Power to the Personnel? The Impacts of Managerial Discretion vs. Worker Democracy in Employee Recognition*

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Abstract

Worker agency – workers' influence over organizational decisions – is a commonly-cited determinant of employee engagement, productivity, and organizational culture. We conducted a firm-level RCT, randomizing whether employee recognition was determined: based on worker vote (agency treatment), at the discretion of the manager (managerial discretion treatment), or at random unrelated to performance (control). We find that workplace democracy increases worker attendance, but managerial discretion improves productivity. Workplace interactions and knowledge spillovers are also affected, with workers in the manager arm being less likely to engage in work-related interactions. Winners in both treatment arms are positively selected on attendance, particularly those from the manager arm, while winners in the voting arm are also positively selected on social interactions. These results highlight how what is valued in the workplace impacts worker behavior and firm culture.

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1 Introduction

Agency in the workplace – workers' influence over organizational decisions – is increasingly viewed as important for organizational performance. Firms have begun to increase the level of agency given to workers in a variety of ways, ranging from 360-degree feedback as an input into compensation schemes, to mechanisms assigning voting rights on specific firm decisions.[1] Employers also view employee agency as critical for productivity, with over 80% of employers in a recent survey identifying increasing agency as important for organizational success (Deloitte, 2023).

While such practices are becoming common, it is conceptually ambiguous what their effects might be. Agency could improve worker engagement, productivity, and firm culture by making workers feel heard, enabling them to build a culture they value, or alleviating biases – real or perceived – of managers. On the other hand, workers' incentives are unlikely to be aligned with those of the firm; what workers reward may not maximize profit, and could even be unrelated to or counterproductive for profit, for instance, if voting devolves into a popularity contest or if workers reward peers who will share benefits with them rather than generate surplus for the firm. Since giving workers agency could be costly for the firm and is potentially difficult to reverse, understanding the returns to such practices is highly policy-relevant.

In this paper, we partner with India's largest carpet manufacturer and conduct a firm-level RCT with the objective of understanding the impacts of increased worker agency, relative to increased managerial discretion. The key decision for which these decision rights are allocated were which employees to reward recognition to, a common decision firms face. We introduced an employee recognition program in 125 firms, which involved giving financial rewards to individual workers in the firms every two weeks. We randomized, at the firm-level, whether the rewards were allocated: based on a vote of the workers (agency treatment), the discretion of the manager (status quo treatment), or at random, not tied to worker excellence (control). We then ask: (1) How does the allocation mechanism affect workplace attendance, productivity, and culture? (2) What characterizes the winners under the various allocation mechanisms? And finally, (3) what allocation mechanism do workers and managers ultimately prefer?

Our partner – Obeetee Ltd.– outsources production of hand-knotted carpets to smaller firms. Each is located in a village and employs 10-20 workers. Obeetee provides the supplier firms with the designs and raw materials to make carpets, and pays the firms for the carpets

[1]For instance, the Mondragon Corporation in Spain decides key compensation outcomes through worker voting, and in Semco, a Brazilian manufacturing firm, workers vote on several strategic and compensation-related decisions.

upon completion. Workers are paid based on the number of knots they weave, but the details of the compensation system and other management practices are at the discretion of each firm.

We introduced an employee recognition program in 125 firms. Employee recognition programs to reward workers for behaviors valued by their organizations are very common, with nearly a quarter of firms reporting the presence of formal recognition programs (WorldatWork, 2019); but the causal effects of such programs are difficult to estimate given the endogeneity of adopting such a program. Our recognition program involved giving individual workers monetary rewards, with winners announced in small ceremonies within the firms. Rewards were given every two weeks for 12 weeks. The reward amount was 10% of the average baseline monthly earnings in the firm. To be eligible, workers needed to be present at least one third of the working days in the cycle – as verified through attendance checks done by surveyors – and one reward was given for every 10 eligible workers in each firm per cycle.

Our randomization varied only how the rewards were allocated. In the first arm, rewards were allocated based on a vote of the workers, with each eligible worker casting a vote in private for one other eligible worker, and the rewards being allocated to those with the most votes. In the second arm, the rewards were allocated at the discretion of the managers; we view this as approximating a status quo allocation, as worker compensation in the firms is determined by the manager. Also, since a key objective of the study was to test what behaviors (including productivity) are rewarded in the workplace, testing what behaviors managers vs. workers reward is the most natural comparison. Finally, in our control arm, rewards were allocated at random through a public lottery. This allows us to control for income effects and to ask the policy-relevant question of whether firms could achieve the same results by giving the same amount in rewards but without concern for worker performance.

To measure outcomes, we combine survey data with observations surveyors made on daily visits to each firm during the 12-week reward period. During the daily visits, surveyors recorded which workers were present and what they were working on, which allows us to estimate impacts on attendance and productivity. Surveyors also recorded the workplace interactions they observed – both whether workers were conversing and what about – which provides novel and objective measures of firm culture and knowledge spillovers. We also conducted two waves of endline surveys, one just before the recognition program ended and the second about seven weeks later. These surveys provide incentivized measures of managers' and workers' preferences for allocation mechanism, as well as reports of how the rewards were allocated, workplace culture, and worker well-being.

We begin by considering effects of the allocation mechanisms on worker attendance and

productivity (knots woven adjusted for complexity). The worker agency treatment increased attendance, raising the number of workers present per day by 5.3 p.p, an 11% increase relative to the control group and the manager discretion arm. Attendance did not differ significantly between the manager and control arms. On the other hand, the manager arm increased productivity. The productivity effects at the worker-date level are 0.05 and 0.12 standard deviations (SDs) relative to the control and the worker vote arm, respectively, and greater when aggregated to the firm-level, and we can reject that the treatment effects across arms are statistically different. There was no significant difference in productivity between the worker and control arms, indicating that these different allocation mechanisms incentivize workers on different dimensions.

We then turn to workplace interactions observed by surveyors. The manager arm significantly reduced work-related interactions, compared both to the worker and control arms. It also reduced social interactions, though the effect is not statistically significant. This indicates that programs that use managerial discretion to reward workers can increase total output, but may come at the cost of workplace cohesion or lower knowledge spillovers in the workplace.

Turning to what types of workers get rewarded by the program, we show that while winners in the manager and voting arm are positively selected on attendance, those in the manager arm are significantly more so. Winners in the manager arm are also positively selected on productivity. On the other hand, winners in the voting arm are positively selected on social interactions. Thus, these different reward systems reward different types of workers. From the endline survey, we also show that winners in the voting arm are more likely to share the reward with co-workers, and when asked why, report that it is because they voted for the winner. This indicates that programs with workplace democracy, while having positive effects on certain outcomes like attendance, may be also accompanied by other, non-productive behaviors like reward-sharing or favor-trading.

We also incorporated a shortlist design to estimate the impacts of winning recognition. Pooling across all arms including the control, we find that winning the reward does not impact attendance or productivity in the two weeks following the reward. Furthermore, the impact of winning a recognition program is not statistically different relative to the control, i.e. randomly giving a worker the bonus and small ceremony vs. giving them these as a reward for workplace excellence does not have any differential impacts. These results are relevant to the literature on impacts of incentive pay and of employee recognition.

Finally, we elicited incentive-compatible preferences of workers and managers over the allocation mechanism. Specifically, we asked both workers and managers which of the two allocation mechanisms they would prefer for an additional round of the reward program,

implementing the choice of an anonymous, randomly-chosen respondent. Workers in the worker vote arm are more likely to choose that allocation mechanism by 13.4 p.p, a 22.6 percent increase relative to the control mean, showing that they value the returns to agency. However, managers in the voting arm are not more likely to choose it relative to the control, reflecting the null productivity results in that arm. Moreover, both workers and managers in the manager arm are less likely to choose worker vote, though the effects are larger for managers. This is consistent with the productivity gains to the firm of this treatment, as well as increased earnings opportunities for workers in that arm, since compensation is largely based on output.

This paper relates to three literatures. The first is the literature on worker agency. In related work, Bandiera et al. (2021) find that giving procurement agents autonomy over their work in public procurement agencies in Pakistan leads to lower prices with no impact on quality, and Cai and Wang (2022) show that making workers' evaluations a part of managerial compensation improves retention and team output. Boudreau (2024) estimates how worker occupational safety committees in garment factories in Bangladesh impact worker safety, finding small positive effects of this form of representation on safety. Recent work has also examined how formal worker representation on firm boards or work councils for large firms impacts worker and firm outcomes (Harju et al., 2025; Jäger et al., 2021; Kim et al., 2018; Arnold et al., 2020; Blandhol et al., 2020; Gorton and Schmid, 2004; Addison et al., 2010; Fairris and Askenazy, 2010; Freeman and Lazear, 1995; Scholz and Vitols, 2019). We contribute to this literature by providing causal impacts of direct workplace democracy on an important firm decision, namely, who to reward, relative to a counterfactual where managers retain decision rights, or where rewards are untied to excellence.

Second, we relate to the literature on the impacts of managerial discretion in worker compensation. In recent work, Brown (2022) conduct a RCT in Pakistan and show that using managers' (i.e. principals or vice-principals) subjective reports to determine teachers' raises lead to similar improvements in test scores as using objective criteria, but the former also improve pedagogy while the latter do not. De Janvry et al. (2023) show that revealing the identity of the person conducting the performance evaluation for junior public employees leads to employees reallocating tasks to those that are important to the evaluator, indicating a shift towards non-productive tasks. Prior work in this literature also estimates the returns to using managers' information in hiring (Hoffman et al., 2018), monitoring (Dal Bó et al., 2021), and promotion decisions (Deserranno et al., 2025). The results of these papers underscore the trade-offs of managerial discretion, namely, that while managers may have informational advantages for some decisions (Dal Bó et al., 2021) and be able to incentivize difficult to observe behaviors (Brown, 2022), increased discretion may also lead to decisions

influenced by favoritism (De Janvry et al., 2023) or over-confidence (Hoffman et al., 2018). This paper contributes to the literature in two ways. First, it contrasts outcomes from using discretion against a counterfactual of workplace democracy.[2] Second, it estimates the impact of using managerial discretion in recognition programs, which is a commonly used, tournament-style mechanism to reward a broad set of behaviors important to the firm.

Third and most broadly, we relate to the literature on incentive pay, which has estimated the effects of incentive pay on productivity in the public (Leaver et al., 2021; Deserranno et al., 2022; Neal, 2011; Khan et al., 2019; Burgess et al., 2017) and private sector (the latter literature includes work focused on individual incentive pay (Lazear, 2000; Alexander, 2020; Coviello et al., 2022; Brown and Andrabi, 2020) as well as team incentives (Knez and Simester, 2001; Kuhn and Yu, 2025; Sandvik et al., 2021; Friebel et al., 2017; Bandiera et al., 2013)). Another related literature focuses specifically on the impacts of tournaments on productivity (Bandiera et al., 2013; Delfgaauw et al., 2013; Englmaier et al., 2024; Leuven et al., 2011; Hagenbach and Kranton, 2025). Even in settings with measurable productivity, workers and managers may value dimensions other than individual output (indeed, the most common reasons managers cited for choosing a winner in the intervention were reliability and effort-related, not output-related). This is also the case when externalities such as knowledge spillovers impact firm output. Recognition programs rewarding workers for workplace conduct are common, but may be endogenous to other incentives, and this project contributes to this literature by provide casual returns to such programs.[3] Furthermore, it provides evidence on what behaviors are rewarded (reliability, productivity, or other types of behavior), and how the structure of such programs i.e. whether winners are chosen by managers, or by a democratic process involving peer workers, impacts the returns to these programs.[4]

2 Background

Our study was conducted in partnership with a large Indian carpet manufacturer: Obeetee Ltd. The firm's production, and our study, are based in eastern Uttar Pradesh. Uttar Pradesh is India's most populous state and among its poorest (NITI Aayog, 2018). The

[2]Related empirical literature estimates the impacts of managerial autonomy on a broader set of firm decisions, including labor-related decisions (e.g. Aghion et al. (2021) and Kala (2024)).

[3]Also related is work that directly incentivizes or encourages behaviors like communication and helping in the workplace (Sandvik et al., 2020; Castro et al., 2025), including with non-monetary rewards such as recognition.

[4]Lab evidence also suggests that competing with co-workers (relative to a more co-operative pay scheme) impacts workers' perceptions of what they have in common with co-workers (Hagenbach and Kranton, 2025). Our paper complements this evidence by testing whether changing who gets to decide what is valued in the workplace also impacts productivity and cohesion.

carpet industry is largely in the eastern part of the state, with the area where the firm is based often referred to as "the carpet capital of India."

We focus largely on Obeetee's hand-knotted carpet production, which operates as follows. Designers working at Obeetee create a carpet design and retailers (e.g. Pier 1, Pottery Barn) place an order for a certain number of carpets of that design. Obeetee outsources the production of the carpets to hundreds of supplier firms located in villages in the area. Obeetee provides firms with the design and raw materials, and then pays the firms for the completed carpets. Obeetee monitors the firms to ensure carpets are produced correctly and on time, and that labor laws are adhered to within the firms, but otherwise the management and production process is completely up to the firms.

Each firm is owned and managed by a person in the village and generally employs 10-20 carpet weavers (sometimes, the firm is managed by several household members). The firms may take orders from other large carpet manufacturers in the area in addition to Obeetee, though the bulk of their revenue comes from supplying to our implementation partner. The firms are generally managed by members of the households who own them, though some larger firms hire managers. Workers mostly come from nearby villages, but some firms employ migrant workers from other states who live and work on the firms' premises for several months at a time. A large majority of workers are male as female labor force participation is low in this area, but Obeetee has been working to train and promote employment for women workers as part of its corporate social responsibility initiatives.[5] In light of local gender norms, the firms are gender-segregated, employing either female or male workers but not both. There are wealth and caste gaps between workers and management, with workers coming from poorer and often lower caste households. Qualitatively, many workers voiced respect and deference for their firm's management, while some voice concerns about pay or favoritism towards certain workers.

We work specifically in firms that produce hand-knotted carpets. Such carpets are made of hundred of thousands of knots tied by hand and are generally the highest quality, most expensive carpets on the market. Figure 1 visualizes the production process. Each carpet is woven on a single loom, which can seat 1-4 workers working at once. Threads are strung vertically on the loom and workers tie knots of yarn to those threads as specified by the carpet's design. Weaving is done from the bottom to top of the carpet, with workers completing an individual line of knots spanning the width of the carpet, and then moving on to the line above it. The average carpet produced during our intervention period took 11 days

[5]We have conducted previous projects in partnership with Obeetee that study women's decisions to take-up the weaving training and employment (Kala and McKelway, 2025; Lowe and McKelway, 2025; McKelway, 2022, 2025*b*,*a*).

to complete and was 10-by-7 feet in size. Workers often work on the same looms and with the same other workers, but the teams are not totally fixed – some workers will be absent on particular days, some may be asked to move to another carpet with an urgent deadline, and sometimes the team is dissolved to work on different looms once its carpet is completed. The workers working on a single loom on a particular day generally split up the width of the carpet, so that if three workers were weaving, each would complete only the left third, middle third, or right third of every line before proceeding to the next line (so productivity is largely individual, though workers may ask for help from co-workers). Errors can be made in the weaving process that vary widely in their severity; the vast majority can be and are corrected, though some result in the finished carpet being rejected by Obeetee.

The carpet design specifies the color of each knot and number of knots per square inch, thus determining carpet complexity. All else equal, carpets that have more knots per square inch, more colors, more colors of a similar shade, and more adjacent knots of different colors are more complex. Only workers with sufficient experience and skill are assigned complex carpets (meaning teams of workers are matched on ability). Obeetee pays firms more per square inch for completed carpets that are more complex.

Firms set piece-rates to pay workers for doing a certain number of knots, generally either 6,000 or 9,000, and rates vary based on the complexity of the carpet. Workers can generally complete at least 6,000-9,000 knots within a day, but this varies based on their experience, hours spent working, and carpet complexity. In practice, it is difficult for firms to know exactly how many knots a worker completes on a given day and so this is usually somewhat approximate, and workers on the team tend to keep track of their own and teammates' carpet progression to enable the appropriate compensation. The cycle on which workers are paid also varies across firms, with the most common cycles being weekly or upon the completion of a carpet.

Worker attendance is quite variable, as is common in firms in developing countries, with the median worker attending about 58.2% of the days that they were spot-checked for. Part of the fluctuation in attendance is due to the volume of work the firms have for workers on any given day, but much of it is worker absenteeism – workers missing work to do seasonal agricultural work, for festivals/weddings, or for some other personal conflict. This absenteeism is problematic, making it challenging for firms to meet Obeetee deadlines and for Obeetee to meet deadlines with external retailers.

While the majority of workers' time is spent weaving (tying knots), the firms require some non-weaving work to be done (in the spot-check data, conditional on attending, we observe workers doing weaving work about 94% of the time and non-weaving work 6% of the time). Much of this work happens around the completion of a carpet, when work is required

to take the completed carpet off the loom and set up the loom for the next carpet. Whether and how workers are compensated for this work is up to their firms.

3 Experimental Design

3.1 Sample Recruitment

We recruited firms for the study in November and December 2024 (see Figure 2 for a study timeline). Our implementation partner firm shared a list of the hand-knotted weaving firms they contract with, and we began by calling firms on that list and completing a short eligibility screening survey.

The partner firm's list included 294 firms from 195 villages. The multiple firms within the same village are very often on the same premises, and owned and managed by the same family. They are considered separate firms for Obeetee's purposes (e.g. because different family members formally own different parts, or because one firm was instituted later than another), but we did not want to consider them separate for our experiment given the management and worker pool is often shared across them. The challenge was that Obeetee's list did not distinguish between affiliated and unaffiliated firms in the same village. Our solution was to randomize the order of firms within a village on Obeetee's list, starting by calling the first one, and moving on to the subsequent ones if the earlier ones were unreachable or did not consent for the screening survey. When asking the questions about the firm that determined eligibility, we asked firm owners to report about the entire firm's premises, not the firm as designated in Obeetee's records.[6] We also asked the firm if they were aware of any other firms in their village that took Obeetee orders, were on separate premises, and not owned by them; these could be considered separate firms for our experiment. We identified seven firms in this way which we contacted for eligibility screening.

The screening survey asked whether female or male workers worked in the premises, how many workers of a given gender worked in the premises, and what fraction of the carpets those workers wove were Obeetee carpets. To be eligible, a firm needed to have between 4 and 50 workers of a given gender, and at least 25% of those workers' carpets needed to be Obeetee orders. If both the male and female weaving operations in a firm were eligible, we took the firm with female workers. We did not pool workers of the same gender because they work separately, and their productivity tends to be quite different, given male workers work more hours and have more experience. There are far fewer firms with female workers,

[6] If the firm owner owned firms in different premises within the same village, we asked them to respond about the main premises, defined as the premises where the looms that contributed the highest amount to revenue were located.

so picking these when both were eligible maximizes gender variation in our sample. Of the 301 candidate firms (294 plus seven), we successfully conducted screening surveys with 179 and deemed 144 of those eligible.

We then visited the eligible firms in person to provide the firm owner information about our study and seek their consent for their firm to participate. If they consented, we asked them to identify the firm owner or hired manager we should approach for surveys and allocation of the reward (in case the firm was assigned the manager discretion arm), recommending they select the person most directly involved in managing the workers. We refer to this person throughout the text as the manager. Finally, we provided information about the study to workers in consenting firms. In total, we successfully met with 137 of the 144 eligible firms to seek consent, and 125 consented. Treatment status was revealed after firms had agreed to participate- only one firm withdrew from the study after consenting to participate, which means we conducted further data collection in 124 firms. Two more firms shut down during the intervention, and we impute zeros for attendance and productivity for them post-exit.

3.2 Randomization

We randomly assigned each of the 125 firms to one of three treatment arms: manager discretion, worker vote, or control (lottery). To maximize power, we formed strata that each included three firms, matched on gender and average worker attendance.[7] The latter came from a question on the worker baseline survey (detailed further in Section 4.1 below) asking workers how many of the last seven days they had worked in the firm.

The randomization achieved balance on baseline worker characteristics, measured in the worker baseline survey. Table A.1 compares the three treatment arms on 15 baseline characteristics. Of 45 comparisons, three are significant at the 10% level or higher, close to, and slightly less than, what we would expect from random chance alone. Note that our analyses include baseline variables selected using post-double-selection (PDS) Lasso (Belloni et al., 2014), which helps address any important chance imbalances.

3.3 Employee Recognition Program

We introduced a 12-week employee recognition program in all firms. Our treatment varied the mechanism for determining which workers won recognition, but the structure of the program was otherwise identical across the firms. We begin this section by detailing the

[7]The number of firms with female workers (21) was divisible by three, but the number with male workers (104) was not. Hence we formed one male stratum, the one with the highest average attendance firms, with five rather than three firms.

structure of this program common to all treatment arms, and then describe the randomized allocation mechanisms.

The program involved providing monetary rewards and a small recognition ceremony to individual workers in the firms every two weeks for 12 weeks. The 12-week period occurred between January and April 2025, with surveyors visiting each firm prior to the start of the reward period to explain the program and how rewards would be allocated in that firm.

The winners of every two-week reward cycle were announced in public ceremonies held in each firm the following Monday. Only workers who met a minimum attendance criteria over each two-week period were eligible to receive a reward in that reward cycle. Attendance was verified by our surveyors via "spot checks"; a surveyor visited every firm on each work day (work days in this setting are Monday through Saturday, excluding holidays) and recorded which workers were present. Only workers observed present on one third of the working days in the two-week period were eligible. Figure 3 illustrates the timeline of a typical reward cycle, including the reward ceremonies and attendance checks.

In each cycle and each firm, one reward was given for every 10 eligible workers, rounded to the nearest integer.[8] This means that any treatment effects on attendance would not affect the fraction of workers in a firm who could win. On average, 14 workers were eligible per firm in a cycle.

The reward amount to be given in each cycle was fixed over time, but varied across firms based on typical worker earnings in that firm. Earnings vary by firm due to differences in worker compensation rates, attendance, and productivity. Each firm's reward amount was 10% of the average monthly worker earnings in the firm, calculated using responses from the worker baseline survey, and rounded to the nearest ₹50. The amount varied between ₹300 ($3.32) and ₹1200 ($13.30) across the firms, with an average of ₹673 ($7.46). This implies that all workers withing a firm faced the same incentives as a proportion of their weaving earnings. Keeping a fixed amount determined by baseline data meant treatment effects on earnings could not affect the return to winning, which is useful in interpreting the treatment effects as the impact of the particular allocation mechanism assigned to the firm. During the consent process, we told firms that the reward amount would be about 10% of the average salary of a worker (but we did not detail that the 10% would be calculated based on worker baseline survey responses in that firm to avoid workers inflating their reported earnings to increase the reward amount). The money for these rewards came from the research project, and the reward amount was given to winners in cash immediately after the

[8] E.g. if 15 workers were eligible, two rewards were given. The exception was if fewer than five workers were eligible – in this case we always gave one reward. No reward was given in the few cases where zero workers were eligible.

reward ceremonies.

Each reward ceremony started with an announcement from surveyors, in which they listed the names of the workers in the firm who had met the eligibility requirements that cycle. How the rewards were then allocated among the eligible workers was determined by treatment status.

In the *manager discretion arm*, the winners were selected by the designated manager. On the day of the reward ceremony and prior to making the announcement, surveyors would ask the manager to select the given number of winners from the list of eligible workers based on who, according to them, had done good work over the past two weeks. The surveyor also asked the manager their reasons for selecting each winner. The surveyor recorded all responses in a tablet. If the manager was not present on the day of the reward ceremony, the surveyor would ask them to make their selections over a phone call, and if that failed, the choice was made by someone the manager designated in advance of the ceremony.[9] Then, after making the announcement to the firm listing the eligible workers, the surveyor said the winners had been selected by the manager based on who, according to them, had done good work over the last two weeks, and then proceeded to announce the names of the winners. The reasons the managers provided for selecting the winners were not revealed.

In the *worker vote arm*, a vote by the workers determined who won the reward. After listing the eligible workers, the surveyors said the rewards were to be given to the workers who had done good work over the two preceding weeks, and would be allocated based on a vote of the workers. Surveyors then called eligible workers one-by-one to a private voting booth they had set up outside the firm to cast their votes. Votes were cast on ballot papers, and surveyors assisted any illiterate workers in filling out their ballots. Only eligible workers were included on the ballots and only eligible workers could cast votes. Each person could vote for one person and were not allowed to vote for themselves. Surveyors also asked each worker why they voted for the person they did, recording both the reason and the person the worker voted for on a tablet.

Once the voting was complete, the surveyor went inside the firm to count the paper ballots. The surveyor gathered the workers around for the counting in a way that they could see the counting occur but not see what was selected on individual ballots or the tallies of votes cast for different workers. We had surveyors count the votes and this count determined the winner rather than having the tablets count because we wanted to make it clear to the workers that the votes and the votes alone determined the winners. The surveyors recorded in the tablets who their counts revealed to be the winners, allowing us to check that the surveyor counting was correct the vast majority (97%) of the time. Once the votes were

[9]This was a rare occurrence, happening only 1.26% of the time.

counted, the surveyors announced the winners. If x rewards were to be given, the x workers with the highest number of votes won the reward. More than x winners were selected in the case of ties, with the total amount initially assigned to be distributed across all winners being divided equally among the actual number of winners.[10] Note that only the names of the winners were announced to workers and not the full distribution of votes – it was not revealed who came in second place or what the ordering of the winners was in the cases of multiple winners. We did not reveal the full distribution to mimic the procedure for the manager arm while also making possible the winning quasi-experiment detailed below.

Finally, in the *control (lottery) arm*, rewards were allocated based on a public lottery. We gave rewards in our control group to hold fixed income effects and interactions with the research team, but allocated the rewards to (eligible) workers selected at random. To make the randomness transparent to workers, the rewards were allocated through a public lottery. After surveyors announced the eligible workers, they put a chit into a transparent box for every eligible worker, with the worker's name on it. The surveyors then shuffled the box, drew one chit out while looking in another direction, and then read the name on the selected chit. This was repeated as many times as there were rewards to be given in the firm, with the workers whose chits were drawn being the winners. The surveyor recorded whose chits were drawn out in a tablet. We show in Table 4 that a large majority of workers (74% on average) who answered the first endline survey, when asked about the type of worker who won, responded with luck or karma, indicating that workers in this arm indeed thought that this was a lottery.

3.4 Winning Quasi-Experiment

We were also interested in how winning affected the winners, and in whether these effects varied based on how the reward had been allocated. Our design generates quasi-experimental variation in winning. This variation is straightforward in the lottery arm; the winners were chosen at random from the eligible workers, hence we can compare the winners to the rest of the eligible workers to understand the effect of winning. However, we cannot simply compare winners to other eligible workers in the manager discretion or worker vote arms because the winners are likely to differ systematically from the others. For these arms, we use quasi-experimental variation, comparing the winners to the runners-up, with the idea that the runners-up are likely to be very similar to the winners.

In the manager arm, we asked the manager in each cycle to identify the same number of runners up as winners, using the runners up as the comparison group. In the voting arm,

[10] 16.2% of voting reward ceremonies had cases where at least one recipient had to split the reward with another.

both the winners and the runners up are identified based on the records of who voted for whom. Note that the winners as identified in this way vary slightly from the actual winners in the 3% of cases where surveyors mis-counted the votes, but this approach allows us to identify winners and runners up in the same way (surveyors were not asked who the runners up were according to their count) and can be seen as an "intent-to-treat" approach. As detailed above, it was not revealed in either the manager or worker arm who the runners up were.

4 Data and Empirical Specifications

4.1 Data

We collected data from several sources, visualized in the study timeline (Figure 2). Our main source of data comes from our "spot checks," or surveyor visits to firms. Surveyors visited each of the 125 firms on every work day throughout the 12-week intervention period, recording several different worker and manager behaviors. First, they measured worker attendance, using a dynamic roster which updated as new workers were observed (this is also the data used to determine eligibility for the rewards). Second, they recorded what each worker was working on: whether they were doing weaving or non-weaving work, what loom they were sitting at, and the characteristics of the carpet they were weaving (if they were weaving). Third, they recorded whether the workers were interacting with each other during the visit, and if so, categorized the topic of their discussion (e.g. social, work-related, etc.). Fourth, they recorded if the manager was present, and if so, what task they were engaged in (e.g. supervising workers, helping workers, engaged in production). We use this data collection to measure several key outcomes, which we detail further in Section 5.

We also collected three waves of survey data, at baseline and two endlines. Both workers and managers were surveyed at each wave. The baseline survey gathered information about individuals' demographics, work at the firm, and perceptions of workplace culture. The endline surveys asked about work at the firm, workplace culture, as well as several questions about beliefs and experiences with the reward program. This included beliefs about the types of workers who won rewards, sharing of the monetary rewards, and an incentivized measure of the preferred reward allocation mechanism. The first endline survey (EL1) was conducted over the final three weeks of the 12-week reward program, and the second (EL2) 5-11 weeks following the end of the 12-week period. For outcomes measured at both endlines, we use data from EL1 when available – since that endline was done during the reward period – but use responses from EL2 from respondents not surveyed at EL1. Survey outcomes are

detailed further as we present effects on them, in Section 5 below.

Table A.3 presents results for attrition in the endline data by treatment arm. We were able to complete either endline survey for 82% of workers who are part of the intervention sample, and this rate is balanced across treatment arms. We also see balance in completion of EL1, though there is some imbalance at EL2, with workers in the manager and worker vote arms being less likely than the control to complete that survey. Note, however, that there is no difference in attrition if we compare the manager and worker arms to each other.

4.2 Empirical Specification

4.2.1 Main Specification: Impacts of Recognition Program on Firms and Workers

For our main analyses of spot-check outcomes, we run regressions of the form:

$$Y_{jt} = \beta_1 T_{1j} + \beta_2 T_{2j} + \alpha_s + \alpha_r + \gamma X_j + \varepsilon_{jt} \tag{1}$$

where Y_{jt} is an outcome for firm j on date t. T_{1j} and T_{2j} are indicators for firm j being assigned to the manager discretion and worker vote arm, respectively. α_s are strata fixed effects, and α_r are fixed effects for each of the six rounds of bonuses. X_j are variables selected via post-double-selection (PDS) Lasso (Belloni et al., 2014) from the screening and baseline surveys. Given significant levels of worker churn, many workers in the spot-checks were not surveyed at baseline, and so the Lasso variables are either firm-level variables or firm-level averages of worker-level variables. Standard errors are clustered by firm (the level of treatment).

For endline-survey outcomes, we run regressions of the form:

$$Y_{ij} = \beta_1 T_{1j} + \beta_2 T_{2j} + \alpha_s + \gamma X_j + \varepsilon_{ij} \tag{2}$$

where i denotes respondent and all else is as defined above. As before, standard errors are clustered by firm.

In both specifications, the coefficients of interest are β_1 and β_2 – the impact of the manager and worker vote arms, respectively, relative to the control group. We also test $\beta_1 = \beta_2$ in all regressions to assess the effect of the worker vote arm relative to the manager arm.

4.2.2 Impacts of Winning Recognition Program on Winners

We use two specifications to estimate impacts of winning the recognition program on winners' behavior in the two weeks *after* winning the program i.e. the next program cycle. The first pools all arms including the control group, and compares winners to the runners-up within that cycle, with the following specification:

$$Y_{ijt} = \alpha + \psi Y_{ij,t-1} + \mu \text{Won}_{i,t-1} + \gamma X_i + \varepsilon_{ijt} \tag{3}$$

where Y_{ijt} is an outcome for worker i in firm j for round t, where round is program cycle (ranging from 2 to 6) - for instance, number of days the worker attended, or knots woven (adjusted for complexity). $\text{Won}_{i,t-1}$ is a dummy variable that takes the value 1 if worker i won the reward in the previous round $(t-1)$, and zero if the worker was runner up in that round (this regression is restricted to workers and runners up only). In the control group, the runners up are defined as all other eligible workers who did not win (since all these workers were ex-ante equally likely to win). In the worker voting arm, these are workers with the next highest number of votes relative to the winner, and in the manager arm, they are the worker that the manager reported they would reward if they were giving an additional reward. We control for the outcome in the previous fortnight. We include strata fixed effects, firm $\times$ round fixed effects (to compare a winner and runners up within firm and reward cycle), as well as Lasso controls.

The second specification for this analysis tests whether the impacts of winning vary by treatment arm. In particular, this analysis asks two questions. First, does it matter if the worker was rewarded whether they were rewarded for workplace excellence, or solely because of luck regardless of conduct? Second, do the impacts of winning recognition depend on whether the manager is deciding the winners, or winners are chosen by a democratic process within the firm? To answer these questions, we estimate the following specification:

$$\begin{aligned} Y_{ijt} = \alpha &+ \phi_1 \text{Won}_{i,t-1} + \phi_2 \text{Manager}_j + \phi_3 \text{Won}_{i,t-1} \times \text{Manager}_j + \phi_4 \text{Worker Vote}_j \\ &+ \phi_5 \text{Won}_{i,t-1} \times \text{Worker Vote}_j + \gamma X_i + \varepsilon_{ijt} \end{aligned} \tag{4}$$

To understand if the manager arm has a statistically significant impact of winning, we present p-values testing $\phi_1 + \phi_3 = 0$, and for the same test for the voting arm, we present p-values testing $\phi_1 + \phi_4 = 0$. We also test whether the treatment effects of winning are the same by treatment arm i.e. $\phi_1 + \phi_3 = \phi_1 + \phi_4$. As in Equation 3, we strata fixed effects, firm $\times$ round fixed effects, as well as lasso controls, and cluster standard errors at the firm-level.

5 Outcome Measurement and Results: Main Outcomes

5.1 Attendance and Productivity

Our primary performance-related outcomes are daily attendance and productivity, both measured using the daily surveyor visits ('spot checks) and defined at the worker x date level. We measure productivity as the number of knots woven, adjusted for carpet complexity. Using the dates a carpet was started and finished, and the total number of knots in the carpet, we impute the number of knots a worker wove if they were weaving on a particular day according to the spot-check data. For instance, if the carpet had 9000 knots, took three weaving days to complete, and was worked on by two workers, each worker was interpolated to have woven 1500 knots per day if each was present and weaving on all days. If a worker is engaged in non-weaving work or absent, they are assigned zero knots for the day. We residualize these knots (winsorised at the 99th percentile) on carpet control variables such as number of colors and density of knots, setting missing carpet controls to zero (e.g. if a worker was not weaving and therefore has no carpet characteristics) and adding a dummy for any carpet controls being missing.[11] We consider productivity conditional on being present at work, as well as an unconditional measure that assigns zero value to productivity if the worker was absent (and in which case, carpet controls are assigned to missing).

Results are presented in Table 1. Column 1 shows that the worker voting arm increased worker attendance by 5.3 p.p (p-value < 0.01) relative to the control arm, an 11% increase relative to the control mean. There is no difference in attendance between the manager and control arms, and we can reject that the two treatment arms have the same effect (p-value < 0.05). On the other hand, in column 2, we find that the manager arm increased productivity, relative to the worker and control arms ($p < 0.10$, respectively), though it is not statistically significant relative to the control. In contrast, there was no difference in productivity between the worker and control arms. Based on a standard deviation of residualized knots in the control group of 4171.90 knots for conditional productivity and 6031.45 knots for unconditional productivity, the effect of the manager versus control effect is 0.05 standard deviations, and the manager versus worker effect is 0.12 standard deviations, a substantial increase. These results illustrate that the two treatment mechanisms incentivize workers to exert effort along different dimensions that are valuable to the firm. We also present results aggregated to the firm-level in Table A.2. The measure of attendance is the number of workers present at work, and add up the residualized knots to form a firm

[11] The full set of carpet controls are number of colors, area, number of knots, density of knots per square yard, dummy variables for three types of carpet requiring different weaving techniques, a dummy variable for whether the carpet is for the partner firm, and a dummy variable for whether carpet controls are missing.

x date level productivity measure. For the average firm, the number of workers present does not change with either treatment , but the manager arm increases productivity by 0.3 SDs relative to the control group (p-value<0.05), and 0.41 SDs relative to the worker vote arm (p-value<0.01), showing that firms assigned to the manager arm substantially increased productivity at the firm-level.

5.2 Workplace Interactions

In addition to attendance and productivity, workers' interactions with each other or the manager may also change as a result of the program. This could be due to changes in co-operative or competitive behavior, for instance, or changes to social cohesion in the workplace. We measure workplace interactions during the daily visits, where surveyors noted whether on each loom, workers were engaged in any type of interaction, including the following: whether they were engaged in work-related interactions, social interactions (not-work related), or other interactions. We aggregate these to the firm-date level.[12]

Results for these outcomes are presented in Table 2, which report the presence of any type of each interaction at the firm-date level i.e. they are binary variables if a surveyor noted that type of interaction in the firm on that date. Column 1 reports impacts on work-related interactions, where we we find large and precisely estimated reductions in the manager arm. The likelihood of workplace interactions falls by 9.3 percentage points (p-value < 0.01), about 39 percent of the control mean. The effect for the worker arm is negative, but smaller (1.8 p.p) and not significant (we can reject that the two arms have the same impact, p-value < 0.01). Furthermore, changes in social interactions are also negative in the manager arm but not significant relative to the control or the worker vote. These results show that recognition programs can reduce workplace cohesion and co-operation when they induce workers to compete for managerial approval, even if these do not translate into negative productivity impacts at the firm-level. Thus, if production relies significantly on workplace co-operation or team production, this particular type of incentive structure may not be optimal for the firm.

How do worker interactions change with managers? First, Column 3 shows that workers are not more or less likely to be talking to the manager in either arm during surveyor visits. Furthermore, Table A.4 presents results for managerial presence on the production floor and their behavior in the workplace, which are also measured during surveyor visits. Managers are not more or less likely to be present on the production floor, nor are they more or less likely to be engaged in behaviors like monitoring workers, helping them, or engaging in

[12]We additionally control for the number of workers at the firm on that date, but the results are similar to omitting this control variable.

production. These results indicate that managers do not respond to the type of recognition program in their frequency and type of worker interactions, allowing us to rule out this potential mechanism for the impacts of the program.

5.3 Reward Allocation: Who Wins and How Rewards are Allocated

In the previous section, we show that workplace democracy vs. managerial discretion in rewarding recognition have differential impacts on worker-level attendance and productivity, as well as workplace communication and cohesion. In this section, we examine how the program outcomes are themselves different across these treatments: namely, beliefs about what behaviors are rewarded, the actual choice of winners, as well as how rewards are retained by the winners.

5.3.1 What Behaviors are Rewarded?

We begin by testing whether the type of workers who received the recognition awards were different across the treatment arms (relative to the randomly chosen workers in the control arm). We test for differences in attendance, productivity, as well as participation in work-related and social interactions. In particular, we compare winners across the treatment arms on their percentiles of these outcomes in the fortnight before they won, where percentiles are computed relative to all eligible workers in their firm in that round. The sample is restricted to winners in the manager and worker arms, and all eligible workers in the control arm. The control winners were selected at random and hence winners in this arm should not differ from the average eligible worker, and including all eligible workers in this arm improves power.

We present these results in Table 3. The results show that winners in both the manager and worker arm are more positively selected on attendance relative to the control group, though winners in the manager arm are more so (we can reject that these coefficients are the same across arms). In particular, winners in the manager arm are 10.3 percentiles higher on average, and those in the worker arm are 6.5 percentiles higher (p-value < 0.01 for both coefficients, and we can reject that the two are the same at the 5 percent level). We also see that workers in the manager arm are more positively selected on productivity, though the effect is smaller in magnitude (3.5 percentiles) compared to attendance. The larger effects on attendance are also consistent with the rewards data, where good attendance was picked by managers and workers as the first and second most common reason for picking a worker as a winner, respectively.

In contrast, winners in the voting arm are more positively selected on social interactions,

with voting winners coming from 4.3 higher percentiles on average on this dimension compared to the control arm (p-value < 0.01). The coefficient on workplace interactions for this arm is also positive, but smaller (2 p.p.), and not statistically different from zero. Moreover, there is no difference in work-related interactions between winners in the manager arm and the control group. This is also consistent with the reward ceremony data, where the most common reason workers gave for selecting a co-worker as a winner was "behaves well with other weavers". This indicates that workers prefer to reward co-workers on some dimensions that could benefit the firm (e.g. greater attendance), but also other dimensions that do not, namely, social interactions (this could also reflect willingness to share rewards, which we discuss below). Thus, the rewards programs vary in who benefits from the program depending on who is in charge of allocating these rewards.

5.3.2 Beliefs About What Behaviors are Rewarded

The previous section tested whether winners were different in attendance and productivity by whether they were chosen by managers or worker voting. In addition to winners' differences, *beliefs* about which types of workers were chosen for recognition could also impact the returns to the program for the firms. In the endline survey, we asked the workers what types of workers had generally won the rewards for this program, allowing them to choose several traits. We group these behaviors into five types of possible behaviors. The first was directly productivity-related (the winner wove many knots, worked on complex carpets, made few mistakes, or did non-weaving work well), and the second effort/reliability related (working quickly, meeting deadlines, attendance, trying hard, taking initiative). The third measured helping in the workplace, either for co-workers or the manager. The fourth measured non-productive effort exerted either for co-workers or the manager (if the winner was reported as nice/popular, sharing rewards with workers, or campaigning for votes for the former, and if they were reported to be especially friendly with the manager for the latter.). The fifth measured other unrelated reasons including financial hardship and luck.

We present results for these beliefs in Table 4. Workers in both treatment arms report a much higher likelihood of winners performing better on productivity-related measures, and the point estimate is higher in the manager arm than the voting arm, though we cannot reject that they are the same. On effort and reliability, workers in the manager arm are more likely to report winners as performing better than the voting arm (36.5 p.p. higher vs. 28 p.p higher relative to the control), and the two coefficients are statistically different. Helping workers is more likely to be chosen as a winning behavior in the voting arm (22 p.p. higher relative to the control; and only 12 p.p. higher relative to control in the manager arm), but helping managers is not differentially more likely in the manager arm than in the

voting arm. The latter could be because possibilities to help co-workers were more likely to come up, or that managers relatively valued other traits like reliability and effort.

Turning to non-productive behaviors, the results show that workers in the voting arm are more likely to report winners undertaking non-productive behaviors with co-workers (Column 5), while workers in the manager arm are more likely to report winners undertaking non-productive behaviors with managers (Column 6), which is intuitive. The overall likelihood of reporting any non-productive behavior is higher in the voting arm than the manager arm, and is significant at the 1% level. This reflects results from Table 3, where winners in the voting arm are more likely to be positively selected in the number of social interactions. This likely also reflects increased likelihood of winners sharing rewards in this arm, which we discuss in the next section.

There are no impacts on beliefs that winners were chosen to help them with financial hardship. Finally, there is a large negative treatment effect on whether workers thought the winner was chosen by luck, which reflects beliefs that randomization was followed in the control group i.e. 74% of the control group chose luck as a reason the winner received the reward, and this is about 63 and 70 p.p lower in the manager and voting arm, respectively.

These results show that there are significant differences in how workers believed winners were chosen, both in how they believed positive workplace behaviors like productivity, reliability, and helping others was rewarded, but also in an increase in unproductive behaviors like lobbying for the reward. In Section 5.6, we examine how these differences map on to a preference for worker democracy or preferring managerial intervention.

5.3.3 Number of Rewards and Repeat Winners

We have seen that the various allocation mechanisms led different types of workers to win the reward, but were rewards allocated to single individuals of those types or rotated among several different individuals of those types? We investigate this in Table 5, investigating the effects on the total number of rewards given in each firm and on the number of repeated winners (i.e. the number of workers in the firm who won a reward more than once).

There were around 10 rewards given out in total in each firm (column (1)). The number of rewards was slightly larger in the worker arm – which is consistent with ties being allowed in that arm and with the effect of that arm on attendance (which determined eligibility and thus the number of rewards given) – but the difference is significant only relative to the manager arm. The difference in number of rewards between the manager and control arms is not significant.

Turning to the number of repeat winners (column (2)), two results are notable. First, the number of repeated winners is no different in the worker arm than in the control arm, where

rewards were allocated at random. Second, the number of repeated winners is significantly lower in the manager arm compared to both the worker arm and the control arm; the average manager arm had less than one repeat winner (p-value < 0.01). Thus while workers and managers allocated the bonus to particular types of workers, there was substantially more rotation in the individual workers they rewarded, with the managers in particular rewarding different people each round.

5.3.4 Reward Sharing

Assigning workers the right to choose can lead them to reward workers who exhibit more valued traits, but also gives workers bargaining power, which they can use to induce the winners to share the rewards of winning in exchange for their support. As we saw in the previous section, workers in voting arm are more likely to report that winners were more likely to engage in behaviors like lobbying and promising to share the reward with co-workers. How does it impact actual sharing behavior?

We measure whether and why rewards are shared with co-workers in the endline surveys. Column 1 of Table 6 presents impacts on a binary variable if the worker reported that a winner had shared the reward with them. It is worth noting that across all arms, the likelihood of reward sharing is high, with 72 percent of workers in the control group reporting that winners had shared the reward with them. The likelihood that a worker reported this is 14.2 percentage points higher relative to the control group in the voting arm, a 20 percent increase relative to the control mean. In the manager arm, it is not statistically different from zero relative to the control group. Thus, rewards are much more likely to be shared in the voting arm. We also asked workers why rewards had been shared with them, with options including that they were friends or family, that they had voted for the winner, helped the winner with work, made them look good to the manager, or because luck should be shared. Workers in the voting arm are 37.7 p.p. more likely to report that the winner shared with because they voted for the winner, and 6.8 p.p. more likely to report that it is because they helped the winner with their work (which can be interpreted as 37.7 and 6.8 percent respectively, since the control mean is zero). Both treatment arms are much less likely to report that the winner shared with them because "luck should be shared", consistent with the control group believing that the winner had received a windfall through luck (the control group mean for this outcome is 13 percent, and the treatment effects on manager and worker arm are 11.6 and 13 p.p. lower, respectively). Neither group reported making their co-worker look good to the manager as a reason why they had received a share in the reward. These results are consistent with the voting arm giving workers bargaining power to reward workers, which allows them to share in the incentives received by the winners.

5.4 Firm Culture

What is valued in the workplace can impact firm culture by giving workers different signals of their fit with the firm, or how much their effort is valued. In Table 7, we present results on measures of firm culture. All these measures are standardized to have zero mean and standard deviation (SD) of one in the control group, so we can interpret the treatment effects in term of SDs. Column 1 shows impacts on whether workers believed skill was important in being rewarded, and shows that while both treatment arms show an increase on this measure, the manager treatment arm is much larger, 0.253 SDs (relative to 0.148 SDs in the worker vote arm).

However, despite managers rewarding high attendance and productivity, increasing managerial discretion in what is rewarded also increases perceptions of favoritism. The measure where workers reported how important they thought the relationship with the manager was in being rewarded increases by 0.27 SDs, and is statistically different from both the control and voting arms. In contrast, there is no difference statistically across the treatment arms in whether workers view relationships with other workers as important - the impacts are smaller, negative and significant at the 10% level. We also present results on two other broad aspects of firm culture. The first is an index measuring recognition, comprised of two questions on whether workers feel appreciated by the manager and whether they feel appreciated by their co-workers. This increases by 0.116 SDs in the manager arm, but not in the worker arm (the point estimate is 0.021 SDs, and not statistically significant). We not observe any impacts on the Collegiality index, which comprises the following variables: perceptions of workplace competitiveness (agreement with whether they thought this workplace was competitive), self-reported measures of help-giving and receiving in the last week, as well as number of co-workers they report being close to, and being able to ask for help from (the index comprised these five questions). We report treatment effects for the underlying sub-components for these two indices in Table A.10, where we show that some of the underlying components did change e.g. workers in the worker vote arm report a greater number of co-workers that they are close to (0.25 SDs, p-value <0.05), reflecting increased workplace cohesion. Overall, we observe that the recognition program increased the perception that skill was valued in the workplace, with greater increases in the manager arm, but that workers in that arm also were more likely to think that favoritism was important in the workplace. This indicates that such beliefs might be difficult to change when rewards are allocated by managers. Indeed, the greater rotation of rewards in the manager arm seen above may be driven by managers' desire to avoid being seen as picking favorites, with the results here suggesting they were not totally successful in doing so.

5.5 Impacts of Winning Recognition

The different types of recognition programs impact how the returns are allocated within the firm, and there are significant differences in the types of workers that win these programs. Each of these may change whether winners' future behaviors are altered by winning the recognition program. Our runner-up design allows us to compare how winning relative to the next person in line for the reward within each firm impacts behavior for two weeks after winning the program (the comparison workers in the control group are all other eligible workers, since they were equally likely to win ex-ante).

Tables 8 and Table 9 present the impacts of winning, estimating the two specifications listed in Section 4.2.2. We test for impacts on attendance, productivity, as well as workplace interactions. Table 8 presents the pooled estimates of winning, across all treatments. There are no impacts of winning on any of the main outcomes, indicating that winning recognition does not cause workers to differentially increase effort. Table 9 presents impacts of winning by different treatment. There are no differential impacts on attendance or productivity. There are also no impacts on workplace interactions, with the only exception being that winners in the manager arm are less likely to engage in workplace interactions, consistent with the overall reduction in such interactions shown in Table 2. These results are relevant to the literature on impacts of incentive pay and of employee recognition, and indicate that relative to closely comparable workers, winning recognition does not impact workplace performance in the short-term.

Tables A.7 and A.8 present results for outcomes in the previous fortnight i.e. the reward cycle which chose the winner. Looking the pooled estimates in Table A.7, we see that winners relative to the runners-up have slightly greater attendance by 0.149 days, an increase of about 2% of the control mean, but are similar on other outcomes. Table A.8 shows that these do not vary by treatment, indicating that winners are runners up are similar in outcomes prior to winning.

5.6 Choice of Allocation Mechanism

Relative to managerial discretion, workplace democracy increases attendance, but reduces productivity and is more likely to reward unproductive behaviors. Managerial discretion improves productivity, but lowers workplace interactions. How do these results translate into preferences for how the rewards should be allocated? And does first-hand experience with an allocation mechanism affect preferences i.e. is there a treatment effect on preferences?

To get at this, we asked workers and managers in the second endline survey which allocation mechanism – workplace voting vs. managerial discretion – they would prefer if we ran

the recognition program for two more weeks at their firm. To make the responses incentive-compatible, we implemented the chosen allocation of one randomly chosen respondent in one randomly chosen firm (and told respondents we would do so). The respondent whose choice was implemented remained anonymous.

The results are presented in Table 10, with Column 1 presenting results for workers, and Column 2 for managers. and three findings are particularly notable. First, the majority of workers and respondents in the control group- 59% of workers and 80% of managers- chose the worker vote over managerial discretion, indicating some preference to give workers autonomy at least in the short-run. Second, experience with the worker vote increases workers' preference for it by 13.4 p.p (p-value < 0.01), a 22.6 percent increase relative to the control mean, showing that they value the returns to agency (this could reflect valuing the increases in cohesion, reward sharing, or valuing autonomy itself). In contrast, managers in the voting arm are not more likely to choose it relative to the control, reflecting the null productivity results in that arm.

Third, both workers and managers in the manager arm are less likely to choose worker vote, though the effects are larger for managers. Workers in the manager arm are 21.6 p.p. less likely to pick the worker vote relative to the control and managers in that arm are 40.5 p.p. less likely to pick the worker vote, a 36.6 and 50.6 percent impact relative to the control mean, respectively. Thus, the majority of workers and managers in that arm prefer their own treatment. This is consistent with the productivity gains to the firm of this treatment, as well as increased earnings opportunities for workers in that arm, which we discuss in the next section.

6 Other Outcomes

In this section, we present results on secondary outcomes of interest. The first such outcome is carpet defects. We measure these from the second endline survey, and elicited this from both managers and workers. In the worker survey, we asked workers if there had been a defect on a carpet that they had worked on for each of the four intervention months. In the manager survey, we asked managers if there had been a defect on a carpet produced by the firm for each of the four intervention months. We create a binary outcome if the worker reported a defect in a carpet during this time, and another if the manager reported a defect during this time (the control mean for the manager's report is greater than for the worker because the former asked for defects at the firm-level, while the latter only for the worker respondent). Results are presented in Table A.6, and do not show that the recognition program impacted these rates.

We also present impacts on worker entry, exit, earnings and likelihood of eligibility in Table A.5. Consistent with increased attendance in the voting arm in Table 1, the likelihood of eligibility increases in the voting arm, by 4.5 p.p, a 7% increase relative to the mean. Daily earnings in the manager arm (winsorised at the 99th percentile) increase by ₹28.47 relative to the control group (p-value < 0.05), an increase of 12% relative to the control mean. Daily earnings also increase in the worker vote arm, but the point estimate is lower (₹19.34) and less precisely estimated relative to the control group (p-value < 0.10). This could reflect that greater presence results in an increase in output over time, or that attendance is a portion of workers' compensation.

Next, we examine impacts on worker entry or exit, which we define as entry and exit after the first round of rewards had been allocated (which could possibly be when workers are more certain of what these programs entail), reported in Columns 4 and 5. Worker entry and exit are not impacted by the recognition program.

Finally, in Table A.9, we present results on worker well-being, measured by the locus of control, generalized self-efficacy, self-reported ability, and measures for feeling depressed and nervous in the previous 30 days. We do not find treatment effects on these outcomes.

We present heterogeneous treatment effects by pre-specified characteristics in Table A.11. These include gender and whether workers preferred the worker vote allocation. We had also pre-specified heterogeneity by whether a worker reported being close to the manager in the baseline survey, but this is true for few workers (less than 5%), so we use the baseline measure of favoritism perception as a substitute for this variable. Once again, we construct firm-level measures of these variables, since fewer workers took the baseline survey than are present in the sample. We present attendance and productivity aggregated to the firm-date level.

We do not find significant effects on the interaction terms on productivity for any of the three heterogeneity dimensions. However, firms with a greater number of workers who believed that relationship with the manager to be important in being rewarded in the workplace decrease attendance when assigned the manager arm, an effect that is not present when they are assigned the worker vote arm (the interaction term on productivity is negative for this group, but not statistically significant). Somewhat surprisingly, firms with above median share of workers preferring the worker vote respond with increased attendance when assigned the manager arm.

7 Conclusion

The structure of rewards and the presence of agency are key determinants of worker sorting, income, retention, and job satisfaction. In this paper, we show that these have nuanced

effects on workers and firms, with both managerial discretion and workplace democracy inducing some positive outcomes, at the cost of others. In particular, managerial discretion in rewarding workers can increase productivity, but also reduce knowledge spillovers, while workplace democracy can increase attendance but does not improve productivity. We also document that democracy induces bargaining amongst workers, with winners being more likely to share their bonuses in exchange for support. Consistent with these results, we show that experience with increased managerial discretion vs. worker agency impacts workers' and manager's preferences for these allocation mechanism, reflecting their nuanced effects on workplace outcomes. Finally, we show that winning recognition and the bonus does not impact worker outcomes relative to runners up.

The results also raise additional questions, such as how democratic processes in other firm decisions may impact worker firm outcomes. Furthermore, it is possible that different forms of voting rules may lead to different actions being implemented, e.g. different types of workers being rewarded. These, and related questions, remain interesting topics for future research.

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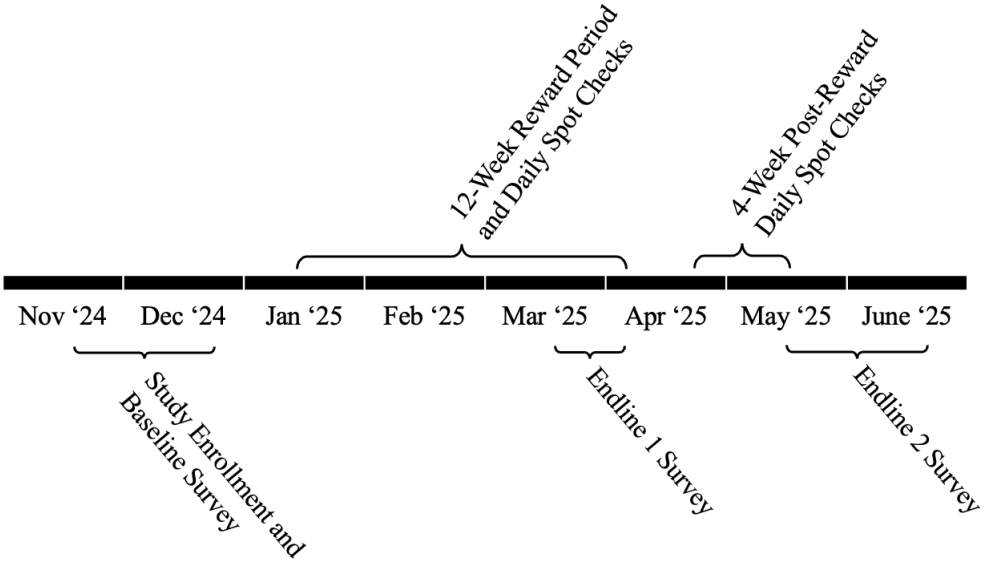
Figures and Tables

Figure 1: Production of a Hand-Knotted Carpet

Notes: This image visualizes the production process for a hand-knotted carpet. In it, three women are seated at a loom and weaving a carpet.

Figure 2: Study Timeline



Notes: This image visualizes the timeline of the study.

Figure 3: Reward Cycle Timeline

M	Attendance check (and reward ceremony for previous cycle)
Tu	Attendance check
W	Attendance check
Th	Attendance check
F	Attendance check
Sa	Attendance check
Su	Off
M	Attendance check
Tu	Attendance check
W	Attendance check
Th	Attendance check
F	Attendance check
Sa	Attendance check
Su	Off
M	Reward ceremony (and attendance check for next cycle)

Notes: This image visualizes the timeline of a typical reward cycle.

Table 1: Impacts on Attendance and Productivity

	Attendance (=1)	Knots (Res.), Unconditional	Knots (Res.), Conditional
	(1)	(2)	(3)
Manager	0.008	202.163	422.370
	(0.019)	(213.603)	(450.898)
Worker Vote	0.053***	-284.223	-503.720
	(0.019)	(214.078)	(416.666)
P-Val: M=W	0.024**	0.066*	0.072*
Data Structure	Worker-Date	Worker-Date	Worker-Date
Strata FE	Yes	Yes	Yes
Round FE	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes
Control Mean	0.483	-344.956	-725.890
N	190749	188149	90211

Notes: The outcomes are from the spot check data and are at the worker x date level. The outcome in column (1) is a dummy for attendance on a given day. The outcome in column (2) is the residualized knots woven, unconditional on attendance. The outcome in column (3) is the residualized knots woven, conditional on attendance. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Interactions in the Workplace

	Work-related Interactions (=1) (1)	Social Interactions (=1) (2)	Talking to Manager (=1) (3)
Manager	-0.093***	-0.070	-0.009
	(0.025)	(0.051)	(0.007)
Worker Vote	-0.018	-0.018	-0.006
	(0.025)	(0.044)	(0.007)
P-Val: M=W	0.001***	0.268	0.698
Data Structure	Firm-Date	Firm-Date	Firm-Date
Strata FE	Yes	Yes	Yes
Round FE	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes
Number of Worker Control	Yes	Yes	Yes
Control Mean	0.237	0.405	0.033
N	8308	8308	8308

Notes: The outcomes are from the spot check data and are at the firm x date level. Each outcome equals one if at least one interaction of the listed type was observed anywhere in the firm on that date. The outcome in column (1) captures all work-related interactions. The outcome in column (2) captures social interactions. The outcome in column (3) captures conversations with the manager. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Descriptive Analysis of Winners

	Attendance Percentile	Knots (Res.) Percentile	Spot Check Work Interaction Percentile	Spot Check Social Interaction Percentile
	(1)	(2)	(3)	(4)
Manager	0.103***	0.035*	0.012	0.010
	(0.013)	(0.018)	(0.011)	(0.013)
Worker Vote	0.064***	0.004	0.020	0.042***
	(0.012)	(0.015)	(0.012)	(0.013)
P-Val: M=W	0.034**	0.188	0.657	0.071*
Data Structure	Winners-Round	Winners-Round	Winners-Round	Winners-Round
Strata FE	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes
Lasso BL Var	No	No	No	No
Control Mean	0.533	0.533	0.533	0.533
N	4525	4525	4525	4525

Notes: The outcomes are drawn from the spot check data, and are at the winner-round level. Each is expressed as a within firm-round percentile rank among all eligible workers, calculated by ranking individuals on the relevant measure (ties allowed) and dividing by the total number of eligible workers in that firm-round. Column (1) reports attendance percentiles based on the number of days attended. Column (2) reports percentiles of knots per day, winsorized at the 99th percentile and residualized for carpet characteristics. Column (3) reports the percentile of work-interaction frequency. Column (4) reports the percentile of social interactions. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Beliefs about Winners Type

	Productivity Traits (=1)	Effort/Attendance Traits (=1)	Helps Other Workers (=1)	Helps Manager (=1)	Non-productive (Worker-related) (=1)	Non-productive (Manager-related) (=1)	Any non-productive (=1)	Financial/Other hardship (=1)	Luck/ Karma (=1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Manager	0.305***	0.365***	0.123***	0.014*	0.163***	0.148***	0.256***	0.005	-0.624***
	(0.047)	(0.043)	(0.046)	(0.008)	(0.050)	(0.041)	(0.051)	(0.006)	(0.040)
Worker Vote	0.235***	0.282***	0.216***	0.003	0.446***	0.015	0.471***	0.009*	-0.703***
	(0.038)	(0.038)	(0.041)	(0.006)	(0.043)	(0.037)	(0.041)	(0.005)	(0.036)
P-Val: M=W	0.164	0.050**	0.081*	0.282	0.000***	0.004***	0.000***	0.574	0.042**
Data Structure	Worker	Worker	Worker	Worker	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	0.237	0.243	0.126	0.003	0.196	0.049	0.197	0.008	0.738
N	1798	1798	1798	1798	1798	1798	1798	1798	1798

Notes: The outcomes are from the first endline, and are at the worker level. Each outcome is a dummy (=1) indicating that the respondent attributed the winners selection to the listed factor (workers could choose multiple reasons). The outcome in column (1) includes beliefs about technical productivity (namely, weaves many knots, weaves complex carpets, makes few mistakes, or doing non-weaving work well). The outcome in column (2) includes effort and reliability traits (working quickly, meeting deadlines, high attendance, trying hard, and taking initiative). The outcomes in columns (3)(4) capture prosocial workplace behavior: helping other workers or helping the manager through work-related assistance. The outcome in columns (5)(6) capture non-productive reasons, divided into peer-related factors (niceness, popularity, sharing rewards with workers, or campaigning for votes) and manager-related favoritism (being nice to, promising rewards to, or being favored by the manager). The outcome in column (7) pools all non-productive reasons. The outcome in column (8) captures financial or other hardship reasons. The outcome in column (9) captures luck, karma, or random chance. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Number of Winners

	Number of Rewards	Number of Repeated Winners
	(1)	(2)
Manager	-0.899	-1.118***
	(0.745)	(0.290)
Worker Vote	0.536	0.004
	(0.636)	(0.286)
P-Val: M=W	0.069*	0.000***
Data Structure	Firm	Firm
Strata FE	Yes	Yes
Lasso BL Var	Yes	Yes
Control Mean	10.049	1.732
N	124	124

Notes: The outcomes are from the Reward Ceremony data, and are at the firm-level. The outcome in column (1) is the number of winners across all rounds. The outcome in column (2) is the number of repeated winners per firm, aggregating across all rounds. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Robust standard errors reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Sharing Behavior and Motivations

	Winner Shared with Me (=1)	Reasons for Sharing				
	(1)	Friends/ Family (=1) (2)	Voted For Winner (=1) (3)	Helped With Work (=1) (4)	Made Them Look Good to Manager (=1) (5)	Luck Should be Shared (=1) (6)
Manager	-0.020	-0.001	0.048	0.027*	0.004	-0.116***
	(0.072)	(0.068)	(0.031)	(0.015)	(0.002)	(0.023)
Worker Vote	0.142***	-0.136***	0.377***	0.068***	0.001	-0.130***
	(0.053)	(0.047)	(0.034)	(0.019)	(0.001)	(0.026)
P-Val: M=W	0.007***	0.017**	0.000***	0.042**	0.241	0.484
Data Structure	Worker	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	0.717	0.465	0.004	0.000	0.000	0.130
N	2044	2043	2043	2043	2043	2043

Notes: The outcomes are from the second endline and are at the worker level. The outcome in column (1) is a dummy (=1) indicating whether the respondent received a share of another winner's reward. The outcomes in columns (2)-(6) are dummies for stated reasons for sharing: family or friendship ties (2), voting support (3), help with work (4), making the winner look good to the manager (5), and the belief that luck should be shared (6). "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Culture Outcomes

	Merit Index			Recognition Index	Collegiality Index
	Skill Important for Being Rewarded	Managerial Relationship Important	Worker Relationship Important		
	(1)	(2)	(3)	(4)	(5)
Manager	0.253***	0.268***	0.113*	0.116**	0.073
	(0.054)	(0.081)	(0.067)	(0.052)	(0.126)
Worker Vote	0.148**	0.056	0.149*	0.021	0.130
	(0.063)	(0.083)	(0.079)	(0.056)	(0.116)
P-Val: M=W	0.037**	0.011**	0.606	0.066*	0.641
Data Structure	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Control Mean	0.000	0.000	0.000	0.000	0.000
N	2272	2271	2268	2274	2274

Notes: Outcomes are from the combined endline surveys and are measured at the worker level. The sample uses first endline survey responses when available; otherwise, it uses the second endline responses for workers not surveyed in the first endline but surveyed in the second. The outcome in columns (1)-(3) report standardized measures constructed from 4-point Likert-scale items (1 = strongly disagree, 4 = strongly agree) based on agreement with the following questions: (1) whether hard work and skill are important for determining how workers are rewarded, (2) whether workers personal relationship with the owner/manager is important for determining how they are rewarded, and (3) whether workers personal relationships with each other are important for determining how they are rewarded. The outcome in column (4) reports the Recognition Index, a standardized index combining two 4-point Likert-scale survey questions on whether the respondent feels that the manager and other workers appreciate the work they do in the firm. The outcome in column (5) reports the Collegiality Index, a standardized index combining workplace competitiveness (4-point Likert scale, reverse coded), asking and giving work-related help in the past week (both 0/1), the number of coworkers listed as close, and the number of coworkers listed as sources of work-related help. Related subcomponents of these indices are reported in Table A.10. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Effect of Winning on Outcomes in the Next Fortnight

	Attendance (1)	Knots (Res.) (2)	Work-related Interactions (=1) (3)	Social Interactions (=1) (4)	Talking to Manager (=1) (5)
Winner	0.052	-356.281	0.009	0.047	-0.001
	(0.110)	(1080.154)	(0.024)	(0.052)	(0.009)
Data Structure	Worker x Round	Worker x Round	Worker x Round	Worker x Round	Worker x Round
Firm x Round FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Previous Fortnight Outcome Control	Yes	Yes	Yes	Yes	Yes
Runner-up Mean	7.080	-9291.748	0.379	1.232	0.047
N	4306	4306	4306	4306	4306

Notes: The outcomes are from the Spot Check data and are at the worker x round level. Each outcome is measured for a given worker and reflects their total activity over the next fortnight, excluding the day of the reward ceremony. All regressions control for the corresponding outcome measured over the previous two weeks, excluding the day of the reward ceremony. The sample includes only shortlisted workers (all winners and runners-up). The outcome in column (1) reports the total number of days attended. The outcome in column (2) reports the total residualized knots woven. The outcomes in columns (3)-(5) report indicator variables for interaction types observed during spot checks: (3) all work-related interactions, (4) social interactions, (5) conversations with the manager. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Effect of Winning on Outcomes in the Next Fortnight (Treatment Heterogeneity)

	Attendance (1)	Knots (Res.) (2)	Work-related Interactions (=1) (3)	Social Interactions (=1) (4)	Talking to Manager (=1) (5)
Winner	0.135	464.066	0.035	0.049	0.007
	(0.165)	(1303.562)	(0.031)	(0.082)	(0.014)
Winner x Manager	-0.310	-877.464	-0.109**	-0.072	-0.013
	(0.256)	(2555.486)	(0.046)	(0.109)	(0.019)
Winner x Worker Vote	0.004	-3039.755	0.017	0.094	-0.021
	(0.237)	(3279.145)	(0.074)	(0.133)	(0.021)
P-Val: W+WxM=0	0.370	0.850	0.028**	0.741	0.608
P-Val: W+WxW=0	0.416	0.394	0.445	0.174	0.349
P-Val: WxM=WxW	0.227	0.562	0.096*	0.191	0.685
P-Val: W+WxM=W+WxW	0.227	0.562	0.096*	0.191	0.685
Data Structure	Worker x Round	Worker x Round	Worker x Round	Worker x Round	Worker x Round
Firm x Round FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Previous Fortnight Outcome Control	Yes	Yes	Yes	Yes	Yes
Runner-up Mean	7.080	-9291.748	0.379	1.232	0.047
N	4306	4306	4306	4306	4306

Notes: The outcomes are from the spot check data and are at the worker x round level. Each outcome is measured for a given worker aggregated over the next fortnight, excluding the day of the reward ceremony. All regressions control for the corresponding outcome measured over the previous two weeks, excluding the day of the reward ceremony. The sample includes only shortlisted workers (all winners and runners-up). The outcome in column (1) reports the total number of days attended. The outcome in column (2) reports the total residualized knots woven. The outcomes in columns (3)-(5) report indicator variables for interaction types observed during spot checks: (3) all work-related interactions, (4) social interactions, (5) conversations with the manager. "P-Val: W+WxM=0" reports the p-value from a test that the sum of the coefficients on "Winner and Winner x Manager" is equal to zero. "P-Val: W+WxW=0" reports the p-value from a test that the sum of the coefficients on "Winner and Winner x Worker Vote" is equal to zero. "P-Val: WxM=WxW" reports the p-value from a test of equality between the coefficients on "Winner x Manager" and "Winner x Worker Vote". "P-Val: W+WxM=W+WxW" reports the p-value from a test of equality between the sums of coefficients on "Winner + Winner x Manager" and "Winner + Winner x Worker Vote". "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Preference for Worker versus Manager Allocation

	Picked Workers Vote (=1)	Picked Workers Vote (=1)
	(1)	(2)
Manager	-0.216***	-0.405***
	(0.044)	(0.103)
Worker Vote	0.134***	-0.014
	(0.037)	(0.093)
P-Val: M=W	0.000***	0.000***
Data Structure	Worker	Manager
Strata FE	Yes	Yes
Lasso BL Var	Yes	Yes
Control Mean	0.591	0.800
N	2045	122

Notes: The outcomes are from the second endline survey data. Column (1) is at the worker level and column (2) is at the manager level. The outcomes in columns (1) and (2) are dummy variables indicating whether the respondent preferred the worker-vote mechanism for allocating rewards (zero by construction for the control group). "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level in column (1), and robust standard errors are reported in column (2). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix A: Additional Tables and Figures

Table A.1: Baseline Characteristics

	Any Education (=1) (1)	Attendance Last Week (0-7) (2)	Common Subcaste (=1) (3)	Years of Experience (4)	Financial Status (1-10) (5)	Migrant (=1) (6)	Prefers Worker Allocate (=1) (7)	Log(Monthly Earnings) (8)
Manager	-0.020	-0.029	-0.016	0.105	-0.160	0.105*	0.052	0.073
	(0.038)	(0.023)	(0.058)	(1.122)	(0.132)	(0.061)	(0.038)	(0.052)
Worker Vote	0.027	-0.040*	0.031	-0.488	-0.123	0.163***	0.048	0.067
	(0.036)	(0.022)	(0.052)	(0.879)	(0.118)	(0.044)	(0.034)	(0.043)
P-Val: M=W	0.209	0.666	0.432	0.578	0.751	0.343	0.905	0.914
Data Structure	Worker	Worker	Worker	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	No	No	No	No	No	No	No	No
Control Mean	0.523	5.269	0.417	25.069	2.684	0.061	0.419	8.673
N	1554	1546	1554	1554	1552	1554	1529	1538

	Self-Reported Ability (1-10) (9)	Manager Relationship Important (1-4) (10)	Weaving Skill Important (1-4) (11)	Tokens Sent Dictator Game (0-5) (12)	Number Could Ask for Help (13)	Number Close to (14)	Workplace Competitive (1-4) (15)
Manager	0.148	-0.140	-0.059	0.008	-0.182	0.372	0.013
	(0.211)	(0.113)	(0.063)	(0.055)	(0.366)	(0.403)	(0.101)
Worker Vote	0.119	0.116	-0.006	-0.027	-0.137	0.036	0.141
	(0.180)	(0.093)	(0.051)	(0.047)	(0.366)	(0.415)	(0.095)
P-Val: M=W	0.892	0.038**	0.393	0.457	0.891	0.373	0.238
Data Structure	Worker	Worker	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	No	No	No	No	No	No	No
Control Mean	7.076	2.576	3.649	0.275	2.473	2.343	2.569
N	1546	1538	1543	1554	1554	1554	1546

Notes: The outcomes are from the baseline data, and are at the worker level. The outcome in column (1) reports a dummy (=1) for having ever attended school. The outcome in column (2) records self-reported attendance in the past week (0-7 days). The outcome in column (3) is a dummy (=1) for belonging to one of the most common subcastes, including Chamar (Jatav), Harijan, Goutam, Bharti, Rahdas, Kori, Bind, Mallah, Kebat, or Nishad. The outcome in column (4) records years of weaving experience. The outcome in column (5) is self-assessed financial status on a 1-10 scale, where higher values indicate being better-off financially. The outcome in column (6) is a dummy (=1) for reporting residence in the firm premises (which migrant workers sometimes do). The outcome in column (7) is a dummy (=1) if the respondent prefers reward to be allocated by the worker rather than the manager. The outcome in column (8) is the log of monthly weaving earnings. The outcome in column (9) records self-rated weaving ability on a 1-10 scale, where 1 indicates the least skill and 10 indicates being extremely skilled. The outcome in column (10) measures the perceived importance of the manager-worker relationship for rewards on a 4-point Likert scale (1 = Strongly disagree, 2 = Somewhat disagree, 3 = Somewhat agree, 4 = Strongly agree). The outcome in column (11) measures the perceived importance of weaving skill for rewards (1-4 scale, with the same anchors). The outcome in column (12) records the number of tokens sent in a dictator game (0-5). The outcome in column (13) is the number of coworkers the respondent reports being able to ask for help. The outcome in column (14) is the number of coworkers listed as being close to. The outcome in column (15) measures the perceived competitiveness of the workplace on a 1-4 Likert scale, with higher values indicating greater competitiveness. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.2: Effects on Firm-Level Productivity

	Number of Workers Present	Knots (Res.)
	(1)	(2)
Manager	-0.524	13230.513**
	(0.740)	(6064.951)
Worker Vote	-0.037	-4838.014
	(0.673)	(5401.805)
P-Val: M=W	0.541	0.005***
Data Structure	Firm-Date	Firm-Date
Strata FE	Yes	Yes
Round FE	Yes	Yes
Lasso BL Var	Yes	Yes
Control Mean	11.335	-7982.710
N	8308	8308

Notes: The outcomes are from the spot check data and are at the firm x date level. The outcome in column (1) is the number of workers present. The outcome in column (2) is the total residualized knots woven. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3: Endline Survey Response Rates

	EL1 Survey Completed (=1) (1)	EL2 Survey Completed (=1) (2)	EL 1 or EL2 Survey Completed (=1) (3)
Manager	-0.003	-0.080**	-0.036
	(0.034)	(0.040)	(0.027)
Worker Vote	-0.021	-0.057*	-0.019
	(0.033)	(0.034)	(0.026)
P-Val: M=W	0.580	0.586	0.557
Data Structure	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes
Lasso BL Var	No	No	No
Control Mean	0.657	0.771	0.822
N	2847	2847	2847

Notes: The outcomes are from the first and second endline (EL1 and the EL2, respectively), and are at the worker level. The sample includes all workers ever observed during the spot checks. The outcome in column (1) is a dummy (=1) if the worker completed the first endline survey. The outcome in column (2) is a dummy (=1) if the worker completed the second endline survey. The outcome in column (3) is a dummy (=1) if the worker completed either of the two surveys. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4: Impact on Managerial Presence and Behavior

	Manager Present on Weaving Floor (=1) (1)	Monitoring/ Supervising (=1) (2)	Helping Worker(s) (=1) (3)	Office Work (=1) (4)	Weaving Carpet (=1) (5)	Non-Weaving Work (=1) (6)	On Break (=1) (7)	Other (=1) (8)
Manager	0.006	-0.002	-0.001	-0.001	0.002	0.011	-0.025	0.000
	(0.032)	(0.028)	(0.011)	(0.014)	(0.026)	(0.019)	(0.025)	(0.003)
Worker Vote	0.014	0.012	-0.012	0.028	0.026	-0.005	-0.009	-0.004
	(0.034)	(0.029)	(0.010)	(0.018)	(0.029)	(0.017)	(0.027)	(0.003)
P-Val: M=W	0.826	0.651	0.301	0.077*	0.395	0.343	0.493	0.138
Data Structure	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	0.466	0.135	0.051	0.063	0.045	0.075	0.132	0.008
N	8308	8308	8308	8308	8308	8308	8308	8308

Notes: The outcomes are from the Spot Check data and are at the firm x date level. Each outcome is a dummy (=1) indicating that the manager engaged in the listed activity. The outcome in column (1) indicates that the manager was present on the weaving floor during the spot check. The outcomes in columns (2)-(8) indicate that at least one instance of the activity was observed that day: monitoring/supervising (2), helping workers (3), office work (4), weaving a carpet (5), non-weaving work (e.g., taana, chunai, jeri) (6), on break (7), or other (8). "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Eligibility, Earnings, Entry and Retention

	Eligible (=1) (1)	Daily Earning (2)	Late Entrants (post week 2) (3)	Early Exits (post week 2) (4)
Manager	-0.003	28.456**	0.178	0.062
	(0.021)	(12.799)	(0.888)	(0.254)
Worker Vote	0.045**	19.363*	-0.527	0.006
	(0.022)	(10.082)	(0.857)	(0.240)
P-Val: M=W	0.024**	0.436	0.469	0.806
Data Structure	Worker x Round	Worker	Firm	Firm
Strata FE	Yes	Yes	Yes	Yes
Round FE	Yes	No	No	No
Lasso BL Var	Yes	Yes	Yes	Yes
Control Mean	0.639	239.071	5.390	0.732
N	17082	2238	124	124

Notes: The outcomes are from the Spot Check data and the endline data. Column (1) is at the worker x round level, column (2) is at the worker level, and columns (3)-(4) are at the firm-level. The outcome in column (1) is a dummy (=1) indicating whether a worker was eligible in a given round of the reward ceremony. The outcome in column (2) is the winsorized, imputed daily earnings measure constructed from endline surveys. Daily earnings are imputed using respondents reported weekly earnings and pooled across the first and second endline surveys, using the second endline when the first endline is missing. The outcome in column (3) captures the number of workers who entered after the first two weeks of spot check, meaning they were absent in weeks 1-2 but appeared at least once in weeks 3-12. The outcome in column (4) captures the number of workers who exited after the first two weeks, meaning they were observed in weeks 1-2 but never appeared in weeks 3-12. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level in columns (1)-(2), and robust standard errors are reported for columns (3)-(4). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.6: Effects on Defects

	Any Defect (=1): Jan-March (1)	Any Defect (=1): Jan-March (2)
Manager	0.013	0.038
	(0.013)	(0.279)
Worker Vote	0.005	-0.127
	(0.012)	(0.277)
P-Val: M=W	0.563	0.528
Data Structure	Worker	Manager
Strata FE	Yes	Yes
Lasso BL Var	Yes	Yes
Control Mean	0.031	0.650
N	2051	122

Notes: The outcomes are from the second endline data. Column (1) is at the worker level and column (2) is at the manager level. The outcomes in columns (1) and (2) are dummies (=1) indicating whether any defect was reported in any month from January to March. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level in column (1) and robust standard errors are reported in column (2). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7: Differences in Outcomes Between Winners and Runner-Up: Previous Fortnight

	Attendance (1)	Knots (Res.) (2)	Work-related Interactions (=1) (3)	Social Interactions (=1) (4)	Talking to Manager (=1) (5)
Winner	0.149*	904.949	-0.009	0.001	0.008
	(0.075)	(1776.969)	(0.028)	(0.058)	(0.009)
Data Structure	Worker x Round	Worker x Round	Worker x Round	Worker x Round	Worker x Round
Firm x Round FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Runner-up Mean	7.558	-3502.682	0.505	1.342	0.058
N	4306	4306	4306	4306	4306

Notes: The outcomes are from the spot check data and are at the worker x round level. Each outcome is measured for a given worker and reflects their total activity over the previous fortnight, excluding the day of the reward ceremony. The sample includes only shortlisted workers (all winners and runners-up). The outcome in column (1) reports the total number of days attended. The outcome in column (2) reports the total residualized knots woven. The outcomes in columns (3)-(5) report indicator variables for interaction types observed during spot checks: (3) all work-related interactions, (4) social interactions, (5) conversations with the manager. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A.8: Differences in Outcomes Between Winners and Runner-Up: Previous Fortnight (Treatment Heterogeneity)

	Attendance (1)	Knots (Res.) (2)	Work-related Interactions (=1) (3)	Social Interactions (=1) (4)	Talking to Manager (=1) (5)
Winner	0.154	872.842	-0.015	-0.002	0.012
	(0.108)	(1956.484)	(0.034)	(0.088)	(0.009)
Winner x Manager	0.120	2014.463	-0.023	-0.065	-0.002
	(0.160)	(4131.185)	(0.058)	(0.107)	(0.018)
Winner x Worker Vote	-0.197	-2649.954	0.061	0.110	-0.021
	(0.202)	(5823.040)	(0.096)	(0.170)	(0.036)
P-Val: W+WxM=0	0.022**	0.429	0.434	0.263	0.516
P-Val: W+WxW=0	0.803	0.746	0.607	0.460	0.804
P-Val: WxM=WxW	0.129	0.480	0.412	0.268	0.623
P-Val: W+WxM=W+WxW	0.129	0.480	0.412	0.268	0.623
Data Structure	Worker x Round	Worker x Round	Worker x Round	Worker x Round	Worker x Round
Firm x Round FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Runner-up Mean	7.558	-3502.682	0.505	1.342	0.058
N	4306	4306	4306	4306	4306

Notes: The outcomes are from the spot check data and are at the worker x round level. Each outcome is measured for a given worker and reflects their total activity over the previous fortnight, excluding the day of the reward ceremony. The sample includes only shortlisted workers (all winners and runners-up). The outcome in column (1) reports the total number of days attended. The outcome in column (2) reports the total residualized knots woven. The outcomes in columns (3)-(5) report indicator variables for interaction types observed during spot checks: (3) all work-related interactions, (4) social interactions, (5) conversations with the manager. "P-Val: W+WxM=0" reports the p-value from a test that the sum of the coefficients on "Winner and Winner x Manager" is equal to zero. "P-Val: W+WxW=0" reports the p-value from a test that the sum of the coefficients on "Winner and Winner x Worker Vote" is equal to zero. "P-Val: WxM=WxW" reports the p-value from a test of equality between the coefficients on "Winner x Manager" and "Winner x Worker Vote". "P-Val: W+WxM=W+WxW" reports the p-value from a test of equality between the sums of coefficients on "Winner + Winner x Manager" and "Winner + Winner x Worker Vote". "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.9: Effects on Worker Psychology

	Locus of Control (1)	GSE (1-4) (2)	Self-Reported Weaving Ability (1-10) (3)	Nervous (1-5) (4)	Depressed (1-5) (5)
Manager	-0.004	0.025	0.103	-0.104	-0.009
	(0.053)	(0.037)	(0.185)	(0.067)	(0.088)
Worker Vote	0.037	-0.013	0.012	-0.107*	-0.035
	(0.054)	(0.037)	(0.143)	(0.063)	(0.074)
P-Val: M=W	0.460	0.311	0.597	0.962	0.754
Data Structure	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes
Control Mean	0.007	3.614	7.302	1.797	2.116
N	2274	2272	2273	2274	2273

Notes: Outcomes are from the combined endline surveys and are measured at the worker level. The sample uses first endline survey responses when available; otherwise, it uses the second endline responses for workers not surveyed in the first endline but surveyed in the second. The outcome in column (1) reports a standardized Locus of Control index, constructed as the average of three items measuring agreement that (i) luck is unimportant, (ii) performance is important, and (iii) personal connections are unimportant (each measured on a 4-point Likert scale from strongly disagree to strongly agree). The outcome in column (2) measures General Self-Efficacy (GSE) using the item: "Can you solve most problems if you invest the necessary effort?", measured on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree). The outcome in column (3) captures self-reported weaving ability on a 10-point scale (1 = lowest, 10 = highest). The outcomes in columns (4) and (5) measure nervousness and depression, respectively, using K6 items that ask: "During the past 30 days, about how often did you feel nervous/depressed?" Responses are recorded on a 5-point scale ranging from none of the time (1) to all of the time (5). "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: Subcomponents of Recognition and Collegiality Index

	Manager Appreciates (1)	Worker Appreciates (2)	Disagree with Competitive Workplace (3)	Asked for Help (4)	Gave Help (5)	Number Close to (6)	Number Ask for Help From (7)
Manager	0.089**	0.087	0.087	0.049	0.083	0.043	0.042
	(0.044)	(0.058)	(0.084)	(0.072)	(0.077)	(0.126)	(0.128)
Worker Vote	0.056	-0.007	0.025	-0.008	0.108	0.250**	0.090
	(0.050)	(0.054)	(0.078)	(0.065)	(0.086)	(0.111)	(0.117)
P-Val: M=W	0.442	0.076*	0.391	0.394	0.740	0.109	0.716
Data Structure	Worker	Worker	Worker	Worker	Worker	Worker	Worker
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	2274	2273	2272	2274	2274	2228	2240

Notes: The outcomes in columns (1)-(3) report standardized measures constructed from 4-point Likert-scale items (1 = strongly disagree, 4 = strongly agree): (1) whether the respondent feels that the manager appreciates the work they do, (2) whether the respondent feels that other workers in the firm appreciate them, and (3) disagreement with a statement that the workplace is competitive (reverse coded from an item asking whether workers in the firm are competitive with each other). Columns (4) and (5) report standardized indicators (0/1) for whether, in the past week, the respondent (4) asked another worker for work-related help and (5) provided another worker work-related help. Columns (6) and (7) report standardized counts from roster questions: (6) the number of coworkers the respondent lists as being close to, and (7) the number of coworkers the respondent would ask for work-related help. "P-Val: M=W" reports the p-value from a test of equality between the coefficients on the manager arm and the worker-vote arm. "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Effects on Firm-Level Productivity (Heterogeneity)

	Number of Workers Present	Knots (Res.)	Number of Workers Present	Knots (Res.)	Number of Workers Present	Knots (Res.)
	(1)	(2)	(3)	(4)	(5)	(6)
Manager	-0.459	14952.570**	-3.009***	-885.827	2.485**	21093.969*
	(0.873)	(6895.927)	(0.933)	(7645.662)	(1.162)	(11339.567)
Worker Vote	0.110	-6904.347	0.390	-4683.550	0.480	-6521.320
	(0.756)	(5887.558)	(0.935)	(8743.646)	(1.102)	(10043.200)
Female Center	-1.868	-45041.755***				
	(1.594)	(10459.895)				
Female Center X Manager	-0.376	-9958.416				
	(1.330)	(13263.406)				
Female Center X Worker Vote	-0.875	12378.326				
	(1.510)	(14185.102)				
Above Median Preferring Worker Vote			-1.581	-2918.492		
			(1.241)	(9799.429)		
Above Median Preferring Worker Vote X Manager			4.719***	24099.113		
			(1.719)	(15410.142)		
Above Median Preferring Worker Vote X Worker Vote			-0.931	-795.616		
			(1.708)	(12422.146)		
Above Median Manager Relationship Important					2.708**	8785.295
					(1.088)	(9763.037)
Above Median Manager Relationship Important X Manager					-6.617***	-17090.820
					(1.916)	(16245.600)
Above Median Manager Relationship Important X Worker Vote					-1.273	1675.746
					(1.544)	(13835.177)
Data Structure	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date	Firm-Date
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Lasso BL Var	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	11.335	-7982.710	11.335	-7982.710	11.335	-7982.710
N	8308	8308	8308	8308	8308	8308

Notes: The outcomes are from the spot check data and are at the firm x date level. The outcome in columns (1), (3), and (5) is the number of workers present. The outcome in columns (2), (4), and (6) is the total residualized knots woven. Heterogeneity is captured using three baseline indicators. "Female Center" equals one for loom centers classified as female at baseline. "Above Median Preferring Worker Vote" equals one if a firm is above the median (across firms) in the share of workers who prefer having weavers vote rather than the manager choosing. "Above Median Manager Relationship Important" equals one if a firm is above the median (across firms) in its average baseline agreement with the statement the manager relationship is important (1-4 Likert scale). "Lasso BL Var" indicates whether baseline control variables selected via Lasso are included in the specification. Standard errors are clustered at the firm-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.