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Occupational Health and Safety: The Role of Information and Financial Linkage

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ABSTRACT

Occupational Health and Safety: The Role of Information and Financial Linkage

A field experiment in Bangladesh provides informal firms information on occupational health and safety (OHS). A sub-treatment arm provides firms with financial linkages to address credit constraint. Two years after the intervention, treated firms are more likely to invest in health and safety measures and firm owners and workers have increased health and safety knowledge. Treated firms are also more likely to hire new apprentices and more experienced skilled workers and foremen. However, we find no effect on profit. We find no additional effect due to financial linkages, suggesting that addressing the information gap is key to improving OHS.

JEL Classification:
M53, I10, D80

Keywords:
occupational health and safety, informal economy, information, credit access

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1 Introduction

Small and micro enterprises (SMEs) account for a large portion of production in low and middle-income countries (LMICs). The informal sector employs 20 to 80 percent of workers in LMICs, and these workers have limited safety and social protection. The WHO (1994) recognized that a decent work environment that provides occupational health and wellbeing is a crucial prerequisite to enchance the productivity of the workforce and overall economic development. The International Labour Organization (ILO) has developed several programs and training packages for SMEs in the informal sector in LMICs to incorporate occupation safety and health (OHS) to promote decent work environment [10]. However, to the best of our knowledge, the impact of a large scale OHS training has not been documented.

In this study, we provide evidence from a cluster randomized trial to examine the causal impact of OHS training on worker wellbeing and firm development in the informal sector in Bangladesh. Our study has two objectives. First, we analyze how OHS training improves the work environment, especially in addressing safety issues among workers. The training addresses the lack of safety measures and knowledge among owners and workers. The training also addresses topics on worker wellbeing, such as paid time off. Second, firms with OHS information may not be able to improve the work environment due to credit constraint, so we examine the potential complementarity between OHS training and access to financing.

We implemented a cluster randomized trial with almost 2500 firms in about 1300 markets in Bangladesh. The markets are located in 79 sub-districts in 20 districts. All firms are in the light engineering sector, which is one of the largest sub-sectors of SMEs in Bangladesh, making up 2% of GDP and employing 2 million workers, who are predominantly informal. The randomized trial contains two treatment arms. The first treatment arm provides almost 600 owners or managers with a 5-day intensive OHS training. Additionally, an OHS training video was provided to owners, managers, and workers. All firms in the treatment group also received personalized sessions for firm-specific safety measures. The second treatment arm provides the remaining 575 owners or managers with the same OHS training and an additional nine days of training on business management and

financial linkages. The intervention was carried out in 2017. A baseline survey was conducted prior to the intervention and two follow-up surveys were carried out in 2018 and 2019.

We contribute to the literature on human capital investment in the labor market by focusing on human resources in smaller firms. Much of the literature on worker training in LMICs has focused on self-employment and vocational education training [5, 2, 16]. However, workers already in the informal sector may benefit from additional information. In this case, the OHS training may have non-pecuniary benefits for workers. Specifically, OHS information can protect their wellbeing while on the job. There is limited evidence on how training affects worker wellbeing in SMEs and whether this could subsequently affect firms through mechanisms such as worker retention [15, 18].

We also contribute to the literature on business training and the role of credit constraint on SME growth. SME owners may lack the skill or know-how to run a business, which limits their profitability and scale. Training alone may be insufficient to grow small businesses and there is much heterogeneity in the effects [4, 12, 7]. From a business management standpoint, the more formal business management practices taught in a classroom seem less necessary in smaller firms compared to larger firms [14]. Indeed, interventions that focus on individualized, specialized support and local knowledge such as mentorship have shown promising results [19, 3]. Therefore, the second component of the project focuses on capacity building for entrepreneurs by combining capital constraints and the availability of profitable information in the local economy, such as linkages between suppliers and potential buyers. The program combines access to financial capital and profitable information through formal and informal training, such as mentoring and committees. Since studies from other context find that adding business training only or loans only are not always effective, we combine both in one treatment rather than test each of the components of the treatment separately.

We analyze the effects of the intervention on workers and entrepreneurs. Specifically, we estimate the intent to treat parameter by pooling both treatment arms and separately by sub-treatment arms. We also examine the persistence of the effect by comparing the effect in the first and second year post intervention. Our outcomes of interest include worker and owner's OHS knowledge, as well as OHS practices and investment such as water and sanitation. We also analyze profitability and worker retention.

We find improved safety measures in treated firms, and both owners and workers have better OHS knowledge. Treated firms are also more likely to hire new apprentices and more experienced

skilled workers and foremen. We find no significant impact on firm revenue or profit. We find no additional impact from business training. The results suggest that addressing the information gap on OHS is key in improving work environment and this allows firms to hire higher quality workers.

The remainder of the paper is organized as follows. Section 2 presents a background of the light engineering sector in Bangladesh and detailed information on the intervention. Section 3 presents the data and estimation strategy, followed by the results in Section 4. Section 5 discusses the results and concludes.

2 Background

2.1 The light engineering sector in Bangladesh

This project was conducted in partnership with BRAC, the largest southern-based NGO in the world and works with 110 million of the 160 million people living in Bangladesh across all 64 districts of the country. The intervention takes advantage of a program that BRAC started at the end of 2017, Pro-poor Growth of Rural Enterprises through Sustainable Skills-development (PROGRESS). PROGRESS focuses on an important thriving sector of the economy in Bangladesh: the light engineering (hereafter LE) sector. The LE sector is one of the largest sub-sectors of small and medium enterprise (SME) with 2 million workers. The LE sector occupies a unique position in the economy of Bangladesh since the sector acts as a feeder or support industry to other industries, including agriculture and forestry, fishery, manufacturing, wholesale and retail trade, construction, transport, tourism, and communication. These industries rely on the LE sector at various stages of the supply chain. The sector plays a vital role in the socioeconomic development of the country as the sector creates increasing employment opportunities, making up 2% of the country's GDP. In Industrial Policy 2009 and Industrial Policy 2005, the government of Bangladesh considered this sector as a thrust sector for development. The sector has also been considered a priority in Export Policy 2006-09 and Export Policy 2009-12. The government believes that the country's economy will grow further if the LE products currently imported by major industries are manufactured within the country.

There are about 40,000 industrial units of LE firms, most of them are small. Products include metal products and electrical, electronic and electromechanical products. Part of the manufacturing

process or machine parts of the LE sector may be made of ceramics, rubber or plastic. The LE sector supports other sectors of the economy by producing a wide range of spare parts, casting, moulds and dyes, oil and gas pipeline fittings, light machinery, and by providing repair services. Spare parts produced by the LE sector have been used by cement factories, paper mills, jute mills, textile mills, sugar mills, food processing industry, plastic industry, printing industry, fertilizer factories, railway, shipping, marine transport, automobiles, construction machinery, and the pharmaceutical industry.

The majority of firms in the LE sector are informal. The LE sector is characterized by its high dependence on semi to unskilled labor, relatively low production cost, absence of formal rules and regulations, long and strenuous working hours, lack of innovative work practices, and lack of labor rights like minimum wage, health insurance, unemployment compensation and old age pension. Entrepreneurs in the LE sector typically have less than 10 years of education, workers in the sector spend about 11 hours per day at work and they typically receive wages of 2 to 15 thousand Taka per month, which is just above the minimum wage of 1,500 Taka per month [1].

Conversations with BRAC and owners also revealed that accidents occur relatively frequently among workers, suggesting a need to improve the safety of the work environment. In our sample, firms are typically involved in welding and working with hazardous chemical, flammable materials. Workers are exposed to dangers related to lifting heavy items, skin and respiratory irritation and burns, electric shocks and noise pollution due to the use of equipment and machinery. The intervention was designed to improve the work environment. Due to differences in the daily operations of the firms in our sample, all firms in the treatment group received personalized sessions for firm-specific safety measures. Additionally, from our conversations with firm owners, they cite difficulty finding and hiring good workers as a major constraint to firm growth. Improving the work environment may provide workers with non-pecuniary benefits that will improve the overall work environment and worker retention. A second arm of the intervention was designed to address OHS in the LE sector and test the complementarity between OHS and firm's credit constraint.

2.2 The intervention

There were 2451 firms selected for randomization in 1356 market places, located in 79 sub-districts from 20 districts. The randomization was carried out at the market level so that all firms in a market were either considered as treatment or control groups. There were 650 markets selected

for treatment and 706 markets for control. The treatment comprised 1172 firms and 1279 firms in control. The treatment firms are further randomly divided into two treatment arms T1 and T2. T1 has 597 firms and T2 has 575 firms (Figure 1). Randomization was done at the market level, and the fraction of firms treated within an area were assigned randomly to identify spillover effects. The preanalysis plan can be found at the AEA RCT Registry (AEARCTR-0003386).

In the first treatment arm (T1), the owners or managers of the firms received intensive training on occupational health and safety. The owners or managers received a 5-day training on the OHS module. The training included information on the use of safety measures and videos to demonstrate safety awareness for owners, managers, and workers. The training included topics such as fire and accident risk, working hours, and water and sanitation. Additionally, personalized sessions were provided to address the hazardous working environment in each firm.

In the second treatment arm (T2), the firms received the same OHS training as the firms in T1. In addition, firms in T2 were provided with business training and financial linkages. The business training was done in 3 sessions, and each session took 3 days. The business training covered marketing, accounting, business planning, and cost structure. The program focused on financial linkages and value chain development. The materials also sought to improve skills in project development, decent work and sustainable business development, and knowledge transfer. BRAC Microfinance and other providers facilitated the provision of financial products, including loans, insurance, and savings. Treated firms were offered a loan of $500 from BRAC with below market interest rate. The ultimate goal of the business training is to enable entrepreneurs to start a new business or expand their existing ones.

Main hypotheses

1. OHS training will improve the perception and attitude of owners or managers on the importance of decent work environment to increase productivity and firm growth, so we expect treated firms to have better knowledge on OHS and decent work environment compared to control firms.

2. OHS training will improve firms' safety practices, so we expect treated firms to invest in more safety measures and abide by safety regulations compared to control firms.

3. If OHS training improves the work environment, workers' perception regarding their work place will improve, and this may improve firm outcomes. Specifically, we expect better work environment to improve worker retention and reduce the incidence of accidents and work-related injuries. The literature has shown that job insecurity is associated with higher work-related accidents [17]. Treated firms may have lower worker turnover [17] and lower cost from lower worker injury rate [6], thus increasing profitability and productivity.

4. We expect OHS training to improve owner and managers' attitude toward their business and life through improved work environment. The empirical evidence suggests the positive relationship between job satisfaction and wellbeing [9, 8].

5. We expect business training to improve firm-level investment, productivity, and profitability. Specifically, the financial linkage should allow firms to take up loans while the business training will improve business practices. These should lead to higher profits either by reducing their cost or increasing sales.

3 Data and Method

3.1 Data

The intervention was carried out in 2017, and a baseline survey was conducted before the intervention was implemented. A follow up survey was carried out in December 2018, about a year after the intervention. The second follow up survey was done at the end of 2019, about two years after the intervention. The survey includes firm characteristics and a worker roster with some worker characteristics.

Outcomes of interest The survey includes firm characteristics, including year of establishment, owner characteristics, the number of employees and employee characteristics, firm revenue, access to financing, business practices, and OHS knowledge and perception. Our main outcomes include safety measures, access to water and sanitation, and general work environment such as cleanliness and light. We also analyze owners and workers' perception of safety and OHS knowledge.

To summarize the multiple outcomes, we construct a summary index folowing **(author?)** [13]

and **(author?)** [11]. The index also addresses concerns due to multiple hypothesis testing. We standardize each outcome by subtracting the mean and dividing by the standard deviation of the control group at baseline and equalize signs across outcomes, so that higher values of the standardized outcomes represent better outcomes. Each index is constructed separately for owners and workers. For some outcomes, a separate index is also created for enumerators who reported their observation.

The safety index for owners, workers, and enumerators includes safe electric wiring, regular equipment maintenance, safe equipment, the availability of short circuit protection, first aid, safety signs, fire extinguisher, and emergency stop switch. We also include the number of reported accidents as a safety outcome. This question is only included in the second and third waves of the survey, so we rely on cross-sectional variation.

The water and sanitation index for owners, workers, and enumerators includes the availability of toilet, drinking water, and proper drainage. The workspace index for owners, workers, and enumerators includes adequate workspace, air flow, workshop cleanliness, weekly cleaning, the availability of wastebaskets, the number of windows and flow, the number of shutters and flow, the number of fans and light bulbs. The payment index for owners and workers includes timely payment of wages, the availability of an appointment letter, festival pay, weekly leave, and sick leave.

OHS knowledge and attitude among owners and workers were added in the second wave of the survey. These measures are captured by indices on safety knowledge, safety feedback, safety discussion, training, and beliefs on safety. Respondents are asked whether they agree, partly agree, or disagree to each item in the index. The safety knowledge index includes self-reported safety knowledge in the workplace, first aid knowledge in an emergency and non-emergency, and cooperation in ensuring safety. The safety feedback includes asking workers about safety issues, welcoming workers to express safety concerns, and workers' awareness of their rights and responsibilities in maintaining a safe workplace. The safety discussion index includes respondents' opinions on the following items: discussion with only authority, discussion with authority and staff, response from authority whenever safety issues arise, staff input on safety issues, workers are informed if they do not abide by safety rules, and safety is often discussed in the workplace. The training index includes respondents' opinions on the following items: safety training is considered important, safety rules and action plans are decided in advance, training provides awareness of the necessity of following safety

rules. The belief index is only available for workers, and includes workers' opinion on the following: safe work environment improves productivity, written safety agreement is beneficial for owners and workers, smoking inside the workplace increases the probability of accidents, the workshop must provide first aid treatment.

Worker outcomes The surveys included information on workers' age, occupation (foreman, skilled worker, or apprentice), monthly salary, daily hours, experience in the workshop, and experience in the occupation. These information are collected in all three rounds, although the data provides only a repeated cross-section of workers and does not allow us to link the same worker over time. In each wave, owners and workers are asked to report workers' pay conditions, which include the timeliness of salary payments, availability of work contracts, festival bonus pay, and paid time off.

Firm outcomes The surveys also include questions on the firms' sales, costs, and profits. The survey also includes access to credit, both formal and informal, and linkages to market committees, which could indicate their ability to connect to other industries. Additionally, firms are asked the number of workers, and an increase could indicate firm growth.

3.2 Method

For outcomes that are measured in all three waves, we use a difference-in-differences strategy comparing the changes in the outcome among treated firms to the changes among control firms. We do so by including firm fixed effects as well as wave fixed effects. We estimate the intent-to-treat parameter using the following equation:

$$y_{it} = \alpha + \beta_1 A_i \times Post_t + \beta_2 F_i \times Post_t + \tau_t + \mu_i + \epsilon_{it}$$

where y_{it} is the outcome of interest for firm i at time t. A_i takes the value one if the firm is randomized into the OHS only intervention (T1). F_i takes the value one if the firm is randomized into the OHS plus financial linkage intervention (T2). We include wave fixed effects, τ_t , and firm fixed effects, μ_i. All standard errors are clustered at the market level since randomization was done at the market level.

For outcomes that are only available in the second and third waves of the survey, we use cross-sectional regressions to measure the average differences between the treatment and control groups. We control for baseline firm caracteristics and include district fixed effects to address potential concerns of imbalance between the treatment arms due to attrition. Specifically, we estimate the following equation for each firm i in waves $t = 2$ or 3:

$$y_{it} = \alpha + \beta_1 A_i + \beta_2 F_i + \beta_3 X_{i0} + \epsilon_{it}$$

where X_{i0} is a set of firm characteristics measured at baseline, including the owner's age, age squared, whether the owner finished junior middle school (8th grade), dummies for each level of workshop employment, workshop annual income, whether the workshop uses any dangerous equipment, and whether the workshop uses a welding machine (as assessed by the enumerator). In cases where the outcome variable includes a large set of zero, Poisson regression as used to avoid taking logs of the outcome variable.

Baseline sample characteristics Table 1 presents firm characteristics at baseline and the adjusted differences across the treatment and control groups. Firm owners are 95% male, their average age is around 40, and they have about 7 years of education. These firms have an average of 3 workers in the previous year. About two thirds of firms have a bank account and 40% have a bKash account. About a third of firms have internet access. The previous year's annual income is about 900,000 Taka, and the previous month's revenue and cost are about 90,000 Taka.

The number of workers at the time of the survey is about 3, which includes 0.7 foremen, 1.5 skilled workers, and 0.6 apprentices. Workers work an average of 25 hours per week, and their average monthly salary is 22,000 Taka.

Experimental validity There are two primary threats to the empirical design. The randomization may produce imbalanced groups either by chance or the randomization process was somehow corrupted. The baseline sample characteristics are similar across firms and workers (Table 1). The adjusted difference includes market fixed effects and all standard errors are clustered at the market level, which is the unit of randomization. Firms' characteristics and outcomes are similar across the control and treatment groups at baseline. It is unlikely that the process was corrupted since firms

were not informed of their treatment status prior to the intervention and the team that conducted the training were not given the list of firms in the control group.[1]

4 Results

4.1 Effect on safety measures and safety outcomes

We begin by examining the effect of the intervention on safety measures in Table 2 (cols. 1-2). Panel A presents results for the owners, followed by workers, and enumerators. Odd columns present the pooled estimate while the even columns present the sub-treatment estimates. The results show that owners, workers, and enumerators report safety improvements, with effects ranging from 0.68 to 1.2 SDs. To explore the specific items that drive the results, we find that the effect is driven by the following items: electricity wiring, first aid, safety signs, fire extinguisher, and equipment maintenance. We find no significant difference in the sub-treatment arms, which suggests that the effect is driven by the OHS training, and access to credit has no additional impact on improving safety measures in the workplace.

Treated firms also improved the provision of water and sanitation in the workshops, with effects ranging from 0.99 to 1.19 SDs (Table 2, cols. 3-4). When we examine the specific items that drive the program effects, we find that the effect is driven by treated firms providing drinking water in the workshops. Similarly, treated firms improved workspace for workers, with effects ranging from 0.79 to 0.92 SDs (Table 2, cols. 5-6). We find that the effects are driven by the following items: cleanliness, waste basket, shutters, and air flow in the workshop.

The estimated effect on safety measures, water and sanitation, and workspace is similar among owners, workers, and enumerators, suggesting that the changes are verifiable. We find no significant additional effect due to access to financing, which suggests that the OHS training is the main driver of improvements in safety measures in the workplace. These changes are consistent with information, not credit as the constraint to improving the work environment in the informal sector.

We also examine the number of accidents in the workplace as reported by owners and workers. While the number of accidents is a good measure of worker wellbeing, the effect of the intervention

[1] One firm from the control group was mistakenly included to the treatment group and 8 firms did not participate. The analysis is done based on the initial treatment assignment to estimate the intent-to-treat parameter.

is theoretically ambiguous. On the one hand, better safety measures should reduce the number of accidents. However, if firms and workers improve reporting or hire inexperienced workers as a result of the intervention, we may see increased number of accidents. We find no significant change in the number of accidents one and two years after the intervention (Table 3). Similar to our earlier findings, we find no significant difference between the two sub-treatment arms.

4.2 Effect on safety awareness and discussion

We examine how the OHS training and access to financing affected owners and workers' knowledge and attitude towards workplace safety. We find that the treatment improves safety awareness and discussion (Table 4). Panel A presents results for the owners, followed by workers, and enumerators. Odd columns present the pooled estimate while the even columns present the sub-treatment estimates. We begin by examining the effect on awareness, training, and protocol one year (cols. 1-2) and two years (cols. 3-4) after the intervention. We find that the estimated effect persists two years after the intervention, although the point estimate is smaller at 0.27 SD compared to the 0.4 SD increase at the end of the first year. We find no additional effect from access to financing, suggesting that owners' attitude towards safety is driven by OHS training. When we examine workers' response, we find that workers are also more likely to have higher awareness of safety in the workplace two years after the intervention. The increase is also larger in the first year (0.4 SDs) compared to the second year (0.3 SDs). These results suggest that owners and workers have better awareness in addition to the verifiable changes made to improve the workplace.

We also examine how the intervention affects owners and workers' attitude towards feedback and discussion on safety (Table 4, cols. 5-8). We find that both owners and workers are more open to feedback and discussion on safety in the workplace, and this increase persists 2 years after the intervention. Similar to our earlier findings, the estimated effect is larger in the first year, 0.4 SD versus 0.3 SD for both owners and workers. We find no additional effect from access to financing.

4.3 Effect on worker outcomes

One of the objectives of the intervention is to improve worker wellbeing in pecuniary and non-pecuniary measures. We begin by examining worker outcomes at the firm level related to whether workers may be overworked and underpaid. We find small and not statistically significant change

in the number of workers or total hours worked (Table 5, Panel A, cols. 1-4). For workers' monthly salary, we find no significant change under the pooled treatment or the OHS only sub-treatment arm (cols. 5-6). We find a marginally significant increase under the total monthly salary.

Beyond the number of workers, we also examine changes in the worker composition (Table 5, Panel B). On the one hand, OHS training may prompt firms to hire more foremen and skilled workers who would be expected to have more safety knowledge and awareness. On the other hand, OHS training may prompt firms to hire more inexperienced workers through apprenticeships since firms now have the capacity to train workers on safety knowledge and measures. The intervention is associated with no significant change in the number of foremen, 0.1 fewer skilled workers, and 0.2 more apprentices. Unlike our earlier findings, the effect in worker composition is driven by the OHS plus credit access sub-treatment arm. The substitution between skilled workers and apprentices suggests that firms may be more confident in training inexperienced workers. Since apprentices would generally receive lower salaries, this is consistent with the result on total monthly salary.

We also examine the effects of the intervention at the worker level since firm-level analysis may mask heterogeneity among workers (Table 6). We begin the analysis by pooling the workers, followed by examining each type of worker: foremen, skilled, and apprentices. We find that workers in treated firms have about 0.5 years fewer years in the firm, and this effect is driven by the OHS training only (cols. 1-2). However, we find the intervention has no significant effect on workers' experience in the occupation (cols. 3-4), suggesting that workers with similar experience in the occupation may be joining the treated firms. Workers in treated firms are more likely to report about 5% higher salary, and this effect is driven by the OHS plus credit treatment arm (cols. 5-6).

We examine the effect of the intervention on each type of worker to explore heterogeneous treatment effects by worker type. Treated firms are more likely to have foremen with about 1 fewer year of experience with the firm, and the effect is driven by the OHS training only. Foremen in firms that received OHS training only have on average 0.3 years additional experience in the occupation. However, we find no significant change in their reported monthly salary. Skilled workers in treated firms have on average 0.5 fewer years of experience with the firm, but there is no significant change in workers' experience in the occupation. Skilled workers report about a 6% salary increase in treated firms, and this effect is driven by the OHS plus credit treatment arm. We find no significant change among apprentices working in treated firms, although treated firms are more likely to hire

them.

Overall, the results suggest that treated firms are more likely to hire apprentices, and they have a similar profile as those in control firms. Treated firms have fewer skilled workers, but firms are more likely to increase the salary of skilled workers and foremen. The results on workers' salary is consistent with skilled, and possibly more productive, workers receiving higher salaries, but we find no evidence of the treatment increasing worker retention. If occupation-specific human capital is important in this setting, then the intervention appears to have improved firms' ability to hire more skilled workers.

4.4 Effect on firm performance

One of the hypothesized channels is OHS training will improve the work environment, and this would then improve firm outcomes through channels such as higher worker productivity. The intervention arm that provides access to financing and OHS training would allow firms to address their credit constraint and invest in either capital or labor. We find no significant change in revenue or cost due to any of the treatment arms (Table 7, cols. 1-4). We find no significant change in markup percentage, defined as total profits over total costs (cols. 5-6).[2] As a related outcome, we also examine firms' access to formal credit and their asset value. We find no significant change in the probability of obtaining a loan, the amount of the loan, or the firms' asset value. These results suggest that the intervention has not improved firm profitability.

4.5 Heterogeneity

We explore heterogeneous treatment effects by firm characteristics. We focus on the safety index, sanitation, and cleanliness indices using enumerators' response since we expect enumerators' observations to be less biased than owners' response (Table 8). We explore differential effects by owners' characteristics, using the median educational attainment of middle school and the median age of 40, and find no significant heterogeneity. We also explore heterogeneity by annual workshop income, using the median of 500 thousand Takas, and number of workers at baseline, using the median firm size of under 2, and find no significant heterogeneity. These results suggest that firms do not respond differentially to the intervention.

[2]We find no change in profits.

We also explore heterogeneity by sub-treatment arms (Table 9). We separate the analysis by splitting the sample into above and below median of the firm characteristics and examine whether access to credit is associated with additional impact on safety, sanitation, or cleanliness. We find that the credit access has no significant additional effect on the outcomes of interest. We also find no significant heterogeneity by firm characteristics.

4.6 Potential mechanisms

We explore potential mechanisms that may explain why the improvements in several decent work measures do not lead to lower rates of accidents. For instance, the treatment might induce firms to change the composition of workers. We find no change in the number of workers, but treated firms have fewer experienced workers, and a higher number of apprentices (Table 5). Workers in treated firms are also less experienced, which is consistent with the higher number of apprentices. Additionally, we analyze the effect of the intervention on workers' age and hours worked (Table 10) and find no significant change. We further examine the effect on worker retention by comparing the percentage of workers with less than one year of experience with the firm one and two years post intervention (Table 11). We find no significant change one year post intervention. At two years post intervention, we find that the percentage of new workers is 2 percentage points higher, and this appears to be driven by the OHS plus credit treatment arm. However, when we examine changes by each worker type, the results suggest that treated firms have a lower share of new foremen, and a higher share of new apprentices. Taken together, these results provide suggestive evidence that the intervention has not allowed firms to retain workers or hired more experienced workers.

We also explore one potential mechanism that may explain firms' continued struggle to retain workers by examining firms' fair labor practices. The fair labor practice index, which includes timely salary payment, festival pay, having sick days, and paid time off, combines pecuniary and non-pecuniary aspects of payments for workers. We find that both owners and workers report no significant change in timely and fair payment (Table 12). These results would be consistent with firms not providing additional incentives for workers to continue their tenure through improved labor practices.

4.7 Robustness

Selective attrition Some firms may be lost to follow up due to industry exit or refusal to continue participation. About 14% of firms were only observed at baseline and the first follow up. We are unable to determine if the firms exited the industry or if owners changed their contact information or location. To address the concern of selective attrition, we examine the firms' characteristics at baseline (Table 13). The firms that were lost to follow up are generally balanced across treatment assignment. We also find that firms that were lost to follow up and the remaining firms have similar baseline outcomes and characteristics. We also restrict the sample to firms that are observed in all three waves of the survey and find similar estimates, thus suggesting that the results are not driven by firms that attrited.

5 Conclusion

We find that the OHS training is effective in improving several aspects of the work environment, while we find no additional impact due to financial linkages, which suggests that information is key to firms' investments in workplace safety. Additionally, we find that the intervention had no significant impact on firm performance, although there is some evidence for improved wages for workers in firms that received financial linkages. Our findings suggest that policies to improve work environment in the informal sector should center on information on OHS.

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Table 1: Baseline Workshop Characteristics and Outcomes by Treatment Arm (Full Sample)

	Control Group			Treatment Group			Adjusted	
	Mean	SD	Obs	Mean	SD	Obs	Difference	SE
Owner is male	0.96	0.20	1,269	0.96	0.21	1,073	-0.002	0.020
Owner age	39.55	10.62	1,247	39.33	10.92	1,048	-0.415	1.037
Owner years of education	6.86	3.37	1,206	6.76	3.51	1,018	-0.122	0.305
Workshop emp. last year (excl. owner)	2.69	3.33	1,269	3.01	3.04	1,073	0.305	0.222
Workshop land size	2.01	13.65	1,218	1.62	6.76	1,028	-0.538	0.837
Owner has a bank account	0.65	0.48	1,218	0.67	0.47	1,028	0.013	0.040
Owner has a bKash account	0.41	0.49	1,218	0.42	0.49	1,028	-0.018	0.045
Owner uses the Internet	0.35	0.48	1,218	0.37	0.48	1,028	0.018	0.039
Workshop annual income (taka)	948,031	3,151,879	1,212	858,206	1,401,628	1,020	-473,927	453,281
Revenue last month (taka)	90,162	262,625	1,215	95,189	181,891	1,026	-29,067	37,617
Cost last month (taka)	92,565	275,827	1,218	88,358	159,781	1,027	-32,645	36,761
Safety, Sanitation, and Cleanliness Indices (*normalized, higher values mean better outcomes*)								
Safety index (*owners' answers*)	0.00	1.00	1,212	-0.01	1.17	1,025	-0.077	0.076
Safety index (*workers' answers*)	0.00	1.00	1,021	-0.07	1.19	881	-0.113	0.077
Safety index (*enumerators'*)	0.00	1.00	1,212	-0.13	1.17	1,025	-0.127	0.070
Sanitation index (*owners'*)	0.00	1.00	1,218	-0.16	1.16	1,028	-0.142	0.067
Sanitation index (*workers'*)	0.00	1.00	1,020	-0.17	1.14	883	-0.144	0.074
Sanitation index (*enumerators'*)	0.00	1.00	1,024	-0.21	1.23	887	-0.141	0.084
Cleanliness index (*owners'*)	-0.00	1.00	1,218	-0.19	1.13	1,028	-0.162	0.068
Cleanliness index (*workers'*)	0.00	1.00	1,029	-0.23	1.12	899	-0.196	0.081
Cleanliness index (*enumerators'*)	-0.00	1.00	1,000	-0.23	1.08	895	-0.275	0.071
Workers' Surveys								
Number of workers (at time of survey)	2.64	2.34	1,269	2.91	2.54	1,073	0.232	0.217
Number of foremen	0.69	0.84	1,269	0.70	0.76	1,073	-0.004	0.072
Number of skilled workers	1.32	1.65	1,269	1.51	1.94	1,073	0.143	0.146
Number of apprentices	0.63	0.91	1,269	0.70	0.97	1,073	0.071	0.094
Average work hours of workers	25.04	23.19	1,269	27.61	25.02	1,073	1.862	2.182
Average monthly salary of workers	22,413	24,796	1,269	23,877	26,696	1,073	845.57	2,109.76

Table 2: Effect on Workplace Safety, Sanitation, and Cleanliness

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome Variable (Index)	Safety		Sanitation		Cleanliness	
Panel A: Owners' answers						
Any treatment	0.678***		1.040***		0.938***	
	(0.0867)		(0.102)		(0.0945)	
Info		0.655***		0.989***		0.889***
		(0.110)		(0.126)		(0.112)
Info + Credit		0.701***		1.094***		0.990***
		(0.107)		(0.129)		(0.119)
P-value (Info=Info+Credit)		0.723		0.490		0.447
Y mean (control baseline)	0.00751		0.00503		0.00339	
Observations	5,700		5,807		5,805	
Firm FE & Wave FE	Yes		Yes		Yes	
Panel B: Workers' answers						
Any treatment	0.722***		0.953***		0.850***	
	(0.0996)		(0.109)		(0.0992)	
Info		0.726***		0.942***		0.834***
		(0.122)		(0.135)		(0.118)
Info + Credit		0.717***		0.965***		0.866***
		(0.131)		(0.141)		(0.125)
P-value (Info=Info+Credit)		0.949		0.892		0.822
Y mean (control baseline)	0.00642		0.00591		0.00402	
Observations	4,606		4,715		4,728	
Firm FE & Wave FE	Yes		Yes		Yes	
Panel C: Enumerators' answers						
Any treatment	1.060***		1.079***		0.844***	
	(0.106)		(0.115)		(0.107)	
Info		1.006***		1.020***		0.787***
		(0.132)		(0.144)		(0.123)
Info + Credit		1.115***		1.140***		0.903***
		(0.133)		(0.145)		(0.130)
P-value (Info=Info+Credit)		0.488		0.495		0.391
Y mean (control baseline)	0.00124		0.00623		0.00784	
Observations	5,700		5,524		5,275	
Firm FE & Wave FE	Yes		Yes		Yes	

Notes: Difference-in-differences regressions with **firm FE and wave FE**. Each column in each panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Robust standard errors clustered at the market level are shown in parentheses (final sample consists of 800 markets). Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Effect on the Number of Accidents

	(1)	(3)	(5)	(7)
Outcome Variable	Number of Accidents			
Wave	*Wave 2*		*Wave 3*	
Panel A: Owners' answers				
Any treatment	-0.0300		-0.000994	
	(0.191)		(0.195)	
Info		0.0665		0.0233
		(0.244)		(0.258)
Info + Credit		-0.0962		-0.0290
		(0.210)		(0.222)
P-value (Info=Info+Credit)		0.510		0.855
Y mean of control group	0.408		0.177	
% of zero observations in Y	90.3%		89.9%	
Observations	2,038		1,983	
Panel B: Workers' answers				
Any treatment	0.0684		-0.132	
	(0.176)		(0.189)	
Info		0.173		-0.228
		(0.232)		(0.248)
Info + Credit		-0.00217		-0.0344
		(0.193)		(0.185)
P-value (Info=Info+Credit)		0.464		0.391
Y mean of control group	0.426		0.194	
% of zero observations in Y	88.7%		89.3%	
Observations	1,639		1,983	

Notes: Cross-sectional regressions with **district FE**. Outcome variable is the number of accidents in the workshop in the past year (as reported by the owners in Panel A and by the workers in Panel B). Each column in each Panel is a separate regression using **Poisson QMLE estimation**. Unit of observation is at the firm level. Sample includes all firms that responded to the "number of accidents" question in wave 2 or 3. All regressions include district FE and a set of controls of baseline firm characteristics. Robust standard errors clustered at the market level are shown in parentheses (final sample consists of 800 markets). Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Effect on Safety Awareness and Discussion among Workshop Members

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcome Variable (Index)	Awareness, Training, and Protocol				Feedback and Discussion			
Wave	*Wave 2*		*Wave 3*		*Wave 2*		*Wave 3*	
Panel A: Owners' answers								
Any treatment	0.410***		0.275***		0.448***		0.301***	
	(0.0428)		(0.0344)		(0.0468)		(0.0377)	
Info		0.400***		0.298***		0.437***		0.326***
		(0.0521)		(0.0389)		(0.0570)		(0.0426)
Info + Credit		0.420***		0.251***		0.459***		0.275***
		(0.0520)		(0.0447)		(0.0569)		(0.0489)
P-value (Info=Info+Credit)		0.734		0.329		0.734		0.329
Y mean of control group	-7.86e-09		0.262		0.0154		0.302	
Observations	2,038		1,983		2,038		1,983	
Panel B: Workers' answers								
Any treatment	0.447***		0.290***		0.482***		0.313***	
	(0.0472)		(0.0350)		(0.0510)		(0.0378)	
Info		0.456***		0.310***		0.492***		0.335***
		(0.0595)		(0.0387)		(0.0643)		(0.0418)
Info + Credit		0.437***		0.269***		0.471***		0.291***
		(0.0555)		(0.0458)		(0.0599)		(0.0494)
P-value (Info=Info+Credit)		0.766		0.387		0.766		0.387
Y mean of control group	1.88e-09		0.313		-0.0106		0.328	
Observations	1,639		1,545		1,639		1,545	

Notes: Cross-sectional regressions with **district fixed effects**. Each column in each Panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes all firms that responded to the corresponding questions regarding workshop safety awareness in wave 2 or 3. All regressions include district FE and a set of controls of baseline firm characteristics. Robust standard errors clustered at the market level are shown in parentheses (final sample consists of 800 markets). Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Effects on Number of Workers and Type of Workers

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Outcome Variable =	Number of Workers		Total Work Hours of All Workers		Total Monthly Salary of All Workers	
Any treatment	0.0248		0.0202		0.0577	
	(0.0291)		(0.0333)		(0.0373)	
Info		0.00126		-0.000669		0.0427
		(0.0350)		(0.0385)		(0.0477)
Info + Credit		0.0492		0.0421		0.0734*
		(0.0356)		(0.0414)		(0.0439)
P-value (Info=Info+Credit)		0.231		0.333		0.566
Y mean of control group	23.93		23.93		23.93	
% of zero observations in Y	19.1%		19.3%		19.3%	
Observations	5,483		5,477		5,480	
Firm FE & Wave FE	Yes		Yes		Yes	
Panel B: Outcome Variable =	Number of Foremen		Number of Skilled Workers		Number of Apprentices	
Any treatment	0.0425		-0.110**		0.248***	
	(0.0649)		(0.0497)		(0.0777)	
Info		0.0236		-0.0922		0.144
		(0.0786)		(0.0655)		(0.0904)
Info + Credit		0.0631		-0.129**		0.353***
		(0.0785)		(0.0546)		(0.0982)
P-value (Info=Info+Credit)		0.655		0.591		0.0545
Y mean of control group	23.93		23.93		23.93	
% of zero observations in Y	54.2%		38.5%		55.5%	
Observations	4,391		4,979		4,352	
Firm FE & Wave FE	Yes		Yes		Yes	

Notes: Difference-in-differences regressions with firm **FE and wave FE**. Each column in each Panel is a separate regression using **Poisson QMLE estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Robust standard errors clustered at the market level are shown in parentheses (final sample consists of 800 markets). Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Effects on Profile and Salary of Workers – Worker-Level Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome Variable	Years in Firm		Exp. in Occ. (cat.)		*ln* (Monthly Salary)	
Panel A: All Workers *(excluding the owner of the workshop)*						
Any treatment	-0.418**		0.0874		0.0507*	
	(0.165)		(0.0541)		(0.0261)	
Info		-0.594***		0.109		0.0397
		(0.228)		(0.0675)		(0.0307)
Info + Credit		-0.233		0.0645		0.0621*
		(0.167)		(0.0659)		(0.0323)
P-value (Info=Info+Credit)		0.114		0.565		0.528
Y mean (control baseline)	4.573		2.761		8.820	
Observations	13,443		14,197		13,234	
Panel B: Subsample - Foremen						
Any treatment	-0.854*		0.141		0.0338	
	(0.471)		(0.105)		(0.0419)	
Info		-1.315**		0.248*		0.0543
		(0.565)		(0.129)		(0.0536)
Info + Credit		-0.366		0.0245		0.0126
		(0.569)		(0.131)		(0.0509)
P-value (Info=Info+Credit)		0.134		0.143		0.508
Y mean (control baseline)	6.197		3.422		9.305	
Observations	2,955		3,086		2,943	
Panel C: Subsample - Skilled Workers						
Any treatment	-0.501**		0.0452		0.0609*	
	(0.253)		(0.0762)		(0.0317)	
Info		-0.570*		0.0591		0.0331
		(0.336)		(0.0981)		(0.0378)
Info + Credit		-0.431		0.0311		0.0895**
		(0.277)		(0.0944)		(0.0396)
P-value (Info=Info+Credit)		0.694		0.812		0.211
Y mean (control baseline)	4.728		2.911		8.970	
Observations	7,506		7,984		7,482	
Panel D: Subsample - Apprentices						
Any treatment	-0.0329		0.0495		0.0903	
	(0.183)		(0.110)		(0.0935)	
Info		-0.117		0.0319		0.0768
		(0.232)		(0.143)		(0.110)
Info + Credit		0.0662		0.0702		0.106
		(0.222)		(0.126)		(0.120)
P-value (Info=Info+Credit)		0.498		0.809		0.830
Y mean (control baseline)	1.985		1.428		7.994	
Observations	2,982		3,127		2,809	

Notes: Difference-in-differences regressions with firm **FE and wave FE**. Each column in each Panel is a separate regression using **OLS estimation**. Unit of observation is at the worker-year level. "Experience in the occupation" is measured in categories with 1 indicating 1 to 2 years, 2 indicating 3 to 4 years, 3 indicating 5 to 7 years, and 4 indicating 8 or more years of experience. All regressions include wave FE, firm FE, and a set of controls for worker characteristics. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Effects on Revenue, Costs, and Profits

	(1)	(2)	(3)	(4)	(3)	(4)
Outcome Variable	*ln* (Revenue)		*ln* (Cost)		Markup Percentage	
Any treatment	0.0570		0.0593		-0.0998	
	(0.0517)		(0.0509)		(0.109)	
Info		0.0392		0.0452		-0.129
		(0.0687)		(0.0652)		(0.123)
Info + Credit		0.0756		0.0741		-0.0696
		(0.0599)		(0.0588)		(0.136)
P-value (Info=Info+Credit)		0.637		0.686		0.671
Y mean (control baseline)	10.87		10.71		0.439	
Observations	5,800		5,806		5,800	
Firm FE & Wave FE	Yes		Yes		Yes	

Notes: Difference-in-differences regressions with **firm FE and wave FE**. Each column in each Panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Markup percentage is defined as total profits over total costs. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Heterogeneous Effects by Workshop Characteristics

	(1)	(2)	(3)
Outcome Variable (Index, enumerator's answers)	Safety	Sanitation	Cleanliness
Panel A: By workshop owner's educational attainment			
Any treatment	0.990***	0.977***	0.832***
	(0.130)	(0.141)	(0.126)
Any treatment × Middle school or above	0.151	0.216	0.0275
	(0.152)	(0.166)	(0.136)
Observations	5,700	5,524	5,275
Panel B: By workshop owner's age *(measured at baseline)*			
Any treatment	1.138***	1.127***	0.877***
	(0.131)	(0.149)	(0.127)
Any treatment × Owner age ≥ 40	-0.177	-0.110	-0.0744
	(0.166)	(0.192)	(0.164)
Observations	5,700	5,524	5,275
Panel C: By workshop annual income *(measured at baseline)*			
Any treatment	1.038***	1.065***	0.778***
	(0.164)	(0.170)	(0.146)
Any treatment × Income ≥ median (500k)	0.0330	0.0231	0.123
	(0.191)	(0.201)	(0.166)
Observations	5,700	5,524	5,275
Panel D: By workshop empployment size *(measured at baseline)*			
Any treatment	0.991***	0.995***	0.854***
	(0.143)	(0.161)	(0.141)
Any treatment × Small size (0-2 employees)	0.102	0.125	-0.0330
	(0.179)	(0.203)	(0.170)
Observations	5,700	5,524	5,275

Notes: Difference-in-differences regressions with **firm FE and wave FE**. Each column in each panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Heterogeneous Effects by Workshop Characteristics - Split Samples, by Treatment Arm

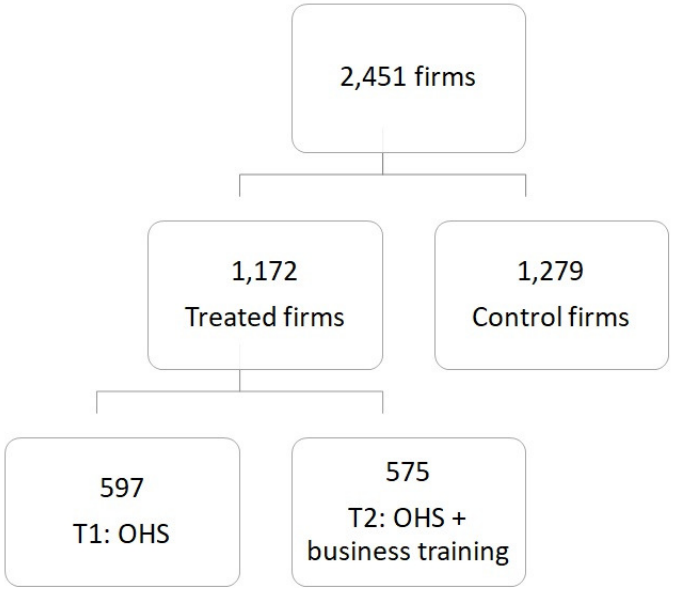
	(1)	(2)	(3)	(4)	(5)	(6)
Outcome Var (enumerator's answers)	Safety		Sanitation		Cleanliness	
Panel A: By owner's edu	low	high	low	high	low	high
Info	0.828***	1.125***	0.823***	1.115***	0.675***	0.887***
	(0.169)	(0.200)	(0.187)	(0.217)	(0.161)	(0.178)
Info + Credit	1.148***	1.134***	1.170***	1.116***	1.002***	0.818***
	(0.206)	(0.163)	(0.224)	(0.176)	(0.186)	(0.168)
P-value (Info=Info+Credit)	0.172	0.967	0.176	0.999	0.103	0.720
Y mean (control base)	-0.0853	0.0993	-0.0881	0.119	-0.110	0.142
Observations	3,060	2,640	2,989	2,535	2,831	2,444
Panel B: By owner's age	< 40	≥ 40	< 40	≥ 40	< 40	≥ 40
Info	1.074***	0.919***	1.042***	0.990***	0.799***	0.772***
	(0.159)	(0.185)	(0.182)	(0.202)	(0.145)	(0.177)
Info + Credit	1.205***	1.003***	1.218***	1.045***	0.957***	0.836***
	(0.171)	(0.157)	(0.193)	(0.172)	(0.161)	(0.161)
P-value (Info=Info+Credit)	0.516	0.682	0.438	0.809	0.355	0.730
Y mean (control base)	-0.0358	0.0462	-0.0674	0.0937	-0.0134	0.0331
Observations	3,146	2,554	3,051	2,473	2,912	2,363
Panel C: By wkshp income	low	high	low	high	low	high
Info	0.882***	1.075***	0.904***	1.099***	0.626***	0.910***
	(0.202)	(0.160)	(0.200)	(0.181)	(0.163)	(0.154)
Info + Credit	1.171***	1.072***	1.192***	1.095***	0.900***	0.908***
	(0.215)	(0.143)	(0.228)	(0.162)	(0.186)	(0.149)
P-value (Info=Info+Credit)	0.257	0.987	0.270	0.987	0.160	0.990
Y mean (control base)	-0.115	0.0961	-0.0973	0.0996	-0.126	0.120
Observations	2,503	3,197	2,471	3,053	2,323	2,952
Panel D: By wkshp emp size	large	small	large	small	large	small
Info	0.984***	0.996***	0.993***	1.010***	0.880***	0.687***
	(0.176)	(0.166)	(0.200)	(0.181)	(0.166)	(0.149)
Info + Credit	0.999***	1.197***	0.996***	1.238***	0.829***	0.967***
	(0.192)	(0.166)	(0.220)	(0.179)	(0.179)	(0.159)
P-value (Info=Info+Credit)	0.949	0.309	0.991	0.287	0.798	0.0799
Y mean (control base)	0.121	-0.105	0.133	-0.102	0.216	-0.180
Observations	2,767	2,933	2,655	2,869	2,572	2,703

Notes: Difference-in-differences regressions with **firm FE and wave FE**. Each column in each panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Appendix

6 Additional Tables and Figures

Figure 1: Details of the intervention



Notes: 2451 firms were selected for randomization in 1356 market places, located in 79 sub-districts from 20 districts. The intervention was carried out in 2017, and two follow-up surveys were carried out in 2018 and 2019.

Table 10: Effects on Age and Work Hours of Workers – Worker-Level Regressions

	(1)	(2)	(3)	(4)
Outcome Variable	Age		*ln* (Daily Hours)	
Panel A: All Workers *(excluding the owner of the workshop)*				
Any treatment	0.212		0.0126	
	(0.283)		(0.0139)	
Info		0.0581		0.0172
		(0.326)		(0.0162)
Info + Credit		0.374		0.00769
		(0.362)		(0.0158)
P-value (Info=Info+Credit)		0.422		0.558
Y mean of control group	24.06	24.06	2.255	2.255
Observations	15,321	15,321	13,174	13,174
Panel B: Subsample - Foremen				
Any treatment	-0.386		-0.00415	
	(0.755)		(0.0217)	
Info		-0.211		0.00128
		(0.961)		(0.0259)
Info + Credit		-0.580		-0.00979
		(0.947)		(0.0254)
P-value (Info=Info+Credit)		0.753		0.682
Y mean of control group	29.75	29.75	2.249	2.249
Observations	3,106	3,106	2,930	2,930
Panel C: Subsample - Skilled Workers				
Any treatment	0.164		0.0200	
	(0.433)		(0.0159)	
Info		-0.0971		0.0210
		(0.481)		(0.0190)
Info + Credit		0.429		0.0190
		(0.565)		(0.0181)
P-value (Info=Info+Credit)		0.378		0.917
Y mean of control group	24.61	24.61	2.273	2.273
Observations	8,076	8,076	7,445	7,445
Panel D: Subsample - Apprentices				
Any treatment	0.0350		0.0326	
	(0.387)		(0.0277)	
Info		0.0668		0.0509
		(0.442)		(0.0310)
Info + Credit		-0.00105		0.0110
		(0.521)		(0.0348)
P-value (Info=Info+Credit)		0.906		0.269
Y mean of control group	16.79	16.79	2.223	2.223
Observations	4,139	4,139	2,799	2,799

Notes: Difference-in-differences regressions with firm fixed effects and wave fixed effects. Each column in each Panel is a separate regression using **OLS estimation**. Unit of observation is at the worker-year level. Sample includes all workers in the 1995 firms that responded to all three waves of surveys. All regressions include wave FE, firm FE, and a set of controls for worker characteristics. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Effects on Percent of New Workers (New Hires vs Retained Workers)

	(1)	(2)	(3)	(4)
Outcome Variable	Percent of Workers New Since Last Wave			
Wave	*Wave 2*		*Wave 3*	
Panel A: Among All Workers *(outcome = percent new)*				
Any treatment	0.00895		0.0314*	
	(0.0185)		(0.0176)	
Info		0.00726		0.0165
		(0.0223)		(0.0214)
Info + Credit		0.0107		0.0472**
		(0.0234)		(0.0214)
P-value (Info=Info+Credit)		0.897		0.210
Y mean of control group	0.344	0.344	0.289	0.289
Observations	1,648	1,648	1,601	1,601
Panel B: Among Foremen *(outcome = percent new)*				
Any treatment	-0.0148		-0.0559**	
	(0.0226)		(0.0238)	
Info		-0.0391		-0.107***
		(0.0286)		(0.0318)
Info + Credit		0.0116		-0.000285
		(0.0270)		(0.0265)
P-value (Info=Info+Credit)		0.120		0.00315
Y mean of control group	0.879	0.879	0.900	0.900
Observations	835	835	811	811
Panel C: Subsample - Skilled Workers				
Any treatment	0.00809		-0.0238	
	(0.0214)		(0.0221)	
Info		0.0161		0.00717
		(0.0246)		(0.0256)
Info + Credit		-0.000246		-0.0581*
		(0.0274)		(0.0311)
P-value (Info=Info+Credit)		0.583		0.0682
Y mean of control group	0.735	0.735	0.794	0.794
Observations	1,349	1,349	1,151	1,151
Panel D: Subsample - Apprentices				
Any treatment	0.0263		0.0471	
	(0.0309)		(0.0303)	
Info		0.00364		0.0726**
		(0.0359)		(0.0358)
Info + Credit		0.0480		0.0221
		(0.0384)		(0.0364)
P-value (Info=Info+Credit)		0.286		0.203
Y mean of control group	0.289	0.289	0.456	0.456
Observations	832	832	987	987

Notes: Cross-sectional regressions with firm fixed effects and wave fixed effects. Each column in each panel is a separate regression using **OLS estimation**. Unit of observation is at the firm-year level. Sample includes firms that responded to all three waves of surveys & has least one worker (or worker by type in Panels B, C, and D) other

Table 12: Effects on Fair Labor Practices

	(1)	(2)	(3)	(4)
Outcome Variable	Timely and Fair Payment Index			
	Owners' answers		*Workers' answers*	
Any treatment	0.0770		0.0754	
	(0.0840)		(0.0913)	
Info		0.0473		0.113
		(0.109)		(0.118)
Info + Credit		0.107		0.0375
		(0.0968)		(0.107)
P-value (Info=Info+Credit)		0.616		0.572
Y mean (control baseline)	0.00218		0.00224	
Observations	5,623		4,741	
Firm FE & Wave FE	Yes		Yes	

Notes: Difference-in-differences regressions with firm fixed effects and wave fixed effects. Each column in each Panel is a separate regression using **OLS estimation**. Unit of observation is at the firm level. Sample includes 1995 firms that responded to all three waves of surveys. Robust standard errors clustered at the market level are shown in parentheses. Significant levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Treatment Status and Baseline Characteristics of Remaining vs. Attrited Firms

	Mean in firms that Remained	Mean in firms that Attrited	Difference	P-value H_o : Remained = Attrited
Obs.	1992	350		
Any treatment	0.469	0.394	-0.075**	0.009
Info treatment	0.239	0.197	-0.042	0.074
Info + Credit treatment	0.230	0.197	-0.033	0.154
Owner is male	0.975	0.851	-0.124***	0.000
Owner age	39.475	39.274	-0.201	0.782
Owner years of education	6.801	6.892	0.092	0.687
Workshop employment last year	2.941	2.231	-0.709***	0.000
Workshop land size	1.878	1.554	-0.324	0.397
Owner has a bank account	0.660	0.638	-0.023	0.450
Owner has a bKash account	0.411	0.419	0.009	0.775
Owner uses the Internet	0.358	0.379	0.021	0.489
Workshop annual income (taka)	876495.351	1106385.135	229889.784	0.468

7 Intervention Materials

OHS training module