue driver.

"This is a big market. RMG sector is the biggest sector in Bangladesh… [but MFSP] is not getting any profit [from this]… Bank is operating [in] this [for] corporate responsibility … to contribute to the country. So, in that sense we are working in [MFSP] to assure financial inclusion."

- MFSP

Between 2011 and early 2020, Bangladesh Bank expanded agent networks, increasing women's access to digital financial services. Prior to the stimulus period, Bangladesh Bank supported growth in women agent banking and developed agent recruitment, selection, and training manuals for this purpose. Before initiatives that encouraged growth in women agent infrastructure were launched, less than 1 percent of MFS agents were women (Barooah et al. 2018). Stakeholders emphasized that some women were not comfortable sharing personal information, such as NIDs and photos, with agents and sometimes were subjected to abuses from male agents in the pre-pandemic era. Similarly, Bangladesh Bank encouraged last mile services to improve access in rural areas with limited preexisting infrastructure. Rather than establishing commercial banks in hard-to-reach areas, they introduced agent banking to provide banking services to those populations. As of March 2020, there were 992,658 MFS agents, amounting to one agent per every 36 active MFS accounts, or one agent per 113 adults aged 15 to 65 (Bangladesh Bank 2020g).[15]

"Before COVID period MFS Company didn't come to us to minimize … cash-out fees – that was the most important factor for digitization."

- Factory manager

Cash-out fees, however, were seen as a major barrier to wage digitization. The nominal cash-out fee varied but in most cases it was 1.8 percent, and the structure of the fee (who bore the cost) could be negotiated between the factory and the provider. In some cases, the factory subsidized cash-out fees. We provide more detail on differences in cash-out fees before and during the stimulus period in Chapter V, **Table 4**. MFSPs offered some other services free of charge, such as sending remittances and paying bills and merchants.

[15] The Bank of Bangladesh website does not disaggregate agent network/coverage by gender.

B. Enablers and barriers at the factory level

As stated above, many brands were already committed to digitizing wages prior to the pandemic, and the Digital Wages Summit in 2019 galvanized coordination with the government and trade organizations to do so. Prior to the Summit, several participating RMG brands were already working with larger factories to switch to digital wages (for example, by changing procurement guidelines), but the Summit enabled them to coordinate with the government and BGMEA on a digital payments strategy.

High-level stakeholders highlighted that resistance from mid-level management at factories was a key barrier to wage digitization in the RMG sector before the pandemic. Cash payment systems require significant effort from mid-level management to manage payroll and are prone to leakages and fraud, including "ghost workers" (the existence of payroll accounts for workers who do not exist). Because digitization makes payments more efficient and transparent, this can theoretically reduce the need for such staff, as well as the ability to overreport or underpay wages.

"Before the pandemic, we have noticed that typically the mid-management in factories are not very keen on transition to digital wage payments as it breaks away from the legacy process they have grown accustomed to for years."

- BTCA

IV. Experiences under the COVID-19 RMG stimulus package

In the previous chapter, we presented findings related to pre-pandemic enablers of and barriers to wage digitization. In this chapter, we describe how the 2020 COVID-19 stimulus package for the RMG sector was implemented. We then discuss how the stimulus was successful in lifting outstanding digitization barriers (related to account opening and cash-out fees, worker identification, and factory management reluctance), at least temporarily, which allowed for a rapid expansion in women's account ownership. We then present findings related to how implementation affected women's experiences with and perceptions of receiving wages digitally. We find that several but not all of the beneficial short-term outcomes in the Theory of Change were achieved during the stimulus period—women's access to DFS and ownership of digital accounts increased, allowing women to receive their pay during the COVID-19 lockdown crisis. However, women only used their accounts for basic purposes (withdrawal and P2P transfers), perhaps because they received only basic support and information and were not confident in using their accounts.

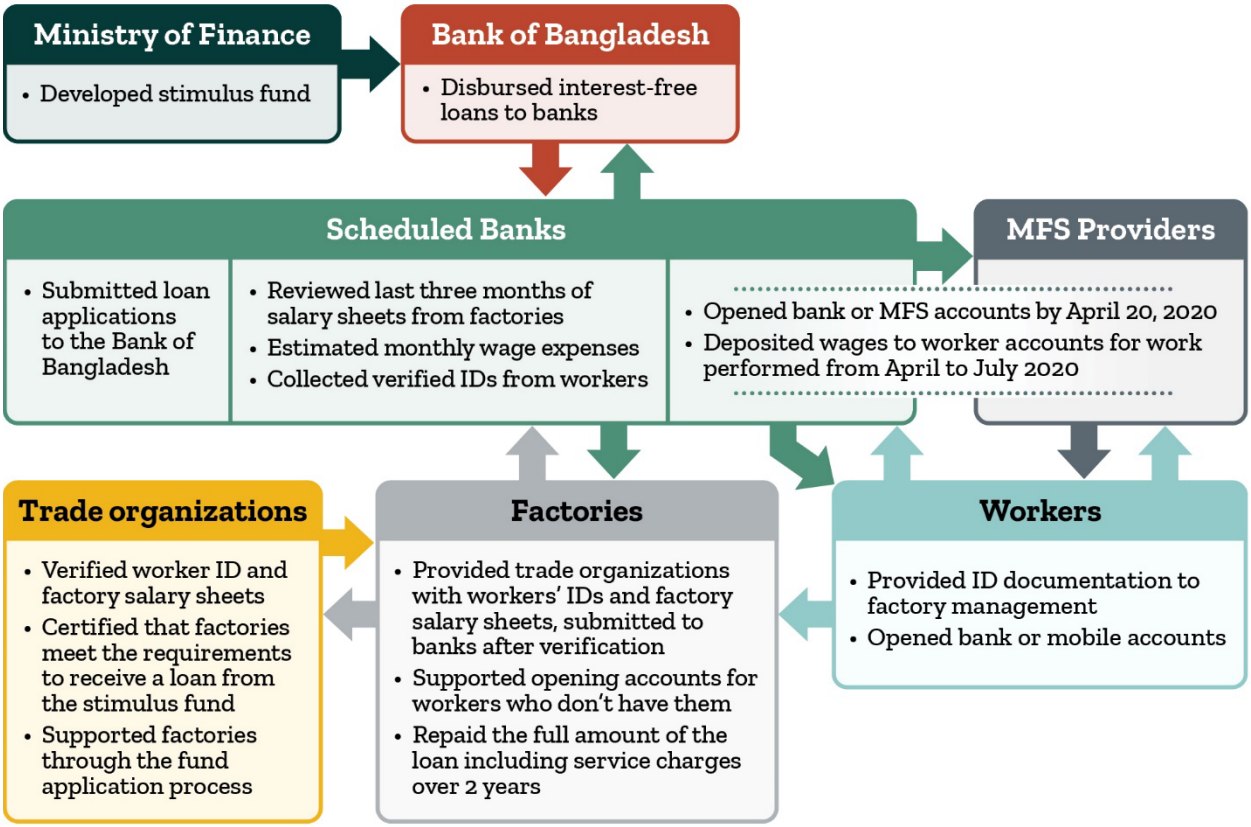
Key findings

1. The stimulus package led to a **rapid increase in women's account ownership** that allowed women garment workers to **receive their wages during a time of crisis**.
2. The stimulus package **enabled women who lacked NIDs** to open bank accounts for the first time, and it reduced the cost burden on workers and factories by **eliminating account opening fees and lowering cash-out fees**.
3. **Most workers faced no challenges opening accounts** (although some used accounts registered in someone else's name), but many workers faced challenges cashing out during the lockdown due to **long travel and wait times and liquidity crunches at CICO points**.
4. **Most workers liked receiving digital pay during the stimulus**, but those who did not often cited being dependent on their husbands or other family members to use their accounts.
5. Perhaps as a result of limited training and the rapid implementation of the stimulus package, as well as limited digital financial literacy, **most workers were not aware of account uses and restrictions, only used their accounts for basic purposes, and were not confident in using their accounts.**

A. Stakeholder roles in implementing the stimulus package

The implementation of the stimulus package involved many stakeholders (Figure 5). The MoF developed the stimulus package, and Bangladesh Bank managed the funds and distributed the loans to scheduled banks. Before submitting the loan applications to Bangladesh Bank, scheduled banks first estimated each factory's monthly wage expenses, based on a review of salary sheets and workers' lists that factory management compiled (these were first submitted to trade organizations for review and certification). Workers provided either existing bank account numbers or documentation of identification to their factories (in cases in which the factory worked with the bank/MFSP to open accounts) and/or directly to MFSPs (in cases in which the worker opened the account directly with the provider). Banks and MFSPs were required to rapidly open the accounts and deposit the stimulus wages, and factories were required to repay the loan amount to banks over the course of two years.

Figure 5. Key stakeholder roles in implementing the GoB stimulus package



Note: Both Scheduled Banks and MFS Providers opened bank or MFS accounts for workers and deposited wages. Wages were paid between May and August 2020 for work performed from April to July 2020.

B. Main barriers to wage digitization that were lifted during the stimulus

1. Relaxed e-KYC requirements for identification

> "In our case the age limit to get an NID is 18. And we have seen that in many garment [factories] there were workers that were not 18 at that time or did not have NID. So [the government] relaxed the necessity at that time and we have given the opportunity that a birth certificate will be enough to open an MFS account." - High-level stakeholder

The stimulus package removed barriers to onboarding customers to digital financial accounts by further relaxing e-KYC requirements for identification. As described in Chapter III, Bangladesh Bank had already enabled bulk digital account creation and onboarding prior to the pandemic by issuing e-KYC guidelines that allowed workers to use their biometrically enabled NIDs. During the stimulus period, Bangladesh Bank further relaxed these requirements by enabling workers to use their birth certificates as valid alternate forms of identification (Bangladesh Bank 2020b). In our interviews, factory management and women reported also being able to use factory IDs to open accounts. Seventy-nine percent of women workers in our primary sample who opened digital financial accounts for themselves reported providing an NID. However, high-level stakeholders and factory management reported that some workers were not eligible for NIDs (some were under the age of 18),[16] did not have their NIDs in an accessible place during the stimulus, or did not have valid NIDs. As such, about 14 percent of women workers who opened accounts for themselves provided a factory ID, birth certificate, or other form of government ID in place of an NID. Only 2 percent of workers who opened accounts for themselves cited not having the required documentation as a challenge to account opening.

2. Removed account opening fees and lowered cash-out fees

The stimulus package also temporarily removed the cost to workers to open accounts and lowered the cost to cash out wages. Bangladesh Bank mandated that no account opening fees would be charged during the stimulus period (Bangladesh Bank 2020d). Women workers and factory managers stated that most banks and MFS agents complied with the circular policy, and customers did not pay fees to open accounts during the stimulus period. Nonetheless, a small number of women noted that some agents took advantage of the surge in demand for MFS accounts and limited banking hours and charged a service fee to open accounts. MFSPs were also mandated by Bangladesh Bank to adopt policies to charge cost recoveries only and provide subsidies for cash-out charges, specifically charging only 0.8 percent on cash out, of which the loan-providing bank would pay 0.4 percent from their commission and the remaining 0.4 percent would be passed on to the customer. However, how the customer fee was distributed depended on negotiations between MFSPs and factory management: in some cases, factory owners covered it, whereas in others, MFSPs and factories shared it or the workers had to pay it. Some women reported that they had to pay cash-out fees during the stimulus period, while other women did not. Women workers mentioned that cash-out fees at agent shops were much higher than at ATMs. For a comparison of cash-out fees during and after the stimulus, see **Table 4** in Chapter V.

[16] All workers in the GWD panel dataset are over 18, so NID may not have been as big an issue for our sample, although it was likely a bigger barrier in the RMG sector overall.

3. Resistance from mid-level factory management

Finally, by mandating that wages be disbursed digitally, the stimulus package effectively bypassed the barrier posed by resistance from factory mid-level management. Factory management did not have a choice in whether to disburse the stimulus funds digitally or in cash, and the funds were disbursed directly from the GoB to MFSPs and banks, and then to workers' accounts, not through the company payroll.

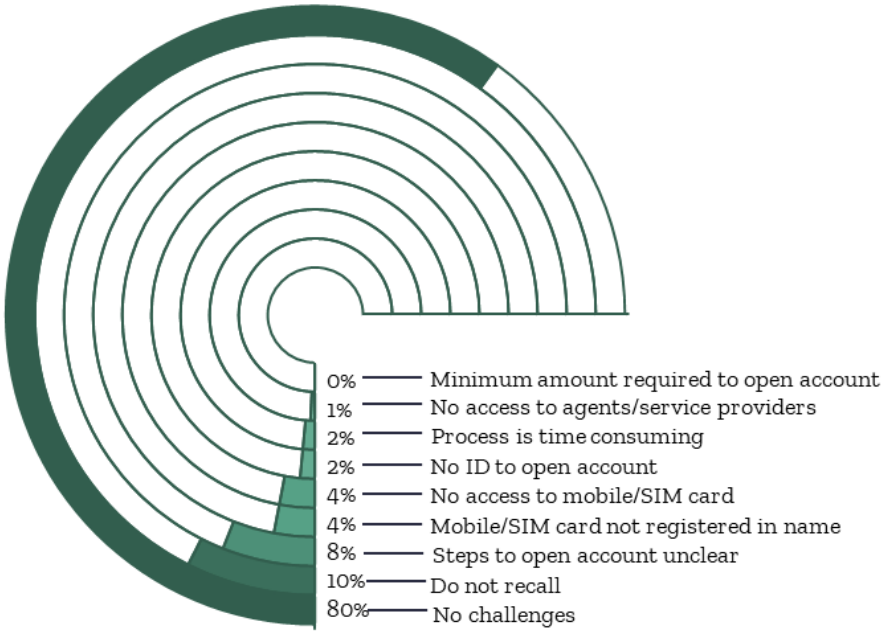
C. Workers' experiences with wage digitization during the stimulus period

1. Few challenges opening accounts

Eighty percent of women workers who opened accounts[17]during the stimulus period did not report facing challenges to do so – an impressive test of the system given how quickly the accounts were opened, during a time of crisis (Figure 6). In our interview, Bangladesh Bank estimated that around 2.2 million MFS accounts were opened in the RMG sector during the short three-month stimulus period. This suggests that the barriers lifted during the stimulus, including relaxed identification requirements and waived account opening fees, were successful in enabling the rapid expansion of women's account ownership. Just 8 percent of women noted that the steps to open the account were unclear, implying that the majority of women workers either received adequate support when opening accounts or that the process was simplified enough that they did not face challenges. About 4 percent noted not having a mobile phone/SIM card registered in their name as a challenge. Less than 2 percent mentioned that the process was time consuming, or that they did not have the required identification despite the relaxation of e-KYC.

[17] for themselves (or for whom someone other than the employer opened the account)

Figure 6. Challenges women workers experienced when opening a bank or mobile money account during the stimulus period



Source: Special survey questions administered in February 2022.

Notes: Percentages are calculated from the primary sample, as described in Table 3 of the Approach section, conditional on women workers who opened any account for themselves (or for whom someone other than the employer opened the account) during the stimulus period (N = 283).

Most women workers who received digital wages during the stimulus liked having a digital account and appreciated receiving their wages during the time of crisis, but women who did not like it often reported they were dependent on their husbands or other family members to use their accounts. Among the 63 percent of women who reported liking to receive digital payments during the stimulus period, 83 percent reported that it was safer than carrying cash and 73 percent noted that they were able to withdraw cash when needed. In focus group discussions, women stressed that they were relieved to get paid amidst the uncertainty of the lockdown and pandemic. However, among women who reported not liking the change, 52 percent indicated wage digitization was a hectic or difficult process and 24 percent cited not knowing how to use their account. Women workers who did not receive enough training or information may have become more dependent on others; some workers mentioned that they relied on their husbands or other family members to cash out their wage payments or use their accounts. Among women garment workers who received a digital wage in September 2020, 33 percent did not know how to withdraw wages without help, 35 percent were not comfortable with the system, and 68 percent did not know how to transfer money to friends or family.

"I liked the idea that I will get money through my [mobile money] account during the Covid-19 pandemic. I heard that Corona virus also spread through paper bill (money) and I liked most that I will get salary even in the Covid-19 situation."

-Worker (Majority cash payroll)

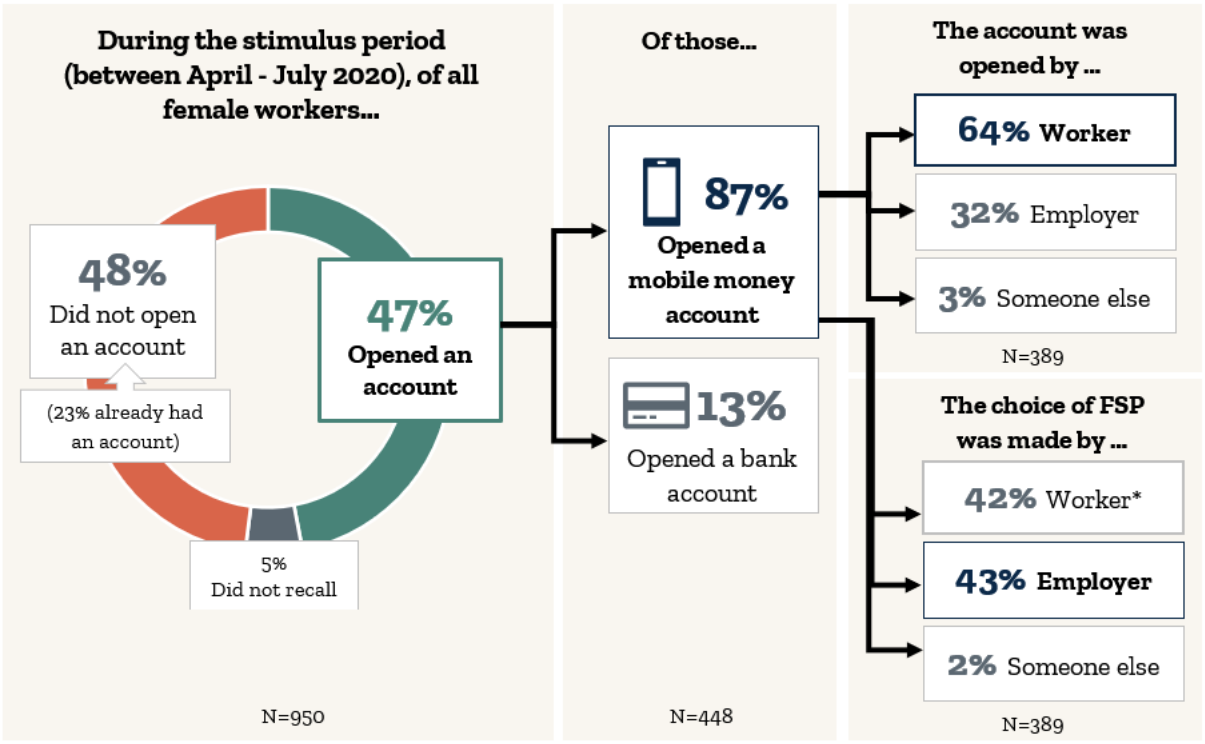
Despite relaxed e-KYC requirements around identification, a small share of women workers used accounts registered in someone else's name to receive stimulus wage payments. An estimated 9 percent of women garment workers who received digital wages during the stimulus period did not have accounts registered in their name. In factories where workers opened accounts for themselves, some factory management reported that workers provided the account of a family member rather than one that was in their name. Some workers also used SIM cards or mobile phones from another family member to open accounts. These workers sometimes reported they did not have valid NIDs, or they could not physically access their NID at the time of the stimulus and they did not take advantage of the relaxation of e-KYC requirements to open MFS accounts. However, although several factory managers who opened accounts for workers reported workers provided invalid NIDs, they often mentioned they could use another form of ID to open the account.

2. Limited choice in account type and FSP (banks versus MFSPs)

Most women workers opened MFS accounts rather than bank accounts because the onboarding process was simpler, though MFSPs offer fewer financial products than banks. Of our primary sample, 47 percent of women workers opened a new account during the stimulus period. Among these women, 87 percent opened a mobile money account, while 13 percent opened a bank account (**Figure 7**). Factory managers reported opening or encouraging workers to open mobile money accounts rather than bank accounts because the procedure to open bank accounts was not simplified during the stimulus period. One woman noted that, although the factory owner initially requested that workers open bank accounts, due to issues compiling NID cards and accessing agents with limited banking hours, the factory changed their recommendation.

However, unlike bank accounts, MFS accounts did not offer women workers the ability to accumulate interest on savings, receive loans, or transfer money internationally (however, both account types allowed for domestic transactions, including CICO, P2P, person-to-business (P2B), person-to-government (P2G), and G2P payments). MFS accounts offered different benefits depending on the MFS provider, including no cash-out fees at ATMs, lower cash-out fees with agents, and no account maintenance fees. Most factory management opened corporate or salary MFS accounts for workers, whereas workers who opened accounts on their own had individual MFS accounts. Some women who already had digital financial accounts prior to the stimulus period were able to use those accounts to receive stimulus funds and convert preexisting accounts to corporate accounts. A few women, however, reported that their factory required them to open a new account with a certain provider, even though they already had an account with a different provider.

Figure 7. Women workers' experiences opening accounts during stimulus period, by type of account and how it was opened and chosen



Source: Special survey questions administered in February 2022.

Note: First panel (pie chart showing percentages of women workers who did or did not open a new account in April–July 2020) presents distribution relative to the primary sample of women garment workers who participated in the first special survey round (N =950). Middle panel (percentages who opened a mobile money account or bank account) is conditional on the 47% of workers who opened an account (N = 448). Panel to the right (percentages of accounts opened and FSPs chosen by the worker, employer, or someone else) is conditional on opening a mobile money account (N = 389).

*Includes cases where the worker chose on their own (19 percent), worker chose with a recommendation from someone else (3 percent), and where the worker chose but the employer recommended a provider (20 percent). Among workers who opened a mobile money account, 13 percent did not recall who made the choice about MFSP provider.

Most women workers opened the account on their own, but did not choose the financial services provider they used (Figure 7). Among all women workers who opened an MFS or bank account, 59 percent opened the account for themselves, 37 percent relied on factories to open the account, and 4 percent relied on someone else (when considering only workers who opened MFS accounts, these numbers were 64 percent, 32 percent, and 3 percent, respectively). Similarly, MFSPs stated in interviews that they sometimes worked directly with workers to open accounts (rather than working through the factories). Factory management said in interviews that they typically chose the financial provider workers used to open an account and they were reluctant to coordinate with more than one MFSP or bank, given the time pressure to open accounts for workers. Women workers who reported opening accounts for

themselves appeared to have had more choice in financial services provider, although for most of them, their employer chose (36 percent) or recommended the provider (16 percent). Only 5 percent of workers whose factories opened accounts for them indicated that they chose a financial provider on their own, whereas 27 percent of workers who opened accounts for themselves reported having a choice in financial provider.

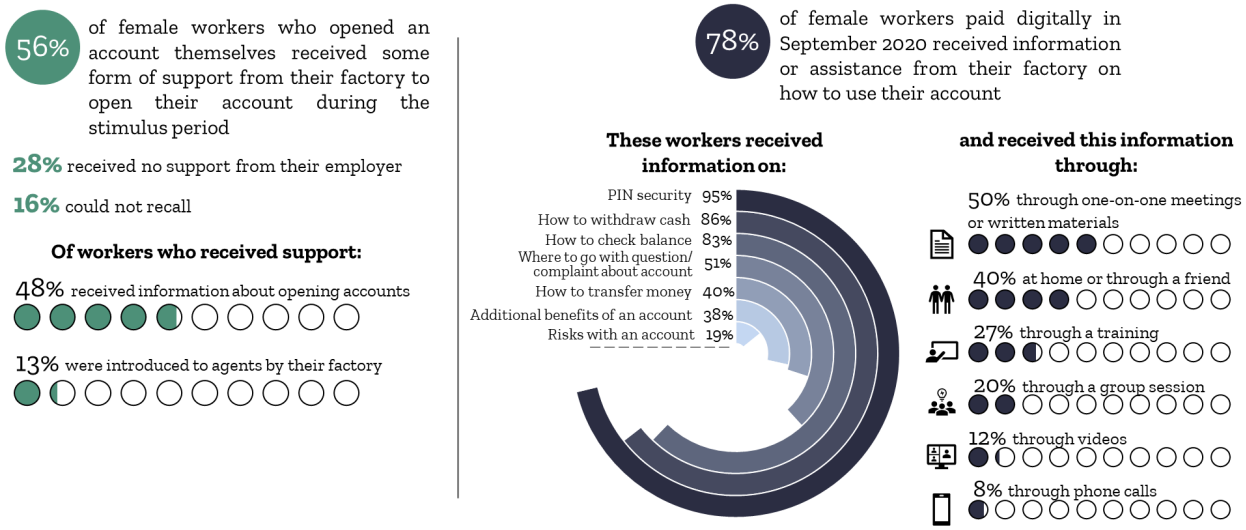
3. Minimal training and assistance, and limited digital financial literacy

Most women workers who received digital wage payments during the stimulus (78 percent) received basic support or information, rather than trainings, from their factory on opening and using accounts (Figure 8). Women primarily received information related to PIN security, withdrawing cash, and checking the account balance; a smaller share of workers received information on other topics. Even among women who opened an account for themselves (or who relied on someone other than the factory to open an account), more than half still received some support or assistance from the factory to open the account. Most women received this information through one-on-one meetings or written materials, or at home or from a friend or other workers. Formal trainings and group informational sessions were less common.

"Most of the workers already experienced using the [MFS] account before the pandemic. In the period of stimulus, it was a rush time for us and [MFSP]. We didn't provide any special training, just simple instruction like not sharing your PIN and OTP etc."

- Factory manager (Majority cash payroll)

Figure 8. Support workers received from their factories to open their account



Source: Special survey questions administered in February 2022 and September 2020.

Note: Statistics related to factory support to open accounts during the stimulus period are calculated among women workers in our primary sample who opened any account for themselves (or for whom someone other than the employer opened the account) (N = 283). Statistics related to information received on account usage are calculated among women workers in our primary sample who were paid digitally in September 2020 (N = 503). For the statistics related to information received, we relied on data collected by MFO in a special survey round in September 2020 (sub-sample 4) to mitigate the recall issues stemming from the timing of our data collection.

MFSPs likewise tended to provide informational materials rather than trainings. Bangladesh Bank mandated that MFSPs arrange campaigns to increase awareness of the stimulus funds among factories and workers (Bangladesh Bank 2020b). MFSPs sometimes visited factories to conduct trainings, but overwhelmingly acknowledged the challenges of organizing in-person trainings at the factories and reported instead sharing information with workers through virtual formats, such as SMS, email notifications, leaflets, factory sound systems, and videos. BTCA similarly created a call center hotline on which workers could learn about MFS services. When sales agents from MFSPs did visit factories for trainings, sessions tended to be brief, as factory managers were unwilling to take time away from production for training workers. Trainings in factories either targeted all workers in the factory or used a peer train-the-trainer approach.

"We had provided training but that was not sufficient. The factory has huge pressure on production … which didn't give us enough time for providing training. We provide leaflets with information to the workers, used a factory sound system to make the workers aware, and played videos on the monitor…there is still a need for more training programs for workers, particularly for women."

- MFSP

Perhaps as a result of limited training, rapid implementation of the stimulus package, and limited digital financial literacy, most women workers were not aware of account uses and restrictions and were not confident in using their accounts. Women who opened accounts tended to be more aware of basic information such as withdrawal costs (41 percent) than more advanced use of accounts, such as costs associated with transfers (25 percent), the types of transactions that could be made (17 percent), and restrictions on usage (5 percent). Only 5 percent knew they could access other financial services such as savings, insurance, and loans depending on the account type (these additional features are typically only offered by bank accounts, not MFS accounts, which most workers opened). (Around 10 percent of workers could not recall what information they were aware of during the stimulus period.)

4. Limited CICO accessibility

During the lockdown, many women workers returned to their villages and faced challenges with limited agent and ATM availability to access the stimulus payments, according to our qualitative data. Pre-existing challenges with ATM and agent availability were compounded by the lockdown rules. Bangladesh Bank mandated that MFSPs keep their system, distribution, and agent channels uninterrupted and active during the stimulus period and that providers ensure adequate supply of cash at their agent points (Bangladesh Bank 2020c). While our quantitative data did not indicate that accessibility challenges were prevalent, women workers from our qualitative sample highlighted challenges around the limited availability of ATMs, ATMs running out of cash, and network issues. Factory managers and women reported that workers continued to face PIN-related issues, including forgetting PINs or inputting the wrong PIN and subsequently being locked out of their accounts. This further delayed women workers' ability to access cash. Women also described shortages of agents for some MFSPs during this time, resulting in longer lines and even extra fees being charged by agents.

> "Cash-out was not easy during the lockdown period because most agent shops were closed... People were afraid in [this area]. All places [in this area] were under close surveillance by law enforcement agencies including army... As a result, when garment workers' salaries released all agents became exhausted in cash-out pressure. These agents took extra charge from workers."
>
> - Worker (Majority cash payroll)

5. Limited account usage

Among women workers who were paid digitally during the stimulus, most used their account only for basic purposes. MFO's panel transaction data show that, in any given month, typically fewer than 1 in 5 of workers conducted a digital transaction beyond cashing out, and when cashing out wages, the majority cashed out the entire amount. More than one-quarter (28 percent) of women workers cited not knowing how to use their accounts as the reason for low account usage. For more information on account usage during and after the stimulus period, see Chapter V.

V. Factory payroll digitization after the stimulus

In the previous chapter, we presented findings related to wage digitization during the COVID-19 stimulus period. In this chapter, we first assess the extent to which wage digitization occurred and was sustained after the stimulus period, and summarize key findings related to women preferences and choice regarding digital versus cash wages after the stimulus. We then describe in more detail how women workers' experiences with wage digitization influenced their perceptions and preferences, as well as factors that influenced factories' decisions regarding payment type. We present findings related to our two key sub-groups of interest: the "majority cash payroll after the stimulus" group, and the "majority digital payroll after the stimulus" group. We find that most factories paid wages digitally after the stimulus period and the majority of women's digital accounts remained functional, even if they were no longer paid in cash.

Key findings

1. **The stimulus package resulted in increased and sustained wage digitization and account ownership in the RMG sector** in Bangladesh, with most factories electing to pay digitally after the stimulus, and most women's' accounts remaining functional.
2. However, **most women preferred to receive their wages in cash, and did not choose how they were paid** after the stimulus nor feel they influenced their factory's decision.
3. Most women also **did not exhibit advanced usage of their accounts** beyond cashing out wages and making P2P transactions.
4. Women's main perceived **disadvantages of digital pay were cash-out fees, limited CICO accessibility, time burdens**, and, in some cases, increased household tension.
5. Women's main perceived **advantages** of digital pay were the **ability to save,** the **ease of making transactions**, improved **payment timeliness**, and **security of digital pay**.
6. **Factories that digitized** payroll after the stimulus **cited production efficiencies** as the primary driver; and their workers were more likely to have received information and support during the stimulus, and to perceive advantages of digital pay.
7. **Factories that continued paying in cash** after the stimulus cited **workers' cash**

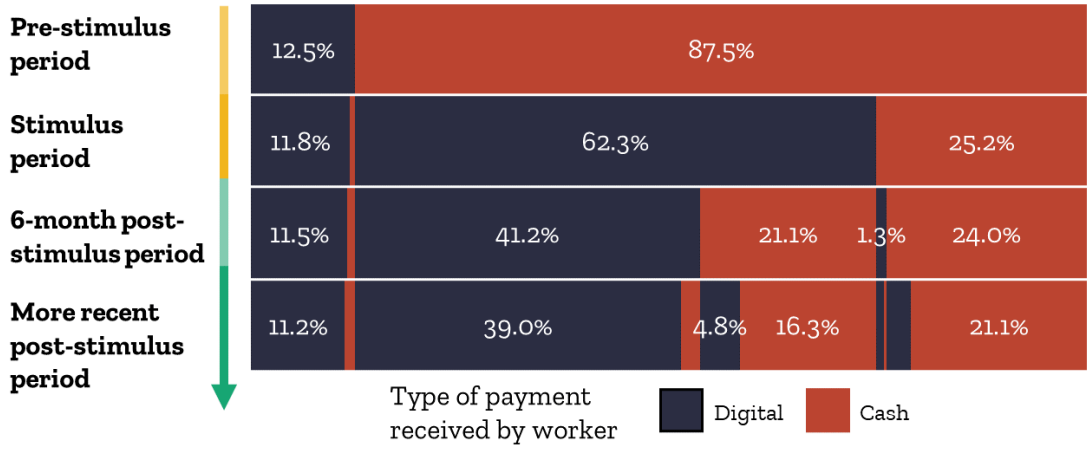
However, most women preferred receiving cash wages (regardless of how they were actually paid) as most pre-stimulus barriers, particularly high cash out fees, re-emerged. Workers also felt that they did not have a choice in payment type nor feel they had an influence on their factory's decision. Overall, we find that women's account ownership expanded and was sustained, but that exposure to digital pay did not lead to the beneficial medium- or long-term women outcomes in the ToC related to advanced usage. Women did not often (or could not) use their accounts beyond cashing out wages and making P2P

transactions due low digital financial literacy and a weak DFS ecosystem. Similarly, while the beneficial factory outcomes regarding production efficiencies were a sufficient motivator for half of factories to digitize, this did not outweigh factory concerns around women workers' cash preferences (nor around wage transparency) for factories that elected to continue paying in cash.

A. Workers' wages digitization trends, preferences, and choice after the stimulus

Among women workers paid in cash by their factories before the pandemic, the stimulus package catalyzed just under half to be paid digitally when the stimulus ended, while the other half continued to receive cash. As illustrated in Chapter I, GWD data show that digital pay to women workers increased by 287 percent between the pre- and post-stimulus periods (from 16.5 percent in January 2020 to 63.9 percent as of August 2020). To understand more detailed trends in payment type, we constructed a sub-sample of women workers who received at least one payment and at least three-quarters of their pay digitally or in cash in each of the four key time periods (**Figure 9**).

Figure 9. Share of women workers receiving majority cash versus digital pay in each time period



Source: Microfinance Opportunities garment worker diaries (GWD) (February 2019–January 2020; May 2020–February 2022); sample represents workers from sub-sample 1, as described in Table 3 of the Approach Section, who received payment for at least 2/3 of the months in each time period (N = 313).

Note: This figure traces how women workers were paid (digital vs. cash) over the four study periods: the pre-stimulus period from February 2019 to January 2020 (12 months), the stimulus period from May to August 2020 (4 months), the immediate post-stimulus period from September 2020 to February 2021 (6 months), and the more recent post-stimulus period from March 2021 to February 2022 (12 months). Digital is defined as receiving digital wages in at least 3/4 of the months during the period of interest; cash is defined as receiving cash wages in at least 3/4 of the months during a period. Percentages in each time period are presented unconditional of the percentage values from the previous period. For instance, 62 percent of workers in the overall sample received digital wages during the stimulus period (as opposed to 62 percent of the 87 percent of workers who received cash pay in the stimulus period). Similarly, 39 percent of women workers overall received cash pay in the pre-stimulus period, then digital pay during the stimulus, digital pay during the 6-months post stimulus, and digital pay in the more recent post-stimulus period.

In the year prior to the stimulus (February 2019 to January 2020), [18] 12 percent of women workers already received a majority of their wage payments digitally from their factory, but 88 percent were paid a majority of their wage payments in cash. During the stimulus (between May and August 2020), 74 percent received a majority of their wage payments digitally (from the GoB, not their factory), and for 62 percent this was likely the first time they had received a digital payment.

In the six months following the stimulus (from September 2020 to February 2021), 54 percent of women received a majority of their wage payments digitally from their factories. For 42 percent of women, this was likely the first time they had received digital pay from their factories. [19] However, some women continued to receive cash from their factories because: (1) their factories continued paying in cash as they had done prior to the pandemic (45 percent of women); (2) their factories chose not to digitize despite their workers' having received digital pay during the stimulus (21 percent of women); or (3) the factories digitized for the first time during the first six months following the stimulus, but then reverted to cash payments in the year after that (the "more recent post-stimulus period" from March 2021 to February 2022) (2 percent of women). In this more recent period, 59 percent of women received at least three-fourths of their wage payments digitally from their factories. For 8 percent of women, this was likely the first time they had received digital pay from their factories.

Among women workers who were paid digitally during the stimulus, 85 percent were able to keep their digital account open and functional after the stimulus payments ended. This number varied based on whether the worker continued to receive digital wages from their factory: 99 percent of women who received a majority digital payments after the stimulus said they still had an account, compared to 82 percent of women who received a majority cash payments after the stimulus. Factory managers and MFS providers also reported in interviews that the majority of accounts remained functional.

Most women workers did not choose how they were paid (digitally or in cash) after the stimulus and felt that they did not influence their factory's decision on whether to digitize payroll. Most workers from our qualitative sample and 80 percent of our primary quantitative sample reported that they did not choose between receiving wages in cash or digitally after the stimulus period (11 percent said they did have a choice, and 9 percent were unsure) (**Appendix Table A.2.**). Seventy-six percent of our quantitative sample reported their employers made this decision, and just under 10 percent of workers felt they influenced the decision—either directly (3 percent), through worker unions (2 percent), or through worker Participation Committees (PCs) (6 percent). According to our quantitative data, women who were paid mostly digitally after the stimulus were slightly more likely to feel they influenced their factory decision than workers who were paid mostly in cash (although our qualitative data showed the opposite).

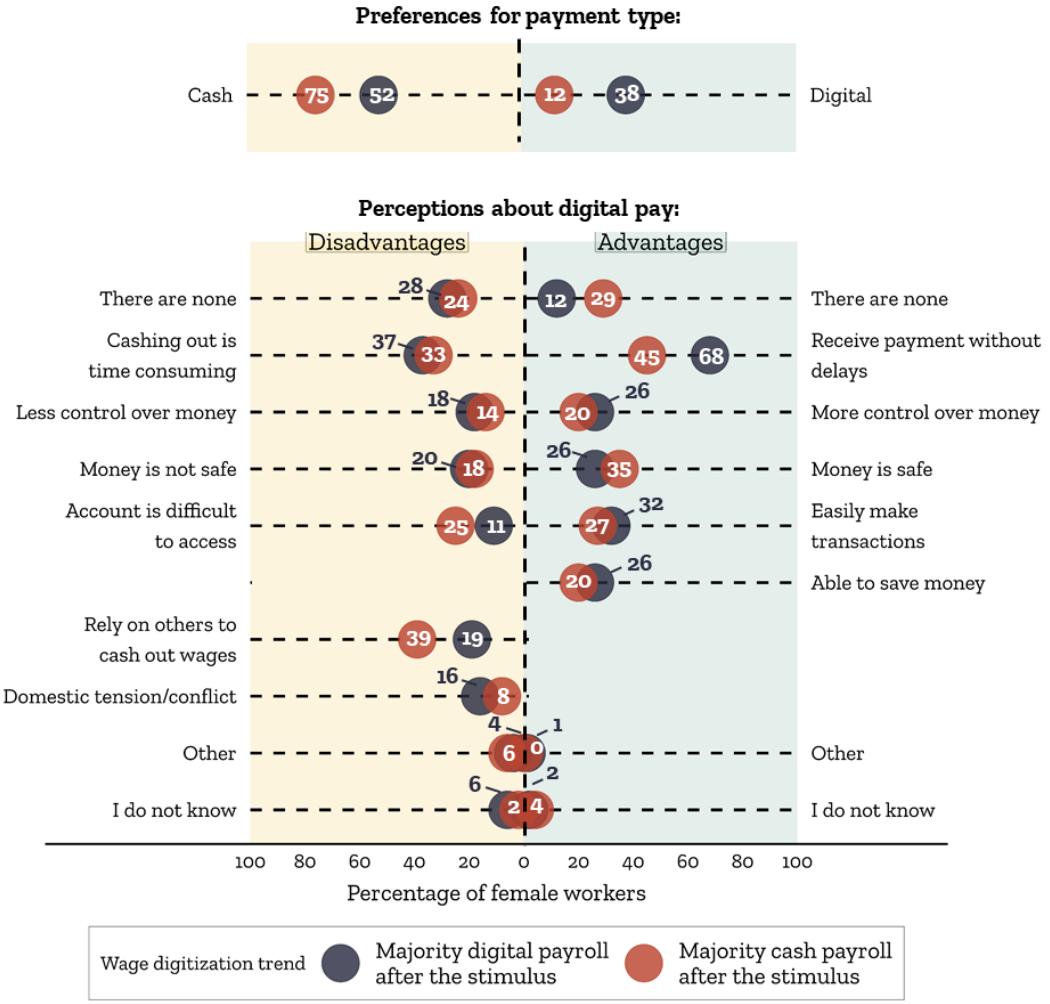
Most women workers said they preferred to be paid in cash, despite being more likely to cite advantages rather than disadvantages of receiving digital wages (Figure 10). Women's main perceived disadvantages of digital pay were related to cash-out: including fees, limited CICO accessibility, and time burdens. Women's main perceived advantages of digital pay were the ability to

[18] The GWD panel data collection was stopped after January 2020 when MFO's initial grant funding ended, and started again in May 2020 once the pandemic began and MFO received additional grant funding.
[19] These workers could alternatively have transfered to factories that pay digital wages. Eleven percent of women workers represented in our special survey rounds switched factories from May 2020 to December 2021.

receive payments without delays, the ability to save, the ease of making transactions, and security of digital pay.

In the following sections, we describe in more detail how women's experiences with wage digitization during and after the pandemic influenced their perceptions/preferences across our two sub-groups of interest (workers who were paid a majority in cash versus digitally after the stimulus), as well as factors that influenced factories' decisions.

Figure 10. Workers' preferences for cash versus digital pay, and perceived advantages and disadvantages of receiving digital wages, by sub-group



Source: Special survey questions administered in May 2022.

Notes: Percentages are presented by digitization trend for sub-samples 2 and 3 (N = 141 for those who received majority digital payroll after stimulus, N = 51 for those who received majority cash payroll) as described in Table 3 in the Approach Section. Data for pay type preference and perceived advantages and disadvantages of digital pay come from different survey questions.

B. Factors that influenced factories' decisions to digitize payroll after the stimulus, and workers' perceptions of advantages of digital payments

Below, we discuss the key factors that contributed to factories' decisions to digitize payroll following the stimulus, and the key factors that affected women's preferences for digital payments. Factories that digitized reported doing so primarily because of production efficiencies rather than worker preferences. Similarly, most women who received majority digital pay after the stimulus did not feel they had a choice or they influenced their factory's decision about payment type, and they were no more likely to feel this way than workers who were paid in cash after the stimulus (**Appendix Table A.7**.). Workers who received mostly digital pay after the stimulus were more likely to prefer digital wages and perceive related advantages than workers paid in cash after the stimulus (**Figure 10** in the previous section), and they were also more likely to have received information and support during the stimulus. However, these workers still primarily preferred to receive cash wages. Our qualitative data show that workers' perceived benefits of digital pay included the ability to use their account to save, transfer money, and top up mobile accounts; our quantitative data show that other perceived benefits include increased timeliness and greater safety of digital pay.

1. Increased factory productivity and safety of digital pay

Managers in factories that paid wages digitally after the stimulus reported doing so because of productivity, cost-savings, and safety benefits. Management in these factories found that paying digitally was faster than cash, increasing the time that workers could spend on garment production. Factory management said that it could take between one and seven days to disburse payments to all workers in cash. With cash payments, factories had to transport money from the bank and store it before distribution—which also poses safety risks. Factory managers explained that the transportation and storage processes were risky, and they had to pay for security or police fees, which could be higher than covering cash-out fees with digital pay (according to managers from factories that shared the cost of cash-out fees with MFSPs). With digital pay, however, factory managers no longer had to deal with these delays and other hassles in payments such as torn banknotes.

> "From the factory perspective, digital wages are preferred. It's more comfortable because we don't have to open booths and call workers one-by-one and pay. And there is always some human error every month [with cash]. We get complaints from accounting because there is some mistake in calculation and they end up paying out of pocket. We also lose a few minutes per worker in productive time: if we have 2,000 workers they lose 3-4 minutes each, this makes 6,000 minutes or 100 hours of production lost."
>
> - Factory management (Majority digital payroll)

2. Information provided to workers during the stimulus

Women workers who received a majority of their pay digitally after the stimulus were more likely to have received information during the stimulus on topics such as security, assistance, and grievance redressal, which may have influenced their preference for digital pay. This group was more likely to have received information on PIN security (98 percent of women compared to 88 percent

of the majority cash group), grievance redressal (55 percent compared to 36 percent), what to do if their debit card was lost or their PIN was stolen (26 percent compared to 4 percent), and how to get assistance from a guard if needed (23 percent compared to 4 percent) (**Appendix Table A.3.**). However, this group was no more likely to have received training during the stimulus, or to have received information on how to withdraw, make transfers, or check their balance. As described below, this experience may have increased workers' comfort with digital accounts.

3. Advanced usage and ease of transactions

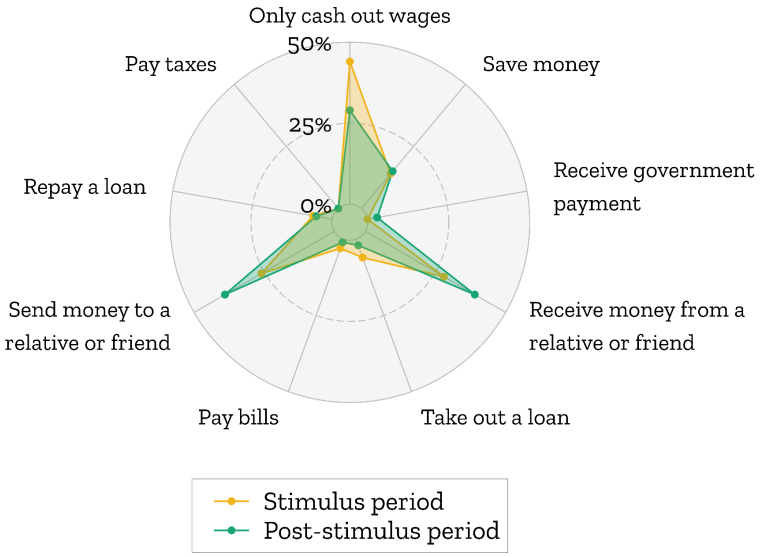
Although women largely preferred cash because of the challenges with digital accounts, some exhibited more advanced account usage (primarily P2P transfers) and perceived advantages of digital payments. Women were less likely to say they only used their account to cash out wages after the stimulus (29 percent) than during the stimulus (44 percent) (**Figure 11**). Similarly, women were more likely after the stimulus period to have used their accounts to send or receive transfers. However, as described in the following Section C, more advanced account usage was limited.

While it was uncommon for women workers to use their accounts to save, this was a main perceived advantage of digital wages, along with having control over money. Just 15 percent of women reported using their accounts to save during the stimulus, and 14 percent reported saving afterwards. Saving was slightly more common for women who received majority digital pay after the stimulus.[20] Weekly GWD transaction data validate that women paid digitally in 2020 and 2021 were more likely to save money than their counterparts paid in cash (MFO 2022). Savings may have been limited at least in part because MFS accounts did not offer women the ability to accumulate interest on savings, as described in Section IV. However, women in our focus groups often cited savings as a benefit of digital pay, and explained that, with digital accounts, they can save more because they have more control over how they spend their money. With digital accounts, they tended to only withdraw what was necessary for daily expenditures, whereas with cash wages they would often spend their entire salaries. This suggests that wage digitization may have increased women workers' savings. According to our quantitative data, one-quarter of women cited the ability to save as an advantage of digital wages, and women who received a majority digital pay after the stimulus were more likely to perceive having more control over money as an advantage (28 percent) than workers who continued to mostly receive wage payments in cash (17 percent).

> "When my salary comes to digital payments, I have control over my money. It can be spent [only] as much as needed. By reducing the cost in this way, money can be saved. Money can be deposited in this account—no additional account required."
>
> - Worker (Mixed payroll)

[20] We do not present other sub-sample usage outcomes due to lack of statistical significance and concerns about recall and endogeneity bias.

Figure 11. Women workers' use of digital accounts during and after the stimulus period (among workers who had an account)



Source: Special survey questions administered in February 2022 and May 2022.

Notes: Sample includes women workers from the primary sample who had an account in the stimulus (N = 768) or post-stimulus period (N = 834). This figure omits the "do not recall" survey option (20 percent for the stimulus period and 6 percent for the post-stimulus period). Additional response options only offered in the post-stimulus period were "did not use account" (5 percent), "used account for other reasons" (3 percent), and refused to answer (2 percent). Response options for the "only cash-out wages" category are different for the stimulus period ("I did not use my account other than cashing out wages during this period") and post-stimulus period (use account to "receive wages"): we reclassified cases where the worker indicated using their account to receive wages and did not have other account uses to create an "only cash out" category.

Women workers who were paid primarily digitally after the stimulus were also more comfortable using their accounts, and perceived the ease of making transactions as an advantage of digital pay. Among women who reported liking the change to digital pay, 73 percent cited the ease of withdrawal as a reason. In our quantitative sample, 32 percent of women cited the ease of making transactions as an advantage of digital pay. Women who received a majority digital pay after the stimulus were more likely than workers who were paid mostly in cash to feel comfortable with checking their balance (77 percent compared to 48 percent) and with making transfers (38 percent compared to 26 percent).

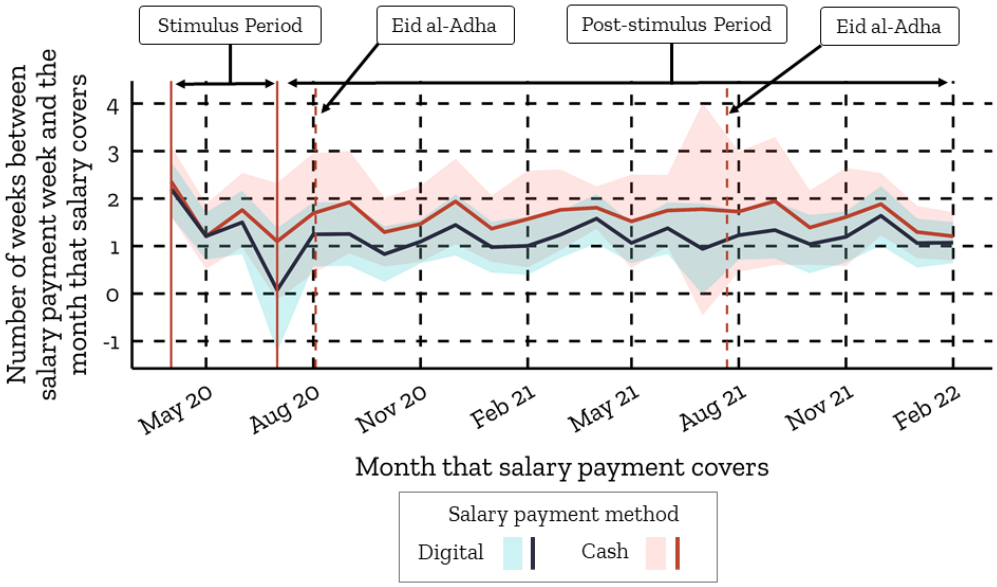
It is possible that, since women in factories that digitized after the stimulus received more information during the stimulus, they were more comfortable using digital accounts in the long run. However, advanced account usage could be exogenous or endogenous to factories' decisions to digitize their payrolls. An alternative explanation is that, in factories that digitized after the stimulus, women may have become more comfortable with digital accounts over time (consistent with the findings about "learning-by-doing" in Breza et al. [2020]—although the authors found this was less common for women workers). However, we do not see significant differences in account usage over time for women who

received majority digital pay after the stimulus than women paid a majority in cash (although as described earlier, we do not present these outcomes due to concerns around recall and endogeneity bias). Another explanation would be that workers who were more comfortable using their accounts before the stimulus may have been more likely to influence their factory's decision to digitize, although as described earlier, women overall felt they had little influence on their factories' decision making.

4. Reduced payment delays and time burdens

According to our quantitative data, the primary perceived advantage of digital pay was receiving payments without delays; however, our qualitative findings did not confirm this. Fifty-four percent of our quantitative primary sample cited on-time payments as an advantage of digital wages. Women who mostly received wages digitally after the stimulus were more likely to cite this as an advantage (68 percent) than women who mostly received cash (45 percent). The GWD panel data on payment delays over time show that cash payments on average incur more delays than digital payments—particularly around Eid-al-Adha, potentially due to limited holiday banking hours (**Figure 12**). MFSPs explained that, in general, cash payments were more susceptible to delays because factory managers post cash payments on the 7th and 8th of the month to meet BGMEA/BKMEA pay regulations, but make actual payments on a later date.

Figure 12. Payment delays

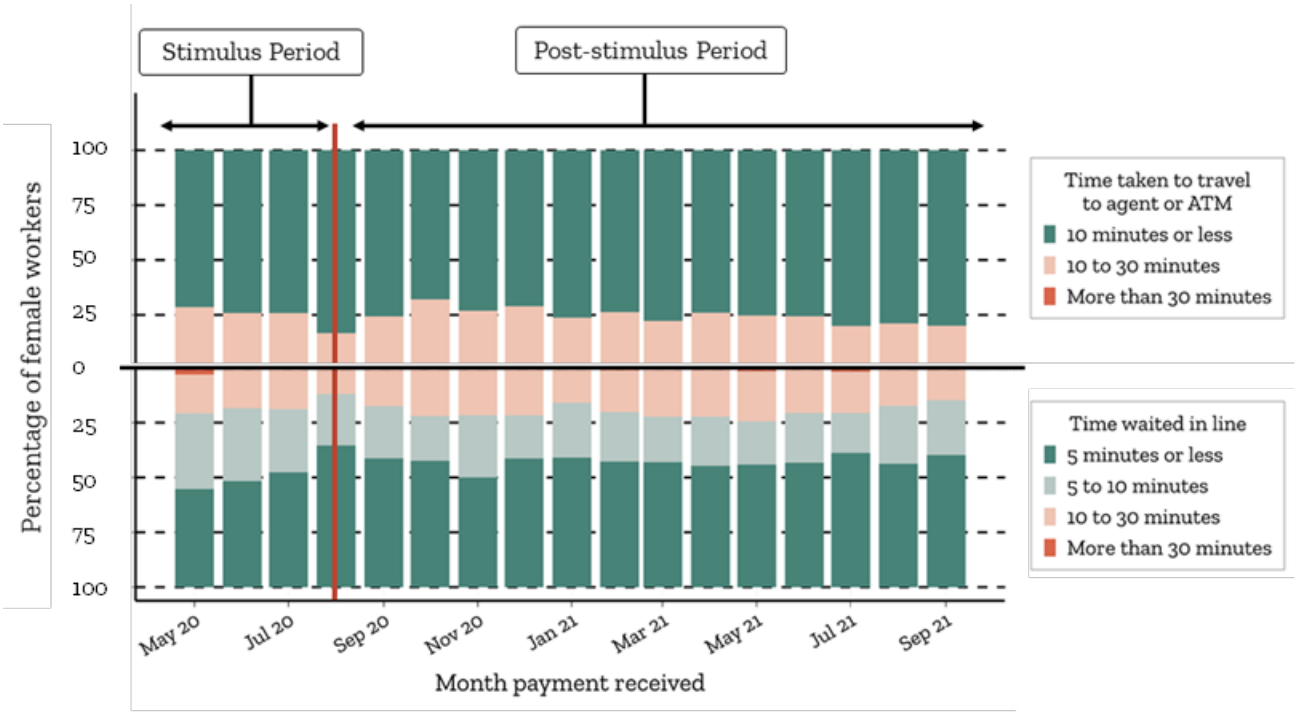


Source: Microfinance Opportunities garment worker diaries (GWD) panel dataset (May 2020–March 2022).

Notes: The figure shows the average number of weeks that elapsed between when a worker received a monthly salary payment and the end of the month the payment covers. The figure presents the mean (depicted by the line) and the standard deviation (the shaded area) for cash and digital payment methods over each payment coverage month and covers monthly salary payments from 909 women workers from our primary sample. Bonus payments around Eid-al-Adha are not represented in this figure, and are typically paid in cash. The peaks in payment delays around Eid may be due to decreased banking hours.

Similarly, according to our quantitative data (but not mentioned in focus groups), women workers perceived reduced cash-out time burden as a primary benefit of digital pay. Seventy-three percent of women who liked the change to digital said that a benefit was that they could withdraw any time they needed; 43 percent said they did not need to wait in line for pay; and 36 percent said they could receive money while staying at home. The latter benefit was particularly notable to women who went back to receiving a majority of their pay in cash after the stimulus (59 percent of women in this group, compared to 36 percent of their counterparts who continued to be paid digitally after the stimulus) (**Appendix Table A.10**). Roughly 75 percent of women in any given month spent 10 minutes or less traveling to an agent or ATM to cash out, and roughly 50 percent spent less than 5 minutes waiting in line (**Figure 13**).

Figure 13. Amount of time women workers who received digital pay spent traveling to the agent or ATM, and waiting in line to withdraw cash



Source: Garment Worker Diaries (May 2020-September 2021).

Notes: Sample includes women garment workers from the primary sample who were present in at least one of the special survey rounds (N = 754), as described in Table 3 of the Approach Section, and who received and withdrew a digital wage between May 2020 and September 2021, the period in which this question was asked.

C. Factors that influenced factories' decisions to continue cash payments after the stimulus, and workers' perceptions of disadvantages of digital payments

Below, we discuss the key factors that contributed to factories' decisions to continue paying in cash following the stimulus, and those that affected women workers' preferences for cash payments. While managers of factories that continued paying in cash recognized that digital pay presented potential production efficiency benefits, they reported paying in cash primarily because their workers preferred it (concern about the transparency of digital pay may also have been a deciding factor). However, these women workers were not likely (and no more likely than their counterparts who were paid digitally) to feel their preferences had shaped their factories' decisions. Nonetheless, among workers who were paid mostly in cash after the stimulus, 75 percent said they preferred cash, and they were less likely to cite advantages of digital pay (**Appendix Table A.7**). Key barriers that shaped workers' cash preferences prior to the pandemic (and which re-emerged after the stimulus period) were cash-out fees, CICO accessibility, and related time burdens. Workers' preferences for cash were also shaped by limited digital financial literacy (which resulted in low usage of digital accounts), and for some women, reliance on others and household tension due to a loss of privacy, control, and decision making over their income.

1. Workers' preferences for cash

Despite acknowledging the production benefits of digitization, factories that continued paying in cash after the stimulus reported doing so primarily because their workers preferred cash payments (although women workers did not corroborate this). Just 6 percent of women in factories that mostly paid wages in cash after the stimulus felt they influenced the decision directly (2 percent felt they influenced the decision through worker PCs, and none felt they influenced it via unions). However, our qualitative data tell a different story: some women said in focus groups that factory management considered their preferences for cash payments; when they shared that preference with senior workers or workers in the PC, these workers effectively advocated for their opinions with factory management.

2. Resistance from mid-level factory management

The transparency of digital payments and related resistance from mid-level management may have re-emerged as barriers that influenced factories' decisions to not digitize. In our interviews with some local banks, MFSPs, and trade organizations, interviewees stated that they believed factory management were hesitant to digitize payroll because it would reveal their unethical labor practices such as overreporting or underpaying wages. As described in Chapter II, resistance from mid-level management at factories was a key barrier to wage digitization prior to the pandemic. Although this resistance was not an issue during the stimulus

> "The garment business is booming in our country because women can be easily cheated with low pay. This is because the owners of these garment factories do not want to easily reveal the true picture of the inside of the garment factories. They do not want the public to know that they are paying workers less. But now if they pay MFS or digitally, these true images will go public… Overall, I don't think garment [factory] owners are too keen on digital payment systems because they do not want transparency in the wages of the workers."
>
> - Local bank

(because digitization was mandated), it likely affected factory management's decisions not to digitize after the stimulus ended.

3. Cash-out fees

Cash-out fees also re-emerged as an issue after the stimulus period, when they were no longer subsidized. After the stimulus, the total cash-out fee increased and banks and MFSPs were no longer required to subsidize or cap the fee (**Table 4**). As a result, the amount of the cash-out fee which was passed onto the worker returned to pre-stimulus levels. Factories acknowledged that cash-out fees were the biggest barrier for workers to accept digital wage payments, but managers from factories with majority cash payrolls after the stimulus were unwilling to cover the cost. These managers perceived that the potential benefits of wage digitization did not outweigh the costs of covering cash-out fees. A few factories, primarily those that digitized the majority of their payroll post-stimulus, negotiated agreements with MFSPs to share the cash-out fee, though this was not a government-mandated requirement. The primary reason women workers considered cash-out fees an issue was because they felt they were unable to receive their full incomes after the cash-out fee deduction. Women explained that, even though factory managers considered the cash-out fees to be small, they were expensive for women relative to their incomes and could be used for their household necessities (for example, a cash-out fee of Tk. 200 is the equivalent of just under 4kg of rice). High cash-out fees may be one reason why some factories switched to bank accounts or MFSPs that offered free ATM cash-out.

> "You are aware of the cash-out fee of tk.18 per 1000 Takas. We must pay [MFS provider] 50,000 Takas as cash-out fee if we pay the entire salaries via [MFS provider]. That is a lot of money; we could pay the salaries of ten people with it. It is quite an expensive and difficult barrier for our company."
>
> - Factory management (Majority cash payroll)

Table 4. Reported cash-out fee coverage during and after the stimulus period

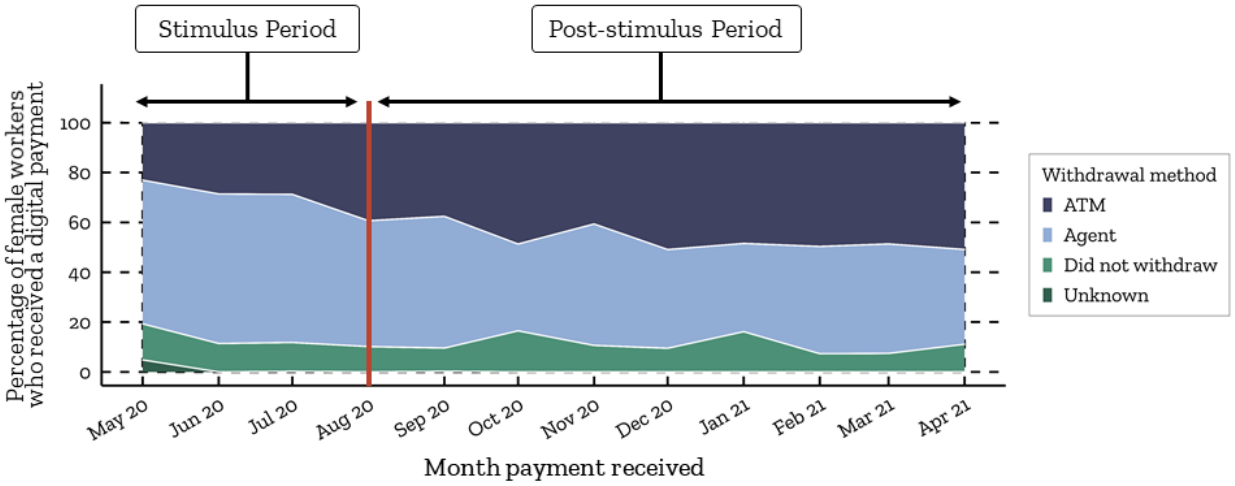
	During the stimulus	Post-stimulus
Total cash-out fee	0.8%	0.9%-1.8%
Percentage of total cash-out fee covered by loan-disbursing bank coverage	0.4%	None
Percentage of total cash-out fee covered by MFS provider	Up to 0.4%; Shared with factories depending on agreements	Up to 1.8%; Shared with factories depending on agreements*
Percentage of total cash-out fee covered by the factory	Up to 0.4%; Shared with MFS providers depending on agreements	Up to 1.8%; Shared with MFS providers depending on agreements*
Percentage of total cash-out fee paid by workers	Up to 0.4%; Dependent on agreements between MFS providers and factory management	Up to 1.8%; Dependent on agreements between MFS providers and factory management

*Among our qualitative sample, agreements between factories and MFS providers were only reported for a few factories and mostly from those that digitized after the stimulus period. Most factories did not cover the cash-out fee.

4. CICO inaccessibility and time burdens

Some women workers continued to struggle with the accessibility of CICO points after the stimulus period, since they tended to withdraw most of their salary rather than leaving it in their digital accounts. Even though the majority of women spent less than 15 minutes to cash out their digital wages (as shown in **Figure 13**), this time burden may have been up to an hour for some workers: about one-quarter of women who were successfully able to withdraw cash spent from 10 to 30 minutes traveling to a CICO point and about one-quarter spent 10 to 30 minutes waiting in line to cash out. This may explain why the primary disadvantage of digital wages cited by women in our quantitative sample was that cashing out digital pay takes a long time (37 percent of women). The areas where women workers reside may have also contributed to CICO accessibility challenges, as certain garment districts such as Narayanganj are more dispersed than others. These challenges existed even in factories that installed ATMs or brought agents to factory premises on pay day. Most women withdrew most of their wages in cash and relied on ATMs and agents to do so; only between 10 and 20 percent of women reported not withdrawing their salary in any given month (**Figure 14**). Women reported that the withdrawal process with both agents and ATMs was cumbersome and time-consuming—around one-third of women (in the primary sample and in both sub-groups) cited this as a disadvantage. This time burden delayed women from making urgent payments, which contributed to their preference for cash over digital payments. With digital payments, women explained that they had to take extra steps to obtain cash, which was especially an issue during emergencies when they needed cash immediately, whereas with cash payments they had cash right away.

Figure 14. How women workers who received digital pay withdrew their salary



Source: Garment Worker Diaries (May 2020–April 2021).

Notes: Sample includes women garment workers from the primary sample who were present in at least one of the special survey rounds (N = 721), as described in Chapter II, and who received digital payments between May 2020 and April 2021 (after which the survey question changed and samples could not be compared directly).

Challenges around agent availability for certain MFSPs also contributed to long wait times. The limited availability of some MFSP agents was especially an issue in rural areas where workers often transfer money to their families. As a result, these women had to take extra steps or pay extra fees to withdraw their wages or transfer money. For example, these women would withdraw money from their accounts and then transfer money using a different MFS provider that had agents available in the rural areas they were sending money to. For some MFSPs, women had to make a trade-off between paying cash-out fees to agents and waiting in lines at ATMs.

5. Limited account usage

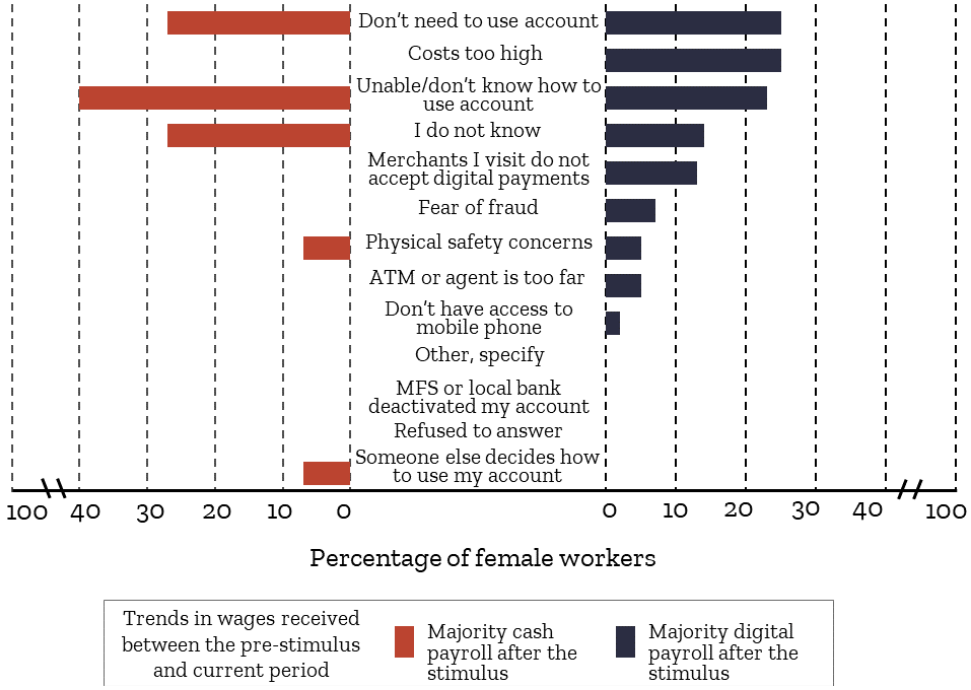
As described in the previous section, while the majority of accounts remained functional after the stimulus, most women workers only used their account for cash-out and P2P transfers. MFS providers likewise said that some accounts were functional but not active. Our quantitative data show that advanced usage such as savings; tax, bill, and loan payment; and receipt of G2P payments was limited and did not increase much over time. Similarly, no women in our qualitative focus groups cited using their digital accounts to make important P2B payments such as grocery purchases from micro-merchants, rent payments to their landlords, or school fee payments for their children. This was likely due to both account feature limitations and a limited DFS ecosystem. As described in Chapter IV, unlike bank accounts, MFS accounts do not offer the ability to accumulate interest on savings, receive loans, or transfer money internationally. While MFS accounts do allow for P2B payments, there is limited digital payment acceptance among micro-merchants, landlords, and schools in Bangladesh—limiting the usefulness of these accounts for RMG workers. Not knowing how to use their accounts was the most commonly reported reason (28 percent) in our quantitative sample and our qualitative sample for non-advanced usage among women workers (**Figure 15)**. Women who received a majority cash payroll after the stimulus were more likely to cite this as a barrier to usage than their counterparts who continued to be paid digitally. Women also often said they did not need to use their accounts beyond receiving and cashing out wages.

6. Low digital financial literacy

A lack of digital financial literacy limited women's account use and likely influenced their preferences for cash. Women workers continued to have low digital financial literacy after the stimulus and expressed that they lacked confidence and experienced anxiety around using accounts. This may have been partly attributable to the rapid implementation of the stimulus, limiting the amount and quality of trainings provided. Although managers acknowledge workers' low digital financial literacy, most factories did not do anything to address it or offer additional training, in part because the time spent on training would detract from the time spent on production. Women instead often relied on support from informal avenues such as factory floor administrative or HR managers, family members, colleagues, or security guards at the ATM booth (**Figure 16**).

> "We never get any education on digital literacy. It would be good if we attended such a training. But it is also the hard reality that the factory will always remain very busy fulfilling production and all workers will never get breaks to attend such a training."
>
> - Worker

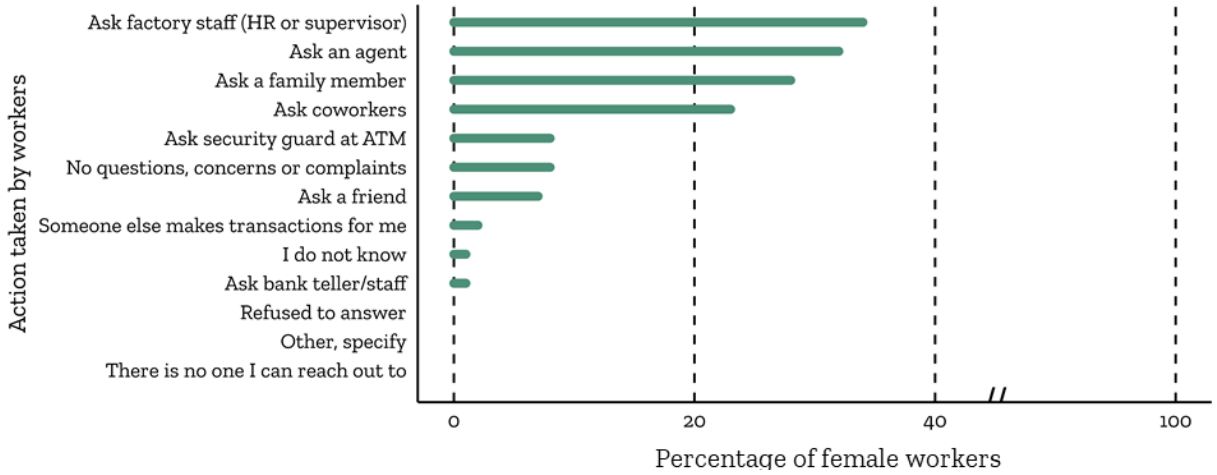
Figure 15. Reasons women workers did not use their account for transactions other than receiving wages



Source: Special survey questions administered in May 2022.

Notes: Percentages are presented by digitization trend for sub-samples 2 and 3, as described in Table 3 of the Approach Section. Percentages are calculated conditional on only using an account to cash out wages (N = 56 for those who had majority digitized payroll, N = 15 for those who had majority cash payroll).

Figure 16. What women workers do if they have questions, concerns, or complaints about using an account



Source: Special survey questions administered in May 2022.

Notes: Percentages are presented for the primary sample present in the second special survey round (N = 922), as described in Table 3 of the Approach Section.

7. Reliance on others, household tension, and lack of control over income

Some women's preferences for cash were influenced by increased tension within their households and a loss of privacy, control, and decision making over their income from wage digitization. Although most quantitative respondents found that wage digitization had no effect on their household relationships, 19 percent reported that wage digitization caused household tension. This intra-household tension may have been due to the increased vulnerability of women to a loss of privacy, control, and decision making over their income from wage digitization. Seventeen percent of workers cited less control over money as a disadvantage of digital pay. Similarly, workers who received a majority cash payroll were more likely to rely on others to cash out their wages (39 percent) than their counterparts who were paid mostly digitally (19 percent). Several respondents (both factory management and workers) from our qualitative interviews expressed that women workers were opposed to wage digitization because they experienced loss of control and privacy over their income. Factory management and women workers described these losses in one of two ways. First, most women who opened accounts with their husbands or family members had no privacy, control, or decision making over their wages since they were deposited into someone else's account. Second, for many workers who had their own accounts, their husbands were able to see their full salaries through payment text messages and they therefore could no longer set aside money for themselves without disclosing their full salary to their husbands, unlike with cash payments. Women explained that, with digital wages, they neither had privacy over their salaries nor control and decision-making power over the small savings they used to keep with cash.

> "But we have problems. Many could not use [MFSP] properly. To withdraw money from [MFSP], one had to depend on another person. We could not keep any money for ourselves if the husbands withdrew money. Everyone's husband is not the same."
>
> - Worker (Majority digital payroll)

> "My family has a problem with this salary. If I do not give my husband the salary, he scolds and beats me. Sometimes my husband behaves very well, and sometimes he has a lot of problems with this salary. When I get paid in the digital system, he withdraws all the money and takes it himself. If the salary had been paid in cash there, I could have set aside some money for myself."
>
> - Worker (Majority digital payroll)

After the stimulus period, women who were receiving money in someone else's account were able to create accounts in their own name during the account verification process. This helped address the loss of control and privacy from money being deposited in someone else's account, but did not address the issue of not being able to hide a portion of their wages. [21]

[21] Lack of identification was also cited as a barrier for a very small number of workers. While the stimulus temporarily relaxed e-KYC requirements around identification to open accounts, this re-emerged as a barrier after the stimulus for some (possibly underage) workers who initially provided factory IDs or birth certificates or used family members' accounts. Factory workers and MFSPs explained that, after the stimulus period, MFSPs came back to factories to verify accounts opened during the stimulus using modified e-KYC requirements: workers who initially used birth certificates or factory IDs to open an account had to submit their NIDs to verify the account and keep it open. Workers who initially submitted their husbands' or family members' MFS account numbers had to

Some workers and factory managers tied women's loss of privacy, control, and decision making to low digital financial literacy. More women (28 percent) who did not receive any training or information on digital accounts were dependent on others (e.g., their husbands or relatives) to use their accounts than those who received some information (6 percent).

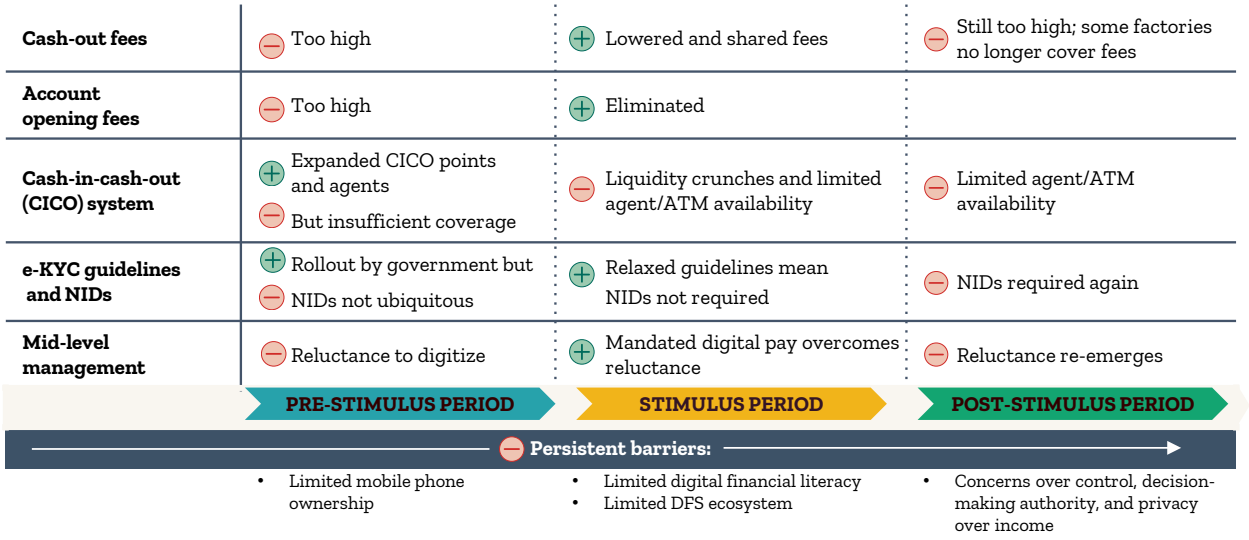
In a few cases, the lack of privacy over women's wages led to conflict and even violence with husbands. Domestic tension and conflict were reported as disadvantages of wage digitization by 11 percent of workers.

create their own accounts after the stimulus. One factory reported that NIDs were an issue, preventing them from digitizing payments in the post-stimulus period. However, no workers cited in qualitative interviews that their accounts were closed because they were unable to submit NIDs for verification purposes. As mentioned in Chapter II, all workers in the GWD panel dataset are over 18, so NID may not have been as big an issue for our sample, although it was likely a bigger barrier in the RMG sector overall.

VI. Discussion

The COVID-19 stimulus package was successful in enabling MFSPs to rise to the challenge of opening new accounts and paying wage subsidies digitally for millions of workers—demonstrating that digital payments can enable access to critical funds during an emergency and generating trust in the digital financial system. As described in Chapter III, GoB policies and strategies leading up to the stimulus package had already signaled a strong commitment to digital financial inclusion for women. The COVID-19 context and consequent stimulus package provided a unique opportunity for the GoB to mandate digital payments in the RMG sector. Although this opportunity may not present itself again, it highlighted the key role the public sector can take in enabling digital financial inclusion for women through the private sector, particularly when additional DFS ecosystem stakeholders help forge strong public-private partnerships. As shown in **Figure 17**, the stimulus package at least temporarily removed key barriers to wage digitization in the garment sector (related to identification and e-KYC, account opening and cash-out fees, and factory management reluctance) and resulted in more than 2.2 million MFS accounts being opened in under three months. As a result, a majority of factories that received the stimulus loans overcame their initial reluctance to pay digitally and were convinced of its benefits (either production efficiencies for the factories themselves or benefits to workers).

Figure 17. Enablers and barriers to wage digitization over time



Note: + enabler, - barrier

However, the medium-term beneficial outcomes of wage digitization on women's financial inclusion outlined in the Theory of Change have not been achieved thus far in the context of the Bangladesh RMG sector. This may be due to re-emerging barriers to account access and usage (as shown in Figure 17) from women's low digital financial literacy, a limited digital financial services ecosystem, and a rushed implementation process, resulting in the subsequent return to cash for some factories**.** Below, we discuss strategies for sustaining, scaling, and increasing the impact of wage digitization in the RMG sector in Bangladesh and in other contexts—from women worker and factory perspectives.

A. Women worker-focused strategies for increasing the impact of wage digitization

The Theory of Change posited that wage digitization would lead to increased and deeper usage of and engagement with DFS; increased privacy, control, and decision making for women; active engagement in the digital economy; and increased economic and financial autonomy and agency. The medium-term outcomes have not yet been fully realized in the context of the rapid wage digitization that took place in the RMG sector in Bangladesh. Below, we highlight strategies that could help overcome outstanding barriers to achieve these outcomes.

Strategies to minimize or cover cash out fees by the government, financial services providers, and/or factories are needed, as cash out fees continue to be the primary barrier to wage digitization. The stimulus showed that relieving cash out fees through a cost-sharing mechanism among the government, financial service providers, and factories eased account access for women. Covering cash out fees for garment workers may be a valuable investment for mobile financial service providers to capture a sizeable new segment of customers—women garment workers can potentially spend up to 5.4 million USD per month on airtime top-up and 126 million USD per month on remittances (Business for Social Responsibility [BSR], 2021). Allowing a certain number of free withdrawals per month, either through the public sector such as in India[22] or the private sector such as in Pakistan,[23] can also be another strategy to support women garment workers' adoption of digital payments in Bangladesh.

To bypass cash out fees all together, the digital financial services ecosystem needs further strengthening to allow for women workers to fully benefit from wage digitization. Women workers primarily transact with micro-merchants for groceries or other household necessities, landlords for household rent, and schools for children's education fees, but these individuals or institutions seldom accept digital payments. Increased acceptance of digital consumer payments for these services would allow women to avoid cash out fees. Developing these digital use cases requires strengthening the digital financial ecosystem to increase acceptance of digital pay. According to Findex data, only 1.32 percent of adult women in Bangladesh made a digital merchant payment in 2021. Bangladesh Bank and MFSPs acknowledged that wage digitization would be better received among workers if they could use digital payments at merchant shops. However, micro-merchants have historically been hesitant to formalize their businesses to accept e-payments, because doing so would subject them to Bangladesh Bank regulations around trade licensing and taxation. Bangladesh Bank has attempted to incentivize micro-merchants to accept digital payments through the provision of bonuses and creating a new personal retail account that micro-merchants can open with minimal requirements (NIDs and a certificate for proof of profession);

[22] The Central Bank of India allows for up to 3 free withdrawals from ATMs per month. https://www.centralbankofindia.co.in/sites/default/files/Service%20Charges/ATM-Service-Charges-applicable-01.01.22.pdf

[23] The mobile financial service provider SadaPay in Pakistan allows for up to 3 free withdrawals per month. https://sadapay.pk/faq/

"Workers need more use cases to keep the funds in their wallets, after receiving wages, otherwise the value proposition of digital wages to them is inadequate. Financial service providers need to cater to them by offering payment options for their recurring payment needs – perhaps option to pay house rent or grocery bills. If they cash out their salaries, they end up paying cash-out fees which can add cost burden. Having fully interoperable platforms may also reduce cash out or encourage them to not cash out at all."

- BTCA

however, micro-merchants are still reluctant to digitize. Bangladesh Bank is currently exploring additional incentive options, including loan or credit facilities with micro-merchant accounts, as well as partnerships with international agencies to subsidize the merchant discount rate (the price merchants pay to accept e-payments from customers via a point of sale or QR code). Although all leading banks and MFSPs offer P2B and digital school fee payment services, just 3.7 percent of all school fees are paid digitally in Bangladesh, primarily because government school student records have not been digitized (BTCA 2022).

In addition to e-payment acceptance, strengthening the DFS ecosystem to be interoperable would also support women's engagement in the digital economy. Interoperability between different financial service providers can increase digital account use and convenience for women by expanding access and availability of agent and ATM options (Negre and Cook, 2021). Women workers in this study reported having to pay withdrawal fees on top of transfer fees to remit money to their relatives in rural areas where there are limited MFSP options; interoperability would eliminate these extra fees by allowing women to send money directly from their account with one MFSP to a relatives' account with a different MFSP.

Women-centric digital products can further enable women's digital financial inclusion, so incentives that align public- and private-sector goals for banks, MFSPs, and financial technology organizations (FinTechs) to roll out such products is needed. In alignment with government strategies such as the Digital Bangladesh Vision 2021 and the National Financial Inclusion Strategy 2019, banks, MFSPs, and FinTechs have been developing products to support digital use cases and financial inclusion for women workers. For example, City Bank and bKash launched a "Nano Loan" product that allows bKash app users who registered using e-KYC to access loans digitally (City Bank 2021), incentivizing mobile money account owners to maintain digital wallets. Additional efforts by banks, MFSPs, and FinTechs to offer various loan products that are specific to women's uses are needed. For example, digital financial providers can offer a loan product that allows women to pay school dues in installments if they are transferred digitally. Allowing women workers to pay for food on credit through digital financial providers could also be beneficial, for both women workers and merchants; digital payments would create transaction transparency for merchants while increasing workers' resilience and choice in household expenditures. Additional research is needed on the value proposition to banks,

"We want to create an ecosystem where [women RMG workers] don't need to use cash... If they can use [digital accounts] for daily necessities, then there will be no cash-out charge. Most of the operators get economies of scale, the charge will be reduced. From our side our main interest is to build a cashless or cashlite ecosystem (where cash-out will not be needed)."

- Bangladesh Bank

MFSPs, and FinTechs of offering products tailored to women garment workers (such as potential competitive advantage).

Incentives are needed for factories and banks to provide gender-sensitive financial literacy training and capacity building to address barriers to women garment workers' access to, use of, and control over digital accounts. As described in Chapter V, women workers want to use their accounts for purposes beyond cash-out without help, but many lack confidence in—or depend on others to use—DFS. (In some cases, these barriers create household tension and loss of control over income.) Stakeholders agree that more training on using digital accounts for money management (rather than basic account onboarding) could greatly support women workers to use their accounts more effectively. This would also enable women to bypass cash out fees. To ensure that women are not left behind, trainings need to be gender responsive (BSR, 2021b). For example, RISE trained women to link their mobile phones to their bank accounts in India since they were less likely to do so than men, supported women in Egypt in getting a SIM card in their own name since they faced more challenges doing so than men, and train women in Bangladesh to use their digital accounts with feature phones, since they were less likely to have a smart phone. Trainings should also include husbands, fathers, and fathers-in-law, and highlight the importance of women workers' owning and having control over their own accounts as well as financial literacy skills that support equitable relationships within the household such as joint decision-making or shared digital accounts in addition to self-owned accounts.

Moreover, there is a lack of consensus around who should provide digital financial literacy trainings, as none of the actors are incentivized to do so. MFS providers in our interviews seemed willing to offer DFS training and resources to workers. However, factories (despite acknowledging the time saved by paying wages digitally) were reluctant to take time out of production to engage their workers in learning activities, suggesting a need for some incentives for training to become more common in factories. The BTCA, in partnership with the GoB, A2I, and UNDP, is currently developing a National Financial Literacy Strategy focused on women, which promotes savings, money management, and financial protection among consumers; digital and financial literacy in school curricula and greater awareness about financial products and uses. Similarly, Bangladesh Bank recently released guidelines for banks and financial institutions to build consumers' financial literacy through awareness campaigns, as part of its strategic plan for 2020–2024 (BTCA 2022b).

As wage digitization may have different sociocultural impacts on each woman garment worker, factories should also consider workers' choice in payment type. If providing workers with the ability to choose their payment type and provider is not viable for factories, implementing a participatory approach before making payroll decisions can help ease workers' transitions to digital payments. For example, in Cambodia, conducting worker sessions (alongside participation committees and trade unions) where the advantages and disadvantages of each payment type, and how any concerns can be addressed, are thoroughly discussed has shown potential in increasing worker acceptance of digital wages.

B. Employer-level strategies for incentivizing and scaling wage digitization

While the beneficial outcomes of wage digitization outlined in the Theory of Change have been achieved for factories that digitized after the stimulus period, continued collaboration between all

private- and public-sector stakeholders will be needed to sustain and expand wage digitization. Such collaboration is needed to ensure that digital wages continue to be a priority as part of the government's Smart Bangladesh Vision 2041.[24] Additional employer incentives, support, and pressure are needed for wage digitization to scale to other factories in the RMG sector and to replicate in other sectors. As described in Chapter III, the GoB's mandate to digitize wages as a condition of the stimulus package was critical to overcome factory reluctance (particularly from mid-level management who may benefit from less transparent payment systems) and concern over the cost of transitioning to digital wages. The mandate resulted in some of these factories being convinced that the benefits of wage digitization outweighed the costs—primarily related to improved efficiency and reliability of wage payments. While our study is not able to assess the effects of wage digitization during the pandemic on fraud and leakages, it is likely that there was an impact in this area.

Labor organizations can continue to communicate and convince global brands of the benefits of supply-chain transparency and efficiency through digital wages. Stakeholders like the BTCA, RISEILO, and Better Work have already made significant inroads in the Bangladesh garment sector to convince buyers of the need to advance supply chain transparency and efficiency through wage digitization (for example through the 2019 Digital Wages Summit). Continued efforts are needed to convince brands of the benefits of wage digitization related to supporting compliance with global labor standards and responsible business standards—in particular, brands that purchase from supplier factories that either reverted to or continued paying in cash after the stimulus. Similarly, many global brands have been convinced of the benefits of investing in corporate social responsibility efforts to support women's financial inclusion and empowerment for workers.

In turn, global brands, trade organizations, and researchers can help convince factories (particularly smaller, non-brand-facing factories) of the business case of wage digitization. More research and dissemination are needed on the hidden cost of cash (including safety and time burdens with distributing cash pay) and production efficiencies of digital pay, similar to the work RISE has done through their HERproject. Trade organizations like the BGMEA and BKMEA are well-positioned to both generate and disseminate this evidence to member factories, particularly around the benefits gained by factories that digitized after the stimulus period. However, smaller, non-brand-facing factories that are not members of BGMEA or BKMEA trade organizations were not eligible for the stimulus package, and as such did not experience the same payroll digitization. More research is needed on how to build the business case for wage digitization for smaller factories with fewer workers, for which wage digitization may be less convenient; it also may present fewer opportunities for production efficiencies, given that smaller factories do not have the same challenges around disbursing cash wages (for example, long lines on pay day and significant HR costs to manage payroll). Similarly, many small factories are not brand-facing and not members of trade organizations, so they do not face transparency pressures. Research in this area would support the scaling of wage digitization to other country contexts, such as Pakistan, where the RMG sector is predominantly small, unregistered factories.[25]

[24] Available at https://a2i.gov.bd/a2i-missions/smart-bangladesh-vision-2041/

[25] BSR and MicroSave Consulting have recently conducted landscape research on the potential for DFS uptake in the Pakistani garment sector (BSR and MSC 2020, unpublished).

Efforts to help factories plan and prepare for the transition to digital wages in the future could help ensure that both factories and workers have more positive experiences. The implementation of the stimulus package was rushed, with little time for factories to prepare. To be better-prepared, factories need support and incentives to overcome barriers related to reluctance from mid-level management, training for workers, access to CICO points, and cash-out fees. Factory management would benefit from support from banks, MFSPs, and other DFS ecosystem players in the transition to digital wages, such as BSR's HERfinance Digital Wages Toolkit,[26] which provides guidance and planning tools for factory management to transition their payrolls, prepare their workforce for digitization, and coordinate payday. Factories would benefit from a digital financially literate workforce, but as described above, they need additional incentives to provide these trainings (or to allow MFSPs or other actors to do so during working hours). Factories also need to be convinced that the cost of covering or sharing cash-out fees is outweighed by the hidden costs of cash.

Ultimately, incentives and coordination need to be in place for each stakeholder to commit to digital wages simultaneously. This "magic formula" was only temporarily achieved during the policy change of the COVID-19 stimulus package. For wage digitization to be a pathway to economic empowerment and financial inclusion, actors will need to closely collaborate on strengthening Bangladesh's digital financial ecosystem and promoting digital financial literacy.

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Appendix. Supplementary Tables

Table A.1. Characteristics of women RMG workers included in our analysis samples

	Primary sample	Sub-sample 1 (for trends analysis)	**Sub-sample 2 (majority cash payroll after stimulus)**	**Sub-sample 3 (majority digital payroll after stimulus)**
Age (years)	27	27	30	26
Marital status (%)				
Married	82%	78%	73%	80%
Single	15%	17%	18%	17%
Divorced/Widowed	3%	5%	1%	3%
Region (%)				
Dhaka	85%	92%	88%	93%
Chittagong	15%	8%	12%	7%
Education (%)				
No education and illiterate	4%	5%	6%	5%
No education but literate	9%	13%	18%	11%
Primary	46%	41%	53%	37%
Secondary	35%	37%	24	42%
Higher secondary	5%	3%	0%	4%
Tertiary	1%	1%	0%	1%
Years of experience in RMG sector	4.96	5.08	7.8	4.12
Sample size	957	195	51	144

Source: GWD worker enollment dataset.

Note: Characteristics are shown for the primary analysis sample, sub-sample 1, sub-sample 2, and sub-sample 3. Marital status, region, and education reflect worker's status when they first enrolled in the GWD panel sample. We added the duration of time that has elapsed since each worker's enrollment to ages and years of experience in the RMG sector to better reflect their status as of March 2022.

Table A.2. Digital financial account opening among women workers during the stimulus period (May–August 2020)

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Prevalence of digital account opening			
Opened an account	47	67	71
Did not open account	48	31	22
Did not recall	5	2	8
Account type			
Mobile money account	41	59	62
Opened by worker	26	35	35
Opened by employer	13	22	24
Opened by someone else	1	2	3
Bank account	6	8	8
Opened by worker	1	0	3
Opened by employer	4	4	4
Opened by someone else	1	4	1
Sample size	950	51	143
Primary reason for opening account during the stimulus period (May–August 2020) was to receive wage payments (among workers whose account was opened by the worker or someone else other than the employer during the stimulus period)			
Yes	86	95	93
No	12	5	5
Did not recall	2	0	2
Sample size	283	21	60
Documentation workers provided to open a digital financial account during the stimulus period (May–August 2020) (among workers who opened a new account during the stimulus period)			
Any form of personal ID	93	94	94
Types of personal IDs:			
NID	79	88	73
Factory ID/proof of employment	22	6	23
Birth certificate	16	6	20
Other government ID	1	0	2
Did not use NID as their personal ID	14	6	21
Mobile phone number	88	97	86
Passport photo	14	9	9
Other	0	3	0
Did not recall	4	3	3

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Sample size	448	34	101
Choice of financial provider (among workers who opened a new account during the stimulus period)			
Worker chose	39	15	52
Worker chose, but employer recommended provider	19	9	29
Worker chose on their own	18	0	20
Worker chose with recommendation from someone else	3	6	4
Employer chose	46	62	39
Someone else chose	2	0	2
Did not recall	12	24	7
Sample size	448	34	101
Challenges workers experienced when opening accounts during the stimulus period (May–August 2020) (among workers whose account was opened by the worker or someone else other than the employer during the stimulus period)			
No challenges	80	90	75
Steps not clear	8	5	13
Mobile phone or SIM - not registered in name	4	0	8
Mobile phone or SIM - no access	4	0	5
Time-consuming process to open account	2	5	5
Did not have required identification	2	5	5
Did not have access to bank or mobile financial service provider	1	0	0
There was a minimum amount required to open the account	0	0	0
Did not recall	10	5	12
Sample size	283	21	60

Note: Outcomes are shown for the primary analysis sample, sub-sample 2, and sub-sample 3. Indicators that are statistically different across sub-samples 2 and 3 at a 90 percent confidence interval are in bold.

Table A.3. Training, assistance, and digital financial literacy during the stimulus period (May–August 2020)

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Support or assistance employer provided to worker to open an account during stimulus period (May–August 2020) (among workers whose account was opened by the worker or someone else other than the employer during the stimulus period)			
Received any support	56	52	67
Received information how to open an account	48	48	57
Introduced to agent	13	10	12
Other	0	0	0
Received no support	28	19	23
Could not recall	16	29	10
Sample size	283	21	60
Workers received information and/or assistance about wage digitization as of September 2020 (among workers who were paid digitally)			
Yes	78	81	82
No	22	19	18
Sample size	503	31	123
Topics of information on wage digitization covered as of September 2020 (among workers who received any information or assistance on wage digitization)			
Security (how to keep PIN safe)	95	88	98
How to withdraw money	86	84	87
How to check balance	83	88	87
Where to go with a complaint or question about account	51	36	55
How to transfer money	40	28	43
Additional benefits of mobile or bank account	38	52	41
What to do if debit card lost or PIN forgotten	27	4	26
Told to receive assistance from guard if needed	23	4	23
Risks with an account	19	24	20
Other	0	0	0
Sample size	391	25	101
How workers received information or assistance on wage digitization (among workers who received any information or assistance on wage digitization)			
Written information/materials	46	60	57
Learned at home or from friends	40	48	36
One-on-one meetings	47	64	39

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Loudspeaker announcements	31	0	34
Training	27	28	21
Group sessions	20	16	26
Videos	12	4	19
Calls	8	0	11
Other	3	8	3
Sample size	391	25	101
Worker was aware of the following information when account was opened during the stimulus period (May–August 2020) (among workers who opened an account during the stimulus period)			
Costs associated to make a withdrawal/cash out paycheck	41	29	45
Costs associated with transactions such as transfers	25	18	22
Types of transactions that you could make with an account	17	21	17
Access to other financial services	5	0	5
Restrictions on usage	5	0	2
Not aware of any of the above information	44	44	42
Could not recall	10	18	10
Sample size	448	34	101
Workers' comfort in using mobile or bank account system in September 2020 (among workers who were paid digitally)			
Withdraw money without help	67	68	67
Check balance without help	71	48	77
Comfortable with the digital system	65	45	67
Transfer money to friends and family without help	32	26	38
Sample size	503	31	123
Worker was able to use account by themselves or someone helped them			
Made transactions without assistance	14	6	17
Someone else helped with all transactions	33	33	47
Someone else helped with some transactions	24	31	22
No support	14	6	17
Did not recall	10	12	11
Sample size	950	51	143

Source: Special survey questions administered in March 2022 or September 2020.

Note: Outcomes are shown for the primary analysis sample, sub-sample 2, and sub-sample 3. Indicators that are statistically different across sub-samples 2 and 3 at a 90 percent confidence interval are in bold.

Table A.4. Account uses during the stimulus period and in the past year of the post-stimulus period

	Percentage of primary sample, stimulus period (May–August 2020)	Percentage of primary sample, more recent post-stimulus period (March 2021– April 2022)
Use of accounts		
Only cash out wages	44	29
Receive money from a relative or friend	28	39
Send money to a relative or friend	26	39
Save money	14	15
Pay bills	3	1
Take a loan	6	2
Repay loan	6	5
Receive government payment	0	3
Pay taxes	0	0
Did not use account	n.a.	5
Not recall	20	6
Refused	n.a.	2
Did not have an account	19	10
Sample size	768	834

Source: Special survey questions administered in March 2022 or May 2022.

Note: Outcomes on account uses during the stimulus period (May–August 2020) and in the more recent post-stimulus period (March 2021–April 2022) are shown for the primary analysis sample. Questions on outcomes during the more recent post-stimulus period were asked in special survey 2, which was administered at the beginning of May 2022, and asked respondents to recall account uses in the past year. Respondents who reported that they did not have an account are excluded from the sample in that period. The indicator for "Did not have an account" is presented for all workers in the primary sample. Tests for statistical significance are not included in the table.

n.a. = not applicable.

Table A.5. Reasons worker did not use digital account during the stimulus (May–August 2020) and more recent post-stimulus period (March 2021–April 2022)

	Percentage of primary sample
Stimulus period (May–August 2020) (among workers who only used account to cash out wages)	
Did not know how to use the account	37
Not comfortable with security of mobile payments	27
Did not know how to use the mobile phone	11
Someone else decides how to use my account	8
Transaction fees were too high	7
Vendors typically would not accept digital payments	6
Did not have access to a mobile phone	3
Other	7
Did not recall	23
Sample size	335
More recent post-stimulus period (March 2021–April 2022) (among workers who only used account to cash out wages)	
Does not know how to use the account	29
Does not need to use account	25
Costs associated with account are too high	20
Merchants typically would not accept digital payments	10
Someone else decides how to use my account	6
Physical safety concerns	4
Fear of fraud	3
Does not have access to a mobile phone	3
ATM or agent is too far	1
MFS or local bank deactivated account during the verification of ID documentation	0
Other	0
Did not recall	9
Refused to answer	0
Sample size	244

Source: Special survey questions administered in March 2022 or May 2022.

Note: Outcomes are shown for the primary analysis sample. Tests for statistical significance are not included in the table.

Table A.6. Post-stimulus wage digitization trends

	Percentage of primary sample	Percentage of sub-sample 1 (trends analysis)
Wage payments in the immediate post-stimulus period (September 2020–February 2021)		
Cash	20	46
Digital:		
Digital – bank account	15	54
Digital – mobile money	46	
Sometimes cash, sometimes digital	1	
Did not recall	9	n.a.
Refused to answer	0	n.a.
Did not work during that period	9	n.a.
Sample size	922	313
Wage payments in the more recent post-stimulus period (March 2021–February 2022)		
Cash	34	41
Digital:		
Digital – bank account	16	59
Digital – mobile money	28	
Sometimes cash, sometimes digital	3	
Did not recall	0	n.a.
Refused to answer	0	n.a.
Currently unemployed	18	n.a.
Sample size	922	313

Source: Special survey questions administered in May 2022 and GWD panel (February 2019–January 2020, May 2020–February 2022).

Note: Outcomes compare the wage digitization status of women workers for the primary analysis sample and sub-sample 1. Tests for statistical significance are not included in the table.

n.a. = not applicable

Table A.7. Stakeholder influence on digital vs. cash wage payments and account functionality after the stimulus period

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Worker had option to receive cash or digital wages in July 2020			
Yes	9	10	12
No	80	84	80
Could not recall	11	6	8
Sample size	950	51	143
Stakeholder influenced factory's decision to pay wages			
Factory management	76	76	82
Worker participation committees	6	2	12
Worker unions	2	0	1
Workers	3	6	2
Other	1	2	0
Did not know	19	22	14
Refused to answer	1	0	1
Sample size	922	51	141
Account opened during the stimulus period remained functional in the more recent post-stimulus period (March 2021–April 2022) (among workers who opened an account during the stimulus period)			
Yes	85	73	98
No	15	27	2
Sample size	394	26	92

Source: Special survey questions administered in March 2022 May 2022.

Note: Outcomes are shown for the primary analysis sample, sub-sample 2, and sub-sample 3. Indicators that are statistically different across sub-samples 2 and 3 at a 90 percent confidence interval are in bold.

Table A.8. Training, support, and digital financial literacy during the post-stimulus period

	Percentage of primary sample
Received any training	
Yes	18
No	57
Did not recall	7
Refused to answer	0
Sample size	922
Types of training	
How to access my account and cash out wages by myself	14
Not sharing PINs	17
Make other transactions such as payments, receiving and sending money	5
Did not recall	0
Refused to answer	0
Sample size	922
Who worker goes to with questions, complaints, concerns about using account	
Factory staff	34
Agent	32
Family member	28
Co-worker	23
Security guard at ATM	8
Friend	7
Bank teller/staff	1
Someone else makes transactions for me	2
No one worker can reach out to	0
Does not have any questions, concerns, or complaints	8
Other	0
Did not know	1
Refused to answer	34
Sample size	922
Factory provided support to workers in post-stimulus period	
Help opening account	28
Covered cash-out fees	11
ATM on factory premises	6
Help with ID documents for opening an account	5
Brought agents to factory	3
Provided SIM card	3
No support	36
Did not recall or did not know	9

	Percentage of primary sample
Refused to answer	1
Sample size	922
Additional types of training and support that women worker would find useful	
How to use the account without help	54
Security (PIN security)	47
Cover cash-out fees	26
ATM on factory premises	14
Customer support	11
Bring agents to factory	7
Help opening an account	7
Help with ID for opening an account	3
Provide SIM card	2
Other	0
Did not know	8
Refused to answer	3
Sample size	922

Source: Special survey questions administered in May 2022.

Note: Outcomes are shown for the primary analysis sample. Tests for statistical significance are not included in the table.

Table A.9. Effects of digital wage payments on household relationships

	Percentage of primary sample
Improves how other members of their household include them in decision making	16
Creates tension/conflict with other members of their household	19
Other positive effect	0
Other negative effect	0
No effect	39
Did not know	24
Refused to answer	5
Sample size	922

Source: Special survey questions administered in May 2022.

Note: Outcomes are shown for the primary analysis sample. Tests for statistical significance are not included in the table.

Table A.10. Perceived advantages and disadvantages of receiving wage payments digitally

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
Perceptions of wage digitization in September 2020 (among workers who indicated they received digital wages in September 2020)			
Likes the change	63	55	63
Prefers to revert to cash	34	45	33
Either way is the same (no preference)	3	0	4
Sample size	503	31	123
Reasons workers liked the change to digital wages (among workers who liked the change to digital wages as of September 2020)			
Safer than carrying cash	83	65	75
Can withdraw any time needed	73	71	78
No need to wait in queue for pay	49	53	51
Reduces unnecessary expenses	43	35	45
Easier to save	43	35	39
Can receive money while staying at home	36	59	36
Ease of transferring money	32	18	35
Can complete transactions from home	30	29	34
More transparency, proof of received salary	30	12	30
Pay for MobileTalk from home	29	35	30
Cheaper	14	0	17
Sample size	315	17	77
Reasons workers in disliked the change to digital wages (among workers who disliked the change to digital wages as of September 2020)			
Like having cash in hand	70	93	68
Fees	52	64	39
Hectic/difficult process	52	64	63
Lose control to husband	25	0	34
Do not understand how to use account	24	29	34
Difficult to remember PIN	22	21	24
Network issues and other issues withdrawing	20	14	22
Long lines	16	7	17
Other	7	0	17
Sample size	172	14	41
Perceived advantages of digital wages in the more recent post-stimulus period (March 2021–February 2022)			
Receive payments without delays	54	45	68

	Percentage of primary sample	Percentage of sub-sample 2 (majority cash payroll after stimulus)	Percentage of sub-sample 3 (majority digital payroll after stimulus)
More control over money	24	20	26
Money is safe in an account	33	35	26
Easy to make transactions	32	27	32
Able to save money	24	20	26
Other	0	0	1
No advantages	14	29	12
Did not know	8	4	2
Refused to answer	2	0	1
Sample size	922	51	141
Perceived disadvantages of digital wages in the more recent post-stimulus period (March 2021–February 2022)			
Cashing out takes a lot of time	37	33	37
Less control over money	12	14	18
Money is not safe in account	16	18	20
Rely on others to cash out wages	19	39	19
Difficult to access my bank or mobile money account	15	25	11
Leads to domestic tension or conflict	11	8	16
Other	3	6	4
No disadvantages	26	24	28
Did not know	10	2	6
Refused to answer	2	2	1
Sample size	922	51	141
How workers would prefer to receive wage payments in the future			
Cash	51	75	52
Digital	34	12	38
Mobile money account	22	6	23
Bank account	12	6	16
Either way	6	12	6
Did not know	6	0	1
Refused to answer	3	2	1
Sample size	922	51	141

Source: Special survey questions administered in September 2020 or May 2022.

Note: Outcomes are shown for the primary analysis sample, sub-sample 2, and sub-sample 3. Indicators that are statistically different across sub-samples 2 and 3 at a 90 percent confidence interval are in bold.