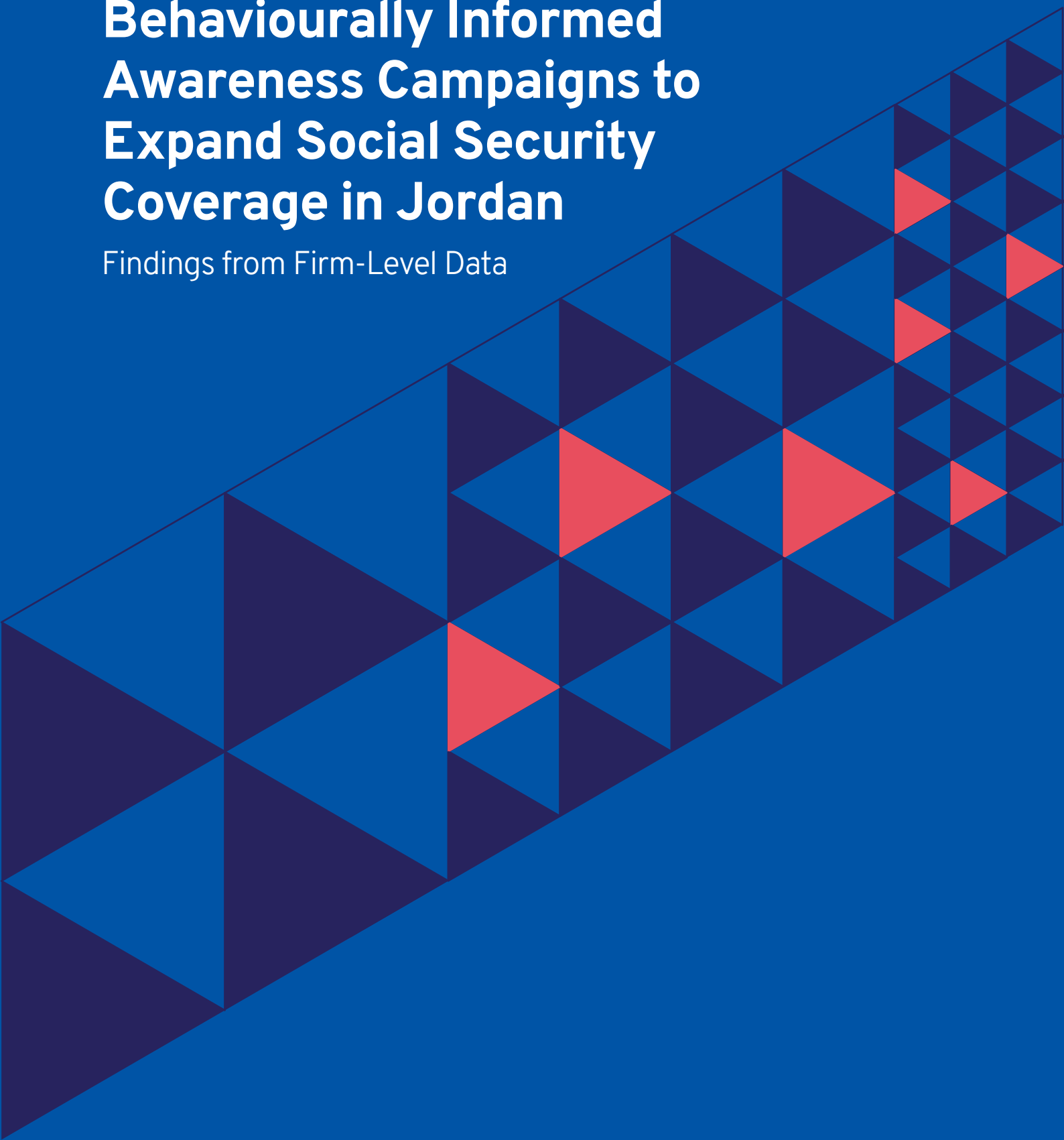




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► Impact Evaluation of Behaviourally Informed Awareness Campaigns to Expand Social Security Coverage in Jordan

Findings from Firm-Level Data



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Findings from Firm-Level Data



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تقييم أثر حملات التوعية المستندة إلى العلوم السلوكية لتوسيع نطاق تغطية الضمان الاجتماعي: نتائج مستخلصة من بيانات على مستوى المنشآت،

9789220426173 (web PDF)

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1

Introduction

Expanding contributory social security schemes in low- and lower-middle-income countries (LMICs) remains a significant challenge, mainly due to widespread informal employment (OECD, 2024; Torm and Oehme, 2024). According to ILO estimates, over eight in ten jobs in LMICs are informal (ILO, 2024). Workers excluded from contributory social security are often the most vulnerable, such as low-skilled workers, women, children, immigrants, and refugees. The Middle East and North Africa (MENA) region, along with Sub-Saharan Africa, are particularly poor at providing social protection coverage to these vulnerable populations (ILO 2023 and 2024).

Informality in employment is often a deliberate choice driven by the shared incentives of workers and firms to evade taxes, bypass bureaucratic hurdles, and avoid the costs linked to formal economic activities. Complex regulations combined with weak law enforcement exacerbate these barriers to formalisation (Ulyssea, 2020). Additionally, market frictions can further increase the level of informality in an economy. Firms and workers might not be well-informed about the benefits of social security and the registration process (e.g. Liebman and Luttmer, 2015; Giles et al., 2021). Behavioural frictions such as aversion to complexity and procrastination can also influence take-up decisions (Domurat et al., 2021). While social security aims to protect workers against various lifecycle shocks, it also represents an additional cost for both workers and firms, often perceived as akin to taxation. If state capacity is weak, workers are more likely to prioritise immediate financial gains over long-term benefits like pensions or health insurance. This preference stems from perceived uncertainty regarding the fulfilment and quality of these benefits provided by public institutions (Ulyssea, 2020).

The research design of this study comprises two distinct, yet complementary, RCTs to test different sets of interventions:

- The first RCT, which happened between January and May of 2024, targeted firms with up to nine registered employees, to assess the effectiveness of various informational content and delivery methods in increasing social security participation among informal workers within these firms.

- The second RCT, which started in August 2024, focuses on firms with 11 to 20 registered employees, will evaluate whether financial incentives and child benefits could enhance social security participation among informal workers in these firms, in addition to information packages.

The study relies on SSC's administrative data, supplemented by firm-level survey data, to measure outcomes of interest. The evidence generated aims to inform the SSC and ILO about the effectiveness of interventions addressing misinformation, financial barriers, and the attractiveness of the social security package. This evidence is intended to contribute to the national dialogue on extending social security coverage and support the SSC in updating its strategic plan (2024-2027).

This report presents the preliminary findings from the first RCT. Chapter 2 details the design of the study, including the interventions and sampling methods. Chapter 3 discusses firm characteristics, while Chapter 4 presents the preliminary results of the interventions, focusing on their impact on knowledge, worker registration, and engagement with SSC services. Chapter 5 outlines the challenges faced during implementation and the learnings gained. Finally, Chapter 6 concludes the report and discusses next steps.



 2

Study design of RCT 1

This section outlines the design and methodology of the randomized controlled trial (RCT 1), which aimed to evaluate the impact of two different interventions—face-to-face visits and SMS campaigns—on social security and Estidama++ registration among firms in Jordan. The study design followed an experimental approach to assess changes in firm behaviour, knowledge, and worker registration.

The study incorporates both administrative data from the Social Security Corporation (SSC) and survey data collected from firms. The administrative data provide insight into worker registrations, payments, and engagement with SSC platforms, while the survey data capture more detailed firm characteristics and perceptions.

► 2.1 Objectives and hypotheses

The interventions tested in this study were designed to tackle key barriers to social security registration, including lack of information, behavioural frictions, and the perceived costs of registration. The following key hypotheses were tested:

- 1. Increased knowledge about social security and the Estidama++ programme.** Firms exposed to the interventions would demonstrate a higher understanding of the social security system and the specific benefits of Estidama++.
- 2. Enhanced engagement with SSC services.** Firms that received the interventions would be more likely to log in to SSC portals, explore available resources, and interact with SSC platforms.
- 3. Improved worker registration, especially for those eligible under Estidama++.** Firms in the treatment groups would be more likely to register their workers with the SSC, particularly those eligible under the Estidama++ programme.

► **Box 1: Estidama++ programme**

Estidama++ offers a contribution subsidy to employers and cash support to employees who are registered under the programme. Employers receive a subsidy of JOD 30 per month per registered worker in the programme, while employees receive cash transfers of JOD 100 every three months. These benefits are provided for 12 months.

The Estidama++ programme targets firms with 1 to 9 registered workers, including the owner. These firms could register up to 10 Jordanian and non-Jordanian workers under Estidama++ who had not been registered before January 2022 and whose income does not exceed 500 JD. Under Estidama++, priority is given to Syrian refugees, migrant workers, and female workers.

Two separate randomised interventions were conducted to evaluate how best to encourage eligible firms to participate in Estidama++:

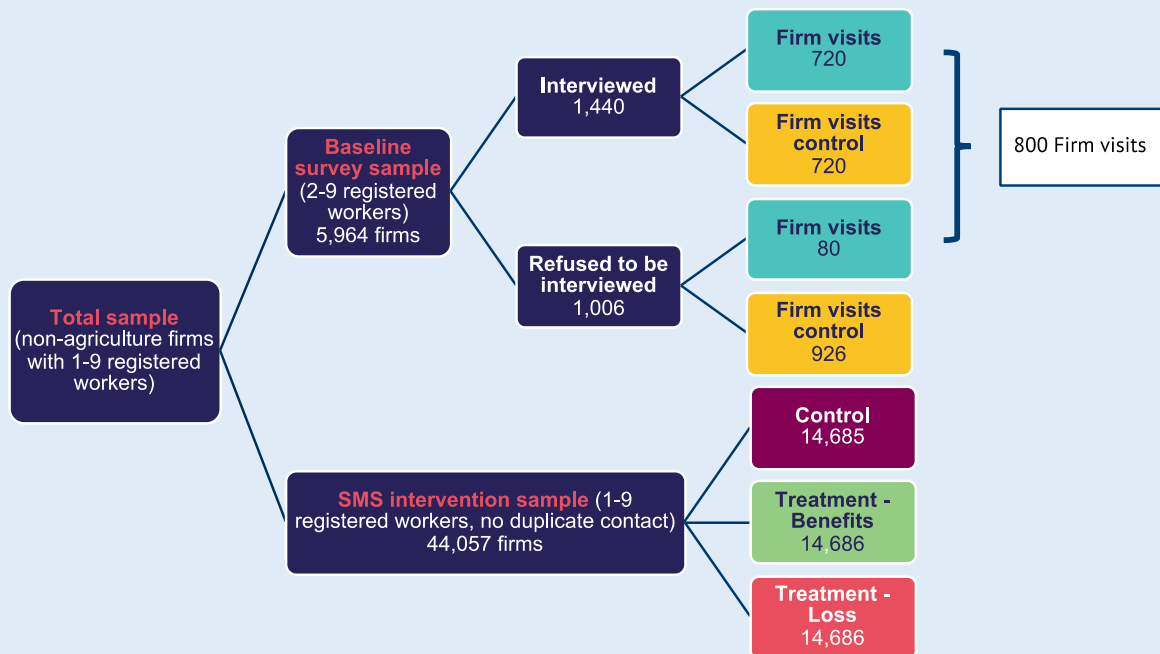
- **Face-to-face intervention:** SSC outreach officers conducted in-person visits to treatment group firms to inform them about Estidama++ eligibility and benefits, the advantages of social security membership, and the registration process. A brochure summarising this information was provided during the visit.
- **SMS intervention:** SSC sent a series of nine SMS messages to treatment group firms. The introductory SMS included the SSC registration number of the firm, while eight subsequent messages were sent weekly. These messages, framed either to highlight the benefits of registration or to emphasise the risks and costs of non-participation, included a link to the SSC website for easy registration.

► 2.2 Sampling and randomisation

The study sample comprised of all eligible firms in Jordan, totalling approximately 50,000 firms with 1 to 9 registered workers. These firms were randomly assigned into five groups, ensuring a balanced experimental design to evaluate the distinct effects of both interventions—face-to-face visits and SMS messages (Figure 1).

The five groups were as follows:

1. **Face-to-face treatment group:** firms that received direct, in-person visits from SSC outreach teams.
2. **Control group for face-to-face visits:** firms that did not receive the face-to-face visits but were included in the overall study for comparison purposes.
3. **SMS benefits treatment group:** firms that received SMS messages framed positively, highlighting the benefits and opportunities of social security and Estidama++ registration.
4. **SMS loss aversion treatment group:** firms that received SMS messages with a loss aversion framing, focusing on the risks of non-registration, including potential penalties and lost benefits.
5. **Control Group for SMS:** Firms that did not receive any SMS messages and served as the control group for the SMS interventions.

► **Figure 1: Study sample**

The randomisation was stratified by firm size and sector to account for differences in baseline characteristics. Firms were selected from across multiple sectors and geographic regions in Jordan to ensure the results would be representative of the diverse firm landscape.

► 2.3 Face-to-face intervention

The face-to-face intervention involved trained SSC outreach workers visiting a sample of firms eligible for the Estidama++ programme between February and May 2024. These visits were intended to convey behaviourally informed messages about Estidama++ eligibility, the benefits of social security registration, and the requirements for registration on the SSC website. The messages were developed on the basis of an extensive behavioural mapping exercise detailing informational, behavioural, and structural challenges to social security uptake by employers and workers. During the initial diagnostic phase, insights from a desk review, available data, and qualitative fieldwork were all synthesized in

the behavioural map - an analytical tool that identifies structural, informational and behavioural barriers and situational bottlenecks preventing key stakeholders from adopting the desired behaviours to social security registration and defines behavioural tools and nudges to help overcome the identified barriers.

The behavioural map was then used as a blueprint to design the various intervention tools, including a brochure that was provided to the firms by the outreach workers, containing comprehensive information about social security benefits, Estidama++, and other key messages (see Figure 2). These messages employed various behavioural tools such as social norms, calls to action, the salience of immediate benefits, hassle reduction, framing, incentives, the endowment effect, loss aversion, commitment, and reminders.

The brochure consisted of four pages reflected in a semi-structured script shared with outreach workers, including key messages on social security short-term and long-term benefits, Estidama ++ incentives, and a guide through the registration process of workers in social security. The key messages in the brochure relied on a positive framing overall, focusing on the benefits of social security registration and the incentives provided to the

firm and workers by the SSC and the Estidama++ program. The first page introduced social security participation to enhance financial stability, emphasising the advantages of registration to encourage firms to enrol, and included a key message quantifying the benefits rolled out by the SSC in the previous year to enhance trust and promote a social norm of participation. The second page detailed the eligibility criteria for Estidama++ and included a section where employers could approximately calculate their expected benefits upon registering all their workers in the programme, thereby focusing on Estidama++ as an

incentive for employers to enrol their workers in social security. The third page presented both the short-term and long-term benefits offered by the SSC and highlighted the short-term benefits to address the misconception that social security solely provides long-term advantages. The final page outlined the registration process in three simple steps on the SSC website, and directed firms to the nearest SSC branch for further assistance. It also included a calendar section, prompting firms to commit to a specific date and time for registration.

► **Figure 2: Examples of the pages in the brochure given to firms during the visits**



If registration did not occur during the visit and the firm representative committed to visiting a branch to complete the process, SSC officials followed up with a call to remind the representative of their commitment and the date noted on the brochure. Additionally, outreach workers received a one-page guide summarising the most important messages and key points discussed during their training, which they could reference during their visits.

2.3.1 Firm-level surveys

In addition to the administrative data, primary data collection was conducted via firm-level surveys before and after the face-to-face visits. The baseline survey was completed prior to the visits, and the endline survey followed the intervention. Since the face-to-face treatment was expected to have the most intensive effect, 50 per cent of the firms surveyed at baseline were purposefully

assigned to the face-to-face treatment group, while the other half formed the control group.

The survey gathered detailed information on each firm's worker registration status, knowledge of social security, experience with the registration process, and trust in institutions. Data collected through these surveys were crucial for comparing outcomes between the treatment and control groups after the face-to-face intervention. These firm-level surveys provided deeper insights into firms' interactions with the SSC, their understanding of Estidama++, and the direct impact of face-to-face engagement on firms' social security registration behaviour.

2.3.2 Face-to-face intervention sample

Across Jordan, 800 firms were expected to receive face-to-face visits. The face-to-face intervention targeted firms with two to nine registered workers. This is because firms with only one registered worker are more likely to be self-employed individuals, and less likely to benefit from the intervention.

In November 2023, the sampling process involved randomly selecting around 6,000 firms, stratified by social security branch and firm size (very small versus small). The very small firm size category was defined as firms with five or fewer registered workers, while small firms had more than five but less than ten workers. These 6,000 firms did not participate in the SMS intervention.

For the baseline survey, which aimed to interview 1,400 firms out of the 6,000 randomly selected, enumerators followed the sampling order within each stratum to reach the total number of interviews determined for each stratum. Overall, the enumeration team attempted to contact 3,895 firms from the sample, and ultimately conducted valid interviews with 1,440 firms between December 2023 and January 2024. The remaining firms contacted either refused to participate or could not be reached.

After the baseline survey, 720 of the 1,440 surveyed firms were randomly assigned to the treatment group, stratified by branch and firm size. To reach a total of 800 firms for the face-to-face intervention, an additional 80 firms from the initial sample, who had not participated in the survey, were also assigned to the treatment group. The remaining firms served as the control group (Figure 1).

During the endline survey, which took place between May and June 2024, out of the original 1,440 firms surveyed

during the baseline, 109 were dropped, with 68 per cent of these from Amman. The reasons for dropping firms included refusal to participate (73 firms), closure (21 firms), and inability to contact despite multiple attempts. This results in an attrition rate of around 9 per cent.

2.3.3 Implementation of the face-to-face intervention

The implementation of the face-to-face intervention was planned and executed to ensure maximum reach and effectiveness. The intervention itself was conducted between February and May 2024, targeting the 800 firms randomly assigned to the treatment group.

The implementation process of the face-to-face intervention involved multiple stages. The first stage was the training of SSC outreach officers, who were equipped with the knowledge and skills necessary to conduct the visits. This training included detailed instructions on the content of the intervention, the use of the brochures, and strategies for engaging with firm owners, particularly those who might be sceptical or resistant to the idea of social security registration. The training additionally focused on the systematic delivery of the outreach efforts to the specified firms under this treatment group while elaborating the M&E approach of the roll-out of the face to face treatment group in line with other responsibilities with approaches to reduce the potential occurrence of contamination (i.e., reaching firms outside of the treatment groups).

Following the training, the officers were assigned a list of firms to visit. The visits were carefully scheduled to maximise coverage within the intervention period. Each officer followed a semi-structured script consisting of the main behaviourally informed messages to convey to the firms during the visit, noted in their personal outreach guide to ensure consistency in the information provided across all firms. This script reflected the content of the behaviourally informed brochure given to the firm representative during the visit, covering the essential elements of the Estidama++ programme, the benefits of social security, and the registration process, while also allowing room for personalised interaction based on the firm owner's specific concerns or questions. The outreach officers were trained to address owners' misperceptions and respond to their questions and concerns before implementing the visits.

Throughout the implementation period, the process was monitored by a dedicated team. Regular check-ins with the outreach officers were conducted to address

any challenges encountered and ensure adherence to the intervention protocol. Some of these challenges are described in Section 5. Finally, SSC outreach officers were provided monetary incentives for conducting the visits.

► 2.4 SMS campaign intervention

SMS messages consist of an outreach channel commonly used by SSC, to communicate with both firms and self-employed workers. Given their relative ease of implementation, cost effectiveness and high-reach, SMS messages allow conveying important information with a limited word count and low potential for interaction and engagement.

The SMS intervention aimed to reach many firms in a scalable and cost-effective manner, offering a practical alternative to the face-to-face visits. The SMS campaign consisted of a series of nine carefully crafted messages, sent over 8 weeks (from 11/02/2024 to 01/04/2024) to two groups of firms: one receiving messages framed positively, focusing on the benefits of social security registration, and another group receiving loss aversion-framed messages, highlighting the potential risks of non-registration (Table 1). Similarly to the key messages and tools of the in-person visits, the design of these SMS messages was based on various behavioural tools in two different framings aiming to provide information about Estidama++ and social security benefits based on the behavioural map, and nudging firms to act through digital

communication. The control group for the SMS intervention did not receive these behaviourally informed messages, providing a baseline against which the effectiveness of the different types of messages could be measured.

The SMS Benefits Treatment Group was exposed to messages that emphasised the positive outcomes of registering workers under social security and the Estidama++ programme. These messages highlighted the financial advantages that firms could gain, such as subsidies of up to JOD 360 per worker, as well as the broader protections social security offers, such as coverage for workplace injuries, maternity leave, and unemployment benefits. The rationale behind this positive framing was to appeal to firms' desire to improve their operations and provide tangible benefits to their employees, positioning social security registration as a smart business decision that could bring direct rewards.

In contrast, the SMS Loss Aversion Treatment Group received messages that focused on the potential risks and costs associated with not registering their workers. These messages employed a loss aversion framing, where people are more motivated by the fear of losing something than by the prospect of gaining something. The loss aversion-framed messages warned firms of the legal consequences they might face if they failed to comply with social security regulations, including the possibility of fines and sanctions. Additionally, the messages underscored the risks posed to workers who were not covered by social security, such as being unprotected in case of injury or illness, which could, in turn, lead to higher costs for the firm in the long run.

► **Table 1: SMS messages by framing**

Benefits Framing	Loss Aversion Framing
SMS 1: Introductory SMS message 11/02/2024 11:46:40 Dear firm #*****, Congratulations! Your firm is eligible to benefit from Estidama++, a programme offered by SSC. In the next few weeks, you will receive a series of messages about the benefits of the programme and how to claim them through SSC at no additional costs!	SMS 1: Introductory SMS message 12/02/2024 11:30 Dear firm #*****, Avoid the sanctions and fines in case your workers are not registered in social security. Benefit from the Estidama++, a programme that offers you benefits and subsidises their contributions. In the next few weeks, you will receive a series of messages about the programme.
SMS 2: Incentives and norms 11/02/2024 12:08	SMS 2: Loss aversion 12/02/2024 12:20

Benefit from up to JOD 360 from Estidama++ for every registered worker. Join more than 12,000 beneficiaries currently benefiting from the programme's incentives. Head to the nearest SSC branch for assistance or register online at: [link to website]	Don't miss out on up to JOD 360 from Estidama++ for every registered worker. The duration of the programme is limited, head to the nearest SSC branch for assistance or register online at: [link to website] before it's too late.
SMS 3: Benefits and protection from risks 18/02/2024 11:30	SMS 3: Loss aversion and risk perception 19/02/2024 12:00
Every year, around 11,000 workers are exposed to injuries at the workplace. Register all your workers in social security to cover all medical treatment expenses and other compensations. Head to the nearest SSC branch for assistance or register online at: [link to website]	Your business is at risk of unexpected threats! Every year, around 11,000 workers are exposed to injuries at the workplace. Register your workers to ensure all risks are covered. Head to the nearest SSC branch for assistance or register online at: [link to website]
SMS 4: Salience & simplification 25/02/2024 12:00	SMS 4: Loss aversion, risk perception & simplification 26/02/2024 11:00
Registering your workers with SSC is easy. All you need is the national number for Jordanian workers and the personal number for non-Jordanian workers. Visit the SSC website [link to website] to register your workers through your firm's account.	Firms with unregistered workers are at legal risk of fines and sanctions. Register your workers online at [link to website] using only their national number for Jordanians or personal number for non-Jordanians.
SMS 5: Emotions and incentives 03/03/2024 10:30	SMS 5: Loss aversion and incentives 04/03/2024 10:30
Protecting your team is your responsibility. Tell your workers about the short-term benefits you have provided them through SSC: work injuries, maternity, and unemployment. Head to the nearest SSC branch for assistance or register online at: [link to website]	Failing to register your workers with SSC exposes your firm to various risks, as your workers will be deprived of several short-term benefits such as: work injuries, maternity, and unemployment. Head to the nearest SSC branch for assistance or register online at: [link to website]
SMS 6: Present bias & emotions 10/03/2024 10:45	SMS 6: Present bias & emotions 11/03/2024 10:30
Contribute to a stable future for your firm and employees through the old age, disability, and death benefits provided by SSC. Head to the nearest SSC branch for assistance or register online at: [link to website]	Failing to register your employees with SSC could deprive them of a stable future. The SSC provides support for old age, disability, and death to protect against the risks of the future. Head to the nearest SSC branch for assistance or register online at: [link to website]
SMS 7: Quantification & incentives 17/03/2024 11:15	SMS 7: Quantification & loss aversion 18/03/2024 11:00

In 2022, around 400,000 workers and retirees benefited from social security benefits totalling nearly JOD 1.7 billion. And this year, the benefits continue. Head to the nearest SSC branch for assistance or register online at: [link to website]	Protect your firm from threats. In 2022, around 400,000 workers and retirees benefited from social security benefits totalling nearly JOD 1.7 billion. Head to the nearest SSC branch for assistance or register online at: [link to website]
SMS 8: Incentives & risk perception 24/03/2024 10:30	SMS 8: Loss aversion & risk perception 25/03/2024 10:45
Ensure the stability of your firm by registering your employees with SSC. Registration in social security ensures stability for your firm and its employees. Head to the nearest SSC branch for assistance or register online at: [link to website]	Non-registration of workers in social security is a legal violation that may result in fines that vary according to the type and duration of the violation. Avoid fines and protect your firm. Head to the nearest SSC branch for assistance or register online at: [link to website]
SMS 9: Reminders & incentives 31/03/2024 12:00	SMS 9: Loss aversion & reminders 01/04/2024 11:35
Don't miss out on registering in Estidama++, the registration period is limited. Complete the registration of your firm and employees before it's too late. Head to the nearest SSC branch for assistance or register online at: [link to website]	Did you complete the registration of your employees with SSC and E++? It's not too late to benefit from the support offered by the programme to your firm! Head to the nearest SSC branch for assistance or register online at: [link to website]

Both sets of messages were designed to be simple and action-oriented, making it easy for firms to understand what was being asked of them and how to comply. Each message included a clear call to action, in most cases with a link to the SSC website, where firms could log in and complete the registration process for their workers. The language used was deliberately straightforward, avoiding technical jargon that might confuse recipients or make the process seem more complex than it was.

The SMS messages were delivered at varying times of the day, with the timing of delivery carefully considered to maximise engagement. Based on previous research into the optimal times for digital communication, all of the messages were sent between 10:30 PM and 12:20 PM. This timing was chosen to coincide with lunch breaks, when

firm managers or business owners might be more likely to check their phones and engage with the content of the messages. The study also tracked engagement over the course of the campaign to assess whether different time slots or days of the week influenced the likelihood of firms responding to the messages.



 3

Data and estimation

This section outlines the key outcome variables in the data used in the analysis and describes the estimation strategy employed to assess the impact of the interventions. The primary outcomes of interest include firm-level social security registration, engagement with the Social Security Corporation (SSC) platforms, and worker enrolment in the Estidama++ programme. The data used for this analysis combines administrative records from the SSC with detailed survey data collected from firms. The estimation strategy employed allows us to measure the treatment effects of both the face-to-face and SMS interventions. A more detailed breakdown of the summary statistics of the key outcomes in both datasets is available in Annex 1.

► 3.1 Administrative data

The main outcomes from the administrative data provide insight into firm compliance with social security regulations, focusing on worker registration and engagement with SSC services. Namely, they are:

- Number of registered workers (male and female)
- Number of newly registered workers
- Percentage of firms with at least one worker registered in Estidama++
- Number of workers in a firm registered in Estidama++
- SSC portal log-ins (engagement)

► 3.2 Survey data

The baseline and endline survey measured a range of outcomes related to registration in social security, including knowledge and perceptions, reported numbers of registered workers, and other outcomes related to the firms' productivity and personnel. The tables below summarise the outcome measures in the baseline and endline.

The baseline summary statistics, presented in Table 2, highlight firms' initial knowledge and behaviour regarding social security before the interventions. At baseline, firms reported an average of 5.81 employees, but the number of workers registered with the SSC was slightly lower, resulting in a mean difference of 0.88 employees between self-reported and SSC-registered workers. Firms' knowledge of social security was measured on a 24-point scale, where they scored an average of 6.73. Knowledge

of the Estidama++ programme, however, was very low, with firms averaging 0.49 out of 4. Additionally, firms estimated a 45 per cent probability of being inspected by the SSC within the next three years, reflecting moderate awareness of enforcement measures. Very few firms, just 1 per cent, reported receiving direct support from the SSC to register workers, and only 29.8 per cent had received communication from the SSC about social security in the past three months.

► **Table 2: Baseline summary statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
No. of employees (self-reported, winsorised 99th)	1,440	5.813	3.537	2	23	5
No. of employees (self-reported minus SSC reported)	1,440	0.878	3.957	-6	70	0
Social security knowledge (Score out of 24)	1,440	6.732	2.369	0	16	7
E++ knowledge (score out of 4 based on 4 knowledge questions)	1,440	0.488	0.881	0	4	0
Perception of per cent of firms inspected by SSC (3 years)	1,440	45.06	35.579	0	100	50
Received support from SSC to register workers	1,440	0.01	0.102	0	1	0
Received communications from SSC in past 3 months	1,440	0.298	0.458	0	1	0
No. of female employees (self-reported)	1,438	1.382	2.586	0	30	0
No. of male employees (self-reported)	1,438	4.533	3.965	0	72	4
No. of female employees (self-reported minus SSC)	1,438	0.26	1.74	-6	26	0
No. of male employees (self-reported minus SSC)	1,438	0.609	3.337	-6	70	0
Never contributes to SSC	1,417	0.009	0.095	0	1	0
Contributes to SSC monthly	1,417	0.831	0.375	0	1	1
Firm's perception of worker's understanding of SSC (1-4 score)	1,440	2.889	0.951	1	4	3
Duration of worker registration (per worker, in categories)	1,390	2.59	1.421	1	5	3
Ease of registering for social security for firm (1-4 scale)	1,389	1.361	0.594	1	4	1
Ease of contributing to social security for firm (1-4 scale)	1,385	1.355	0.605	1	4	1
Trust in SSC (1-4 score)	1,440	3.237	0.977	1	4	4
Agree that your complaints can be voiced effectively if you feel the taxes or charges are unfair	1,440	0.647	0.478	0	1	1
Stringency of the SSC in enforcing its regulations (out of 4, 4=strictest)	1,440	3.356	0.846	1	4	4
Have ever gone on SSC website	1,440	0.722	0.448	0	1	1
Have ever used SSC mobile app	1,440	0.473	0.499	0	1	0

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
Employed new employees in the past 3 months	1,440	0.183	0.387	0	1	0
No. of new employees in the past 3 months	1,440	0.352	1.058	0	12	0
Had employees who left in the past 3 months	1,440	0.237	0.425	0	1	0
No. of employees who left in the past 3 months	1,439	0.41	1.058	0	16	0

The endline statistics in Table 3 show how key outcomes evolved after the interventions. The average number of self-reported employees remained stable at 5.87, but the gap between self-reported and SSC-registered workers widened significantly to 2.21 employees, suggesting firms were still not fully compliant with registration requirements. Firms' knowledge of social security remained almost unchanged, with a mean score of 6.69. However, there was a marked improvement in knowledge

of the Estidama++ programme, with the mean score nearly doubling to 0.97. Firms' perceived likelihood of SSC inspection increased to 56.8 per cent, indicating a heightened awareness of enforcement. There was also a slight increase in firms receiving support from the SSC, rising to 2.1 per cent, and 33.1 per cent reported receiving communication from the SSC, indicating improved outreach.

► **Table 3: Endline summary statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
No. of employees (self-reported, winsorised 99th)	1,311	5.872	3.969	1	26	5
No. of employees (self-reported minus SSC reported)	1,311	2.209	28.067	-17	694	0
Social security knowledge (Score out of 24)	1,311	6.691	2.295	0	17	7
E++ knowledge (score out of 4 based on 4 knowledge questions)	1,311	0.969	1.22	0	4	0
Perception of per cent of firms inspected by SSC (3 years)	1,311	56.841	30.541	0	100	60
Received support from SSC to register workers	1,311	0.021	0.142	0	1	0
Received communications from SSC in past 3 months	1,311	0.331	0.471	0	1	0
No. of female employees (self-reported)	1,311	1.517	4.025	0	70	0
No. of male employees (self-reported)	1,311	5.709	25.591	0	643	4
No. of female employees (self-reported minus SSC reported)	1,311	0.296	3.567	-13	70	0
No. of male employees (self-reported minus SSC reported)	1,311	0.743	3.448	-17	70	0
Never contributes to SSC	1,289	0.011	0.104	0	1	0
Contributes to SSC monthly	1,289	0.846	0.361	0	1	1
Firm's perception of worker's understanding of SSC (1-4 score)	1,311	2.882	0.799	1	4	3
Duration of worker registration (per worker, in categories)	1,259	2.902	1.438	1	5	3
Ease of registering for social security for firm (1-4 scale)	1,278	1.361	0.594	1	4	1

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
Ease of contributing to social security for firm (1-4 scale)	1,273	1.339	0.605	1	4	1
Trust in SSC (1-4 score)	1,311	3.288	0.977	1	4	3
Agree that your complaints can be voiced effectively if you feel the taxes or charges are unfair	1,311	0.647	0.478	0	1	1
Stringency of the SSC in enforcing its regulations (out of 4, 4=strictest)	1,311	3.356	0.846	1	4	4
Have ever gone on SSC website	1,311	0.722	0.448	0	1	1
Have ever used SSC mobile app	1,311	0.473	0.499	0	1	0
Employed new employees in the past 3 months	1,311	0.183	0.387	0	1	0
No. of new employees in the past 3 months	1,311	0.352	1.058	0	12	0
Had employees who left in the past 3 months	1,311	0.237	0.425	0	1	0
No. of employees who left in the past 3 months	1,311	0.41	1.058	0	16	0

► 3.3 Estimation

To estimate the impact of the interventions on outcomes, we estimate the following model using ordinary least squares (OLS). This allows us to measure the intention-to-treat (ITT) effects of different interventions on firms across multiple post-treatment rounds. The model is specified as follows:

where:

- y_{it} is the outcome variable for firm i at time t
- T_{jt}^i is a binary indicator equal to 1 if the firm was assigned to treatment group j (and 0 if assigned to control)

$$y_{it} = \alpha + \sum_j \beta_{jt} T_{jt}^i + \gamma_t (y_{i0} - \bar{y}_{i0}) + \sum_j \delta_{jt} T_{jt}^i (y_{i0} - \bar{y}_{i0}) + \sum_c \zeta_{ct} (x_{ci0} - \bar{x}_{ci0}) + \sum_j \sum_c \eta_{jct} T_{jt}^i (x_{ci0} - \bar{x}_{ci0}) + \varepsilon_{it}$$

- β_{jt} represents the effect of treatment group j at time t (the ITT effect),
- y_{i0} is the baseline value of the outcome for firm i ; $\bar{y}_{i0}$ is the mean baseline outcome across firms
- x_{ci0} represents baseline covariate c for firm i
- ε_{it} is the error term.

Baseline covariates (x_{ci0}) are included to improve the precision of the estimates and to account for potential imbalances between treatment and control groups. These covariates are demeaned, and their interaction with treatment indicators is included to ensure that the coefficients are not biased when covariates are part of the model (Lin, 2013). Covariates include the firm's initial social security knowledge, number of employees, and any prior SSC inspections.

As robustness checks, we estimate the model both with and without the inclusion of baseline covariates. Additionally, we report results with and without clustering standard errors at the firm level.



 4

Preliminary results

This section presents the preliminary results of the two informational interventions of RCT 1—face-to-face firm visits and SMS campaigns—against the main hypotheses: increased knowledge gains, increased engagement with SSC services, increased worker registration.

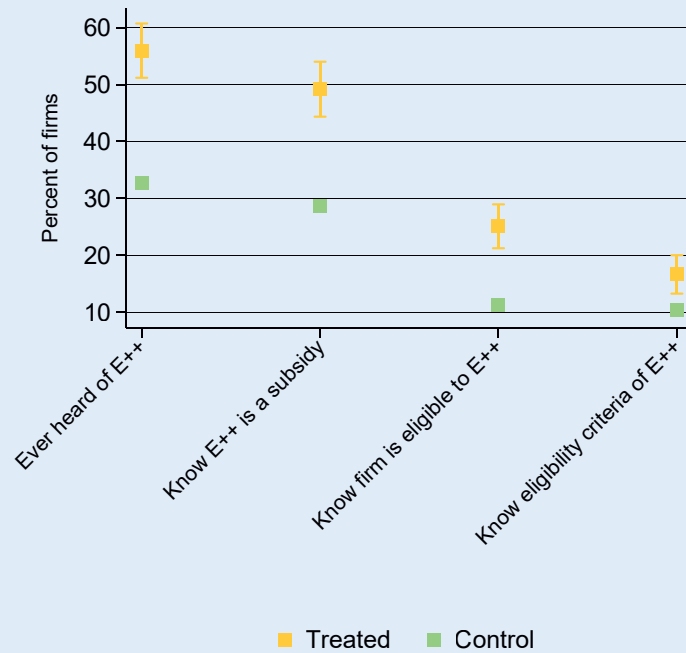
► 4.1 Face-to-face intervention

The face-to-face intervention, where SSC outreach officers directly engaged with firms, was designed to improve knowledge of Estidama++ and boost social security compliance through in-person interactions. This section presents the main impacts of this intervention on key outcomes.

4.2.2 Knowledge gains and engagement with SSC

Firm visits have had a positive impact on firm's knowledge of the Estidama++ programme. An Estidama++ knowledge index was constructed based on four variables: 1) whether the firm has ever heard of Estidama++, 2) whether the firm knows that Estidama++ is a subsidy, 3) whether the firm knows it is eligible to Estidama++, and 4) whether the firm knows all the eligibility criteria for Estidama++. We find that the firm visits have a positive impact on all four questions (Figure 3:). Treated firms are 23 percentage point more likely than control firms to have heard of Estidama++ (32 per cent among the control firms). Treated firms are also 21 percentage points more likely than control firms to know that Estidama++ is a subsidy (29 per cent among the control firms). Treated firms are also 14 percentage points more likely than control firms to know that they are eligible to Estidama++ (11 per cent among the control firms). Overall, firm visits have led to 0.6 points (on a 4-point scale) increase in firms' Estidama++ knowledge index compared to the control group.

► **Figure 3: Impact of face-to-face visits on Estidama++ knowledge, overall and by knowledge questions**

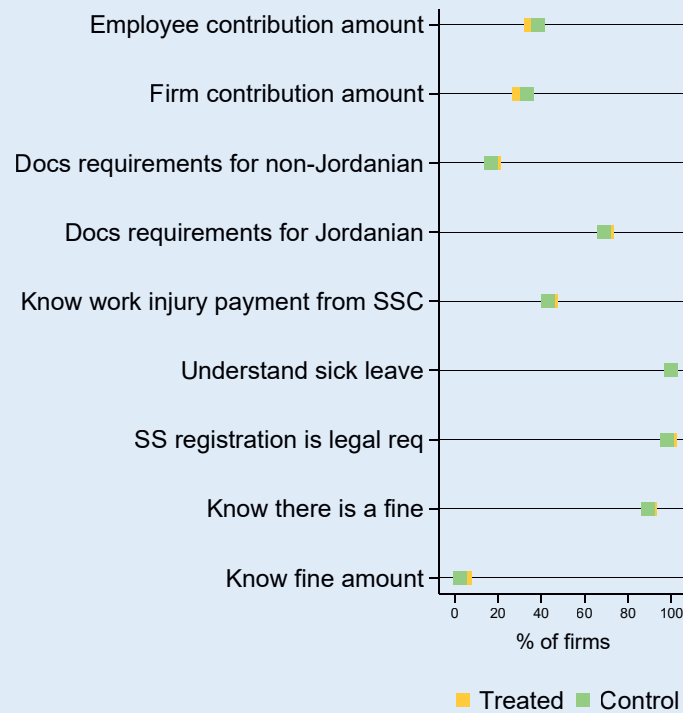


Source: Source: survey data. Notes: The lines show 90% confidence intervals. Survey weights applied.

In contrast, broader social security knowledge did not improve significantly, suggesting that while the face-to-face firm visits effectively delivered targeted Estidama++ information, they did not greatly affect general knowledge about the overall social security system. Figure 4 shows the percentage of firms who know about different requirements of social security. Both treated and control

firms on average know about the legal requirement of social security registration and that there is a fine if they do not register. However, only a small proportion of the firms know the exact fine amount, the contribution amount by the firm and the employee, and the document requirements for non-Jordanian workers.

► **Figure 4: Percentage of firms who know specific requirements of social security, by treatment status**

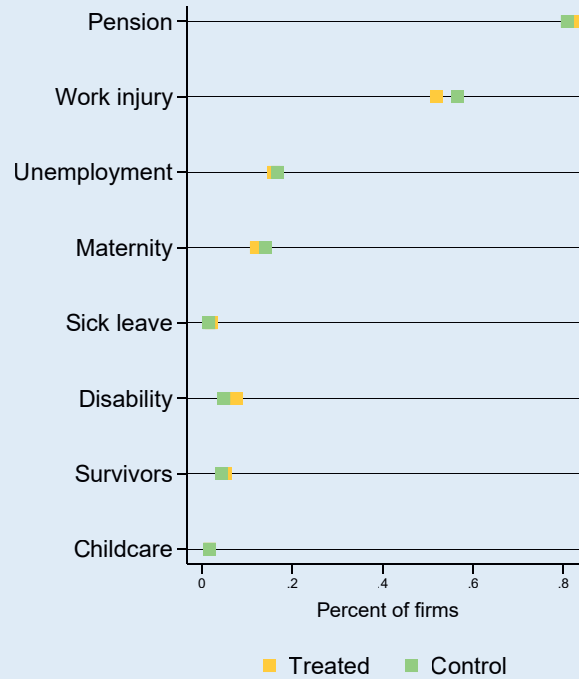


Source: survey data. Notes: Survey weights applied.

Figure 5 shows that there is no impact of the firm visits on firms' understanding of the specific benefits within the social security package. Both treated and control firms know that pension and work injury are benefits within the social security package. However, few firms know about

the other benefits, namely unemployment, maternity, sick leave, disability pension, survivors' pension, and the childcare programme.

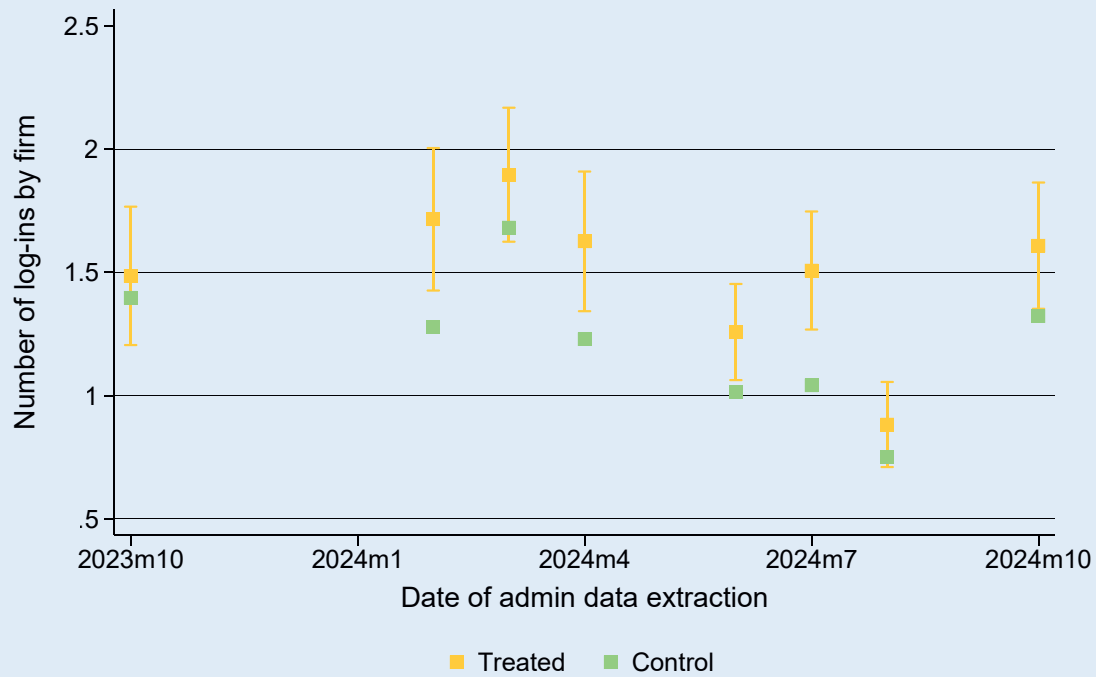
► **Figure 5: Percentage of firms who know specific benefits of social security, by treatment status**



Source: survey data. Notes: Survey weights applied.

The face-to-face visits also led to sustained engagement with SSC's digital platforms (Figure 6 and Table 4). Treated firms logged into the SSC portal an average of 0.4 more times per month than control firms in April 2024. The impact was even detected in October 2024 where treated

firms logged-in an average of 0.3 more times than control firms. This indicates that the impact persists even seven months after the firm visits.

► **Figure 6: Impact of firm visits on log-ins into SSC portals**

Source: Authors' calculation using social security administrative data. **Notes:** the lines show 90% confidence intervals. Survey weights applied. Treated points are OLS estimates. Regressions included strata, sector, baseline value controls.

► **Table 4: Impact of firm visits on log-ins into SSC portals**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2023m10	1.4	1.5	6%
2024m2	1.3	1.7	34%
2024m3	1.7	1.9	13%
2024m4	1.2	1.6	32%
2024m6	1.0	1.3	24%
2024m7	1.0	1.5	45%
2024m8	0.8	0.9	17%
2024m10	1.3	1.6	22%

Source: Authors' calculation using social security administrative data. **Notes:** Survey weights applied. Number of log-ins for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

4.1.2 Worker registration

The face-to-face intervention had a clear impact on increasing Estidama++ registration, as observed through the administrative data provided by SSC, as well as some indication of overall worker registration.

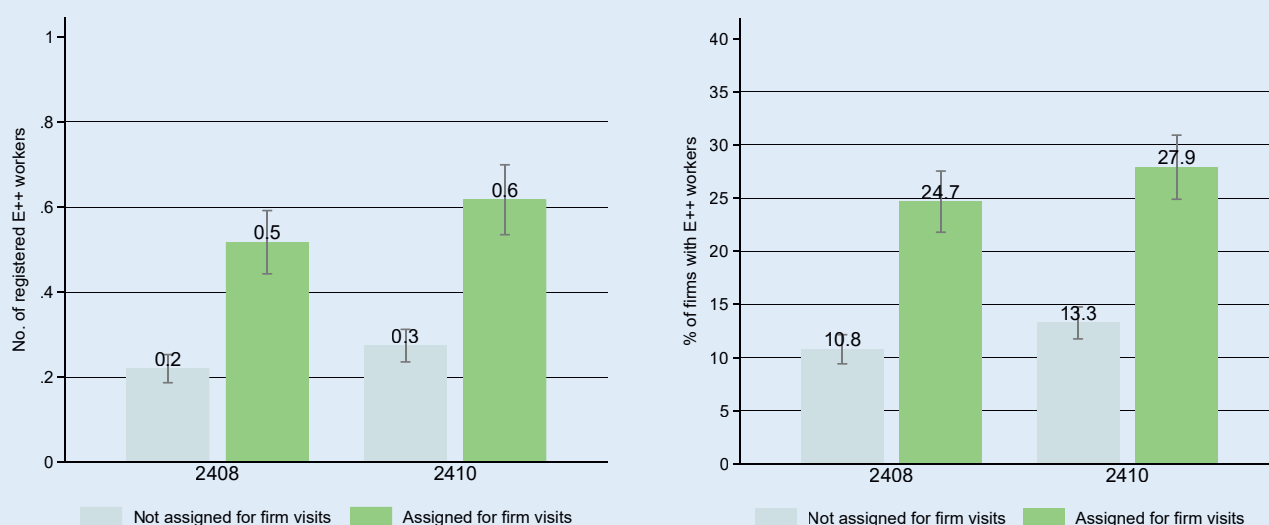
Estidama++ registration

Firm visits led to a substantial increase in Estidama++ registration both at intensive and extensive margins as shown in Figure 7 and Table 5.¹ The intervention led to a significant increase in the probability of firms registering at least one worker under Estidama++. Firms in the

treatment group were 15 percentage points more likely to register at least one worker in the programme compared to firms in the control group. This increase in participation reflects the success of the intervention in expanding the number of firms engaging with the Estidama++ programme.

On the intensive margin, firms in the treatment group registered 0.3 more workers on average under Estidama++, reflecting an increase in the number of workers enrolled in the programme. The combination of these effects demonstrates that the face-to-face intervention was effective at both getting more firms to participate in the Estidama++ programme and encouraging firms to enrol more workers once they had joined.

► **Figure 7: Impact of firm visits on Estidama++ registration both at intensive and extensive margins**



Source: administrative data. **Notes:** the lines show 90% confidence intervals. Survey weights applied. Treated points are OLS estimates. Regressions included strata, sector, baseline value controls. See Annex 2 for full regression results (Table 18).

¹ Participation in Estidama++ is defined as any firm who registered at least one worker into Estidama++. It is possible that after inspection from SSC officers that the worker may not receive the benefit in that period due to eligibility criteria and other factors.

► **Table 5: Impact of firm visits on percentage of firms with at least one worker registered in Estidama++**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2024m2	8.9	15.8	7.0
2024m3	9.0	17.0	8.0
2024m8	10.8	25.7	14.9
2024m10	13.3	28.7	15.5

Source: Authors' calculation using social security administrative data. Notes: Survey weights applied. Percentage for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

Total worker registration

There is suggestive evidence that there is a positive impact of firm visits on worker registration by firms (Table 6). The effect on the number of registered workers was small and statistically insignificant immediately after the firm visits, but a significant impact is observed approximately five months all firm visits were completed. but grew progressively over time. For example, by October 2024, the estimate shows that firms receiving the visits registered 0.27 more workers compared to the control group (RI p-value = 0.016) than those in the control

group. This increase represents 7 per cent of the average number of workers in control firms.

Furthermore, the intervention influenced both female and male worker registration. By October 2024, firms in the treatment group registered an additional 0.1 female workers (RI p-value = 0.016). This increase is approximately 12 per cent of the average number of female workers in control firms. Similarly, firm visits led to 0.17 more male worker registration per form in October 2024 (RI p-value = 0.078). This increase represents 6 per cent of the average number of male workers in control firms.

► **Table 6: Impact of firm visits on worker registration, by gender**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
All workers			
2023m10	3.72	3.77	0.04
2024m4	3.64	3.69	0.05
2024m6	3.61	3.68	0.07
2024m7	3.64	3.74	0.10
2024m8	3.58	3.80	0.22
2024m10	3.52	3.79	0.27**
Male workers			
2023m10	2.88	2.83	-0.05
2024m4	2.77	2.79	0.02
2024m6	2.74	2.77	0.03
2024m7	2.78	2.83	0.06
2024m8	2.75	2.90	0.15
2024m10	2.72	2.89	0.17**

Female workers			
2023m10	0.84	0.94	0.10
2024m4	0.88	0.90	0.02
2024m6	0.87	0.91	0.04
2024m7	0.86	0.91	0.05
2024m8	0.83	0.90	0.07
2024m10	0.80	0.90	0.10**

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001. Survey weights applied. Number of registered workers for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

Firms were able to register workers into Estidama++ who were employed from 1 January 2023 (more than one year prior to the commencement of treatments). As a result, there is a concern that the increase in Estidama++ registration is due to increase in existing workers instead of registration of workers who were not participating in

social security. Reassuringly, the results show that the positive effect is mainly driven by new worker registrations and not workers that were registered retrospectively. As shown in Table 7, by October 2024, firm visits have led to an increase in 0.2 workers that were registered on or after February 2024 (RI p-value = 0.01).

► **Table 7: Impact of firm visits on new worker registration**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2024m4	0.26	0.22	-0.04
2024m6	0.34	0.34	0.00
2024m7	0.47	0.52	0.06
2024m8	0.53	0.67	0.14
2024m10	0.67	0.90	0.23**

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001. Survey weights applied. Number of registered workers for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

Registration of foreign workers

There is no significant impact of firm visits on the number of foreign workers registered in a firm. Table 8 shows that both the firms with and without visits have similar numbers of registered foreign workers across the periods shown (from April to October 2024). The differences are not statistically significant at conventional levels.

► **Table 8: Impact of firm visits on foreign worker registration**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2024m4	0.81	0.80	-0.01
2024m6	0.80	0.80	0.00
2024m7	0.84	0.86	0.02
2024m8	0.83	0.87	0.04
2024m10	0.81	0.85	0.05

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001. Survey weights applied. Number of registered workers for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

On the other hand, there is suggestive evidence that the firm visits had some positive impact on the registration of Syrian workers. Table 9 shows that the number of registered Syrian workers in firms that were visited are larger to those that were not visited. By October 2024,

firm visits are estimated to have resulted in 0.043 more registered Syrian workers per firm, which represents 65 per cent of the average number of Syrian workers in control firms.

► **Table 9: Impact of firm visits on Syrian worker registration**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2024m4	0.070	0.109	0.039**
2024m6	0.069	0.107	0.037**
2024m7	0.068	0.107	0.039**
2024m8	0.066	0.113	0.047**
2024m10	0.065	0.108	0.043**

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001. Survey weights applied. Number of registered workers for firms with visits are calculated by adding control mean with estimated treatment effect. Regressions included strata, sector, baseline value controls.

Channels

Baseline knowledge of Estidama++

One of the channels through which firm visits may have led to an increase in worker registration is by raising awareness of Estidama++ among firms that were previously unaware of Estidama++. If this mechanism was at play, we would expect to observe a higher impact on firms that had no prior knowledge of Estidama++ before the visits. Figure 8 shows the estimated impacts of the firm visits on knowledge of Estidama++, the number of firm log-ins into the SSC portal in April 2024, percentage of

firms with at least one worker participating in Estidama++ in October 2024, the number of registered workers in a firm in October 2024, and the number of registered workers employed from February 2024 in October 2024. We compare the magnitude of the impact among firms with low knowledge of Estidama++ at baseline (lower scores) and firms with high knowledge (higher scores).

The results show that firms with the lowest baseline knowledge of Estidama++ (score of 0 or 1 at baseline) have experienced the largest gains in knowledge as a result of the firm visits. However, the impact of firm visits on other outcomes, including log-ins, Estidama++ participation,

and worker registration, are not larger among these firms compared to others. This indicates that firm visits

have an impact on firms who already have high levels of knowledge and as such other mechanisms are also at play.

► **Figure 8: Differences in impacts of firm visits by baseline knowledge of Estidama++**



Source: Authors' calculation using administrative data. Notes: the lines show 90% confidence intervals. Each point represents the estimated treatment effect for each outcome for each sub-group. Each group was categorised using the knowledge score of Estidama++ at baseline.

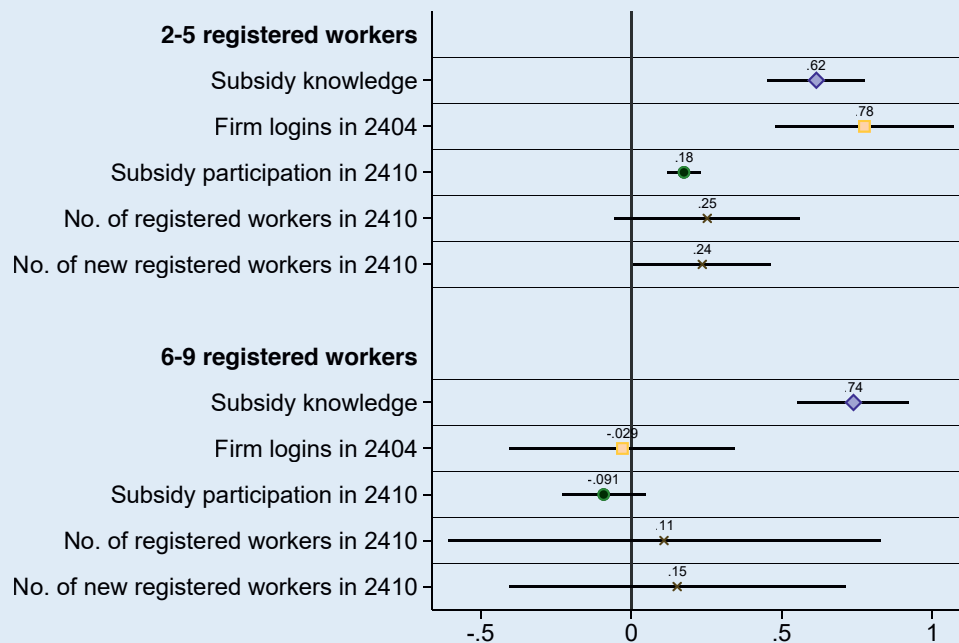
Firm size

It is also possible that firms of different sizes are differently impacted by the visits. On one hand, across contexts, extensive and intensive margin of informality of firms decline with the size of firms (Ulyseas, 2020; La Porta & Shleifer, 2014). As such, it is possible that firms that are smaller (possibly with more informal workers) respond to the incentives more positively than firms that are slightly larger (possibly fewer informal workers). In addition, smaller firms may face a tighter budget constraint compared to larger firms—the financial incentive of Estidama++ may be more attractive to smaller firms than larger firms.

On the other hand, larger firms may have more knowledge about registrations and so acting upon the intervention

may be easier compared to smaller firms. In addition, larger firms may feel the larger threat of penalties.

Figure 9 shows that firm visits have a larger impact on engagement (log-ins into SSC portal) among smaller firms. However, the impacts on knowledge and worker registration are similar on average between firms with 2-5 registered workers and firms with 6-9 registered workers.

► **Figure 9: Differences in impacts of firm visits by firm size**

Source: Authors' calculation using administrative data. **Notes:** the lines show 90% confidence intervals. Each point represents the estimated treatment effect for each outcome for each sub-group. Each group was categorised by firm size.

Finally, the initial findings also indicate a notable increase in the registration of workers whose wages fall at or below the eligibility threshold for the Estidama++ programme (JOD500 per month). This increase is especially significant among low-wage workers who were registered by firms after the firm visit (February 2024). This suggests that the personal visits by SSC outreach officers effectively encouraged firms to register additional low-wage workers under the programme, particularly those who might benefit most from Estidama++ support.

► 4.2 SMS campaign intervention

As described above, the SMS campaign intervention aimed to influence firm behaviour by sending a series of nine behaviourally informed text messages designed to increase knowledge, promote engagement with the SSC, and encourage worker registration.

4.2.1 Engagement

The SMS intervention had a limited overall impact compared to the face-to-face firm visits, but the engagement data provides insights into how firms responded to different types of messages and its immediate impact.

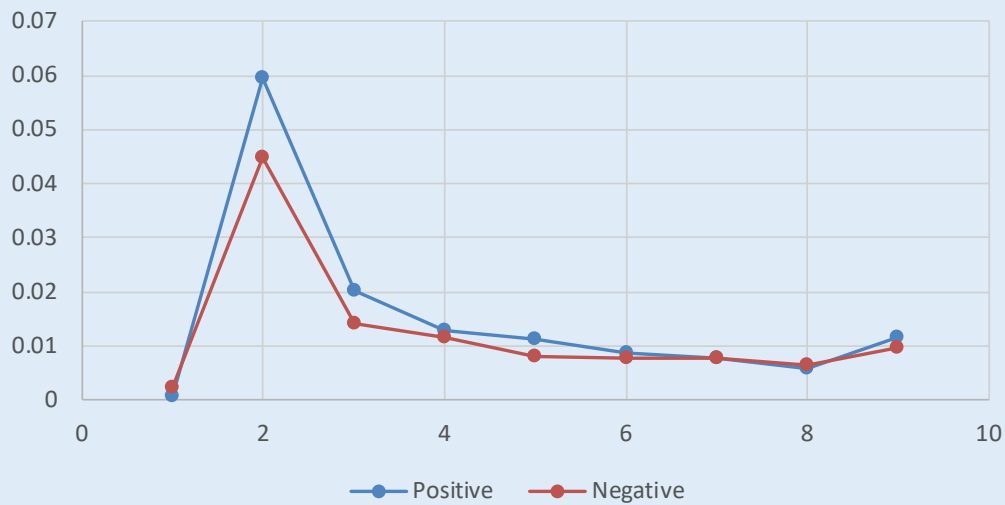
The main metrics measured were click rates (when firms visited the Estidama++ webpage in the SMS) and log-in rates (when firms logged into their SSC account after

receiving the SMS). Positively framed messages, which focused on the benefits of social security and Estidama++, tended to perform better in generating clicks, though the difference was not statistically significant. For example, the most successful message, which highlighted the up to

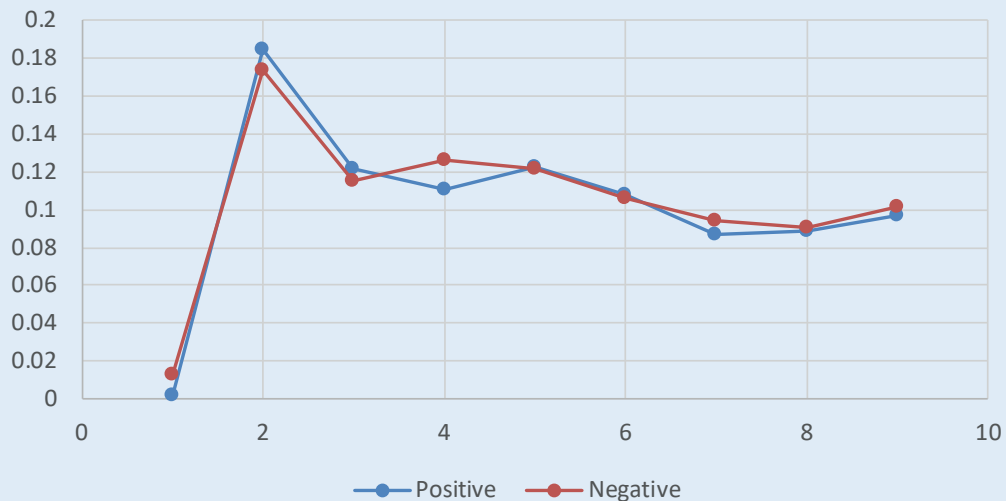
JOD 360 incentive available under Estidama++, generated 3,057 clicks and 798 visits to Estidama++'s webpage, or close to 6 per cent of the firms who received an SMS visited Estidama++'s webpage (Figure 10 (a)).

► **Figure 10: Engagement and response rates over time**

(a) Visits to Estidama++'s webpage rates



(b) Log-ins to SSC account



Among the loss aversion messages, a message warning firms about the legal risks of failing to register their workers resulted in 2,345 log-ins, or close to 17.5 per cent of firms that received loss aversion messages logged into their SSC account after receiving this message (Figure 10 (b)). Despite these differences in engagement, differences in mean were not statistically significant in either engagement or response rates between positive and loss aversion messages.²

This immediate engagement effect was further reflected in firm-level log-in data collected in March 2024 (Table 10). Regression estimates show that firms receiving positively framed SMS messages logged into their SSC accounts an average of 0.08 additional times compared to firms without SMS, while firms exposed to loss-aversion-framed messages logged in 0.07 more times compared to firms without SMS. However, unlike firm visits, there are no distinguishable effect in the subsequent months.

► **Table 10 Impact of SMS on log-ins into SSC portal by firms**

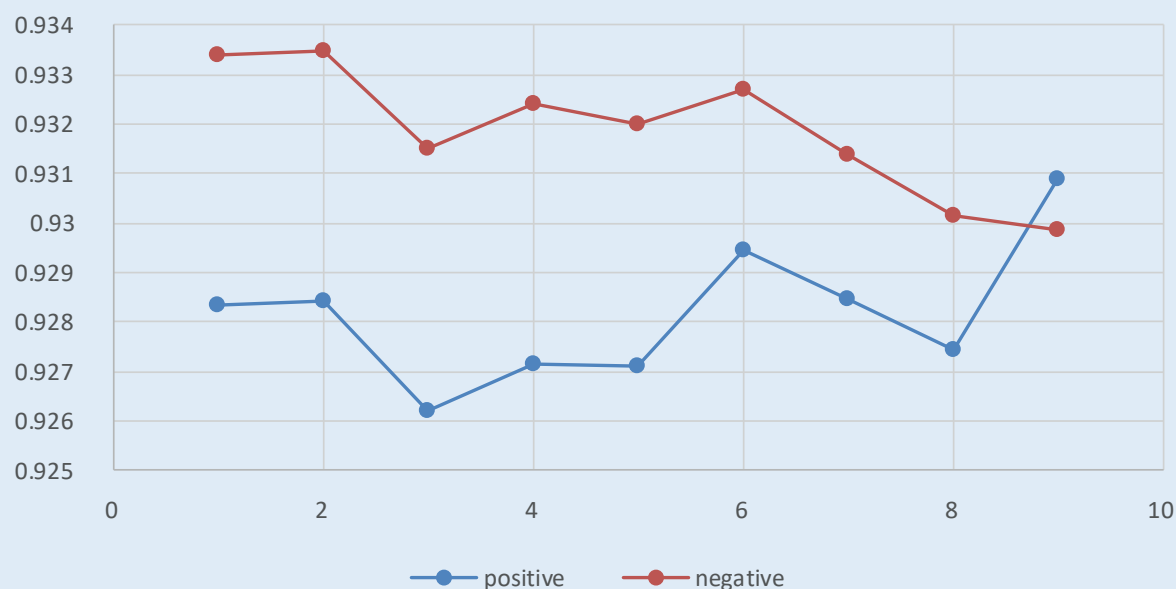
Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2023m10	0.88	0.85	0.84
2024m2	0.81	0.82	0.83
2024m3	1.04	1.12 (0.08*** log-ins more than firms without SMS)	1.11 (0.07** log-ins more than firms without SMS)
2024m4	0.79	0.78	0.80
2024m6	0.67	0.67	0.65
2024m7	0.67	0.66	0.67
2024m8	0.50	0.48	0.47
2024m10	0.85	0.82	0.79

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001.

4.2.2 Delivery rates and timing

An important aspect of the SMS intervention was understanding the delivery of the messages. Although the delivery rates in both types of messages were high, above 92 per cent across all messages, it was found a statistically significant difference in delivery rates between positive and loss aversion messages, with loss aversion messages achieving slightly higher delivery rates (93.2 per cent) compared to positive ones (92.8 per cent). In addition, the time of day played a notable role in engagement. Messages sent between 12:00 PM and 12:30 PM saw the highest click and log-in rates, suggesting that lunchtime might be an optimal time for sending behaviourally informed messages.

2 Non-parametric difference in means tests such as the Mann-Whitney U was used to test differences in means and it found no statistically significant difference in visits to SSC website or log-in rates between positive and loss aversion messages ($p > 0.05$)

► **Figure 11: Delivery rate over time**

4.2.3 Worker registration

The SMS campaign intervention had significant, but very small, impact on actual registration into Estidama++ (Table 11). In terms of the extensive margin, the data showed that firms which received positively framed SMS were 0.5 percentage points more likely to have at least one worker registered into Estidama++ in comparison with firms which did not receive SMS. Similarly, firms which received loss aversion-framed messages were 0.7 percentage points more likely to have at least one worker registered into

Estidama++ in comparison with firms which did not receive SMS in August 2024 (0.6 percentage point difference in October 2024).

The impact of SMS at the intensive margins was also significant but small. In August 2024, firms which received positively framed SMS had 0.01 more workers participating in Estidama++ compared to firms without SMS, significant at 1% level. Similarly, firms which received loss-aversion framed SMS had 0.02 more workers participating in Estidama++ compared to firms without SMS in October 2024.

► **Table 11: Impact of SMS on percentage of firms with at least one worker participating in Estidama++**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2024m8	7.33	7.81 (0.48 pp* more than firms without SMS)	8.06 (0.72 pp* more from firms without SMS)
2024m10	8.73	9.22 (0.49 pp* more than firms without SMS)	9.30 (0.56 pp* more from firms without SMS)

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001.

The regression estimates also show that the impact of the SMS on number of registered workers in a firm is not statistically significant and is very small. Table 12 shows

that the number of registered workers in a firm is almost the same on average among firms with and without SMS.

► **Table 12: Impact of SMS on number of registered workers in a firm**

Date	Number of log-ins into SSC portal the past month		
	Firms without visits	Firms with visits	Percentage increase due to the firm visits
2023m10	2.37	2.35	2.35
2024m4	2.36	2.37	2.34
2024m6	2.34	2.34	2.32
2024m7	2.35	2.36	2.33
2024m8	2.32	2.32	2.31
2024m10	2.30	2.28	2.30
2024m8	0.50	0.48	0.47
2024m10	0.85	0.82	0.79

Source: Authors' calculation using social security administrative data. Notes: *RI p-value <0.1, ** RI p-value <0.05, ***RI p-value <0.001.

4.2.4 Perception of SSC communications and knowledge gain of Estidama++

A WhatsApp survey was conducted approximately twelve months after the SMSs were sent to assess firms' experiences with the Social Security Corporation (SSC) e-services and to understand potential barriers to registration and compliance. A total of 5,426 firms initiated the survey, with 5,133 successfully linked to the processed administrative dataset. However, the response rate declined throughout the survey, with around 1,700 firms completing the final question.

The WhatsApp survey also sought to evaluate firms' perceptions of SSC communications over the past twelve months. This was particularly relevant to assessing whether firms that received SMSs had a different experience compared to those that did not. Survey respondents were asked to indicate their level of agreement on a five-point

Likert scale—ranging from strongly disagree to strongly agree—on whether SSC communications were easy to understand, increased their knowledge of social security benefits, addressed the specific needs of their business, encouraged them to use SSC services, and whether they perceived the communications as credible and trustworthy.

Using the same estimation specifications as in previous analyses but focusing only on firms that answered these questions (approximately 2,000 from the SMS intervention group), the ITT estimates indicate no statistically significant differences between firms in the SMS control group and those in the SMS treatment group (which includes both the positive and negative SMS messages). As shown in Table 13, the scores between control and treated firms remained very similar with the difference not distinguishable from zero. The findings suggest that the SMSs did not lead to meaningful changes in firms' perceptions of SSC communications in the long-term.

► **Table 13: Impact of SMS on perception of SSC communications over the past 12 months**

Perception of SSC communications over the past 12 months	Mean score from a 5-point Likert scale (1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly disagree)	
	Firms without SMS	Firms with SMS
Were easily understood	3.85	3.81
Increased Social Security Knowledge	3.74	3.78
Addressed needs of my business	3.77	3.76
Encouraged use of SSC services	3.88	3.94
Felt credible and trustworthy	3.98	4.01

Source: Authors' calculation using the WhatsApp Survey data. Notes: Treatment scores for firms with SMS are computed as the sum of the control group mean (firms without SMS) and the estimated treatment effect. In all cases, the differences between firms with and without SMS are not statistically significant. * p-value <0.1, ** p-value <0.05, *** p-value <0.001.

The WhatsApp survey also provided an opportunity to assess whether firms in the SMS intervention group had an improved knowledge of the Estidama++ programme. Table 14 provides the estimated effects of the SMS on firms' awareness and understanding of Estidama++. The results indicate that, twelve months after the intervention, there are no measurable impacts of the SMS messages on firms' knowledge of the programme. The point

estimates of the effect suggest that any potential effects are too small to be detected within the sample, as shown demonstrated in the table below. This finding aligns with the broader results of the study, reinforcing the idea that SMS communications alone may not be sufficient to drive substantial changes in firms' understanding or engagement with social security initiatives.

► **Table 14: Impact of SMS on knowledge gain of Estidama++**

	Percentage of firms who are knowledgeable of Estidama++	
	Firms without SMS	Firms with SMS
Very familiar with Estidama++	12.2%	12.8%
Knows about Estidama++ eligibility	19.8%	20.6%

Source: Authors' calculation using the WhatsApp Survey data. Notes: Treatment estimates for firms with SMS are computed as the sum of the control group mean (firms without SMS) and the estimated treatment effect. In all cases, the differences between firms with and without SMS are not statistically significant. * p-value <0.1, ** p-value <0.05, *** p-value <0.001.

4.3 Initial cost-efficiency comparison of SMS and face-to-face interventions

The SMS and firm visit interventions showed different results, which highlight possible trade-offs between cost-efficiency and depth of impact.

SMS messages increased registration by 0.6 percentage points, resulting in approximately 178 additional firms registering, while firm visits increased registration by 14 percentage points, leading to 124 additional firms registering. In terms of unit costs, the potential cost per additional registration under the SMS intervention would be around JOD 5.1 per firm, while with the firm intervention would have significantly higher cost at around JOD 83 per firm, excluding personnel expenses.

Although SMS achieved twice as many registrations overall due to its broader reach, firm visits had a far greater impact proportionally, reflecting their capacity to drive substantial behavioural change among a smaller, targeted group. The SMS have also potentially limited lasting effect, which could increase the need for repeated

messaging to maintain engagement and encourage action. In contrast, the face-to-face intervention, through personalised interactions and deeper engagement, is more likely to result in sustained behavioural changes, such as continued worker registration and long-term engagement with the SSC platform. This highlights the complementary nature of the two approaches, where SMS can serve as a cost-effective tool for raising awareness, while firm visits provide a more durable foundation for changing firm behaviours.



5

Challenges and learnings

Several challenges emerged during the implementation of the face-to-face intervention, offering valuable lessons for future outreach efforts. Some of the challenges and learnings below are based on the feedback received from the outreach officers who implemented the face-to-face intervention during the first RCT.

A key challenge was the discrepancy between the eligibility status of workers and the data provided to outreach officers. In some cases, firms interested in registering workers for Estidama++ found that the workers were ineligible due to changes in employment status or other factors such as wages not being compatible with Estidama++ eligibility criteria or having already participated in Estidama++. These issues were particularly prevalent when there was a significant time gap between when the data was extracted from SSC database and when the visit was conducted. Ensuring that firm-level data is refreshed closer to the time of implementation is crucial to mitigate these discrepancies.

The widespread discussion of the Estidama++ programme by influencers and social media created both positive and negative effects. While it generated interest and prompted inquiries from firms, it also led to opportunistic behaviour, such as firms registering ineligible workers to maximise benefits, or registering relatives and neighbours as employees, as relayed by a couple of outreach officers. It remains unclear however how widespread this practice was, but it likely represents a general limitation or a loophole of Estidama++ rather than the face-to-face intervention. Additionally, some firms perceived the visits as inspection-related rather than supportive, affecting their receptiveness to the intervention. Firms with outstanding social security payments were less responsive to the visits, as they were unable to register new workers until their debts were settled.

Internal resource constraints within SSC branches also posed some challenges. Outreach officers reported issues such as insufficient staffing and unrealistic expectations regarding the number of visits that could be conducted daily. In some rare cases, officers attempted to alter their list of firms to meet target numbers, potentially compromising the integrity of the randomised trial. Such issues were met with prompt response from the team coordinating the

implementation effort to redirect outreach officials to the randomized lists of treatment firms initially shared with them.

There were also some challenges in communication and coordination, both within SSC and with firms, which may also have impacted the intervention. In some rare cases, outreach officers were speaking to workers instead of employers, undermining the visits' effectiveness.

During the implementation period, the occurrence of the Holy Month of Ramadan and Eid-ul-Fitr influenced the pace of the in-person visits, which took place in the middle of the implementation period. Many firms adjusted their operations, with reduced hours or temporary closures. SSC outreach activities were also adapted, leading to a pause in the visits by outreach officers and a temporary slowdown in the intervention.

The eligibility criteria, such as the cap on the number of workers per firm, raised concerns about equity and fairness among workers. There were also reports of firms reducing workers' salaries to offset benefits received from Estdama++, prompting suggestions for penalties to prevent such practices. The limited duration of the Estdama++ benefits also deterred some firms from participating.

Significant gaps in the technical knowledge of the Estdama++ programme and electronic registration on the SSC website among some outreach officers were also acknowledged. These gaps were addressed by a team of experts from ILO and SSC during the training sessions of outreach officers and other subsequent refreshers and follow-up sessions but could have potentially affected the quality of interactions with firms in some specific cases. Ensuring thorough technical training for all outreach officers is crucial for the successful implementation of future interventions.

Another challenge that may have impacted the results of the intervention was the business seasonality and the broader economic slowdown, which has been impacted by the ongoing conflict in Gaza. The war created significant economic uncertainty, leading to reduced business activity and heightened caution among firms. This challenging economic environment likely influenced the responsiveness of firms to the intervention, as many were operating under strained conditions.

The data collected from the endline survey also highlighted some challenges encountered during the implementation of the interventions. These included issues related to firm closures, refusals to participate, and difficulties in contacting some firms. Despite these challenges, most of

the firms from the baseline were re-interviewed during the endline survey. Around 91 per cent of the baseline firms were re-surveyed. Furthermore, 84 per cent of the respondents were the same from the baseline. The overall quality and consistency of the baseline survey data were maintained in the endline survey data.

Data collected from the WhatsApp survey highlighted several challenges firms face in using SSC's digital platforms. The most frequently reported issue was updating employee information, which was mentioned 981 times. Firms also encountered barriers when registering workers, with the most frequently cited challenge being difficulty in uploading required documents, reported 492 times. Other issues included acquiring or downloading necessary documentation, completing registration forms, and obtaining information on the registration process. Some respondents also indicated difficulties related to payroll concerns, such as making payments, unclear financial balances, and requests for instalment-based contributions. Employee management processes were also posed by some as significant obstacles, particularly in suspending or reactivating employees, reporting work injuries, and accessing maternity or unemployment benefits. Additionally, technical issues—such as slow website performance, login difficulties, and delays in receiving verification codes—were also reported.

The WhatsApp survey findings stress the ongoing difficulties firms face in navigating SSC's e-services and highlight the limitations of SMS-based awareness campaigns. Despite outreach efforts, many firms still struggle with digital processes, suggesting that direct engagement remains essential for improving compliance and participation in social security schemes. Addressing technical issues, simplifying registration and payment processes, and enhancing transparency regarding eligibility criteria could facilitate firms' engagement with SSC services. These improvements would likely increase firms' willingness and ability to comply with social security regulations.

Lastly, it is important to acknowledge that all the firms included in the sample for these interventions were already registered with social security and maintained an official account on the SSC website. Consequently, these firms had prior knowledge and experience with social security benefits and had registered workers. This pre-existing familiarity limits the margin of impact of the interventions, as it is not logistically feasible to estimate or measure the number of informal employees working in these firms or to determine whether the firms had informal, unregistered workers in the first place.





 6

Policy implications and linkages to RCT 2

These preliminary findings from RCT 1 provide some policy insights that may guide future interventions to expand social security coverage in Jordan. One key insight is the effectiveness of direct, in-person engagement. The face-to-face visits had a distinguishable impact on both knowledge gains and worker registration, which suggests that policies incorporating personalised, direct engagement could drive firms to participate in social security schemes. These findings align with evidence from behavioural economics, which shows that personalised, in-person interactions help to overcome behavioural barriers like information aversion and procrastination, both of which are particularly pronounced in contexts of high informality (Liebman & Luttmer, 2015; Giles et al., 2021). However, given the high resource requirements of in-person engagement, policymakers may benefit from selectively reaching firm segments most likely to respond positively, as the results presented heterogeneous effects.

In contrast, the SMS campaign showed limited impact on actual registrations. While SMS messages increased immediate engagement, this engagement did not consistently lead to higher registration rates. This finding supports the existing literature, which suggests that digital nudges like SMS are cost-effective tools for raising awareness but may not be sufficient to prompt high-stakes actions such as formal registration (Domurat et al., 2021). These initial findings require further investigation to test this hypothesis. However, it may be that the SMS campaigns are better suited as supplementary tools for broad awareness-raising, ideally combined with in-person or hybrid approaches to drive concrete action.

Cost considerations further inform these policy implications. The unit cost of SMS messaging (JOD 0.0035 per message) allows for wide-reaching campaigns with minimal budgetary impact, yet the observed limited influence on registration highlights the need for complementary, and personalised methods. In contrast, the high transport costs associated with in-person visits (JOD7.5 per visit in RCT 1) and the monthly wages of SSC branch officials (JOD800–900) highlight the resource intensity of these more personalised interventions, such as the face-to-face engagement. Each visit thus represents both a direct financial outlay and a relatively high opportunity cost, which may demonstrate the importance of strategically deploying SSC outreach officers to maximise impact.

These initial findings may support the hybrid approach being tested in RCT 2. Under RCT 2, one of the treatment arms combines live informational sessions at SSC branches with SMS follow-ups and phone call invitations, hopefully allowing for direct engagement which could be more resource efficient. Informational sessions can provide personalised guidance on social security benefits and address common barriers to registration, while SMS reminders and phone follow-ups reinforce key messages. This approach would leverage on the low cost and broad reach of digital messaging while retaining some level of personalised, effective elements of direct engagement, aiming to optimise both scalability and effectiveness.





Conclusion

The preliminary results of the face-to-face and SMS interventions provide important insights into how firms respond to efforts aimed at increasing social security registration and engagement with the Estidama++ programme. The face-to-face visits were notably more effective, leading to some improvements across key outcomes. Firms that received these visits demonstrated a substantial increase in their knowledge of Estidama ++, although this did not extend to a broader understanding of the general social security system. Additionally, the visits prompted increased engagement with SSC services, as seen in the rise of SSC portal log-ins—a change not observed in firms that only received SMS messages.

The impact of the face-to-face visits was particularly evident in worker registration, both in terms of the extensive margin (the likelihood of firms registering any workers under Estidama ++) and the intensive margin (the number of workers registered). The intervention had the strongest effect among firms with 6-9 workers and was especially effective in registering employees earning JOD 500 per month or less, a key threshold for Estidama ++ eligibility. Moreover, while the overall effect on foreign workers' registration was limited, there was some encouraging evidence of increased registration of Syrian workers, particularly in smaller firms (with 2-5 workers). By contrast, the SMS intervention had a far more limited effect. Firms receiving SMS messages showed only immediate and very limited improvements in their engagement with SSC platforms or in worker registration under Estidama ++. This suggests that while digital messaging is cost-effective and scalable, it may lack the personalised reinforcement necessary to trigger meaningful behavioural change.

RCT 2 is underway and builds upon the lessons from RCT 1. The relative success of the face-to-face visits highlights the value of personal engagement, particularly in driving knowledge gains and social security registration. However, because face-to-face visits are resource-intensive, RCT 2 is experimenting with a hybrid informational intervention that combines live informational sessions at SSC branches with phone call invitations and follow-up SMS messages. The live sessions offer in-person guidance on the benefits of social security, alongside additional information on the Estidama++ programme and firms' potential eligibility. This combination of outreach will potentially address some of the limitations observed in SMS-only interventions from RCT 1.

RCT 2 will however continue to compare face-to-face visits with this new informational campaign to assess which approach proves to be more effective. Additionally, RCT 2 has introduced a new component aimed at increasing the attractiveness of SSC registration. Firms that register workers with children will now be eligible to receive child benefits, adding another incentive for formalising their workforce. This added benefit is expected to further encourage firms to participate in the social security system, enhancing the perceived value of SSC registration.

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► Annex 1 Administrative data summary tables

► Table 15 : Detailed summary statistics of outcome variables, full sample

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
No. of registered workers in 2310	45,748	2.213	1.811	1	9	1
No. of registered workers in 2404	45,748	2.194	2.308	0	71	1
No. of registered workers in 2406	45,748	2.177	2.337	0	79	1
No. of registered workers in 2407	45,748	2.191	2.369	0	78	1
No. of registered workers in 2408	45,748	2.163	2.356	0	79	1
No. of female registered workers in 2310	45,748	0.464	1.05	0	9	0
No. of female registered workers in 2404	45,748	0.507	1.381	0	59	0
No. of female registered workers in 2406	45,748	0.506	1.39	0	56	0
No. of female registered workers in 2407	45,748	0.504	1.388	0	56	0
No. of female registered workers in 2408	45,748	0.486	1.311	0	46	0
No. of male registered workers in 2310	45,748	1.748	1.626	0	9	1
No. of male registered workers in 2404	45,748	1.687	1.865	0	68	1
No. of male registered workers in 2406	45,748	1.671	1.879	0	76	1
No. of male registered workers in 2407	45,748	1.687	1.919	0	74	1
No. of male registered workers in 2408	45,748	1.677	1.938	0	74	1
SS payments in past month (JOD, 2404)	42,482	166.107	421.29	0	16,326.08	0
SS payments in past month (JOD, 2406)	42,109	164.973	444.527	0	17,215.10	0
SS payments in past month (JOD, 2407)	42,009	179.359	559.692	0	60,141.71	0
SS payments in past month (JOD, 2408)	41,725	153.873	446.385	0	27,738.00	0
SS payments per worker in past month (JOD, 2404)	42,482	60.611	155.544	0	16,326.08	0
SS payments per worker in past month (JOD, 2406)	42,109	58.598	128.046	0	8,197.47	0
SS payments per worker in past month (JOD, 2407)	42,009	65.238	206.921	0	30,070.85	0
SS payments per worker in past month (JOD, 2408)	41,725	54.74	183.027	0	27,738.00	0
Average salary (JOD, monthly) in 2404	42,482	396.214	317.32	150	5,819.44	275
Average salary (JOD, monthly) in 2406	42,109	396.787	317.219	150	5,819.44	277
Average salary (JOD, monthly) in 2407	42,009	395.94	315.988	150	5,819.44	276
Average salary (JOD, monthly) in 2408	41,725	396.324	315.103	150	5,819.44	278
Lowest salary in the firm in 2404 (JOD, monthly)	42,482	336.956	245.239	0	5,000	260
Lowest salary in the firm in 2406 (JOD, monthly)	42,109	337.392	245.095	0	5,000	260
Lowest salary in the firm in 2407 (JOD, monthly)	42,009	336.756	243.796	0	5,000	260

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
Lowest salary in the firm in 2408 (JOD, monthly)	41,725	336.972	242.915	0	5,000	260
Highest salary in the firm in 2404 (JOD, monthly)	42,482	495.41	545.505	150	13,650	286.65
Highest salary in the firm in 2406 (JOD, monthly)	42,109	496.167	545.115	150	13,650	290
Highest salary in the firm in 2407 (JOD, monthly)	42,009	495.303	542.963	150	13,650	290
Highest salary in the firm in 2408 (JOD, monthly)	41,725	496.005	543.592	150	13,650	292.82
No. of active firms in 2404	45,748	0.929	0.257	0	1	1
No. of active firms in 2406	45,748	0.92	0.271	0	1	1
No. of active firms in 2407	45,748	0.918	0.274	0	1	1
No. of active firms in 2408	45,748	0.912	0.283	0	1	1
No. of registered Jordanian workers in 2404	45,748	1.706	2.122	0	66	1
No. of registered Jordanian workers in 2406	45,748	1.699	2.137	0	69	1
No. of registered Jordanian workers in 2407	45,748	1.696	2.157	0	67	1
No. of registered Jordanian workers in 2408	45,748	1.674	2.134	0	65	1
No. of registered Syrian workers in 2404	45,748	0.054	0.288	0	7	0
No. of registered Syrian workers in 2406	45,748	0.053	0.292	0	13	0
No. of registered Syrian workers in 2407	45,748	0.052	0.284	0	7	0
No. of registered Syrian workers in 2408	45,748	0.052	0.284	0	7	0
No. of registered workers from 2402 to 2404	45,748	0.134	0.765	0	55	0
No. of registered workers from 2402 to 2406	45,748	0.186	0.92	0	63	0
No. of registered workers from 2402 to 2407	45,748	0.251	1.058	0	63	0
No. of registered workers from 2402 to 2408	45,748	0.286	1.126	0	63	0
No. of registered workers from 2403 to 2404	45,748	0.067	0.527	0	41	0
No. of registered workers from 2403 to 2406	45,748	0.122	0.718	0	49	0
No. of registered workers from 2403 to 2407	45,748	0.191	0.877	0	53	0
No. of registered workers from 2403 to 2408	45,748	0.231	0.965	0	52	0
Number of registered foreign workers in 2404	45,748	0.489	1.009	0	50	0
Number of registered foreign workers in 2406	45,748	0.479	1.004	0	53	0
Number of registered foreign workers in 2407	45,748	0.495	1.033	0	53	0
Number of registered foreign workers in 2408	45,748	0.49	1.038	0	54	0
Has E++ workers in 2408	45,748	0.135	0.606	0	13	0
No. of E++ workers in 2408	45,748	0.077	0.266	0	1	0

Notes: 2310 stands for 23/10/2023, 2402 for 24/02/2024, 2403 for 24/03/2024, 2404 for 24/04/2024, 2405 for 24/05/2024, 2406 for 24/06/2024, 2407 for 24/07/2024 and 2408 for 24/08/2024.

► **Table 16: Detailed summary statistics of outcome variables, SMS sample**

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
No. of registered workers in 2310	43,330	2.061	1.649	1	9	1
No. of registered workers in 2404	43,330	2.049	2.179	0	71	1
No. of registered workers in 2406	43,330	2.03	2.201	0	79	1
No. of registered workers in 2407	43,330	2.043	2.236	0	78	1
No. of registered workers in 2408	43,330	2.018	2.215	0	79	1
No. of female registered workers in 2310	43,330	0.426	0.974	0	9	0
No. of female registered workers in 2404	43,330	0.468	1.315	0	59	0
No. of female registered workers in 2406	43,330	0.467	1.326	0	56	0
No. of female registered workers in 2407	43,330	0.465	1.324	0	56	0
No. of female registered workers in 2408	43,330	0.449	1.249	0	46	0
No. of male registered workers in 2310	43,330	1.635	1.49	0	9	1
No. of male registered workers in 2404	43,330	1.581	1.749	0	68	1
No. of male registered workers in 2406	43,330	1.563	1.755	0	76	1
No. of male registered workers in 2407	43,330	1.579	1.797	0	74	1
No. of male registered workers in 2408	43,330	1.569	1.809	0	74	1
SS payments in past month (JOD, 2404)	40,114	151.347	393.841	0	16,326.08	0
SS payments in past month (JOD, 2406)	39,746	150.038	415.547	0	17,215.10	0
SS payments in past month (JOD, 2407)	39,644	163.94	543.096	0	60,141.710	0
SS payments in past month (JOD, 2408)	39,364	140.088	417.895	0	27,738.00	0
SS payments per worker in past month (JOD, 2404)	40,114	59.36	157.108	0	16,326.08	0
SS payments per worker in past month (JOD, 2406)	39,746	57.23	127.466	0	8,197.47	0
SS payments per worker in past month (JOD, 2407)	39,644	63.976	210.353	0	30,070.85	0
SS payments per worker in past month (JOD, 2408)	39,364	53.549	185.341	0	27,738	0
Average salary (JOD, monthly) in 2404	40,114	391.71	313.385	150	5,819.44	273
Average salary (JOD, monthly) in 2406	39,746	392.259	313.291	150	5,819.44	273.333
Average salary (JOD, monthly) in 2407	39,644	391.426	311.94	150	5,819.44	273
Average salary (JOD, monthly) in 2408	39,364	391.87	311.305	150	5,819.44	273.333
Lowest salary in the firm in 2404 (JOD, monthly)	40,114	337.821	248.402	0	5,000	260
Lowest salary in the firm in 2406 (JOD, monthly)	39,746	338.242	248.15	0	5,000	260
Lowest salary in the firm in 2407 (JOD, monthly)	39,644	337.579	246.868	0	5,000	260
Lowest salary in the firm in 2408 (JOD, monthly)	39,364	337.818	246.002	0	5,000	260
Highest salary in the firm in 2404 (JOD, monthly)	40,114	479.608	518.095	150	8,166.67	280

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
Highest salary in the firm in 2406 (JOD, monthly)	39,746	480.281	517.421	150	8,166.67	285
Highest salary in the firm in 2407 (JOD, monthly)	39,644	479.574	515.92	150	8,166.67	285
Highest salary in the firm in 2408 (JOD, monthly)	39,364	480.404	517.012	150	8,166.67	286
No. of active firms in 2404	43,330	0.926	0.262	0	1	1
No. of active firms in 2406	43,330	0.917	0.275	0	1	1
No. of active firms in 2407	43,330	0.915	0.279	0	1	1
No. of active firms in 2408	43,330	0.908	0.288	0	1	1
No. of registered Jordanian workers in 2404	43,330	1.59	2.009	0	66	1
No. of registered Jordanian workers in 2406	43,330	1.582	2.022	0	69	1
No. of registered Jordanian workers in 2407	43,330	1.581	2.045	0	67	1
No. of registered Jordanian workers in 2408	43,330	1.56	2.012	0	65	1
No. of registered Syrian workers in 2404	43,330	0.051	0.276	0	7	0
No. of registered Syrian workers in 2406	43,330	0.05	0.282	0	13	0
No. of registered Syrian workers in 2407	43,330	0.05	0.274	0	7	0
No. of registered Syrian workers in 2408	43,330	0.049	0.273	0	7	0
No. of registered workers from 2402 to 2404	43,330	0.124	0.746	0	55	0
No. of registered workers from 2402 to 2406	43,330	0.171	0.887	0	63	0
No. of registered workers from 2402 to 2407	43,330	0.23	1.02	0	63	0
No. of registered workers from 2402 to 2408	43,330	0.26	1.068	0	63	0
No. of registered workers from 2403 to 2404	43,330	0.062	0.519	0	41	0
No. of registered workers from 2403 to 2406	43,330	0.111	0.692	0	49	0
No. of registered workers from 2403 to 2407	43,330	0.174	0.85	0	53	0
No. of registered workers from 2403 to 2408	43,330	0.21	0.915	0	52	0
Number of registered foreign workers in 2404	43,330	0.459	0.953	0	50	0
Number of registered foreign workers in 2406	43,330	0.448	0.945	0	53	0
Number of registered foreign workers in 2407	43,330	0.463	0.967	0	53	0
Number of registered foreign workers in 2408	43,330	0.458	0.973	0	54	0
Has E++ workers in 2408	43,330	0.118	0.548	0	13	0
No. of E++ workers in 2408	43,330	0.07	0.256	0	1	0

Notes: 2310 stands for 23/10/2023, 2402 for 24/02/2024, 2403 for 24/03/2024, 2404 for 24/04/2024, 2405 for 24/05/2024, 2406 for 24/06/2024, 2407 for 24/07/2024 and 2408 for 24/08/2024.

► **Table 17: Detailed summary statistics of outcome variables, face-to-face sample**

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
No. of registered workers in 2310	2,418	4.936	2.347	2	9	5
No. of registered workers in 2404	2,418	4.805	2.917	0	32	4.5
No. of registered workers in 2406	2,418	4.806	3.033	0	33	4
No. of registered workers in 2407	2,418	4.828	3.041	0	37	4
No. of registered workers in 2408	2,418	4.763	3.167	0	51	4
No. of female registered workers in 2310	2,418	1.154	1.831	0	9	0
No. of female registered workers in 2404	2,418	1.211	2.134	0	20	0
No. of female registered workers in 2406	2,418	1.211	2.131	0	20	0
No. of female registered workers in 2407	2,418	1.204	2.127	0	20	0
No. of female registered workers in 2408	2,418	1.157	2.021	0	20	0
No. of male registered workers in 2310	2,418	3.782	2.425	0	9	3
No. of male registered workers in 2404	2,418	3.594	2.677	0	31	3
No. of male registered workers in 2406	2,418	3.595	2.778	0	33	3
No. of male registered workers in 2407	2,418	3.624	2.802	0	36	3
No. of male registered workers in 2408	2,418	3.606	2.914	0	39	3
SS payments in past month (JOD, 2404)	2,368	416.135	700.364	0	11,258.27	164.5
SS payments in past month (JOD, 2406)	2,363	416.183	741.755	0	12,273.42	152.25
SS payments in past month (JOD, 2407)	2,365	437.820	741.263	0	8,803.33	180
SS payments in past month (JOD, 2408)	2,361	383.704	744.336	0	11,472.00	114.232
SS payments per worker in past month (JOD, 2404)	2,368	81.811	124.272	0	1,407.25	56.55
SS payments per worker in past month (JOD, 2406)	2,363	81.601	135.413	0	2,626.22	56.55
SS payments per worker in past month (JOD, 2407)	2,365	86.405	135.432	0	2,200.83	57.138
SS payments per worker in past month (JOD, 2408)	2,361	74.605	137.387	0	2,910.69	44.55
Average salary (JOD, monthly) in 2404	2,368	472.510	369.631	150	4,653.67	333.75
Average salary (JOD, monthly) in 2406	2,363	472.957	369.046	150	4,653.67	333.75
Average salary (JOD, monthly) in 2407	2,365	471.609	369.386	150	4,653.67	332.143
Average salary (JOD, monthly) in 2408	2,361	470.577	364.917	150	4,516.80	333.333
Lowest salary in the firm in 2404 (JOD, monthly)	2,368	322.307	182.977	150	407.33	260
Lowest salary in the firm in 2406 (JOD, monthly)	2,363	323.092	185.812	150	4307.33	260
Lowest salary in the firm in 2407 (JOD, monthly)	2,365	322.961	184.347	150	407.33	260
Lowest salary in the firm in 2408 (JOD, monthly)	2,361	322.862	183.429	150	4,307.33	260
Highest salary in the firm in 2404 (JOD, monthly)	2,368	763.092	846.083	150	13,650	450

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
Highest salary in the firm in 2406 (JOD, monthly)	2,363	763.369	846.607	150	13,650	450
Highest salary in the firm in 2407 (JOD, monthly)	2,365	758.972	837.519	150	13,650	450
Highest salary in the firm in 2408 (JOD, monthly)	2,361	756.112	833.113	150	13,650	450
No. of active firms in 2404	2,418	0.979	0.142	0	1	1
No. of active firms in 2406	2,418	0.977	0.149	0	1	1
No. of active firms in 2407	2,418	0.978	0.146	0	1	1
No. of active firms in 2408	2,418	0.976	0.152	0	1	1
No. of registered Jordanian workers in 2404	2,418	3.775	2.878	0	22	3
No. of registered Jordanian workers in 2406	2,418	3.783	2.924	0	22	3
No. of registered Jordanian workers in 2407	2,418	3.755	2.934	0	22	3
No. of registered Jordanian workers in 2408	2,418	3.703	3.044	0	50	3
No. of registered Syrian workers in 2404	2,418	0.107	0.447	0	5	0
No. of registered Syrian workers in 2406	2,418	0.103	0.433	0	5	0
No. of registered Syrian workers in 2407	2,418	0.101	0.427	0	5	0
No. of registered Syrian workers in 2408	2,418	0.102	0.434	0	5	0
No. of registered workers from 2402 to 2404	2,418	0.316	1.029	0	28	0
No. of registered workers from 2402 to 2406	2,418	0.464	1.361	0	29	0
No. of registered workers from 2402 to 2407	2,418	0.635	1.519	0	33	0
No. of registered workers from 2402 to 2408	2,418	0.740	1.829	0	45	0
No. of registered workers from 2403 to 2404	2,418	0.161	0.647	0	10	0
No. of registered workers from 2403 to 2406	2,418	0.316	1.067	0	18	0
No. of registered workers from 2403 to 2407	2,418	0.495	1.237	0	16	0
No. of registered workers from 2403 to 2408	2,418	0.608	1.574	0	45	0
Number of registered foreign workers in 2404	2,418	1.030	1.640	0	32	0
Number of registered foreign workers in 2406	2,418	1.023	1.665	0	33	0
Number of registered foreign workers in 2407	2,418	1.073	1.751	0	37	0
Number of registered foreign workers in 2408	2,418	1.060	1.757	0	40	0
Has E++ workers in 2408	2,418	0.448	1.210	0	10	0
No. of E++ workers in 2408	2,418	0.192	0.394	0	1	0

Notes: 2310 stands for 23/10/2023, 2402 for 24/02/2024, 2403 for 24/03/2024, 2404 for 24/04/2024, 2405 for 24/05/2024, 2406 for 24/06/2024, 2407 for 24/07/2024 and 2408 for 24/08/2024.

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