Irregular Labor Supply and Coordination in Firms: Experimental Evidence from India

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Abstract

Firms in developing countries face uncertainty in whether and when workers arrive at work. Such irregularity can be costly to firms, especially when production requires coordinating labor inputs. This paper tests whether and how irregular labor supply affects firms' ability to coordinate workers and firm outcomes. I run a randomized experiment with 92 manufacturing firms in India. Firms are organized as production lines. Yet, workers are not on time on three in five worker-days. Workers in treatment firms are offered a daily incentive equivalent to 20% of earnings conditional on arriving by the start time for four weeks. Incentives increase timely arrival from 41% to 59% of worker-days, driven by workers who arrived late at baseline. Worker output increases by 24% for all treatment firm workers, including those who arrived early at baseline and did not change their arrival times in response to the incentive. These spillovers from late to early workers are concentrated in firms where late workers perform tasks upstream in the production line, suggesting irregular labor supply creates hold-ups within firms. Treatment firms produce 29% more output, receive 21% more new orders and have 40% fewer delayed orders. Findings suggest that irregular labor supply hurts firm output, but coordinating worker arrival times can be costly given workers' strong preference for flexibility.

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1 Introduction

Labor supply to firms in developing countries is highly *irregular*. Firms face high rates of absenteeism and separation, indicating irregularities along the extensive margin – workers' choice of which days to work or whether to stay in a firm (Breza and Kaur, 2025). Even when workers are present at work, their labor supply can be irregular along the intensive margin – when they arrive at work, or how many hours they choose to work on a given day. Irregular arrival times have been observed empirically across several settings but are relatively understudied in the literature.[1]

Despite the prevalence of irregular labor supply along both these margins, there is little causal evidence examining whether and how it affects firm outcomes. Irregular labor supply may have direct effects on firm output if workers who arrive late work fewer hours and produce less. These costs may be amplified when production relies on complementarities between labor inputs (Kremer, 1993). For example, in assembly lines, one worker's late arrival can hold up other workers on the line.

This paper studies how irregular labor supply affects firms' ability to effectively coordinate production, and firm outcomes. I answer this question in the context of a large garment manufacturing cluster in India comprising small-medium firms. Production is organized in batch processing lines where each worker performs a distinct operation on the garment. Operations must be done sequentially to produce a finished garment, making a worker's output dependent on both their own and their co-workers' labor supply decisions. For example, the output of workers performing downstream operations depend on those performing upstream operations, and therefore their labor supply decisions.

Workers are paid operation specific piece rates, and are neither incentivized based on the number of finished pieces, nor explicitly incentivized to arrive by their firm's start time. As a result, worker arrival times at the firm are highly dispersed, ranging from 3 hours early to 5 hours late, with a 10–90 gap of 135 minutes. In my sample, arriving after the firm's start time (henceforth referred to as "late arrivals", or "being late") is at least as common as absenteeism: workers are absent on 28% of worker-days, and late on 43% of worker-days conditional on being present. Survey responses suggest that late arrivals reflect important time-commitments outside of work (such as household and domestic care responsibilities), as opposed to behavioral reasons or tardiness. Anecdotally, workers express a strong preference for flexible work schedules as the main reason for late arrivals.[2]

[1] For example, among casual day laborers (Cefala et al., 2024), government employees (Chaudhury et al., 2006), and factory workers in the setting of this paper.

[2] This is consistent with prior work documenting that workers in developing countries have a greater

These two features of the setting present a puzzle. Batch processing lines imply gains from coordinating worker arrival times. In the baseline survey, 90% of owners report they would like their workers to start work at the same time. About 40% cite late arrivals among the top three challenges faced in running their business. Yet, firms do little to coordinate arrival times: 79% of owners allow workers to be more than 30 minutes late and almost none strictly enforce common start times. Owners correctly attribute this to workers' strong preference for flexibility: 53% believe that enforcing common start times would cause workers to leave the firm or refuse to work there. Taken together, these may reflect (1) an absence of gains from coordination, (2) a compensating differential for giving up flexible schedules that is too high for firms to pay, or both.

I conduct an experiment with 92 firms comprising 600 workers to test whether reducing lateness generates coordination gains within the firm, and improves firm outcomes. I incentivize workers in 46 randomly selected treatment firms to arrive by a fixed start time for a period of 4 weeks. Treatment incentives are designed as a daily bonus equivalent to 20% of workers' average daily earnings, paid conditional on arriving at the firm by the owners' work start time (hereafter, preferred start time), elicited in the baseline survey. Workers in control firms receive unconditional transfers during the treatment incentive period, matched to a randomly chosen treatment firm each week to ensure that treatment effects are not driven by income effects on worker output.

I collect daily data on worker attendance, arrival times, task assignments and production output for 6 weeks: 2 weeks before the incentives, and the 4-week incentive period. I estimate the effect of the incentives on labor supply (timely arrival, attendance and daily work hours) and production outcomes (worker and firm output, earnings, and order-completion delays) using a difference-in-differences specification with worker and time fixed effects.

This experimental setup allows me to address both explanations of this puzzle. Comparing production outcomes between treatment and control firms directly tests for gains from timely arrival, the primary goal of this paper. In addition to this, workers' labor supply response to the incentives reveals how much they value flexible arrival times. Treatment firm workers who take up the incentive value flexibility at no more than 20% of daily earnings, while those who don't value flexibility at more than 20% of their earnings. I chose a single, large incentive amount to maximize power for the first test. The amount was decided based on pre-piloting discussions with firm owners about the minimum amount needed to shift arrival times at the firm. The incentive is therefore costly by design, and it is not intended

demand for flexibility, given the prevalence of health shocks (Breza and Kaur, 2025), social pressure to attend cultural/family events (Goraya et al., 2025), and gender norms around domestic responsibilities (Ho et al., 2024).

to be a profit-maximizing contract for firms.

I find that the incentives successfully encourage workers to arrive on time in treatment firms. Timely arrival increases by 43% relative to control firms (18 percentage points). This translates to about one additional worker arriving on time in a typical firm, where four to five tailors are present on a given day. Further, workers change their labor supply entirely along the intensive margin by arriving earlier at the firm. There is no change in attendance rates for the average worker, and a small but imprecise increase in daily work hours that partly offsets the amount by which workers were late at baseline.[3]

To identify who responded most to treatment, I classify workers as "Early", "Late", and "Very Late" based on their average arrival times during pre-incentive weeks. The timely arrival effect is driven entirely by "Late" and "Very Late" workers, on whom the incentive was most binding: "Late" and "Very Late" workers are 54% (21 percentage points) and 88% (35 percentage points) more likely to arrive on time, and thus work 22 minutes and 44 minutes more per day respectively compared to the average control worker. Finally, "Early" workers do not change their labor supply in response to the incentives.

This increase in timely arrival in treatment firms results in a meaningful decline in dispersion in arrival times. Total dispersion in worker arrival times, measured as the difference in arrival times between the earliest and the last worker, decreases by 18 minutes (14% of the control mean). This is driven by the latest arrivals: the 90th-percentile worker arrives 17 minutes earlier, a 34% reduction relative to the control mean of 49 minutes. Incentives thus improve coordination in worker arrival times by shifting the arrival time distribution to the left.

As a result, weekly output per worker in treatment firms increases by 0.26 standard deviations (SD), a 24% increase relative to the control mean (equivalent to 930 additional pieces per week).[4] Weekly worker earnings increase by 9%, though the estimate is imprecise. The increase in output per worker partly reflects an increase in output per hour: the effect on output survives even after scaling by weekly hours worked, but is smaller.

Crucially, the incentives generated positive spillovers among workers in treatment firms. The increase in worker output is realized by all workers, including both "Early" workers who did not respond to incentives, and those who arrived late at baseline and responded most to the incentives. Gains in worker earnings and output per hour follow a similar pattern of spillovers from "Late" to "Early" workers.

[3]Workers in treatment firms work on average 17 minutes longer per day than control firm workers, a 5% increase relative to the control mean. The average worker arrives 8 minutes late during pre-incentive weeks.

[4]Worker output sums the number of pieces stitched across all operations in a week, and is standardized to pre-incentive, product-level means.

These spillovers reflect gains from improved coordination along the production line. I use characteristics of firms' production process to identify firms where lateness is more likely to create hold-ups on other workers, hereafter, "Bottleneck" firms. I classify firms as Bottleneck firms if any worker who performs upstream tasks in the production line at baseline is a "Late" worker. If there are gains from coordination, I expect to see output gains among "Early" workers to be driven by Bottleneck firms. In remaining firms where lateness does not create hold-ups on other workers (hereafter, "Non-Bottleneck" firms), there should be no spillovers to "Early" workers.

Consistent with the prediction above, I find that the effect on weekly output for the average worker is larger in Bottleneck firms (0.36 SD) than in Non-Bottleneck firms (0.12 SD, not statistically significant). More importantly, *which* workers experience this gain differs across the two samples. I find that spillovers from "Late" to "Early" workers only exist in Bottleneck firms: both "Early" and "Late" workers experience a 0.39 SD and 0.34 SD increase in weekly output respectively. These effects are not statistically distinguishable from each other. Adding further support for the coordination channel, I find that in Non-Bottleneck firms, gains in worker output are concentrated only among "Late" workers, with no increase in output for "Early" workers. Gains in earnings and output per hour are also more pronounced in Bottleneck firms, consistent with improved coordination along the production line. Bottleneck and Non-Bottleneck status are not randomly assigned, and the two sub-samples differ on some baseline characteristics. However, these results are robust to controlling for baseline differences, and to alternative definitions of hold-ups within the firm.

These gains in worker output translate almost one-to-one to gains in total firm output.[5] I find a 0.30 SD increase in weekly firm output: a 29% increase relative to the control mean (equivalent to $\approx$ 700 pieces). Similar to worker-level outcomes, gains in total firm output are larger in Bottleneck firms, suggesting that the firm also stands to gain from improving coordination in worker arrival times.

Treatment facilitates timely completion of orders. Specifically, treatment reduces the probability of completing an order after the owner's planned delivery date by 10 percentage points, a 40% reduction relative to the control mean. Timely completion of orders is crucial in this setting because most firms rely on repeat relationships with their clients to procure new orders. Consistent with this, I find evidence that treatment firms receive more new orders: the quantity of new orders received during the incentive weeks increases by 0.27 SD, a 21% increase relative to control firms ($\approx$ 880 pieces).

[5]Total firm output is measured as the total number of finished pieces produced by all workers in the firm, and standardized to pre-incentive, product-level means.

Finally, I find that weekly firm revenues increase by INR 3,258 (8% relative to the control mean), while total labor costs, *excluding* the incentive paid to treatment workers, increase by INR 1,640 (9% relative to the control mean). Weekly firm profits, excluding incentive payments made to workers, increased by ≈ INR 1,600 (8% of the control mean), suggesting irregular labor supply may reduce firm profits, although the effect is noisy. However, paying a 20% bonus as incentives for timely arrival outweighs revenue gains, resulting in a negative effect on profits of ≈ INR 981. This suggests that the 20% incentives I offered in the experiment are too costly for firms to adopt. Moreover, despite high incentives, 25% of workers in treatment firms chose to continue arriving late. This is consistent with workers placing a high value on flexible arrival times, but does not rule out other contract designs or incentive amounts that might be profitable for firms.

Firm owners recognize this trade-off: treatment firm owners agreed that incentives were valuable, yet their average stated willingness to pay for similar incentives was less than a third of the incentives I offered. In a longer-term follow-up survey, there was no take-up of any kind of financial incentives among treatment firms, beyond verbal encouragement. This is consistent with high cost of incentives. However, enforcing common arrival times without any incentives is also difficult: firms compete in an active labor market where most workers value flexible work schedules, and nearly all firms offer such flexibility. This makes it difficult for a single firm to deviate without facing difficulties in hiring or retaining experienced tailors.

Overall, the findings suggest that returns to coordination within the firm are large and economically meaningful. However, workers have a strong need for flexible work schedules, and report that this arises from the poor quality of public infrastructure and missing markets for childcare. Thus, firm-level incentives alone may not be a sustainable solution.

Related Literature and Contributions: This paper is most directly related to the literature on barriers to firm growth in developing countries. I extend the literature examining the association between irregular labor supply on firm outcomes (Krishnaswamy, 2019; Goraya et al., 2025) in two key ways. First, I provide causal evidence that firms benefit from timely worker arrival through coordination gains along the production line using high frequency data on worker labor supply and task assignments within the firm. This extends the finding from previous work that adverse effects of worker absenteeism are stronger in firms and industries with larger co-worker complementarities. A small set of studies have examined the effect of attendance incentives among government workers in developing countries (Banerjee et al., 2008; Duflo et al., 2012; Dhaliwal and Hanna, 2017). While these studies used time-stamped monitoring to verify worker attendance, their focus was exclusively on attendance and not timely arrival. To the best of my knowledge, this is the first paper to

experimentally test the effects of timely arrival on firm outcomes in the private sector.

A large body of work documents search and hiring frictions in low-income countries (De Mel et al., 2019; Hardy and McCasland, 2023; Bassi and Nansamba, 2022; Caria and Falco, 2024; Carranza et al., 2020). I complement this work by documenting that even conditional on forming matches, firms face barriers to coordinating workers.

I also contribute to the growing literature on the internal organization of small, informal firms in developing countries, building on recent work such as Bassi et al. (2022, 2023). In particular, Bassi et al. (2023) find limited labor specialization in multi-worker Ugandan manufacturing firms. These firms are organized as a collection of self-employed individuals, and are unable to realize gains from team production. By contrast, I study a setting with labor specialization along a sequential production line and provide evidence for coordination gains within firms using novel data on the internal organization of production.

Finally, this paper speaks to work on the provision of flexible work arrangements by firms and labor supply preferences (Mas and Pallais, 2020). Workers' demand for flexibility has been documented across several different contexts (Mas and Pallais, 2017; Ho et al., 2024; Baysan et al., 2024; Wiswall and Zafar, 2018). I add to this work by showing that while workers prefer flexible work arrangements, their own labor supply decisions create externalities on their co-workers in an assembly line setup. This is consistent with the idea that despite fixed-schedules being a dis-amenity for workers individually, there are potential gains to themselves *and* the firm.

Structure of the Paper. The remainder of the paper is organized as follows: Section 2 describes the study context and data, Section 3 outlines a framework for how lateness may affect firm production, Section 4 describes the experimental design and implementation, Section 5 lays out the empirical strategy, Section 6 presents the main results and Section 7 concludes.

2 Setting, Data and Descriptive Evidence

This section describes the setting of the paper, data collected as part of the experiment and descriptive evidence on the organization of production and worker arrival times.

2.1 Organization of production in Tiruppur

The setting of my study is Tiruppur, a major garment manufacturing hub in the southern state of Tamil Nadu, India. Production in Tiruppur is highly decentralized and carried out by sub-contracted units (called job-work units) specializing in distinct stages of the

supply chain, such as knitting, dyeing, cutting, stitching, and packing. This paper focuses on job-work units that specialize in stitching, the most labor-intensive stage of production. Firms receive cut pieces of fabric from a client (hereafter referred to as an "order"), and are responsible for stitching pieces into the finished garment and delivering the order back to their client. Firms specialize in broad product categories such as t-shirts, bottomwear, innerwear, or kids' clothing, and are paid piece rates per unit of finished garment.

Production is organized in batch processing lines, where each worker performs a distinct operation on the garment in batches of 80–100 pieces before passing the batch to the next worker. Operations (hereafter, "tasks") need to be performed sequentially in order to produce a finished piece of garment. The main production workers in these firms, and the focus of the study, are tailors, who perform designated tasks along the production line. Figure 1 depicts a stylized production line for a firm producing t-shirts. In this example, the firm receives cut pieces of fabric which are processed in four steps (tasks). One tailor first attaches the shoulders, passing on a batch to a second tailor who stitches the sleeves, followed by a third tailor who attaches the collar, and finally the fourth tailor who sews the bottom hem.

Tailors are paid piece rates for each individual task they perform (for example, attaching shoulders), and not the number of finished pieces of the garment. Although firms have set operating hours in the status quo, tailors are not explicitly incentivized to arrive at a common start time. As a result, despite the sequential nature of production, the pay contract does not give individual tailors any private incentive to coordinate their arrival times.

Firms also hire non-production workers called "helpers". Helpers are unskilled workers whose primary role is to support the production line by preparing the fabric and moving work-in-progress inventory to the next worker. While helpers are not the focus of the study, I utilize the presence of production and non-production tasks in the production process to measure tailor's time-utilization within the workday. Specifically, tailors occasionally perform non-production tasks at the firm if their batch is not ready.

The study takes place in four urban and peri-urban neighborhoods in Tiruppur which were identified as dense clusters of small-medium stitching firms during prior area mapping exercises. I target firms employing between 5 and 20 workers, with at least two tailors who are not related to the firm owner. All firms that satisfy these criteria were eligible for the experiment. While these firms are larger than modal small developing country firm, they employ $\approx 30\%$ of the workforce within the garment industry in Tiruppur (Economic Census, 2013–14). Such structures are common in many industrial clusters around the world (e.g., Nadvi and Schmitz, 1994; Banerjee and Munshi, 2004; Chaudhry and Woodruff, 2013; Atkin et al., 2017).

2.2 Data and definitions

To document day-to-day irregularities in labor supply and how it affects the internal functioning of firms, I implement a 6-week experiment with 92 firms and track labor supply and production outcomes throughout this period. Since firms do not typically maintain any internal attendance, arrival time or production records, I designed and implemented an extensive data collection exercise spanning these 6 weeks, along with baseline and endline surveys. This section outlines the data collected from firms and workers and defines key variables used in the paper.

Timeline: Prior to the 6-week period, I conduct a baseline survey with all firms and their workers. The 6-week period is composed of 2 pre-incentive weeks (also referred to as baseline), followed by 4 incentive weeks where workers are paid incentives based on their firms' treatment assignment (described in Section 4). I conduct endline surveys during the last week of the study, and a follow-up survey 3–10 months after endline.

Baseline Survey: I conduct a baseline survey with firm owners to capture owner and firm characteristics and collect a roster of all production workers (tailors). The worker roster is updated throughout the 6-week period to track workers joining and leaving the firm. The survey asks all firm owners to report when they would like all their workers to arrive at the firm, hereafter referred to as the firm's start time. This time was announced to all workers during worker baseline surveys, which were conducted shortly after the owner baseline survey. I measure lateness relative to this time: a worker is late (on-time) on a given day if they arrive after (before) their firm's start time. Arrival time deviation measures the difference in minutes between worker arrival times and the start time. During baseline surveys, I also ask firm owners to report when each worker usually arrives. I use this to stratify randomization (Section 4).

Product, Task and Piece-Rates Data: During the baseline survey, I record a roster of all distinct styles that the firm is currently producing. A style is a distinct product made for a given client. For each style, I record its broad product category[6], the piece rate that the owner receives for a finished stitched piece and its task sequence: a list of tasks that need to be performed to produce the finished product, the order in which they are performed, and task specific piece rates paid to workers. I combine information on piece rates with production data to construct worker earnings, firm revenues and total labor costs (see below). I use

[6]Products fall into four broad categories: adult t-shirts/shirts, adult bottomwear, innerwear, and kids' clothing. Production volumes, task structure and piece rates differ systematically across these categories. I normalize output measures within these product categories.

information on the sequence of tasks to identify tasks that are upstream versus downstream in the production line and construct mechanism tests described in Section 3.

Daily Attendance and Production Data: During the 6-week period, enumerators visit firms three times a day to record workers' attendance, arrival time, break times during the day, and daily output (by product-task). Arrival times and attendance are recorded by enumerator observation; remaining data is self-reported by workers. The first visit of the day is timed around the firms' start time, ensuring that enumerators can observe workers who have arrived at the firm by this time.[7] Daily output from stitching tasks is recorded for all production workers, including firm owner and helpers where applicable. In addition to production output, I also record whether the worker did any other non-production tasks at the firm, such as helper work, receiving or delivering raw material/finished pieces, machine repair, purchasing inputs, etc. I use these data to construct my main labor supply and production outcomes, which I describe below.

a) Labor Supply Outcomes: The three primary labor supply outcomes are timely arrival, work hours and attendance, and are measured daily. Timely arrival is an indicator for being present at the firm, *and* arriving before the start time.[8] Attendance is an indicator for whether the worker was present at the firm that day. Daily work hours are defined as the total work duration net of the total duration of breaks taken during the day, and coded 0 when workers are absent.[9] The outcome variable Timely Arrival is coded 0 both on days the worker is late and on days she is absent, so it captures both margins. Throughout the paper, I use "late" to describe late arrivals on any given day for workers who are present on that day.

b) Production Outcomes: The three primary production outcomes, worker output, output per hour and earnings are aggregated to the weekly frequency. Worker output (SD) is measured as the total quantity of pieces stitched by the worker in a week, across all tasks (and products), and normalized to pre-incentive product level means. Output per hour is worker output in standard deviation units, scaled by total weekly hours worked. Worker earnings are constructed by adding the product of task-specific output and piece rates over the week.

[7] Workers who arrive before or after the window of the enumerator's first visit self-report their arrival time.

[8] In practice, this is defined using a 10 minute grace period, although workers were not informed about the grace period.

[9] Breaks include any time taken for lunch, tea, or other reasons for which the worker left the firm. Workers rarely do other non-tailoring tasks for the firm during breaks (5% of worker-days).

c) Total Firm Output (SD): I construct total firm output by aggregating total quantity produced in two ways: (1) across *all* tasks, and (2) for the last task in the production line. These measures correspond to total units stitched in the firm, and total units of the finished garment respectively. Firm revenues and total labor costs are computed as the product of piece rates earned by owners and workers, and the total quantity of the last task in the production line. Both measures aggregate output across all production workers (i.e., including production by tailors, firm owners and helpers, as applicable), and are normalized to pre-incentive product level means.[10]

Orders Data: At the end of each week, I ask firm owners to report all orders received and delivered by the firm in that week. This allows me to track new orders received by firms, measured as new batches of cut-material received. For each order, firm owners report their planned and actual delivery dates. This allows me to construct a measure of delays in order delivery. I use these data to construct the following outcomes:

d) New Orders Procured (SD): As with production output, I aggregate the total quantity of new orders received in a week (normalized to pre-incentive product level means). Since 98% of orders received during the study were delivered by its end, new orders closely track firm output and serve as an alternative measure of firm output.[11]

e) Delivery Delay: Delay is an indicator for whether the actual delivery date was after the planned delivery date.

Endline and Follow-up Surveys: I conduct endline surveys with owners and workers during the last week of the study to capture their perceptions about the incentives, preferences for work schedules, changes in firm operations during the study, and changes in workers' time use during and before the workday.[12] Finally, I conduct a follow-up survey where I ask firms (retrospectively) about measures they adopted to encourage timely arrival, and long-term firm outcomes such as business finances, survival, temporary closures, and worker turnover.

[10] Weekly firm revenue is the product of total firm output and the total piece rate that owners earn, and weekly labor cost is the product of total firm output and the total piece rate that workers earn (across the product's constituent tasks) in each week.

[11] Figure A1 shows that, over the 6-week period, log total output on the last task and log total new orders are highly correlated, with a slope close to 1. The slope does not differ between treatment and control firms. Every week, field supervisors also compared last-task output for each style against the new orders reported in the Orders Data for a random subset of firms, and resolved mismatches with owners and workers on the spot.

[12] For a subset of firms, endline surveys also included questions asking firm owners to predict which workers will be present and arrive on time the next day, and asking workers why they arrived late during the past week.

2.3 Descriptive evidence on worker arrival times

In this section, I document stylized facts about late arrivals, the reasons that contribute to lateness and how firms respond to it.

Fact 1: There is substantial lateness and dispersion in tailor arrival times at work. Given that workers' piece-rate compensation structure does not explicitly incentivize common arrival times, late arrivals are common. Workers are not on time on 59% of worker-days during these pre-incentive weeks, either because they arrive late or are absent. Conditional on being present, workers are late on 43% of worker-days. I also observe substantial dispersion in worker arrival times around the start time. Figure 2 plots the distribution of worker arrival times deviated from the firm's start time, conditional on being present: the 10–90 gap of this distribution is 135 minutes, about 25% of the average pre-incentive workday of 9 hours.

Fact 2: Lateness is a characteristic of the worker. Firm owners know who tends to be late, but exact arrival times are unpredictable. Worker characteristics explain a large share of the variation in actual arrival times at the firm. In the worker-day panel, worker fixed effects alone explain 55% and 58% of the variation in timely arrival and arrival times respectively, suggesting that lateness is a characteristic of workers that can be learned by owners (Table A2). The remaining variation comes from day-to-day deviations from a worker's usual arrival time.

Thus, while owners know who tends to be late, on average they cannot predict day-to-day arrival times. For example, among workers owners expected to arrive on time the next day, only 63% did; and among those owners expected to arrive on time for the entire week, only 23% did (Panel A of Table A3). Owners are also over-optimistic about timely arrival, and more so for "Late" workers: owners reported 52% of their workers will be on time the next day, compared to actual on-time rate of 41%. This gap is larger among workers who are late on average: 51% predicted versus 28% actually on time (Panel B of Table A3). On the other hand, owners are better at predicting worker attendance: they correctly predict who will be present the next day 87% of the time, and for the entire week 57% of the time.

Defining Worker Types: Motivated by this, I use average pre-incentive arrival times to classify workers into three types: "Early", "Late", and "Very Late" workers. "Late" and "Very Late" are indicators for workers whose average pre-incentive arrival times were between 0 and 30 minutes, and above 30 minutes after the start time, respectively. "Early" workers are those whose average arrival is at or before the start time. "Early", "Late", and "Very

Late" workers account for 39%, 30% and 29% of workers respectively (Table A6).[13] Types are stable within the pre-incentive period. When workers are classified based on arrival times separately in the first and second half of the pre-incentive period, 76% of "Early" workers and 82% of "Late" workers (pooling "Late" and "Very Late") keep their same type (Figure A5). For the remainder of the paper, I use capitalized terms in quotes to refer to worker types and lowercase "late" to refer to arriving late on any given day.

Why do workers arrive late, and why do firms tolerate late arrivals?

Late arrivals reflect workers exercising flexibility in arrival times. The need for flexibility arises from important time commitments outside work. Figure A2a shows that the most common reasons for arriving late on any given day are household responsibilities and sickness in the household, followed by disruptions in transportation arrangements. Reasons related to tardiness, such as waking up late or losing track of time are rarely reported. Given gendered norms around domestic and caregiving work, these burdens fall disproportionately on women, who make up 55% of the worker sample. Figure A2b shows that nearly all female workers report doing household chores before work every day, compared to less than half of male workers. Consistent with this, "Late" and "Very Late" workers are significantly more likely to be female and married than Early workers (Table A6).[14]

Firm owners prefer that workers arrive at the same time, but do not enforce this in the status quo. In the baseline survey, owners overwhelmingly value coordinated start times: when asked (unprompted) which measures would help increase production at their firm, 90% of owners report that they would like their workers to start work at the same time (Figure A4a). Yet, flexible work schedules are the norm in this local labor market. 85% of owners report being flexible with work timings in the baseline survey, 79% allow workers to arrive more than 30 minutes late, and only 24% report that workers start work at the same time (Panel A of Table A1).

A possible reason that firms in this setting allow lateness is intense competition for experienced tailors in the local labor market. At endline, 53% of owners say that imposing common timings without any incentive would cause workers to leave the firm, 31% say it would harm their relationship with their workers (Panel B of Table A1). This is a credible concern: 55% of workers in my sample have previously worked in large, export factories that enforce strict work schedules, and reported leaving those jobs for reasons related to flexibility

[13] 2% of workers don't have a type because they were absent during pre-incentive weeks.

[14] There are no differences in commute times by gender or arrival time group, suggesting that arrival times observed in status quo are not driven by commuting frictions, but are likely driven by time commitments in the household before the start of the workday.

or care responsibilities (Figure A3).

Taken together, these patterns present a puzzle. The sequential nature of production and owner reports both suggest possible gains from reducing lateness and coordinating arrival times. Yet, arrival times are highly dispersed and unpredictable, and firms do little to coordinate arrival times. This either suggests that gains from coordinating arrival times are absent or small, or that workers' compensating differential for giving up flexibility is too high for firms to pay, or both. The experiment addresses both components of the puzzle.

3 A Stylized Framework on How Lateness Affects Production

This section describes how lateness may affect production, how firms may adapt to lateness and why adaptation may be partial. I conclude with

3.1 Direct and indirect effects of lateness

Lateness can affect production both directly and indirectly.

Direct effects. Pre-incentive data on daily work hours and output suggests that "Late" and "Very Late" workers work fewer hours, but don't produce more pieces per hour relative to "Early" workers (Table A6). Thus, regardless of other workers' arrival times, "Late" and "Very Late" workers may result in lower firm output.

Indirect effects. Given the sequential nature of production, late arrivals may also have indirect effects on other workers in the firm. Lateness on upstream tasks in the production line can hold up workers on downstream tasks. This may increase idle time if "Early" workers wait for the "Late" worker to complete upstream tasks. Further, it may limit downstream workers' ability to specialize in their main task (defined as the modal task they worked on during pre-incentive weeks) if "Early" workers need to fill in for the late upstream task worker. On the other hand, lateness on downstream task stations doesn't hold up other workers on the production line, but may hold up the delivery of finished garments, and thus create delays in order completion.

This is consistent with owners' beliefs about how lateness affects production at their firm. When asked why coordinated timings would help increase production, 66% of owners suggest a reduction in idle time, and 51% suggest increased task specialization as possible mechanisms (Figure A4b). Additionally, 40% of owners also allude to uncertainty about whether and when workers will arrive at the firm as another mechanism. Coordinated timings can help owners plan and deliver orders on time, which helps them receive more orders in the future.

Firms in this setting rely on repeat relationships with their clients, making timely completion of orders crucial for maintaining these relationships.[15]

3.2 How firms adapt to lateness, and why adaptation is partial

One obvious response to lateness might be to enforce common arrival times, either by penalizing, or firing workers who arrive late. However, as discussed in Section 2.3, this is not possible given the current market equilibrium firms operate in. Instead, firms can re-organize production to adapt to lateness, but their ability to do so may be limited.

(i) Re-sequencing tasks. Firms can change the sequence in which tasks need to be performed, so that tasks performed by "Late"/"Very Late" workers can be done towards the end of the production process. However, firms cannot change the sequence in which tasks need to be performed, as the sequence depends on how fabric is cut, a decision made by their clients.

(ii) Reassigning workers to tasks. firms can instead re-assign workers to tasks such that workers who arrive early are assigned to upstream tasks, and those who arrive late are assigned to downstream tasks. Figure A8 suggests there is no correlation between whether a worker is late and the sequence of the task they perform at the firm, consistent with task-assignments not changing in response to daily fluctuations in arrival times. This is possible if worker-tasks assignments are largely fixed, in that workers specialize in their main task. Figure A7a shows that 77% of workers have one main task at the firm, defined as a task performed every day the worker was present during pre-incentive weeks, consistent with task specialization among workers.

There is some task sharing observed at baseline: Figure A7b shows that on average, workers produce 71% of the day's output from their main task, and the remaining on other tasks. This form of adaptation is necessary for firms to operate given day-to-day fluctuations in absenteeism and lateness. Conversations with workers suggest that task sharing is not preferred for two reasons. First, workers recognize there are gains from specializing in a single task relative to performing multiple tasks. Second, there are informal norms against task sharing, particularly when tasks differ in piece rates: a worker who typically performs a high piece-rate task might dislike her work being covered by a co-worker when she is late. Finally, task sharing might not always be possible in practice if skills are not transferrable across tasks.

[15] Consistent with this, the number of orders received over the 6-week period is positively correlated with years of relationship with the client, while number of delayed orders is negatively correlated with length of the relationship.

(iii) Holding work-in-progress inventory. The main way in which firms do adapt to lateness is by maintaining work-in-progress inventory between work-stations. This is a crucial feature of batch processing lines that allows firms to adapt to both worker absenteeism and lateness more flexibly compared to assembly lines (as discussed in Chaudhry and Woodruff (2013)). Maintaining a sufficient pile of material for workers who arrive early may mitigate indirect effects of lateness. However, uncertain arrival times (Section 2.3) make this hard: the pile runs out whenever a worker is late by more than the time it takes the downstream worker to finish it.

While I do not have a direct measure of inventory levels within the day, data on weekly orders allows me to identify the number of distinct orders that are in production each day, an alternative measure of inventory. I observe firms having single orders in production on about half of firm-days, allowing me to assess the extent to which firms successfully adapt to lateness. Pooling all days from pre-incentive weeks and control firms, I find that output and earnings for workers on downstream tasks is lower on days when at least one upstream task worker is late relative to days when the upstream worker is on time (column 1 of Table A7). These correlations are larger and more precise on days when the firm has only one active order in production. On days when only one order is in production, downstream workers stitch 121 fewer pieces (13% of the base mean) and earn INR 76 less (11%) when at least one upstream task worker is late (column 2 of Table A7).

This suggests that firms may only be able to partly mitigate indirect effects from lateness.

3.3 Identifying firms where lateness creates hold-ups

Addressing the first part of the puzzle outlined in Section 2.3 relies on testing for indirect effects of lateness. To do so, I leverage the sequential nature of production, and limited skill transferability across tasks to identify firms where indirect effects are larger because lateness may create hold-ups for other workers. I define hold-ups created by lateness in two ways:

Definition 1: Bottlenecks created by lateness on upstream tasks

The first definition is based on where lateness occurs on the production line. I define a "Bottleneck" firm as a firm with at least one upstream task worker who is also "Late" or "Very Late" at baseline. An upstream task worker is a worker whose main task is an early sequence task in the production line. The complement to this is a "Non-Bottleneck" firm, where no upstream task worker is late. Since firms produce different products, and task sequences may vary across products, I identify upstream (downstream) tasks as all tasks that appear before (after) a "cut-off" task. Upstream task cut-offs are defined based on

tasks that must be done to proceed with remaining tasks (e.g., the task 'attaching shoulders' must be done before all other tasks to make a t-shirt). Likewise, downstream task cut-offs are defined based on tasks that must be done in order for a garment to be considered finished (e.g., bottom hems on a t-shirt, or elastic bands on pants). Figure A9 shows that this classification maps well to relative task orders in the production line.

This definition yields the following implications. In Bottleneck firms, reducing lateness can have both direct and indirect effects on output. All workers' output increases regardless of which workers are induced to arrive on time by the experiment. In Non-Bottleneck firms, lateness should only have direct effects: only workers who the incentive induces to arrive on time should see gains in output.

Definition 2: Spillovers are more likely when task sharing is limited

The second definition leverages limited substitutability of worker skills across tasks in the production line. I classify tasks within a firm into two types: Simple and Complex tasks. Complex tasks are tasks performed on a Singer machine (as opposed to Overlock or Flatlock machines for Simple tasks). Completing a complex task for one piece of the garment involves more precision and time, and complex tasks are paid higher piece rates (Table A8). complex tasks are performed by experienced tailors skilled at using the singer machine, and there is little crossover between the two types of tasks. Complex task tailors spend 95% of their workdays on complex tasks, but only 7% on simple tasks. Although simple tasks can be performed by all tailors, conversations with tailors suggest that Complex task tailors dislike performing lower piece-rate tasks. Further, complex tasks tailors are significantly more likely to arrive early at the firm than simple task tailors (Table A8), possibly because higher piece rates incentivize them to work longer hours.[16]

I classify firms as "Complex Task" firms if at least one style they produce at baseline has a complex task, and "No Complex Task" firms otherwise (44 and 47 firms respectively)[17]. Among Complex Task firms, I further distinguish firms where the complex task is downstream to a simpler task in the production line ("Complex Downstream", 27 firms) from the remaining firms ("Complex Upstream", 17 firms). An advantage of this definition is that unlike the Bottleneck classification, it is not mechanically related to the extent of lateness within the firm at baseline.

This definition yields the following implications. Since complex tasks are done by a small

[16] Also, as shown in Table A6, 17% of "Early" workers' main task is a complex task, compared to 5% and 1% of "Late" and "Very Late" workers' main tasks respectively.

[17] I am unable to distinguish between simple and complex tasks for one firm in the sample, and drop that firm from this analysis.

set of "Early" workers, lateness is concentrated on simple tasks. No Complex Task firms are better able to adapt to lateness, since workers can be easily re-assigned to other simple tasks. In Complex Task firms, workers cannot easily be re-assigned across simple/complex tasks, increasing the likelihood that lateness creates indirect effects. Since lateness is more likely to occur on simple task stations, negative spillovers should be most likely in Complex Downstream firms, where simple tasks precede complex tasks. Thus, spillovers should be present in Complex Task firms (and especially Complex Downstream firms), and not in No Complex Task firms.

The two definitions are not strongly or significantly correlated with each other (correlation = 0.04; Table A9), and serve as robustness checks for each other. Treatment status does not predict either classification (Table A9), and treatment and control firms are largely balanced on baseline characteristics within each subsample (Table A10 and Figure A10).

4 Experiment Design and Sample Characteristics

Given a context where workers express strong preferences for flexibility, I design an experiment with high-powered incentives to test for the effect of late arrivals on firm outcomes. Changing firms' status quo compensation structure is difficult to implement as researchers. Moreover such changes may require other organizational changes in the firm, such as increasing base pay or hourly monitoring. I therefore chose to implement a simple, daily bonus to incentivize timely arrival. Scoping and pre-piloting work with firm owners suggested a daily bonus worth INR 100 as the minimum amount needed to incentivize workers to arrive on time.

Experimental Design. Figure 3 shows the experiment design and timeline. Firms were randomly assigned to one of two treatment groups - (T) Treatment (n = 46), and (C) Control (n = 46). All workers in treatment firms were eligible to receive a daily bonus equivalent to 20% of their *average* daily earnings if they arrived at the firm and started work by the owner's preferred start time. Thus, the incentive encourages both on-time arrival and attendance. The incentives were active during four out of six weeks of data collection (incentive weeks), and were paid to workers at the end of each week as part of their weekly earnings.[18]

All workers in control firms were eligible to receive unconditional transfers during the four incentive weeks. Each week, control firms were randomly paired with one treatment firm, and the transfer amount was calibrated to the total realized payment made to that

[18] All workers who were working full-time at the firm at any point during the study were eligible to receive incentives. Workers' full-time status was determined by the owner and verified by the research team using daily attendance data.

treatment firm. This allows me to rule out income effects as driving effects of treatment incentives on labor supply and production outcomes.

Implementation. The experiment was implemented in three rounds, covering 6-week periods over the course of a full year. This ensures that my results are not affected by a specific peak or lean production season. Round 1 was implemented with 17 firms (9 treatment, 8 control) from November 2024 to January 2025, Round 2 was implemented with 39 firms (19 treatment, 20 control) from March 2025 to May 2025, and Round 3 was implemented with 36 firms (18 treatment, 18 control) from August 2025 to October 2025. The daily treatment incentive amount in Round 1 and Round 2 was set to INR 100, and was increased to INR 150 in Round 3. Transfer amounts in control firms were capped to INR 300–450 per week (half of the maximum incentive amount in treatment firms).[19]

Randomization and treatment announcement was done after owner and worker baseline surveys. Workers in treatment firms were reminded about the conditional incentives before the start of the incentive weeks. To demonstrate how incentives worked and increase their salience in treatment firms, I implemented trial payments on the first day of the incentive weeks.

Details of Randomization. Randomization for Round 1 was conducted by generating a random order of treatment/control assignments, which firms were matched to in the order in which their baseline survey was completed. Randomization for Rounds 2 and 3 was stratified by above- versus below-median dispersion in worker arrival times around the owner's preferred work start time, using workers usual arrival times as reported by the owner in the baseline survey. All specifications reported in the paper control for round by strata fixed effects to account for the method of randomization in each round (Bruhn and McKenzie, 2009).

Balance and Sample Characteristics. Baseline firm and worker characteristics, and balance by treatment arms are reported in Table A4 and Table A5 respectively. On average, firms hire six tailors, excluding owners and family members who also do stitching work at the firm. Firms have been in operation for 6–7 years and earn INR 30,000 (USD 340) in monthly profits on average. Owners directly supervise workers (that is, without a manager/contractor) in almost all firms. About 85% of owners are male, 57% have completed secondary school and have 19 years of experience in the garment industry.

45% of workers in my sample are male, unlike other garment manufacturing contexts

[19]Follow-up surveys were conducted between November 2025 and January 2026, and were conducted in the order that firms were recruited. Thus, the follow-up timeline ranges from 3 months for Round 3 firms, to 10 and 7 months for Round 1 and 2 firms respectively.

studied in the literature where the workforce is predominantly female. Workers are on average 37 years old, 94% are married, and 84% have at least one child younger than 14 years of age. Thus most workers in my sample are at a life stage with substantial care responsibilities at home. Both firm and worker characteristics are balanced across treatment and control firms.

5 Empirical Strategy

I utilize the panel structure of my data and use a difference-in-differences with worker and week fixed effects to estimate the effect of incentives on worker level outcomes.[20] I estimate the following specification:

$$Y_{i(f),t} = \alpha + \boldsymbol{\beta}\text{Treatment}_{i(f)} \times \mathbb{I}\{\text{During}\}_t + \lambda_{i(f)} + \mu_w + \mu_{dow} + \varepsilon_{i(f),t} \tag{1}$$

where $Y_{i(f),t}$ is the outcome of interest for worker i in firm f at time t, and time is either day or week, depending on the outcome variable. $\text{Treatment}_{i(f)}$ is an indicator that equals 1 if a firm f is assigned to treatment (fixed over time), $\mathbb{I}\{\text{During}\}_t$ is an indicator variable that takes the value 1 if the study week is an incentive week, and $\lambda_{i,f}$ denotes worker fixed effects. μ_w are study round by week fixed effects, [21] and μ_{dow} are day-of-week fixed effects (dropped from worker-week level specifications). $\boldsymbol{\beta}$ is the coefficient of interest, and standard errors $\varepsilon_{i(f),t}$ are clustered at the firm level. Worker fixed effects absorb round by strata fixed effects.

I use a similar specification for firm-level outcomes:

$$Y_{f,t} = \alpha + \boldsymbol{\beta}\text{Treatment}_f \times \mathbb{I}\{\text{During}\}_t + \lambda_f + \mu_w + \varepsilon_{f,t} \tag{2}$$

where indices and variables are defined as above, λ_f denotes firm fixed effects, and standard errors $\varepsilon_{f,t}$ are clustered at the firm level. Firm fixed effects absorb round by strata fixed effects.

Testing for Indirect Effects of Lateness. Section 3 predicts that inducing "Late" workers to arrive on time can raise output for "Early" workers through indirect effects. To test

[20] I also prespecified an ANCOVA specification, and that I will report the specification that yields the highest statistical power.

[21] Study weeks take the value 1 to 4 for the 4 incentive weeks, 0 and -1 for weeks prior to incentives.

this, I estimate treatment effects separately by worker type:

$$
\begin{aligned}
Y_{i(f),t} = \alpha &+ \boldsymbol{\gamma}_1 \text{Treatment}_{i(f)} \times \mathbb{I}\{\text{During}\}_t \\
&+ \boldsymbol{\gamma}_2 \text{Treatment}_{i(f)} \times \mathbb{I}\{\text{During}\}_t \times \mathbb{I}\{\text{Late}\}_i \\
&+ \boldsymbol{\gamma}_3 \text{Treatment}_{i(f)} \times \mathbb{I}\{\text{During}\}_t \times \mathbb{I}\{\text{Very Late}\}_i \\
&+ \lambda_{i(f)} + \mu_w + \mu_{dow} + \varepsilon_{i(f),t}
\end{aligned} \tag{3}
$$

where γ_1 is the treatment effect for "Early" workers, and γ_2 and γ_3 are differential effects for "Late" and "Very Late" workers respectively. Since "Early" workers typically arrive on time in the absence of incentives, treatment is less binding for them and should not change their labor supply. I test this directly by estimating Equation 3 on timely arrival, work hours and attendance. If γ_1 is zero for these outcomes, then γ_1 for output measures the indirect effect of other workers' earlier arrival on "Early" workers.

To provide additional evidence that indirect effects on "Early" workers reflect fewer hold-ups along the production line, I estimate Equation 1 and Equation 3 separately by firms' Bottleneck/Complex Task status. As discussed in Section 3.3, if indirect effects reflect fewer hold-ups along the production line, spillovers to "Early" workers are only expected in Bottleneck and Complex Task firms. The absence of an effect for "Early" workers in Non-Bottleneck and No Complex Task firms rules out alternative sources for spillovers, such as peer effects.

6 Results

This section presents results from the experiment. I first show workers' labor supply response to the incentives. I then report effects on production outcomes, and test whether these effects reflect fewer hold-ups along the production line. Next, I report the effects on firm output and profits. Finally, I bring these results together to explain why firms tolerate lateness.

6.1 Incentives increase timely arrival but not attendance

Table 1 presents the effect of the incentives on timely arrival, daily work hours and attendance. Timely arrival in treatment firms increases by 18 percentage points (column 1), a 43% increase in timely arrival relative to the pre-incentive control mean. Column 3 reports the treatment effect on daily work hours. Workers in treatment firms worked an additional 0.28 hours (17 minutes) relative to workers in control firms, but this effect is not statistically

significant. Finally, I find no effect on attendance (column 5).

Treatment reduces dispersion in arrival times at the firm. Figure 4 plots the distribution of arrival times in 15-minute intervals around the start time by treatment status. In treatment firms, arrivals bunch in the 30 minutes before the start time, and arrivals 15 or more minutes after the start time fall sharply.[22] Total dispersion in arrival times, measured as the difference between the first and last worker's arrival, decreases by 18 minutes, a 14% reduction relative to control firms (column 1, Table A11).

Next, I examine whether these effects vary by baseline lateness. Columns 2, 4, 6 in Table 1 report heterogeneity in labor supply response for "Early", "Late" and "Very Late" workers. The effect of timely arrival is driven entirely by workers who were consistently late at baseline (column 2). "Late" and "Very Late" workers are differentially 21 and 35 percentage points respectively more likely than "Early" workers to arrive on time. This is expected since the incentives were more binding on workers who consistently arrived after the preferred start time. The increase in work hours (reported in column 4) is larger among "Late" workers (0.37 hours/22 minutes) and "Very Late" (0.73 hours/44 minutes) workers, but not statistically significant at conventional levels.

The slight increase in work hours is driven by these subgroups of workers arriving earlier, not from leaving later or taking shorter breaks. Workers in treatment firms arrived 11 minutes earlier relative to control workers (column 1, Table A12). This effect is driven by "Late" and "Very Late" workers arriving 12 minutes and 27 minutes earlier, respectively. "Early" workers don't change their arrival times (column 2, Table A12).[23]

There are no effects on attendance for "Early", "Late" and "Very Late" workers (column 6). Notably, attendance among "Early" workers does not improve despite the fact that these workers were effectively only incentivized to be present at the firm without changing their arrival time. Consistent with Goraya et al. (2025), most absences reported in the data are due to social commitments and health shocks, explaining why attendance may be less elastic to incentives.[24]

These results suggest that workers' labor supply response to incentives operates entirely

[22] Figure 4b shows that the cumulative share of workers arriving at the firm is shifted to the left in treatment firms. The right axis of this graph translates fraction of workers arrived at the firm into the implied number of workers. Treatment increases the share of present workers arriving within the first 15 minutes of opening from 60% in control firms to 80% in treatment firms, about one additional worker in a typical firm (vertical distance along the [0,15) line).

[23] Workers do not offset early arrivals by leaving the firm earlier, and "Very Late" workers take slightly more breaks (0.36 per day), adding about 8 minutes to their total break duration (Table A13).

[24] 37% of worker absences are because of social functions, 18% because either the worker or a family member was sick, and 10% because of local temple/religious festivals.

along the intensive margin of choosing when to arrive at work and not through attendance. There is a small change in work hours that approximately offsets the amount by which workers were late at baseline.

Finally, a key feature of the labor supply response is that despite a bonus equal to 20% of daily earnings, a substantial share of workers did not change their arrival times, suggesting high value for flexible work schedules. Figure 5 shows that 25% of workers can be characterized as never-takers: treatment firm workers who do not arrive on time on at least 80% of the days even when offered large incentives. These workers value flexibility at least as much as 20% of their average earnings.

6.2 Production outcomes improve for all workers

Incentives raise weekly worker output for all workers in treatment firms, including "Early" workers who did not change their arrival times. Going forward, I pool "Late" and "Very Late" workers into a single "Late" group. Both groups shift their arrival times in response to the incentives, and pooling improves precision when estimating heterogeneous treatment effects.

Columns 1–2 of Table 2 report results for weekly worker output. The average treatment effect on weekly worker output is 0.26 standard deviations (SD), statistically significant at the 5% level. In levels, this amounts to 930 additional pieces per week in treatment firms over an average of 3,874 pieces per week in control firms. This represents a 24% increase in weekly output relative to the control group (column 1 of Table 2).

The effect on worker output is driven equally by "Early" and "Late" workers, even though only "Late" workers responded to the incentives. "Early" workers gain 0.22 SD and "Late" workers gain 0.28 SD (column 2) in weekly output. These magnitudes are statistically indistinguishable.

These increases in worker output hold even after scaling for hours worked, but are smaller in magnitude. Columns 3–4 of Table 2 report effects on normalized weekly output scaled by weekly hours worked: output per hour rises by 0.007 SD for the average treatment firm worker and is significant at the 10% level (column 3). This effect is similar for "Early" and "Late" workers (column 4). This suggests a small improvement in output per hour for all workers.

Earnings follow the same pattern, but are smaller in magnitude and less precisely estimated. Columns 5–6 of Table 2 report results for weekly worker earnings *excluding* incentive payments. Weekly earnings increase by INR 310 (9% of the control mean) for the average

worker. The effects are similar across "Early" and "Late" workers.[25] Despite not being statistically significant, a 9% increase in earnings is an economically meaningful magnitude. Reassuringly, there is a clear rightward shift in the distribution of change in earnings for workers in treatment firms, as shown in Figure A11.

Overall, while only "Late" and "Very Late" workers changed their labor supply in response to the incentives, gains in production outcomes were experienced by all workers in the firm, including "Early" workers. This indicates the presence of positive spillovers within the firm as a result of treatment.

6.3 Spillovers reflect gains along the production line

Next, I test whether these spillovers arise from better coordination along the production line. As outlined in Section 3.3, spillovers along the production line should only be present in Bottleneck and Complex Task firms. Recall that these are firms where late arrivals are more likely to create hold-ups on other workers. Table 3 replicates results on worker output separately for each definition. Panel A reports the treatment effect for the average worker, Panel B reports heterogeneity by "Early" and "Late" workers, and column 1 replicates the spillover result for worker output from Section 6.2.

Columns 2 and 3 report results for 52 Bottleneck firms and 40 Non-Bottleneck firms. This classification of firms leverages the sequential nature of production, where lateness on upstream tasks (Bottleneck firms) is more likely to create hold-ups. Consistent with the presence of such hold-ups, the overall effect on weekly output is larger in Bottleneck firms at 0.36 SD (32% of the control mean, significant at the 1% level), compared to 0.12 SD (12%, not statistically significant) for Non-Bottleneck firms.

More importantly, which workers gain from the incentives differs across the two samples. In Bottleneck firms, all workers, *including* "Early" workers gain from the treatment, replicating the spillover pattern in the full sample (column 2, Panel B). "Early" workers experience a 0.39 SD increase in weekly output (equivalent to 1,000 pieces and significant at the 5% level), and the effect for "Late" workers is similar in magnitude (0.34 SD) and not statistically distinguishable from the effect for "Early" workers. By contrast in Non-Bottleneck firms (column 3, Panel B), the effect is concentrated entirely among "Late" workers: their total effect is 0.35 SD ($p = 0.11$), significantly larger than for "Early" workers who see no

[25] *Including* the treatment incentive payments, all workers in treatment firms earn INR 817 per week (see Table A15), and this effect is not statistically different for "Late" workers. These results suggest that if workers were to, hypothetically, arrive on time *without* any monetary incentives, they could have earned on average INR 310 more per week than their status quo arrival times. Depending on whether workers internalize indirect effects of timely arrival along the production line, the implied willingness to pay ranges between INR 310 to INR 817 in weekly earnings, 9% to 23% of average weekly earnings.

gain.

These patterns replicate in the second definition of hold-ups within the firm, which is based on firms' ability to adapt to lateness by re-assigning workers to tasks. Recall that in Complex Task firms, tasks are less easily substitutable across workers, limiting the extent to which firm owners can re-assign tasks across workers. Columns 4 and 7 of Table 3 report results for 44 Complex Task and 47 No Complex Task firms respectively. Similar to the result for Bottleneck firms, spillovers from "Late" to "Early" are only present in Complex Task firms, where the firm is unable to re-assign workers to "Late" workers' tasks: "Early" workers in Complex Task firms produce 0.40 SD more in weekly output (significant at 5% level), with no differential effect for "Late" workers (column 4, Panel B of Table 3). The effect in No Complex Task firms is driven by "Late" workers, who produce 0.19 SD more in weekly output (not significant), while there is no effect for "Early" workers. Even among Complex Task firms, the spillover pattern appears to be stronger in firms where Complex tasks are downstream, consistent with the sequential nature of production driving these spillovers. In Complex Downstream firms, the average worker produces 0.48 SD more in weekly output (column 5, Panel A), "Early" workers produce 0.51 SD more and there is no differential effect for "Late" workers (column 5, Panel B).[26]

Reassuringly, the labor supply response is consistent across both these definitions. The increase in timely arrival is driven by "Late" and "Very Late" workers in both samples (Figure A12). The effect on timely arrival is larger for "Early" workers in Bottleneck and Complex Task firms than in the average sample, but this increase seems to be driven by higher attendance rates for "Early" workers.[27] Weekly worker earnings and output per hour (Table A16 and Table A17 respectively) exhibit the same pattern: all workers experience an increase in earnings and output per hour in firms where hold-ups are more likely (Bottleneck and Complex Task firms), though effects on earnings are imprecise. Since "Early" workers' output per hour also rises in Bottleneck and Complex Task firms, the output per hour gains for "Early" workers are not explained by higher attendance alone.

Neither definition of hold-up is randomly assigned, and these sub-samples of firms differ along a few baseline characteristics. As shown in Table A22, Bottleneck firms are larger, have more machines and "Late" workers, and have higher monthly revenues and non-labor costs than Non-Bottleneck firms. Results for the Bottleneck split are robust to an ANCOVA specification that controls for baseline output and the number of "Late" workers at baseline

[26]Point estimates are smaller in Complex Upstream firms and imprecisely estimated given the smaller sample size (17 firms).

[27]This suggests that "Early" workers may have withheld their attendance at the firm because of hold-ups, although my design does not allow me to precisely test this hypothesis.

(Table A18). For the Complex Task split, the spillover to "Early" workers remains only in Complex Downstream firms.[28,29]

Another implication of the sequential production line is that lateness increases idle time if "Early" workers wait for "Late" workers to complete upstream tasks. Owners report that workers may fill this time with helper tasks when there is no other work (30%), or when they are idle (14%). Consistent with less waiting time, workers in treatment firms are less likely to perform non-production tasks on days they are present (Table A19). This reduction is driven by Bottleneck firms, where the sequence of tasks matters most, and does not reflect higher attendance among helpers in treatment firms.[30] At endline, treatment firm owners are also more likely than control owners to report less idle time among tailors and helpers (Figure A13). These results suggest that incentivizing timely arrival reduced idle time on the production line.

Taken together, spillovers to "Early" workers, for whom the incentives were not binding, appear only in firms where lateness is more likely to create hold-ups. There are no spillovers in firms where lateness does not create hold-ups. This is consistent with the coordination mechanism, and is difficult to reconcile with alternative explanations for the output gains for "Early" workers, such as peer effects from arriving together. Peer effects would generate gains among "Early" workers in Bottleneck (Complex Task) and Non-Bottleneck (No Complex Task) firms alike.

6.4 Total firm output

Overall, increases in individual worker output translate almost one-to-one to increases in total firm output. Columns 1 and 2 in Panel A of Table 4 report treatment effects on total firm output using both measures defined in Section 2.2, estimated using Equation 2.

Total firm output, as measured by the sum of pieces stitched on all tasks, increases by 0.30 SD (statistically significant at the 10% level). In levels, this is equivalent to 6,800 additional tasks stitched per week in treatment firms over an average of 23,419 pieces per week in control firms. This represents a 29% increase in weekly firm output relative to

[28]Bottleneck firms also have a larger number of active orders per day. This may be consistent with firms maintaining multiple orders in production to mitigate the effects of lateness. If that is true, the evidence that spillovers are concentrated in Bottleneck firms, and not in Non-Bottleneck firms further supports my hypothesis from Section 3 that firms' adaptation to late arrivals is incomplete.

[29]There are fewer differences between Complex and No Complex Task firms, except that the former are larger and have more machines. This difference may be driven by the presence of complex task workers themselves: since complex tasks are slower to complete, every firm typically hires multiple such tailors to match their pace with other workers on the line.

[30]See Table A14. Owners also report that tailors take on helper tasks when orders are urgent (50%) or helpers are absent (33%).

the control group (column 1, Panel A of Table 4). Column 2 reports effects for the last task measure, which counts the total number of finished pieces. Total quantity of finished pieces in treatment firms increases by 0.21 SD, equivalent to 700 additional pieces of finished output. This measure is noisier, and may under-estimate the number of finished pieces if the last task is observed less frequently when orders are still in production during the last week of the experiment. Panel A of Table A20 shows that both measures of firm output are equivalent in magnitude after dropping the last week of data collection. This suggests that the last task measure under-counts the number of finished pieces over the entire incentive period.[31] Consistent with results on worker output, both measures of total firm output are larger in Bottleneck and Complex Task firms (column 1, Panels B and C of Table 4).

The above two outcomes reflect worker-reported measures of firm output. The results are consistent with an alternative, owner-reported measure: the quantity of new orders received by firms. Treatment firms procure 0.27 SD more new orders per week, equivalent to $\approx$ 880 pieces per week (column 3 of Table 4). This represents a 21% increase relative to the control mean of 3,200 pieces per week. While this measure is noisily estimated, its magnitude matches the worker-reported outcomes.

Finally, delays in order delivery are lower in treatment firms. The probability of completing an order after the planned delivery date falls by 10 percentage points, a 40% reduction relative to the control mean, as shown in column 4 of Table 4. Thus, increasing timely arrival at the firm facilitates timely completion of orders. This is crucial for maintaining long term relationships with clients that enable firms to procure additional orders. This result holds in both Bottleneck and Non-Bottleneck firms, as suggested by the stylized model in Section 3. The reduction in delays is larger in Non-Bottleneck firms: the probability of a delayed order falls by 19 percentage points, 76% relative to the control group mean and is statistically significant at the 10% level (column 4, Panel B of Table 4). In Bottleneck firms, the reduction in delays is smaller (6 percentage points), and not statistically significant.

These results suggest that reducing late arrivals benefits both firms and workers. I show that these gains are materialized through a better functioning production line, procuring more new orders, and fewer delivery delays in treatment firms. However, gains must be compared against the cost of incentivizing workers for timely arrival. The next section evaluates the profitability of incentives.

[31] Reassuringly, a third measure counting all but the last task on the production line (column 3 of Table A20) produces a similar point estimate as both the all tasks and last task measures.

6.5 Profitability of incentives

Timely arrival increases both firm revenues and labor costs. Table 5 reports estimates of weekly revenues, labor costs and profits. Total weekly firm revenues in treatment firms increased by INR 3,258, an 8% increase relative to the control mean of INR 39,000 (column 1), and total labor costs *excluding* the incentives increase by INR 1,640, a 9% increase relative to the control mean of INR 17,843 (column 2). This implies that if firms did not have to incentivize workers to achieve timely arrival, there would be an INR 1,617 increase in profits, about 8% of the control mean of INR 21,400 (column 5). This is statistically insignificant, but meaningful in terms of magnitude.

However, paying for these incentives costs more than the gain in revenues. The effect on weekly profits net of incentives is INR −981, a 5% reduction relative to the control mean (column 6). Even if incentives were only paid to "Late" and "Very Late" workers (while not a feasible contract) there would be no gain in profits (column 7).

Thus, while timely arrival improves firm outcomes, the incentives I offered in the experiment are too costly for firms. Recall that the choice of 20% daily bonus in this experiment was to maximize the first stage response from workers. These results don't rule out the existence of other less costly contracts that could incentivize timely arrival.

6.6 Why do firms tolerate lateness?

The results from the experiment establish that timely arrival does improve production output for workers and firms. These gains are larger when late arrivals create hold-ups on other workers, suggesting that coordination gains exist in these firms. Endline survey responses suggest that both firm owners and workers acknowledge these benefits, and attribute these gains to an increase in timely arrival (Figure A13).

However, only 26% said they would be willing to offer workers such incentives themselves, and were willing to pay INR 30 for a similar daily bonus on average (5% of daily earnings).[32] In the follow-up survey, there is no take-up of financial incentives by treatment firm owners or other measures to actively encourage timely arrival. This suggests that treatment firms reverted to the status quo form of organization and continue to allow late arrivals.

Why do firms tolerate lateness? Survey responses and workers' take-up of treatment incentives suggest this reflects large compensating differentials associated with incentivizing timely arrival. This is supported by two findings. First, workers strongly value flexibility in arrival times. 25% of workers in the sample are characterized as never-takers: workers in

[32] 19 out of 40 owners reported a willingness to pay of INR 0.

treatment firms who arrive late at least 80% of days despite being offered incentives. These workers demonstrate a willingness to pay for flexibility of at least 20% of their earnings. Second, 55% report having worked in large, export factories that enforced strict work schedules, and left those jobs because they prefer work schedules.

This preference is strongly tied to time commitments workers have outside of work. As shown earlier, workers report arriving late because of household and care-giving responsibilities, activities that make up most of their time before the workday. Workers in treatment firms were less likely to arrive late due to these reasons relative to control firm workers, and were more likely to arrive late because they lost track of time or got up late (Figure A14a). This suggests workers in treatment firms actively changed their morning routines to arrive on time. However, workers did not change the type of activities they did before work, but instead changed how much time they allocated to those activities. Figure A14b shows that workers in treatment firms were equally likely to perform household and caregiving tasks before work, but reported spending less time on them or delegating work to somebody else relative to control firm workers. Thus, workers' demand for flexibility reflects binding time commitments outside work.

7 Conclusion

This paper experimentally tests whether irregular labor supply affects firm outcomes in the context of a garment manufacturing cluster in India. I document that workers exercise considerable flexibility in when they arrive at work. At baseline, workers are late on 43% of worker-days, and the 10–90 gap in worker arrival times is over 2 hours. This stands in contrast to firm owners' preference to have workers arrive at a common time, given the production line based organization of firms.

A daily bonus equivalent to 20% of worker earnings successfully increases timely arrival in treatment firms by 43%, resulting in a 14% decrease in dispersion in arrival times at the firm level. This is a meaningful effect given the small size of these firms – incentives increase the share of present workers who arrive within the first 15 minutes of opening time from 60% to 80%, about one additional worker in a typical firm.

As a result of the incentives, weekly output per worker increases by 24% for the average worker. This partly reflects an increase in output per hour, given the relatively smaller increase in weekly work hours. More importantly, this increase is distributed equally among "Early" and "Late" workers in treatment firms, even though "Early" workers did not change their labor supply in response to the incentives, indicating the presence of positive spillovers within the firm.

These spillovers are present in firms where lateness creates the largest hold-ups along the production line, thus reflecting gains from better coordination along the production line. These gains translate almost one-to-one to total firm output: treatment firms produce 29% more in total output, and procure 21% more new orders relative to control firms. Treatment firms are also able to deliver orders with fewer delays, which is key for maintaining important client relationships. Average weekly revenues increase by 8% in treatment firms, and accounting for labor costs without incentives yields 8% higher profits. These results suggest that lateness negatively affects firm outcomes.

However, the incentives I offered for coordinating worker arrival times are too high, and not profitable for firm owners. Consistent with this, treatment firm owners report a low willingness to pay for such incentives, and I find no take-up of any kind of financial incentives by treatment firms, with little effort overall in enforcing timely arrival.

These results are consistent with a large compensating differential for incentivizing timely arrival in the local labor market where these firms operate, explaining why firms allow lateness in the status quo. Despite the 20% incentives, a substantial share of workers do not take up the incentives, suggesting workers place a high value on flexibility in whether and when to arrive at work (Breza and Kaur, 2025). These preferences reflect constraints workers face on their time outside of work that are related to missing or thin markets for services such as childcare, transportation (public transit, school buses), or the quality of public infrastructure (municipal water supply). Under such an environment, firm level incentives may not be sufficient to encourage timely arrival. My results therefore demonstrate the importance of policies aimed at improving the quality of such services in shaping workers' preference for flexibility, and thus firm outcomes.

Finally, in other survey work with workers across Tiruppur district, I document that the provision of flexibility varies systematically with firm size – small and medium firms are significantly more likely than large firms to offer their workers flexibility in work schedules. Consequently, there is sorting of workers into small (≤ 20 workers) versus large (> 20 workers) firms along gender, marital status and number of children, characteristics that are positively correlated with demand for flexibility (Table A21). While workers who work in small firms enjoy flexible work schedules, they do so at the cost of variable pay and lack of access to formal government benefits, such as state provided health insurance, social security, etc. To the extent that demand for flexibility affects workers' labor supply choices, such as whether to be self-employed, work as casual day labor (Oh et al., 2024; Cefala et al., 2024), or work in small firms without formal benefits, this can have important implications for the rate of wage-employment in developing countries. More research is needed to understand the

drivers of the demand for flexibility in developing countries, as well as the broader economic implications on the functioning of labor markets and firms in such settings.

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8 Tables

Table 1: Treatment Effects on Labor Supply: Overall and by Baseline Lateness

	Timely Arrival		**Work Hours**		**Attendance**	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment × During	0.18***	0.01	0.28	-0.05	0.02	0.02
	[0.03]	[0.04]	[0.29]	[0.42]	[0.03]	[0.04]
Treatment × During × Late		0.21***		0.42		-0.01
		[0.05]		[0.47]		[0.05]
Treatment × During × Very Late		0.35***		0.78		0.00
		[0.06]		[0.51]		[0.05]
Control Mean (Pre-Incentives)	.41	.41	6.45	6.45	.71	.71
Omitted Group Mean (Pre-Incentives)		.69		7.42		.78
Total Effect (T × During + Inter.)		0.22, 0.36		0.37, 0.73		0.02, 0.03
p-val Total Effect = 0		0.00, 0.00		0.26, 0.12		0.65, 0.55
Treatment Effect %	43	54, 88	4	6, 11	3	2, 4
Worker, Week FE	X	X	X	X	X	X
Day-of-week FE	X	X	X	X	X	X
N Worker-Days	17583	15852	16548	15272	17585	15853

Notes: Each column reports a separate regression from Equation 1 (odd columns) or Equation 3 (even columns), includes worker, day-of-week and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes days on which the firm was shut and no production took place. The even columns additionally drop workers with no measured pre-incentive arrival time. Timely arrival is an indicator for being present at the firm and arriving before the start time. Daily work hours are the total work duration net of breaks taken during the day, and are coded 0 on days the worker is absent. Attendance is an indicator for whether the worker was present at the firm that day. Odd columns report average effects for all workers; even columns report heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; the omitted group is "Early"). Total Effect reports the lincom of Treatment × During + Treatment × During × Interaction term ("Late"and "Very Late"are comma separated). Treatment Effect % reports the effect relative to the reported control mean.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Treatment Effects on Weekly Worker Output, Output per Hour and Earnings

	Weekly Output (SD)		**Output (SD) per Hour**		**Weekly Earnings (INR)**	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment × During	0.26**	0.22	0.007*	0.007	310.15	355.25
	[0.11]	[0.14]	[0.004]	[0.004]	[271.34]	[370.18]
Treatment × During × Late		0.06		-0.000		-72.57
		[0.12]		[0.004]		[339.13]
Control Mean (Pre-Incentives)	3873.79	3873.79	92.1	92.1	3505.3	3505.3
Control SD (Pre-Incentives)	3582.97	3582.97	68.21	68.21	3073.26	3073.26
Omitted Group Mean (Pre-Incentives)		3847.45		88.08		4042.68
Total Effect (T × During + Inter.)		0.28		0.007		282.68
p-val Total Effect = 0		0.02		0.12		0.32
Treatment Effect %	24	26	1	1	9	8
Worker, Week FE	X	X	X	X	X	X
N Worker-Weeks	2663	2663	2398	2398	2663	2663

Notes: Each column reports a separate regression from Equation 1 (odd columns) or Equation 3 (even columns) at the worker-week level, includes worker and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Worker output (SD) is the total quantity of pieces stitched by the worker in a week, across all tasks and products, normalized to pre-incentive product-level means and winsorized at the 99th percentile. Output per hour is worker output in standard deviation units divided by total weekly hours worked, and is only computed for weeks in which the worker was present at the firm on at least one day. Worker earnings sum the product of task-specific output and piece rates over the week, exclude incentive payments, are coded 0 on days the worker is absent, and are winsorized at the 99th percentile. The control mean and SD are in raw pieces per week (columns 1–2), raw pieces per hour (columns 3–4) and INR per week (columns 5–6). Odd columns report average effects for all workers; even columns report heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late"here pools "Late"and "Very Late"workers, and the omitted group is "Early"). Total Effect reports the lincom of Treatment × During + Treatment × During × Late. Treatment Effect % reports the effect relative to the reported control mean. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Treatment Effects on Weekly Worker Output in Bottleneck and Complex-Task Firms

Weekly Worker Output (SD units)							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall Treatment Effect							
Treatment × During	0.26**	0.36***	0.12	0.38**	0.48*	0.27	0.11
	[0.11]	[0.13]	[0.19]	[0.16]	[0.24]	[0.22]	[0.16]
p-val Bottleneck = Non-bottleneck		0.34					
p-val Any complex = No complex				0.26			
p-val Downstream = Upstream					0.48		
Panel B: Heterogeneity by Baseline Lateness							
Treatment × During	0.22	0.39**	-0.06	0.40**	0.51*	0.28	-0.04
	[0.14]	[0.19]	[0.19]	[0.19]	[0.28]	[0.26]	[0.19]
× Late	0.06	-0.05	0.40**	-0.04	-0.06	-0.01	0.23
	[0.12]	[0.17]	[0.17]	[0.18]	[0.27]	[0.24]	[0.16]
Total Effect (T × During + Late)	0.28	0.34	0.35	0.36	0.45	0.27	0.19
p-val Total Effect = 0	0.02	0.01	0.11	0.05	0.11	0.28	0.25
Control Mean (Pre-Incentives)	3873.79	3828.82	3933.42	3488.48	3441.48	3601.73	4320.85
Control SD (Pre-Incentives)	3582.97	3443.76	3768.8	3528.75	3636.15	3279.42	3616.53
Worker, Week FE	X	X	X	X	X	X	X
N Worker-Weeks	2663	1728	935	1495	929	566	1153
N Firms	92	52	40	44	27	17	47

Notes: Each column reports estimates from a separate sample of firms, from separate regressions using Equation 1 (Panel A) and Equation 3 (Panel B) at the worker-week level; all regressions include worker and round by week fixed effects and report standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Worker output (SD) is the total quantity of pieces stitched by the worker in a week, across all tasks and products, normalized to pre-incentive product-level means and winsorized at the 99th percentile. The control mean and SD are in raw pieces per week. Panel A reports the average effect for all workers, and Panel B reports heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late" here pools "Late" and "Very Late" workers, and the omitted group is "Early"). Bottleneck firms are firms with at least one upstream task worker who is "Late" or "Very Late" at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values in Panel A are from a single regression estimating total effects for each subset of firms, and test for equality of the two coefficients. Total Effect reports the lincom of Treatment × During + Treatment × During × Late.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Treatment Effects on Weekly Firm Output, New Orders and Order Delays

	Firm Output (SD) (worker-reported, daily)		**New Orders (SD)** (owner-reported, weekly)	**Delayed Order** (owner-reported, per order)
	All tasks	Last task		$\mathbb{1}\{\text{delay} > 1 \text{ day}\}$
	(1)	(2)	(3)	(4)
Panel A: All Firms				
Treatment × During	0.30*	0.21	0.27	-0.10
	[0.16]	[0.19]	[0.19]	[0.06]
Control Mean (Pre-Incentives)	23419.07	2785.89	4193.61	0.25
Control SD (Pre-Incentives)	22826.28	3381.37	3282.05	
p-val (T × D)	0.08	0.28	0.16	0.11
Treatment Effect %	29	25	21	-39
N Firm-Weeks	525	525	395	
N Orders				987
N Firms	92	92	87	88
Panel B: Total Effects for:				
Bottleneck Firms	0.46**	0.29	0.29	-0.06
	[0.21]	[0.29]	[0.28]	[0.07]
Non-Bottleneck Firms	0.13	0.11	0.23	-0.19*
	[0.27]	[0.21]	[0.22]	[0.10]
p-val Bottleneck = Non-Bottleneck	0.35	0.62	0.88	0.28
Firm, Week FE	X	X	X	X
N Firm-Weeks	525	525	391	
N Orders				981
N Firms	92	92	86	87
Panel C: Total Effects for:				
Complex Task Firms	0.43*	0.44*	0.39	-0.11
	[0.25]	[0.24]	[0.30]	[0.11]
No Complex Task Firms	0.16	-0.02	0.17	-0.10
	[0.22]	[0.31]	[0.24]	[0.07]
p-val Complex Task = No Complex Task	0.42	0.26	0.56	0.93
Firm, Week FE	X	X	X	X
N Firm-Weeks	520	520	387	
N Orders				970
N Firms	91	91	85	86

Notes: Each column reports a separate regression from Equation 2 and reports standard errors clustered at the firm level. Data for the regressions in columns 1–3 is at the firm-week level, and these regressions include firm and round by week fixed effects. Columns 1–2 report effects for two measures of total firm output constructed from the daily production data: total units stitched across all tasks (column 1), and total units of the finished garment, measured at the last task in the production line (column 2). Column 3 reports effects for the quantity of new orders received, reported by firm owners in the orders data. All output quantities are normalized to pre-incentive product-level means. Data for the regression in column 4 is at the firm-order level, and the regression includes firm and round by planned-delivery-week fixed effects. Column 4 reports effects for the probability that the delivery of an order was delayed, defined as delivery more than one day after the planned delivery date. An order is considered a pre-incentive order if its planned delivery date was before the incentive weeks; orders whose planned window straddles the start of the incentives are dropped. Panels B and C report the total effect of Treatment × During separately for each group of firms, from one regression that interacts Treatment × During and During with the group indicator. Bottleneck firms are firms with at least one upstream task worker who is "Late"or "Very Late"at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Treatment Effect % reports the effect relative to the reported control mean. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Treatment Effects on Weekly Firm Revenue, Labor Cost and Profit

		Labor Cost (INR)			Profit (INR)		
	Revenue (INR)		(+ incentives)	(+ incentives to late workers)		(− incentives)	(− incentives to late workers)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: All Firms							
Treatment × During	3258	1640	4239*	3105	1617	-981	153
	[4579]	[2301]	[2408]	[2349]	[2712]	[2687]	[2697]
Control Mean (Pre-Incentives)	39275.43	17843.57	17843.57	17843.57	21431.87	21431.87	21431.87
p-val (T × D)	0.48	0.48	0.08	0.19	0.55	0.72	0.95
Treatment Effect %	8	9	24	17	8	-5	1
N Firm-Weeks	525	525	525	525	525	525	525
N Firms	92	92	92	92	92	92	92
Panel B: Total Effects for:							
Bottleneck Firms	4127	2360	5299	4188	1767	-1172	-61
	[6297]	[3404]	[3534]	[3449]	[3285]	[3251]	[3265]
Non-Bottleneck Firms	1754	583	2540	1381	1172	-786	374
	[6553]	[2843]	[2982]	[2917]	[4510]	[4476]	[4499]
p-val Bottleneck = Non-Bottleneck	0.79	0.69	0.55	0.53	0.92	0.95	0.94
Firm, Week FE	X	X	X	X	X	X	X
N Firm-Weeks	525	525	525	525	525	525	525
N Firms	92	92	92	92	92	92	92
Panel C: Total Effects for:							
Complex Task Firms	9932	5456	8606**	7112*	4476	1326	2820
	[7233]	[4006]	[4128]	[4062]	[3888]	[3883]	[3877]
No Complex Task Firms	-3411	-2248	-214	-967	-1164	-3197	-2445
	[5849]	[2455]	[2591]	[2532]	[3835]	[3787]	[3809]
p-val Complex Task = No Complex Task	0.15	0.11	0.08	0.10	0.30	0.40	0.33
Firm, Week FE	X	X	X	X	X	X	X
N Firm-Weeks	520	520	520	520	520	520	520
N Firms	91	91	91	91	91	91	91

Notes: Each column reports a separate firm-week level regression from Equation 2, includes firm and round by week fixed effects, and reports standard errors clustered at the firm level. Column 1 reports effects on weekly firm revenue, the product of total units of the finished garment and the piece rate that owners earn. Columns 2–4 report effects on weekly labor costs, the product of total units of the finished garment and the total piece rate that workers earn across the product's tasks. Columns 5–7 report effects on weekly profits, revenues minus labor costs. Columns 3 and 6 include the cost of incentives paid to workers, and columns 4 and 7 include the cost of incentives paid to "Late"and "Very Late"workers only. Panels B and C report the total effect of Treatment × During separately for each group of firms, from one regression that interacts Treatment × During and During with the group indicator. Bottleneck firms are firms with at least one upstream task worker who is "Late"or "Very Late"at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Treatment Effect % reports the effect relative to the reported control mean. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

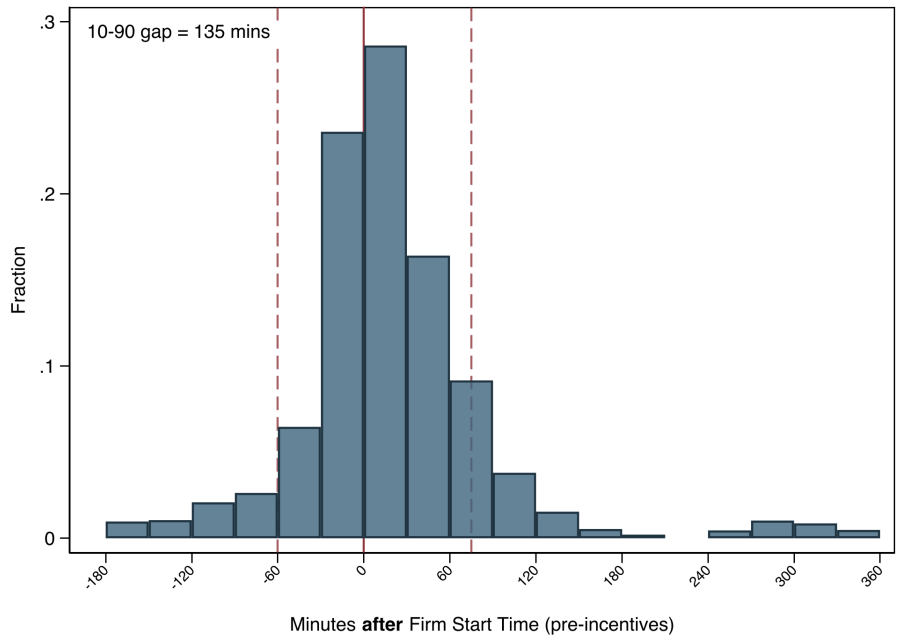
9 Figures

Figure 1: Stylized Production Line for T-Shirts



Notes: This figure presents a stylized example of a production line with 4 operations/tasks that make a T-Shirt. Firms receive cut panels of fabric which pass through a fixed sequence of stitching operations staffed by a distinct worker (tailor). One tailor first attaches the shoulders, passing on a batch to a second tailor who stitches the sleeves, followed by a third tailor who attaches the collar, and finally the fourth tailor who sews the bottom hem.

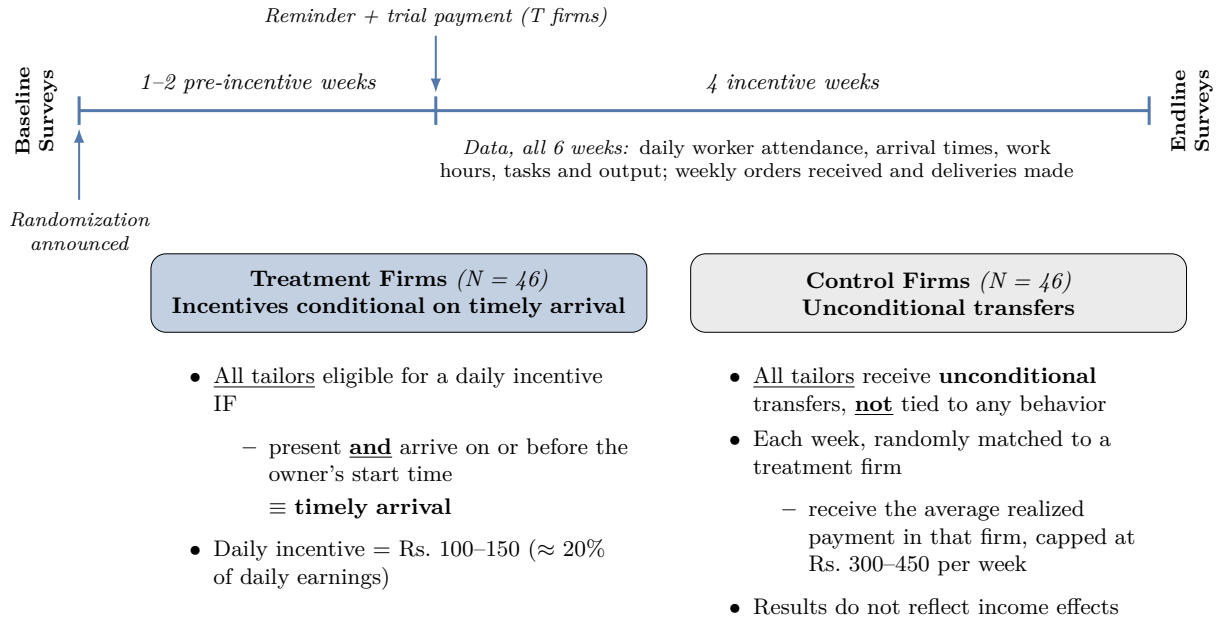
Figure 2: Worker Arrival Times Relative to the Owner's Preferred Start Time



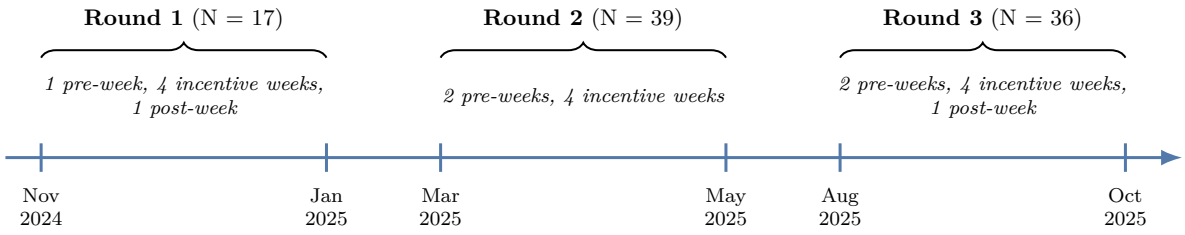
Notes: This figure plots the distribution of worker arrival times, in minutes relative to the owner's preferred start time, during the pre-incentive weeks in all 92 firms. The sample includes worker-days on which the worker was present. Owners' preferred start time was elicited during the baseline survey by asking owners to report when they would like all their workers to arrive at the firm. This time was announced to all workers during worker baseline surveys, which were conducted shortly after the owner baseline survey. Lateness is defined relative to this time: a worker is late (on-time) on a given day if they arrive after (before) their firm's start time. Arrival time deviation measures the difference in minutes between worker arrival times and the start time. The solid vertical line marks the preferred start time; dashed lines mark the 10th and 90th percentiles (a 10–90 gap of 135 minutes).

Figure 3: Experimental Design and Implementation Timeline

Panel A: Experiment Design



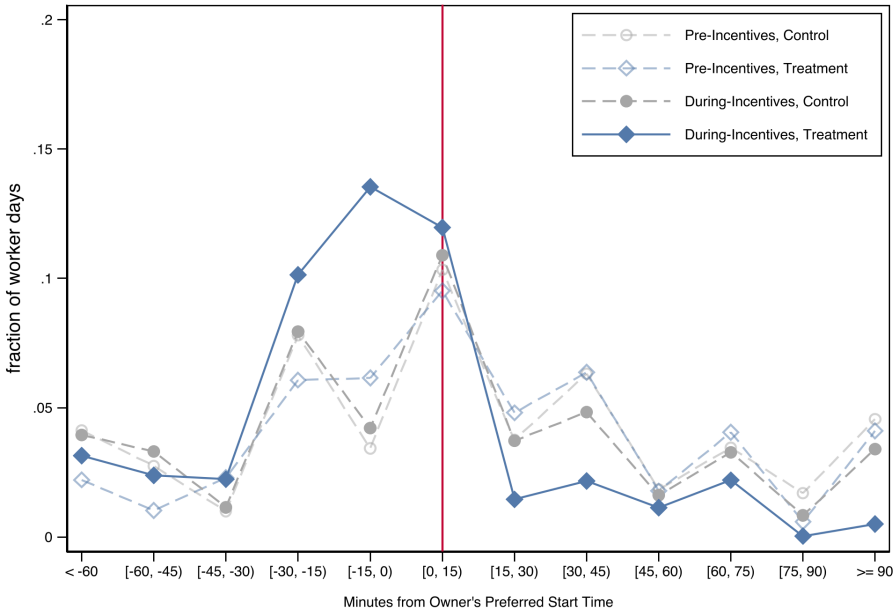
Panel B: Implementation Timeline



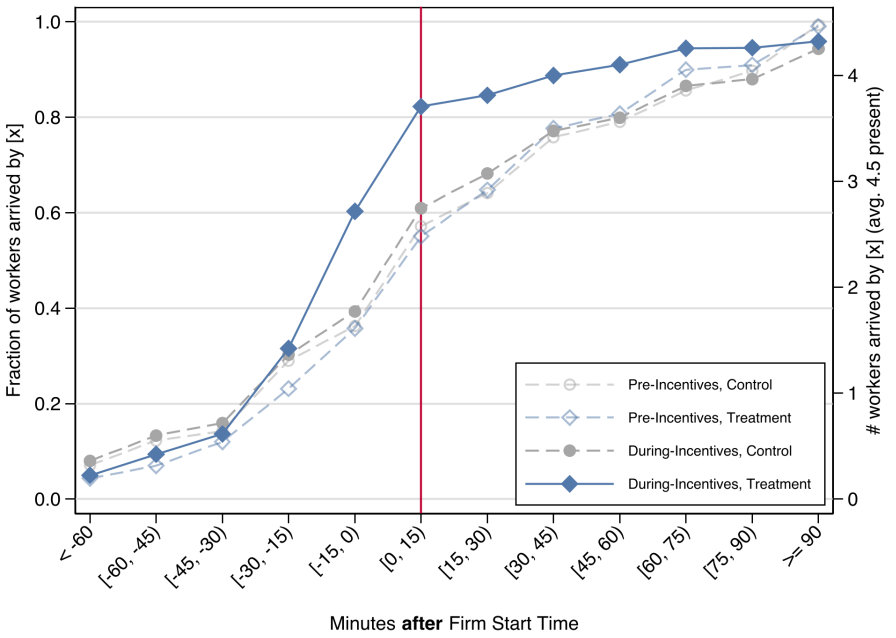
Notes: Panel A shows the 6-week study window in each firm and the two treatment arms. Panel B shows the three implementation rounds; N is the number of firms in the analysis sample in each round.

Figure 4: Treatment Effect on Worker Arrival Times

(a) Distribution of Arrival Times, by Treatment Status

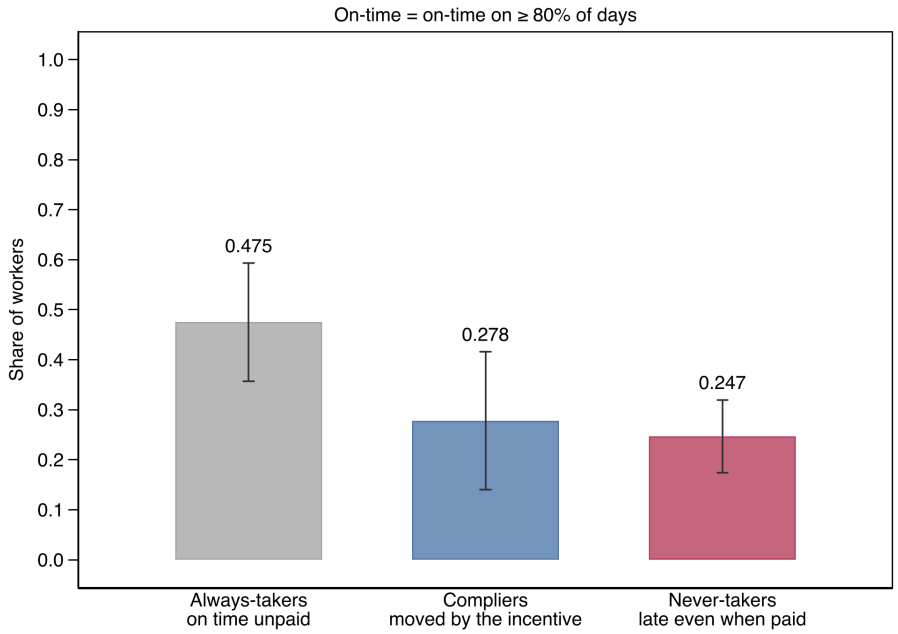


(b) Cumulative Share of Workers Arrived, by Treatment Status



Notes: Panel A plots the distribution of worker arrival times, binned in 15-minute intervals around the preferred start time, separately for treatment (blue) and control (gray) firms. Faint dashed lines show pre-incentive weeks; dark lines show incentive weeks. The sample includes worker-days on which the worker was present. The solid vertical line marks the preferred start time. Panel B plots the cumulative share of present workers who have arrived by each 15-minute interval around the preferred start time, separately for treatment (blue) and control (gray) firms. Faint dashed lines show pre-incentive weeks; dark lines show incentive weeks. The right axis reports the corresponding number of workers.

Figure 5: Worker Responses to the Incentive: Always-Takers, Compliers and Never-Takers



Notes: This figure plots the share of workers that are classified as always-takers, never-takers, and compliers based on their pre-incentive arrival times and response to the incentive workers during the four incentive weeks. A worker is on time if they arrive by the preferred start time on at least 80% of the days they are present. Always-takers are the share of control-firm workers who are on time throughout the six week period, never-takers are the share of treatment-firm workers workers in treatment firms who were not on time on at least 80% of their present days during the incentive weeks despite being offered incentives, and the compliers bar represents the remaining share of workers. Shares are estimated from a worker-level regression of the on-time indicator on treatment with strata fixed effects; bars show 95% confidence intervals with standard errors clustered at the firm level. The sample includes workers present on at least 5 incentive-week days. Treatment arms are pooled.

A Appendix Tables and Figures

Table A1: Flexible Work Timings and Owners' Concerns About Enforcement

	Mean	SD	N
Panel A: Baseline Survey			
Firm is flexible with work timings	0.85	(0.36)	92
Workers follow the same start time	0.24	(0.43)	75
Accepts a tailor arriving 5 minutes late	0.92	(0.27)	92
Accepts a tailor arriving up to 30 minutes late	0.87	(0.34)	92
Accepts a tailor arriving more than 30 minutes late	0.79	(0.41)	92
Panel B: Endline Survey – Expected Consequences of Imposing Work Timings			
Workers will leave the firm	0.53	(0.50)	90
Workers less willing to work extra hours	0.39	(0.49)	90
Harms relationship with workers	0.31	(0.47)	90
Workers less willing to accept payment delays	0.06	(0.23)	90
Other	0.11	(0.32)	90

Notes: Panel A reports owner responses from the baseline survey. "Workers follow the same start time" is from rounds 2 and 3 only. Panel B reports owner responses from the endline survey to: "Suppose you started to impose morning work timings without any incentive. What would happen?" Owners who answered that workers would leave were asked for a second consequence; each row counts owners who named the consequence in either answer, so shares sum to more than one. Responses do not differ between treatment and control firms (all $p > 0.70$, from a regression on a treatment indicator with strata fixed effects and robust standard errors).

Table A2: Variance Decomposition of Worker Arrival Times

	Timely Arrival	**Arrival deviation (mins)**
	(1)	(2)
Variance of outcome	0.245	2675.0
Panel A: Share of variance explained (R^2)		
Worker fixed effects (idiosyncratic preference)	0.548	0.582
Firm-day fixed effects (all common shocks)	0.434	0.476
Worker FE + firm-day FE	0.707	0.747
Panel B: Intra-class correlation		
Worker	0.483	0.522
Worker-days	3,585	3,584

Notes: Worker-day level, balanced panel of tailors, pre-incentive weeks, treatment and control pooled. Column (1) is restricted to days the worker was present. Each row in Panel A is the R-squared from a separate regression of the outcome on the listed terms, estimated on a common sample. These are shares of variance *explained*, not an orthogonal decomposition: worker identity and firm-day conditions are correlated, so the rows do not sum to the joint model. The firm-day row is an upper bound on everything common to a firm on a day, which includes anticipation of co-workers but also orders, power cuts and weather. Intra-class correlation is the share of variance in the outcome explained by stable differences across workers.

Table A3: Owner Predictions of Worker Arrival and Attendance (Control Firms)

Panel A: Precision of owner predictions

	Precision
Timely arrival	
Next day	0.627
Next 6 days	0.231
Attendance	
Next day	0.871
Next 6 days	0.571

Panel B: Predicted vs. actual timely arrival, next day

	Predicted on time	**Actually on time**
All workers	0.520	0.408
Early	0.643	0.643
Late (late and very late)	0.511	0.277

Notes: Data from Round 3, control firms only. Owners were shown a list of all tailors at their firm, and asked to select which workers would be on time (present) on the next production day, and on all production days in the next six days. Panel A: precision is the share of workers the owner selected for whom the prediction came true. Owners selected 51 (next day) and 52 (next six days) workers as on time, and 70 (next day) and 70 (next six days) as present. Panel B: share of workers the owner predicted would be on time the next day, and share who actually were. Early and Late indicate workers' classification based on average pre-incentive week arrival times, and Late pools Late and Very Late types.

Table A4: Balance on Baseline Firm Characteristics

	Control	Treatment	T - C	*p-value*
	Mean/SD	Mean/SD	Difference	
Firm Characteristics				
# Tailors	6.46	6.28	-0.14	0.82
	(2.96)	(2.98)		
# Helpers	1.63	1.33	-0.33	0.17
	(1.16)	(1.17)		
Total # Machines	11.67	11.13	-0.46	0.59
	(4.91)	(3.66)		
Owner directly supervises workers	0.91	0.98	0.06	0.21
	(0.28)	(0.15)		
Firm Age (yrs)	6.70	6.87	0.13	0.92
	(5.35)	(6.32)		
Export orders	0.13	0.17	0.04	0.57
	(0.34)	(0.38)		
Only stitching section	0.57	0.63	0.07	0.49
	(0.50)	(0.49)		
Weekly Output	4075.61	4505.00	416.85	0.45
	(2320.43)	(2881.50)		
Revenues (last 30 days)	132883.33	131582.22	-3398.37	0.87
	(119871.89)	(102436.01)		
Profits (last 30 days)	34295.43	26866.67	-7993.12	0.39
	(59062.99)	(18076.35)		
Total Costs - wage bill (last 30 days)	32489.09	33383.48	1137.34	0.79
	(20603.64)	(19107.20)		
Owner Demographics				
Age	39.41	38.39	-0.92	0.59
	(8.34)	(8.66)		
Male	0.85	0.80	-0.04	0.61
	(0.36)	(0.40)		
Completed Secondary School	0.59	0.59	0.00	0.98
	(0.50)	(0.50)		
Commute Time (mins)	6.35	8.54	2.22	0.20
	(6.73)	(9.29)		
Experience in Industry (yrs)	19.35	18.50	-0.96	0.64
	(10.49)	(9.68)		
Owner does stitching work	0.87	0.87	0.00	0.98
	(0.34)	(0.34)		
Owner stitches as a regular tailor	0.43	0.43	0.00	1.00
	(0.50)	(0.50)		
Observations	46	46		
Joint F-test p-value				0.644

Notes: This table reports means, mean differences by treatment group and p-values for baseline firm and owner characteristics. Mean differences and p-values are estimated using a regression of each variable on an indicator for treatment with phase x strata fixed effects, with robust standard errors. The joint F-test p-value is from a regression of treatment on all balance variables with strata fixed effects and robust SEs; missing values in weekly output, revenue, and profits are mean-imputed within strata for this test only.

Table A5: Balance on Baseline Worker Characteristics

	Control	Treatment	T - C	*p-value*
	Mean/SD	Mean/SD	Difference	
Age	37.25	36.60	-0.66	0.48
	(8.78)	(8.99)		
Male	0.45	0.42	-0.02	0.64
	(0.50)	(0.49)		
Married	0.87	0.84	-0.03	0.41
	(0.34)	(0.37)		
Has children $<$ 14 yrs	0.90	0.85	-0.05	0.73
	(1.27)	(1.17)		
Has elderly member in HH	0.35	0.41	0.05	0.28
	(0.48)	(0.49)		
Related to owner	0.21	0.21	0.00	1.00
	(0.41)	(0.41)		
Native to TN	0.92	0.96	0.04	0.15
	(0.27)	(0.20)		
Commute $<$ 15 mins	0.85	0.83	-0.03	0.46
	(0.36)	(0.38)		
Completed Secondary School	0.47	0.40	-0.06	0.18
	(0.50)	(0.49)		
Experience in Industry (yrs)	15.51	14.15	-1.40	0.16
	(9.30)	(9.60)		
Tenure at Firm (yrs)	2.59	2.36	-0.21	0.67
	(3.62)	(3.23)		
Observations	304	287		
Joint F-test p-value				0.178

Notes: This table reports means, mean differences by treatment group and p-values for baseline worker characteristics. Mean differences and p-values are estimated using a regression of each variable on an indicator for treatment with phase x strata fixed effects, with standard errors clustered at the firm level. The joint F-test p-value is from a regression of treatment on all balance variables with strata fixed effects and SEs clustered at the firm level.

Table A6: Worker Labor Supply and Production Outcomes - Pre Incentives

		Avg. Dev. in Arrival Time before incentives					By Gender		
	All workers	≤ 0 (Early)	∈ (0,30] mins (Late)		> 30 mins (Very Late)		Male	Female	
	mean	mean	mean	p-value L-E	mean	p-value VL-E	mean	mean	p-value F-M
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Attendance, Arrival Times									
Present	0.73	0.82	0.81	0.64	0.73	0.02	0.72	0.74	0.46
Complied w preferred start time	0.41	0.73	0.45	0.00	0.13	0.00	0.54	0.31	0.00
Dev. in Arrival Time (mins)	7.90	-27.44	10.94	0.00	47.62	0.00	-13.51	24.95	0.00
Dev. in Exit Time (mins)	-37.08	-32.68	-33.91	0.82	-51.23	0.01	-31.70	-41.35	0.00
Daily Work Hours	6.64	7.91	7.29	0.04	5.85	0.00	6.93	6.41	0.00
Total # Breaks	1.85	2.21	2.12	0.30	1.76	0.00	1.89	1.81	0.03
Total Break Duration - mins	59.39	69.22	67.53	0.53	55.60	0.00	61.82	57.42	0.04
Production									
Avg Task Piece Rate (INR)	0.93	1.35	1.29	0.50	1.34	0.93	1.18	0.72	0.01
Output per hour	91.96	91.07	93.32	0.74	81.78	0.24	92.67	91.40	0.15
Earnings per hour (INR)	74.56	82.90	78.12	0.24	80.05	0.54	84.57	66.60	0.00
Daily Earnings (INR)	511.50	679.06	607.10	0.05	538.60	0.00	609.85	431.83	0.00
Upstream Task	0.24	0.29	0.28	0.89	0.19	0.07	0.22	0.25	0.94
Downstream Task	0.23	0.29	0.19	0.09	0.17	0.02	0.30	0.17	0.00
Complex Singer Task	0.08	0.18	0.10	0.07	0.06	0.00	0.16	0.02	0.00
Non-tailoring work	0.11	0.12	0.16	0.14	0.10	0.36	0.11	0.12	0.13
Demographics									
Female	0.55	0.32	0.65	0.00	0.93	0.00			
Married	0.87	0.81	0.92	0.05	1.00	0.00	0.81	0.93	0.00
Has children < 14 yrs	0.52	0.52	0.60	0.27	0.50	0.80	0.51	0.52	0.81
Commute < 15 mins	0.84	0.81	0.86	0.33	0.88	0.25	0.81	0.87	0.15
Tenure at Firm	2.85	2.78	2.63	0.72	2.50	0.55	3.12	2.64	0.16
Experience in Industry (yrs)	15.19	16.70	13.94	0.05	13.44	0.02	18.31	12.80	0.00
Owner Baseline Ranking									
Punctual	0.18	0.28	0.11	0.01	-0.01	0.00	0.22	0.15	0.01
Reliable	0.19	0.22	0.17	0.47	0.08	0.04	0.25	0.15	0.00
Productive	0.18	0.25	0.09	0.02	0.02	0.00	0.21	0.16	0.07
Knowledgable about Prod.	0.18	0.23	0.09	0.02	0.10	0.13	0.25	0.13	0.00
benefit most from intervention	0.18	0.23	0.09	0.06	0.13	0.27	0.21	0.17	0.22
Observations	5084	1889	1399		1349		2277	2807	
Fraction of Workers		0.41	0.30		0.29		0.45	0.55	

Notes: Data at the worker-day level, includes 1-2 weeks of pre-incentives data, excludes days firm was closed. All outcomes coded as 0 if worker was absent. Columns (3) and (5) report the column (2) mean plus the coefficient from a regression of the outcome on lateness-group indicators with firm, day-of-week, phase-week and strata fixed effects; p-values test these coefficients, with standard errors clustered by firm. Piece rate and earnings are in INR.

Table A7: Worker Output and Earnings When an Upstream Worker Is Late

	All days	**1 active order**
	(1)	(2)
Panel A: Total pieces stitched (qty.)		
≥1 upstream worker late	-35.87	-121.48***
	[25.12]	[45.13]
Base mean (no upstream late)	981.72	910.47
Effect, % of base mean	-3.7%	-13.3%
Worker FE	X	X
Day-of-week FE	X	X
Firm-order FE	X	X
N	7460	2002
Panel B: Total earnings (INR)		
	(1)	(2)
≥1 upstream worker late	-21.66	-76.11**
	[20.45]	[33.11]
Base mean (no upstream late)	719.75	715.15
Effect, % of base mean	-3.0%	-10.6%
Worker FE	X	X
Day-of-week FE	X	X
Firm-order FE	X	X
N	7460	2002

Notes: Data at worker-order-day level, pre-incentive weeks + control firms. This table reports results from a regression of daily output and earnings for worker i, working on order o on day d on an indicator for whether another worker performing an upstream task on the same order arrived late that day. The sample includes midstream and downstream workers. Column 1 uses all such days; column 2 restricts to firm-days with one active order. All specs include worker, day-of-week, and firm-order fixed effects; SEs clustered at firm level, in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Simple vs Complex Singer Tasks

Statistic	Source	Simple	Complex	p-value
Fact 1: *Complex tasks take longer to complete*				
5-minute test output (pieces)	Productivity test	20.95	8.86	0.00
Pieces per hour	Production data	105.1	36.3	0.00
Fact 2: *Complex tasks are paid higher piece rates*				
Worker piece rate (INR per piece)	Production data	0.78	2.16	0.00
Fact 3: *Complex tasks are done by specialised singer tailors*				
Operates singer machine (share)	Worker baseline	0.05	0.92	0.00
Share of work-days on own task type	Production data	0.99	0.95	0.03
Share of work-days on other task type	Production data	0.02	0.07	0.23
Fact 4: *Complex-task tailors arrive earlier, and are less likely to be female*				
Minutes after preferred start time	Attendance data	12.5	-21.2	0.00
Early (share)	Attendance data	0.38	0.74	0.00
Female (share)	Worker baseline	0.60	0.16	0.00

Notes: This table compares simple (power-table) and complex singer tasks and tailors in the pre-incentive period (week ≤ 0). Facts 1 and 2 are at the firm-task level (1,549 simple and 165 complex firm-tasks), except pieces per hour. Facts 3 and 4 and pieces per hour are at the worker level. Workers are grouped by their modal task in the pre-incentive period (361 simple-task and 61 complex-task tailors). 5-minute test output is from the productivity test on the corresponding task, averaged across weeks. Shares of work-days are the fraction of each tailor's pre-incentive work-days on which they did at least one task of that type. p-values are from a regression of each statistic on an indicator for complex tasks (tailors), with firm fixed effects and standard errors clustered at the firm level.

Table A9: Bottleneck and Complex-Task Firms

Panel A: Treatment and Firm Classification				
	Bottleneck	Complex Task	Complex Downstream	Complex Upstream
Control mean	0.52	0.47	0.33	0.13
Treatment mean	0.61	0.50	0.26	0.24
T - C	0.08	0.04	-0.05	0.09
p-value	0.42	0.68	0.59	0.24
Firms	92	91	91	91

Panel B: Overlap of Bottleneck and Complex-Task Firms (Firm Counts)					
	No Complex	Complex Downstream	Complex Upstream	All Complex	Total
Non-bottleneck	21	12	6	18	39
Bottleneck	26	15	11	26	52
Total	47	27	17	44	91
Share bottleneck	0.55	0.56	0.65	0.59	0.57
Correlation (bottleneck, complex task)			0.04		
Fisher exact p-value			0.83		

Notes: Panel A regresses each firm classification on a treatment indicator with strata fixed effects and robust standard errors. Bottleneck firms have at least one upstream worker late at baseline. Complex-task firms produce at least one baseline style with a complex (singer) task. In complex-downstream firms, the complex task follows a plain-tailor task in at least one baseline style; the remaining complex-task firms are complex-upstream. Panel B reports firm counts. The correlation is between the bottleneck and complex-task indicators; the p-value is from Fisher's exact test.

Table A10: Balance on Baseline Firm Characteristics Within Firm Subsamples

	Bottleneck			Non-Bottleneck			Complex Task			No Complex Task		
	Control Mean/SD	T - C	p	Control Mean/SD	T - C	p	Control Mean/SD	T - C	p	Control Mean/SD	T - C	p
Firm Characteristics												
# Tailors	6.88	0.21	0.78	6.00	-0.94	0.30	8.33	-1.26	0.18	4.96	0.34	0.58
	(3.03)			(2.88)			(2.96)			(1.85)		
# Helpers	1.71	0.06	0.86	1.55	-1.03	0.00	1.86	-0.89	0.01	1.42	0.14	0.69
	(1.12)			(1.22)			(1.11)			(1.21)		
Total # Machines	12.46	-0.25	0.84	10.82	-1.11	0.36	14.71	-1.89	0.12	9.12	0.33	0.75
	(5.12)			(4.63)			(4.74)			(3.47)		
Owner directly supervises workers	1.00	-0.04	0.32	0.82	0.22	0.05	0.90	0.09	0.17	0.92	0.04	0.56
	(0.00)			(0.39)			(0.30)			(0.28)		
Firm Age (yrs)	7.25	-0.86	0.57	6.09	1.76	0.48	6.05	1.74	0.44	7.38	-1.11	0.48
	(5.75)			(4.93)			(4.19)			(6.28)		
Export orders	0.21	-0.05	0.68	0.05	0.17	0.17	0.10	0.08	0.47	0.17	0.01	0.91
	(0.41)			(0.21)			(0.30)			(0.38)		
Only stitching section	0.58	0.20	0.09	0.55	0.08	0.62	0.38	0.18	0.24	0.71	0.02	0.91
	(0.50)			(0.51)			(0.50)			(0.46)		
Weekly Output	4071.43	1011.00	0.22	4080.00	-265.72	0.73	4342.11	-625.22	0.31	3766.67	1533.99	0.07
	(2226.46)			(2473.35)			(2115.11)			(2544.27)		
Business Finances												
Revenues (last 30 days)	164822.73	-10263.93	0.74	97750.00	-926.11	0.97	177689.47	-38522.85	0.25	94772.73	29930.26	0.23
	(147004.13)			(68131.36)			(152306.85)			(69461.83)		
Profits (last 30 days)	41473.09	-15464.70	0.35	26400.00	-3575.22	0.50	47547.79	-14830.10	0.39	22363.64	603.23	0.89
	(80788.65)			(13732.02)			(85814.16)			(13608.63)		
Total Costs - wage bill (last 30 days)	32974.92	9348.70	0.08	31959.09	-8014.47	0.27	36452.76	-4867.99	0.23	30128.75	4445.11	0.55
	(15369.40)			(25502.64)			(15912.41)			(23653.51)		
Owner Demographics												
Age	38.92	-1.37	0.53	39.95	2.86	0.30	39.48	0.11	0.97	39.92	-2.36	0.33
	(7.85)			(8.99)			(8.94)			(7.65)		
Male	0.75	0.01	0.94	0.95	-0.15	0.23	0.95	-0.10	0.30	0.75	-0.01	0.92
	(0.44)			(0.21)			(0.22)			(0.44)		
Completed Secondary School	0.54	0.02	0.91	0.64	-0.15	0.36	0.76	-0.08	0.58	0.42	0.06	0.71
	(0.51)			(0.49)			(0.44)			(0.50)		
Commute Time (mins)	5.88	2.42	0.32	6.86	1.40	0.65	7.67	0.59	0.81	5.25	2.93	0.28
	(6.58)			(7.00)			(6.78)			(6.76)		
Experience in Industry (yrs)	17.62	-0.80	0.77	21.23	1.35	0.71	19.71	-2.57	0.39	19.62	-0.06	0.98
	(9.66)			(11.25)			(9.51)			(11.29)		
Owner does stitching work	0.92	-0.02	0.78	0.82	-0.00	1.00	0.86	0.04	0.67	0.88	-0.02	0.80
	(0.28)			(0.39)			(0.36)			(0.34)		
Owner stitches as a regular tailor	0.42	-0.01	0.97	0.45	-0.05	0.78	0.33	-0.04	0.78	0.54	0.10	0.45
	(0.50)			(0.51)			(0.48)			(0.51)		
Firms (Control / Treatment)	24 / 28			22 / 18			21 / 23			24 / 23		

Notes: This table reports balance between treatment and control firms within four subsamples. Bottleneck firms have at least one upstream worker who was late at baseline. Complex-task firms produce at least one baseline style with a complex (singer) task. For each subsample, the table reports the control mean (SD in parentheses), the treatment–control difference, and its p-value. Differences and p-values are from a regression of each variable on a treatment indicator with strata fixed effects and robust standard errors.

Table A11: Treatment Effects on Dispersion in Arrival Times - Firm Level

	Mins between 1st and last worker	**Mins between the 10th and 90th pctile worker**	**Deviation from start-time: 90th pctile worker**
	(1)	(2)	(3)
T × During	-17.76*	-11.48**	-16.50***
	[9.21]	[4.98]	[4.93]
Control Mean (Pre-Incentives)	128.43	90.47	48.76
Control Mean (Incentive Weeks)	113.67	77.18	34.89
Treatment Effect %	-14	-13	-34
Firm, Week FE	X	X	X
Day-of-week FE	X	X	X
N Firm-Days	2607	2607	2607

Notes: Each column reports a separate firm-day level regression from Equation 2, includes firm, day-of-week and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes days on which the firm was shut and no production took place. Outcomes are in minutes and are only computed for firm-days on which more than one worker was present. Column 1 is the time between the first and the last worker's arrival, column 2 is the time between the 10th and 90th percentile worker's arrival, and column 3 is the 90th percentile worker's arrival time relative to the firm's start time. Treatment Effect % reports the effect relative to the reported control mean.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Treatment Effects on Deviation from Start Time

	Deviation from Start Time (mins)	
	(1)	(2)
Treatment × During	-11.18***	0.51
	[2.74]	[2.60]
Treatment × During × Late		-12.76***
		[2.74]
Treatment × During × Very Late		-27.59***
		[4.49]
Control Mean (Pre-Incentives)	5.59	5.59
Omitted Group Mean (Pre-Incentives)		-30.73
Total Effect (T × During + Inter.)		-12.25, -27.08
p-val Total Effect = 0		0.00, 0.00
Treatment Effect %	-200	-219, -484
Worker, Week FE	X	X
Day-of-week FE	X	X
N Worker-Days	12437	12308

Notes: Each column reports a separate regression from Equation 1 (odd columns) or Equation 3 (even columns), includes worker, day-of-week and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes days on which the firm was shut and no production took place. The outcome is the difference in minutes between the worker's arrival time and the firm's start time, on days the worker is present. Odd columns report average effects for all workers; even columns report heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; the omitted group is "Early"). Total Effect reports the lincom of Treatment × During + Treatment × During × Interaction term ("Late"and "Very Late"are comma separated). Treatment Effect % reports the effect relative to the reported control mean.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Treatment Effects on Breaks and Exit Times

	# Breaks		Break Duration (mins)		𝕀{Left Before Closing}		Mins after Closing Time	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment × During	0.16	0.06	3.63	1.62	-0.01	-0.02	-7.30	-14.58
	[0.10]	[0.14]	[3.16]	[4.32]	[0.03]	[0.04]	[7.40]	[9.12]
Treatment × During × Late		0.07		1.16		0.00		7.33
		[0.17]		[5.29]		[0.05]		[7.91]
Treatment × During × Very Late		0.30*		6.93		0.03		17.60*
		[0.15]		[5.32]		[0.06]		[9.51]
Control Mean (Pre-Incentives)	1.85	1.85	59.26	59.26	.57	.57	-38.56	-38.56
Omitted Group Mean (Pre-Incentives)		2.19		67.95		.63		-38.38
Total Effect (T × During + Inter.)		0.14, 0.36		2.78, 8.55		-0.01, 0.01		-7.24, 3.02
p-val Total Effect = 0		0.30, 0.02		0.49, 0.08		0.75, 0.78		0.32, 0.75
Treatment Effect %	9	7, 19	6	5, 14	-2	-2, 3	19	19, -8
Worker, Week FE	X	X	X	X	X	X	X	X
Day-of-week FE	X	X	X	X	X	X	X	X
N Worker-Days	17585	15853	17585	15853	17585	15853	12240	12112

Notes: Each column reports a separate regression from Equation 1 (odd columns) or Equation 3 (even columns), includes worker, day-of-week and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes days on which the firm was shut and no production took place. The number of breaks and total break duration (in minutes) are coded 0 on days the worker is absent. 𝕀{Left Before Closing} is an indicator for leaving the firm before its closing time, and is coded 0 on days the worker is absent. Minutes after closing time is the time the worker left the firm minus the firm's closing time, and is only defined on days the worker is present. Odd columns report average effects for all workers; even columns report heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; the omitted group is "Early"). Total Effect reports the lincom of Treatment × During + Treatment × During × Interaction term ("Late"and "Very Late"are comma separated). Treatment Effect % reports the effect relative to the reported control mean.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A14: Treatment Effects on Helper Attendance: Bottleneck and Complex-Task Splits

Fraction of Helpers Present							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment × During	0.03	0.00	0.06	0.04	0.06	-0.01	0.04
	[0.04]	[0.05]	[0.06]	[0.05]	[0.08]	[0.09]	[0.05]
p-val Bottleneck = Non-bottleneck		0.44					
p-val Any complex = No complex				0.93			
p-val Downstream = Upstream					0.53		
Control Mean (Pre-Incentives)	.83	.83	.82	.81	.83	.76	.84
Firm, Week FE	X	X	X	X	X	X	X
Day-of-week FE	X	X	X	X	X	X	X
N Firm-Days	3039	1724	1315	1483	914	569	1527
N Firms	92	52	40	44	27	17	47

Notes: Each column reports estimates from a separate sample of firms, from firm-day level regressions using Equation 2; all regressions include firm, day-of-week and round by week fixed effects and report standard errors clustered at the firm level. The sample of these regressions excludes days on which the firm was shut and no production took place. The outcome is the fraction of the firm's helpers who are present at the firm that day. Bottleneck firms are firms with at least one upstream task worker who is "Late"or "Very Late"at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values are from a single regression estimating total effects for each subset of firms, and test for equality of the two coefficients.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A15: Weekly Worker Earnings

	Weekly Earnings (INR)			
	excl. Incentives		incl. Incentives	
	(1)	(2)	(3)	(4)
Treatment × During	310.15	355.25	817.37***	948.28**
	[271.34]	[370.18]	[276.26]	[376.17]
Treatment × During × Late		-72.57		-210.63
		[339.13]		[350.92]
Control Mean (Pre-Incentives)	3505.3	3505.3	3505.3	3505.3
Omitted Group Mean (Pre-Incentives)		4042.68		4042.68
Total Effect (T × During + Inter.)		282.68		737.64
p-val Total Effect = 0		0.32		0.01
Treatment Effect %	9	8	23	21
Worker, Week FE	X	X	X	X
N Worker-Weeks	2663	2663	2663	2663
N Firms	92	92	92	92

Notes: Each column reports a separate regression from Equation 1 (odd columns) or Equation 3 (even columns) at the worker-week level, includes worker and round by week fixed effects, and reports standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Worker earnings sum the product of task-specific output and piece rates over the week, are coded 0 on days the worker is absent, and are winsorized at the 99th percentile. Columns 1–2 exclude incentive payments; columns 3–4 add the incentive payments made to workers in treatment firms. The control mean is in INR per week. Odd columns report average effects for all workers; even columns report heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late" here pools "Late" and "Very Late" workers, and the omitted group is "Early"). Total Effect reports the lincom of Treatment × During + Treatment × During × Late. Treatment Effect % reports the effect relative to the reported control mean.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A16: Worker Earnings: Bottleneck and Complex-Task Splits

Weekly Worker Earnings (INR)							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall Treatment Effect							
Treatment × During	310.15	525.22	112.03	584.51	872.64	-15.60	-3.79
	[271.34]	[350.27]	[410.20]	[443.42]	[670.34]	[505.68]	[286.73]
p-val Bottleneck = Non-bottleneck		0.45					
p-val Any complex = No complex				0.28			
p-val Downstream = Upstream					0.26		
Panel B: Heterogeneity by Baseline Lateness							
Treatment × During	355.25	743.00	-240.79	785.33	1191.69	17.62	-239.51
	[370.18]	[514.17]	[493.38]	[575.52]	[818.22]	[738.23]	[339.99]
× Late	-72.57	-312.95	786.72*	-351.06	-565.05	-57.29	349.37
	[339.13]	[456.64]	[464.62]	[533.63]	[754.32]	[636.60]	[278.55]
Total Effect (T × During + Late)	282.68	430.05	545.93	434.27	626.64	-39.67	109.86
p-val Total Effect = 0	0.32	0.22	0.18	0.35	0.38	0.93	0.71
Control Mean (Pre-Incentives)	3505.3	3946.21	2920.79	4206.35	4296.99	3988	2609.05
Control SD (Pre-Incentives)	3073.26	3515.53	2242.25	3641.05	3954.74	2756.95	1846.17
Worker, Week FE	X	X	X	X	X	X	X
N Worker-Weeks	2663	1728	935	1495	929	566	1153
N Firms	92	52	40	44	27	17	47

Notes: Each column reports estimates from a separate sample of firms, from separate regressions using Equation 1 (Panel A) and Equation 3 (Panel B) at the worker-week level; all regressions include worker and round by week fixed effects and report standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Worker earnings sum the product of task-specific output and piece rates over the week, exclude incentive payments, are coded 0 on days the worker is absent, and are winsorized at the 99th percentile. The control mean and SD are in INR per week. Panel A reports the average effect for all workers, and Panel B reports heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late" here pools "Late" and "Very Late" workers, and the omitted group is "Early"). Bottleneck firms are firms with at least one upstream task worker who is "Late" or "Very Late" at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values in Panel A are from a single regression estimating total effects for each subset of firms, and test for equality of the two coefficients. Total Effect reports the lincom of Treatment × During + Treatment × During × Late.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A17: Worker Output per Hour: Bottleneck and Complex-Task Splits

Weekly Output (SD) per Hour							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall Treatment Effect							
Treatment × During	0.007*	0.010**	0.005	0.011**	0.012	0.009*	0.000
	[0.004]	[0.004]	[0.007]	[0.005]	[0.008]	[0.005]	[0.006]
p-val Bottleneck = Non-bottleneck		0.64					
p-val Any complex = No complex				0.20			
p-val Downstream = Upstream					0.65		
Panel B: Heterogeneity by Baseline Lateness							
Treatment × During	0.007	0.011**	0.000	0.011*	0.015	0.006	-0.000
	[0.004]	[0.005]	[0.007]	[0.007]	[0.009]	[0.007]	[0.005]
× Late	-0.000	-0.002	0.010	-0.001	-0.006	0.004	0.001
	[0.004]	[0.004]	[0.010]	[0.006]	[0.009]	[0.010]	[0.005]
Total Effect (T × During + Late)	0.007	0.009	0.011	0.011	0.010	0.011	0.000
p-val Total Effect = 0	0.12	0.05	0.23	0.08	0.30	0.09	0.94
Control Mean (Pre-Incentives)	92.1	88.49	96.91	79.81	78.41	83.07	107.01
Control SD (Pre-Incentives)	68.21	61.82	75.82	65.23	68.48	57.28	69.15
Worker, Week FE	X	X	X	X	X	X	X
N Worker-Weeks	2398	1570	828	1352	842	510	1031
N Firms	92	52	40	44	27	17	47

Notes: Each column reports estimates from a separate sample of firms, from separate regressions using Equation 1 (Panel A) and Equation 3 (Panel B) at the worker-week level; all regressions include worker and round by week fixed effects and report standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Output per hour is worker output in standard deviation units divided by total weekly hours worked, and is only computed for weeks in which the worker was present at the firm on at least one day. Coefficients are in SD per hour; the control mean and SD are in raw pieces per hour. Panel A reports the average effect for all workers, and Panel B reports heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late" here pools "Late" and "Very Late" workers, and the omitted group is "Early"). Bottleneck firms are firms with at least one upstream task worker who is "Late" or "Very Late" at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values in Panel A are from a single regression estimating total effects for each subset of firms, and test for equality of the two coefficients. Total Effect reports the lincom of Treatment × During + Treatment × During × Late.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A18: Treatment Effects on Weekly Worker Output in Bottleneck and Complex-Task Firms: ANCOVA

Weekly Worker Output (SD units)							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall Treatment Effect							
Treatment × During	0.19*	0.30**	0.11	0.23	0.38*	0.02	0.18
	[0.10]	[0.13]	[0.19]	[0.16]	[0.22]	[0.26]	[0.19]
p-val Bottleneck = Non-bottleneck		0.39					
p-val Any complex = No complex				0.79			
p-val Downstream = Upstream					0.22		
Panel B: Heterogeneity by Baseline Lateness							
Treatment × During	0.12	0.36*	-0.05	0.25	0.47*	-0.04	-0.08
	[0.14]	[0.20]	[0.17]	[0.19]	[0.27]	[0.25]	[0.25]
× Late	0.13	-0.08	0.40*	-0.03	-0.17	0.12	0.42*
	[0.15]	[0.21]	[0.21]	[0.21]	[0.34]	[0.21]	[0.21]
Total Effect (T × During + Late)	0.25	0.27	0.35	0.22	0.31	0.08	0.34
p-val Total Effect = 0	0.04	0.06	0.21	0.29	0.30	0.79	0.08
Control Mean (Pre-Incentives)	3873.79	3828.82	3933.42	3488.48	3441.48	3601.73	4320.85
Control SD (Pre-Incentives)	3582.97	3443.76	3768.8	3528.75	3636.15	3279.42	3616.53
Round by Week, Strata FE	X	X	X	X	X	X	X
N Worker-Weeks	1793	1171	622	1006	616	390	775
N Firms	91	52	39	44	27	17	46

Notes: Each column reports estimates from a separate sample of firms, from ANCOVA regressions estimated on incentive weeks only, at the worker-week level. All specifications control for the worker's mean output in the pre-incentive weeks and the firm's number of workers late at baseline, include round by week and strata fixed effects, and report standard errors clustered at the firm level; Panel B also controls for the worker's own baseline lateness. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. Worker output (SD) is the total quantity of pieces stitched by the worker in a week, across all tasks and products, normalized to pre-incentive product-level means and winsorized at the 99th percentile. The control mean and SD are in raw pieces per week. Panel A reports the average effect for all workers, and Panel B reports heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late"here pools "Late"and "Very Late"workers, and the omitted group is "Early"). Bottleneck firms are firms with at least one upstream task worker who is "Late"or "Very Late"at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values in Panel A are from a single ANCOVA regression estimating total effects for each subset of firms, with group-specific controls, and test for equality of the two coefficients. Total Effect reports the lincom of Treatment × During + Treatment × During × Late.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A19: Non-Production Tasks: Bottleneck and Complex-Task Splits

$\mathbb{1}${Did any non-production tasks at the firm}							
		Bottleneck		Complex Task			
	All Firms	Bottleneck	Non-Bottleneck	Any Complex	Complex Downstream	Complex Upstream	No Complex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall Treatment Effect							
Treatment × During	-0.03	-0.04*	0.01	-0.01	0.00	-0.01	-0.04
	[0.03]	[0.03]	[0.06]	[0.04]	[0.04]	[0.08]	[0.05]
p-val Bottleneck = Non-bottleneck		0.39					
p-val Any complex = No complex				0.68			
p-val Downstream = Upstream					0.74		
Panel B: Heterogeneity by Baseline Lateness							
Treatment × During	-0.01	-0.04	0.01	0.01	-0.00	0.06	-0.04
	[0.04]	[0.03]	[0.07]	[0.05]	[0.04]	[0.10]	[0.06]
× Late	-0.03	-0.01	-0.01	-0.05	0.01	-0.13	0.00
	[0.03]	[0.03]	[0.09]	[0.04]	[0.04]	[0.08]	[0.04]
Total Effect (T × During + Late)	-0.04	-0.05	0.01	-0.03	0.01	-0.07	-0.04
p-val Total Effect = 0	0.28	0.07	0.92	0.45	0.90	0.40	0.46
Control Mean (Pre-Incentives)	.16	.15	.17	.16	.16	.17	.15
Control SD (Pre-Incentives)	.36	.35	.38	.37	.36	.37	.36
Worker, Week FE	X	X	X	X	X	X	X
Day-of-week FE	X	X	X	X	X	X	X
N Worker-Days	12425	8145	4280	6956	4368	2588	5386
N Firms	92	52	40	44	27	17	47

Notes: Each column reports estimates from a separate sample of firms, from separate regressions using Equation 1 (Panel A) and Equation 3 (Panel B) at the worker-day level; all regressions include worker, day-of-week and round by week fixed effects and report standard errors clustered at the firm level. The sample of these regressions excludes owners and co-owners who also stitch at the firm, and days on which the firm was shut and no production took place. The sample is further restricted to days on which the worker is present. The outcome is an indicator for doing any non-production (helper) task or other work at the firm that day. Panel A reports the average effect for all workers, and Panel B reports heterogeneity by worker type, defined using average arrival times during pre-incentive weeks ("Late": 0–30 minutes after the start time, "Very Late": more than 30 minutes after the start time; "Late" here pools "Late" and "Very Late" workers, and the omitted group is "Early"). Bottleneck firms are firms with at least one upstream task worker who is "Late" or "Very Late" at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Among Complex Task firms, Complex Downstream firms have the complex task downstream of a simple task in at least one baseline style, and Complex Upstream firms are the remaining Complex Task firms. p-values in Panel A are from a single regression estimating total effects for each subset of firms, and test for equality of the two coefficients. Total Effect reports the lincom of Treatment × During + Treatment × During × Late.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A20: Treatment Effects on Weekly Firm Output and New Orders, Weeks 1–3

	Firm Output (SD) (worker-reported, daily)			**New Orders (SD)** (owner-reported, weekly)
	All tasks	Last task	All but last	
	(1)	(2)	(3)	(4)
Panel A: All Firms				
Treatment × During	0.33*	0.31	0.33*	0.26
	[0.17]	[0.20]	[0.18]	[0.19]
Control Mean (Pre-Incentives)	23419.07	2785.89	20633.18	4193.61
Control SD (Pre-Incentives)	22826.28	3381.37	20157.05	3282.05
p-val (T × D)	0.06	0.11	0.07	0.17
Treatment Effect %	32	38	32	20
N Firm-Weeks	434	434	434	334
N Firms	92	92	92	87
Panel B: Total Effects for:				
Bottleneck Firms	0.46*	0.42	0.50**	0.30
	[0.24]	[0.30]	[0.24]	[0.27]
Non-Bottleneck Firms	0.20	0.15	0.17	0.18
	[0.26]	[0.23]	[0.28]	[0.22]
p-val Bottleneck = Non-Bottleneck	0.48	0.49	0.38	0.72
Firm, Week FE	X	X	X	X
N Firm-Weeks	434	434	434	331
N Firms	92	92	92	86
Panel C: Total Effects for:				
Complex Task Firms	0.48*	0.53**	0.48*	0.38
	[0.26]	[0.25]	[0.27]	[0.29]
No Complex Task Firms	0.18	0.09	0.18	0.16
	[0.24]	[0.31]	[0.24]	[0.24]
p-val Complex Task = No Complex Task	0.41	0.29	0.42	0.57
Firm, Week FE	X	X	X	X
N Firm-Weeks	430	430	430	328
N Firms	91	91	91	85

Notes: Each column reports a separate firm-week level regression from Equation 2, includes firm and round by week fixed effects, and reports standard errors clustered at the firm level. Columns 1–3 report effects for three measures of total firm output constructed from the daily production data: total units stitched across all tasks (column 1), total units of the finished garment, measured at the last task in the production line (column 2), and total units stitched across all tasks except the last (column 3). Column 4 reports effects for the quantity of new orders received, reported by firm owners in the orders data. All output quantities are normalized to pre-incentive product-level means. Panels B and C report the total effect of Treatment × During separately for each group of firms, from one regression that interacts Treatment × During and During with the group indicator. Bottleneck firms are firms with at least one upstream task worker who is "Late"or "Very Late"at baseline; Non-Bottleneck firms are the remaining firms. Complex Task firms are firms with at least one style at baseline that includes a complex task (a task performed on a Singer machine); No Complex Task firms are the remaining firms. Restricted to weeks 1–3 of the incentive period. Treatment Effect % reports the effect relative to the reported control mean. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A21: Flexibility by Firm Size

	Small Firms		Large Firms	
	Mean	SD	Mean	SD
Pay Structure				
Piece Rate	0.90	(0.30)	0.60	(0.49)
Shift Rate	0.06	(0.23)	0.40	(0.49)
Average Monthly Earnings (Rs.)	16087.43	(5899.93)	16713.75	(5323.63)
Work Timings				
Timings Same	0.49	(0.50)	0.77	(0.42)
Timings Strict	0.15	(0.36)	0.50	(0.51)
Entry time is recorded	0.03	(0.17)	0.50	(0.51)
Pay cut if late	0.06	(0.23)	0.40	(0.49)
Margin of Lateness				
Acceptable to be 5 minutes late	0.97	(0.17)	0.94	(0.24)
Acceptable to be <= 30 minutes late	0.91	(0.29)	0.69	(0.47)
Acceptable to be > 30 minutes late	0.85	(0.36)	0.62	(0.49)
Observations	70		48	

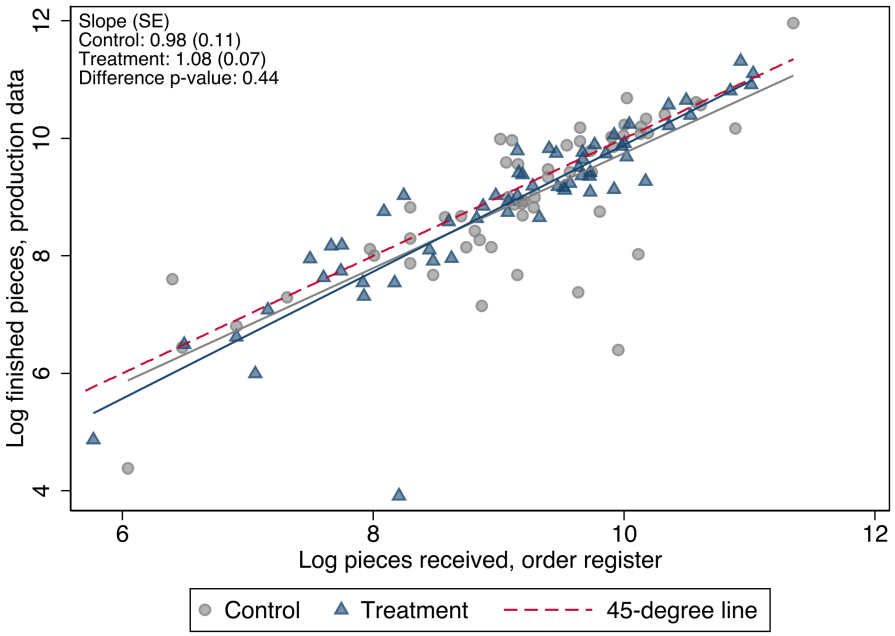
Notes: SD in parenthesis (even columns). Small firms are defined as firms with up to 20 workers, and where the owner is often both a tailor (either full or part-time) and manager of the firm. Large firms include firms with at least 50 workers, where ownership and factory-floor management are separate.

Table A22: Baseline Firm and Owner Characteristics by Bottleneck and Complex-Task Status

	Bottleneck Status			**Complex Task**		
	Non-Bottleneck	Bottleneck	*p-value*	No Complex	Complex	*p-value*
	(1)	(2)	(3)	(4)	(5)	(6)
	Mean/SD	Mean/SD		Mean/SD	Mean/SD	
Firm Characteristics						
# Tailors	5.70	6.88	0.01	5.26	7.64	0.00
	(2.71)	(3.05)		(2.30)	(3.09)	
# Helpers	1.15	1.73	0.00	1.53	1.41	0.51
	(1.10)	(1.17)		(1.25)	(1.11)	
Fraction female workers	0.53	0.64	0.16	0.67	0.50	0.02
	(0.27)	(0.24)		(0.26)	(0.23)	
# late workers in firm	1.57	4.17	0.00	2.81	3.30	0.45
	(1.43)	(2.12)		(2.11)	(2.42)	
Avg. active orders per day	1.94	2.24	0.01	2.02	2.22	0.12
	(0.61)	(0.88)		(0.71)	(0.86)	
Total # Machines	10.32	12.23	0.00	9.36	13.64	0.00
	(3.97)	(4.42)		(3.38)	(4.17)	
Owner directly supervises workers	0.90	0.98	0.24	0.94	0.95	0.38
	(0.30)	(0.14)		(0.25)	(0.21)	
Firm Age (yrs)	6.53	6.98	0.71	6.79	6.84	0.97
	(6.69)	(5.12)		(5.31)	(6.44)	
Export orders	0.10	0.19	0.23	0.17	0.14	0.39
	(0.30)	(0.40)		(0.38)	(0.35)	
Only stitching section	0.55	0.63	0.86	0.70	0.48	0.15
	(0.50)	(0.49)		(0.46)	(0.51)	
Weekly Output	3912.12	4545.83	0.16	4531.71	4000.00	0.31
	(2116.57)	(2886.94)		(3089.45)	(2013.11)	
Business Finances						
Revenues (last 30 days)	98783.78	156946.00	0.00	115471.11	150880.49	0.26
	(73445.42)	(126551.47)		(97378.91)	(123145.08)	
Profits (last 30 days)	26270.27	33548.16	0.24	23355.56	37888.00	0.19
	(16517.08)	(54894.03)		(13741.37)	(60321.80)	
Total Costs - wage bill (last 30 days)	28056.00	36690.35	0.01	32887.87	33602.45	0.75
	(20092.20)	(18849.50)		(24065.04)	(13775.41)	
Owner Demographics						
Age	39.80	38.21	0.59	38.55	39.57	0.88
	(8.87)	(8.16)		(7.94)	(8.93)	
Male	0.90	0.77	0.18	0.74	0.91	0.16
	(0.30)	(0.43)		(0.44)	(0.29)	
Completed Secondary School	0.60	0.58	0.87	0.45	0.73	0.05
	(0.50)	(0.50)		(0.50)	(0.45)	
Commute Time (mins)	7.70	7.25	0.77	6.85	8.14	0.69
	(7.80)	(8.46)		(8.43)	(7.95)	
Experience in Industry (yrs)	20.62	17.62	0.30	19.32	18.82	0.99
	(10.67)	(9.43)		(10.58)	(9.45)	
Owner does stitching work	0.85	0.88	0.77	0.87	0.86	0.41
	(0.36)	(0.32)		(0.34)	(0.35)	
Owner stitches as a regular tailor	0.42	0.44	0.59	0.55	0.32	0.12
	(0.50)	(0.50)		(0.50)	(0.47)	
Observations	40	52		47	44	

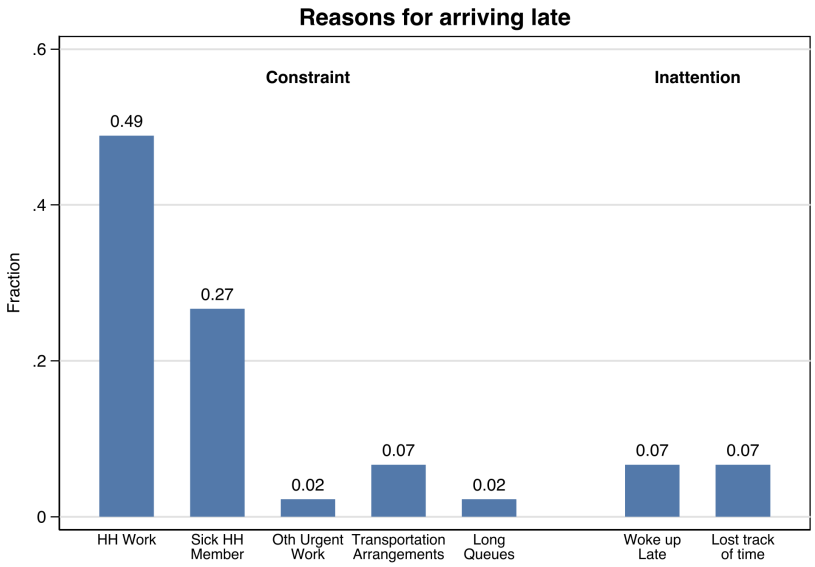
Notes: This table reports means and SDs of baseline firm and owner characteristics by firm group. Bottleneck firms have at least one upstream worker late at baseline; complex-task firms produce at least one baseline style with a complex (singer) task. p-values are from a regression of each variable on the group indicator with strata fixed effects. Robust standard errors.

Figure A1: Production Data Match the Order Register

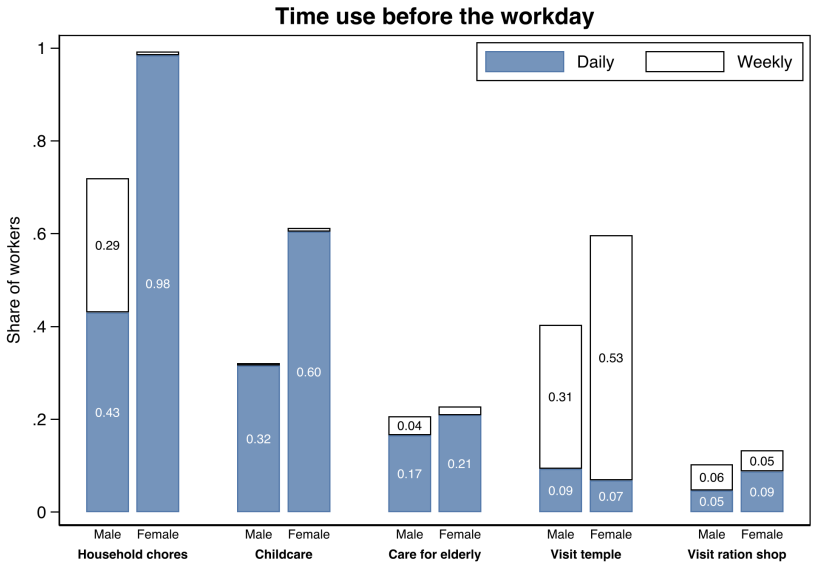


Notes: Each point is a firm × product category (tops, innerwear, shorts and pajamas, kids' clothing), summed over the six study weeks (two pre-incentive weeks and four incentive weeks). The y-axis is the log number of finished pieces recorded in the worker production data, counting only output at the final task of each style. The x-axis is the log number of pieces in orders the firm received during the same weeks, from the firm's order register. Lines are separate OLS fits for treatment and control firms. The dashed line is the 45-degree line. Slopes are from regressions of log production on log orders received, estimated separately by treatment arm, with standard errors clustered by firm. The difference p-value tests equality of the two slopes in a pooled regression with a treatment × log orders interaction.

Figure A2: Reasons for Lateness and Time-Use Before Work



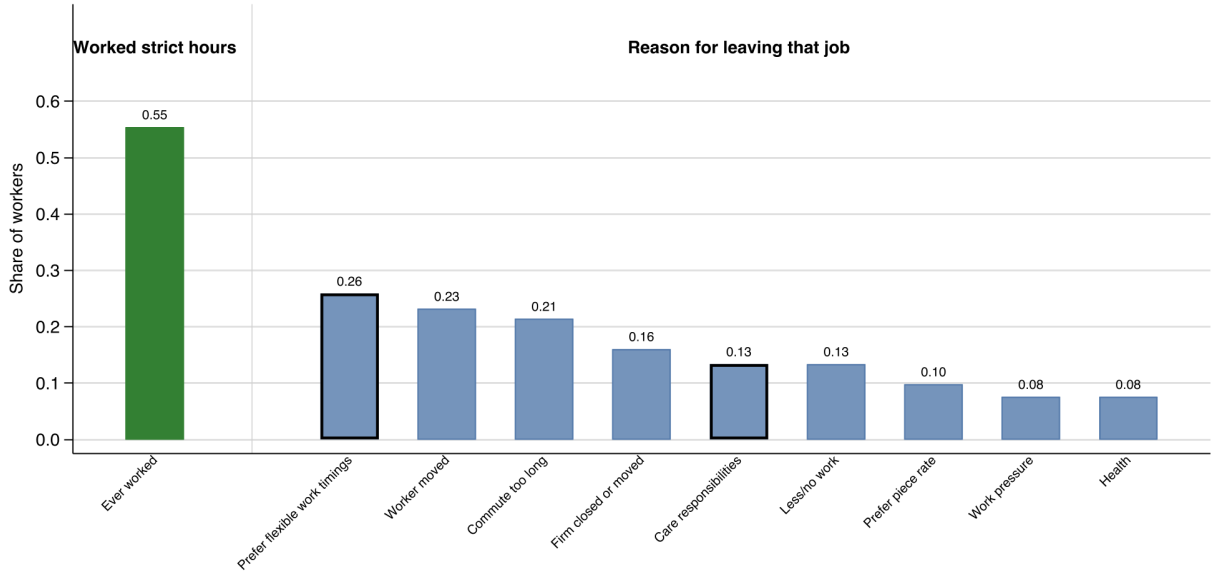
(a) Reasons for arriving late



(b) Time use before work, by gender

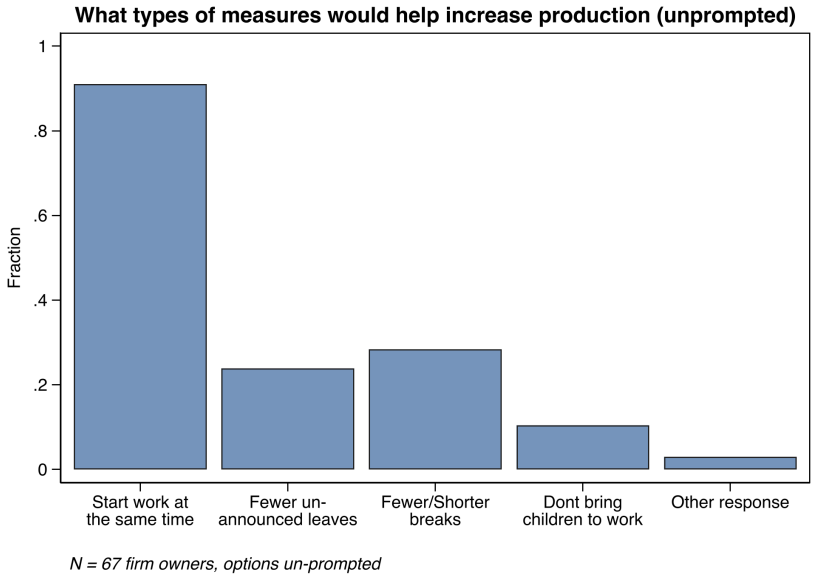
Notes: The figure in Panel A reports the share of workers selecting each reason for not arriving on time in the week before the endline survey, among the 45 control workers (14 firms) who were observed to be late at least once. Transportation arrangements pools person who drops me was busy/late" and public transportation delayed"; lost track of time pools forgot to come on time" and lost track of time". Since this question was asked at endline, the figure only includes control-firm workers. Panel B reports the share of workers who report doing each activity before their workday starts, at baseline, separately for male and female workers. Dark bars show the share who do the activity every day; white bars show the share who do it once a week. Household chores pools collecting water, cooking, washing clothes, washing vessels and other household work; childcare pools helping children get ready and dropping off or picking up children. This module was asked in rounds 2 and 3 only (456 workers: 193 male, 263 female)

Figure A3: Workers Have Left Jobs with Strict Work Hours

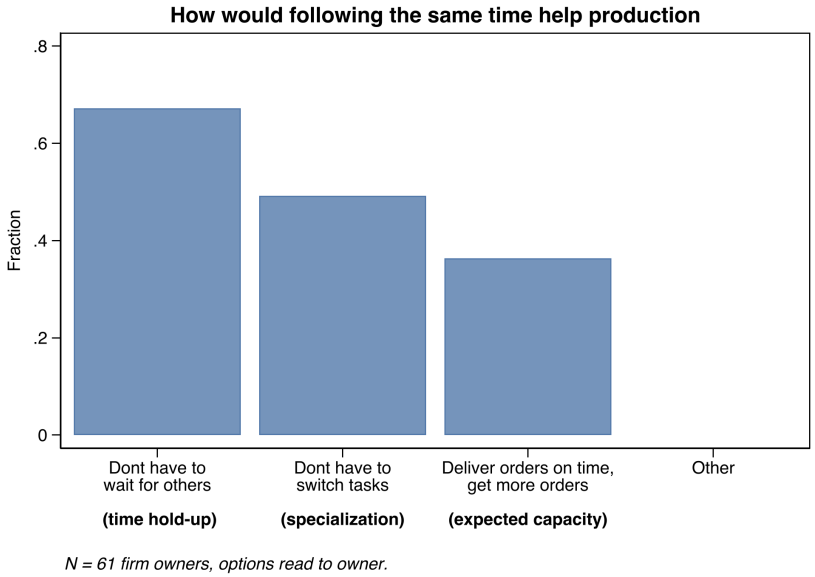


Notes: The left bar is the share of workers who ever worked a job with strict hours. The right bars are the reasons those workers left that job, as a share of workers who had one. Workers could select multiple reasons, so shares sum to more than one. Outlined bars mark the reasons tied to flexibility and care responsibilities.

Figure A4: Importance of Common Arrival Times (Baseline)



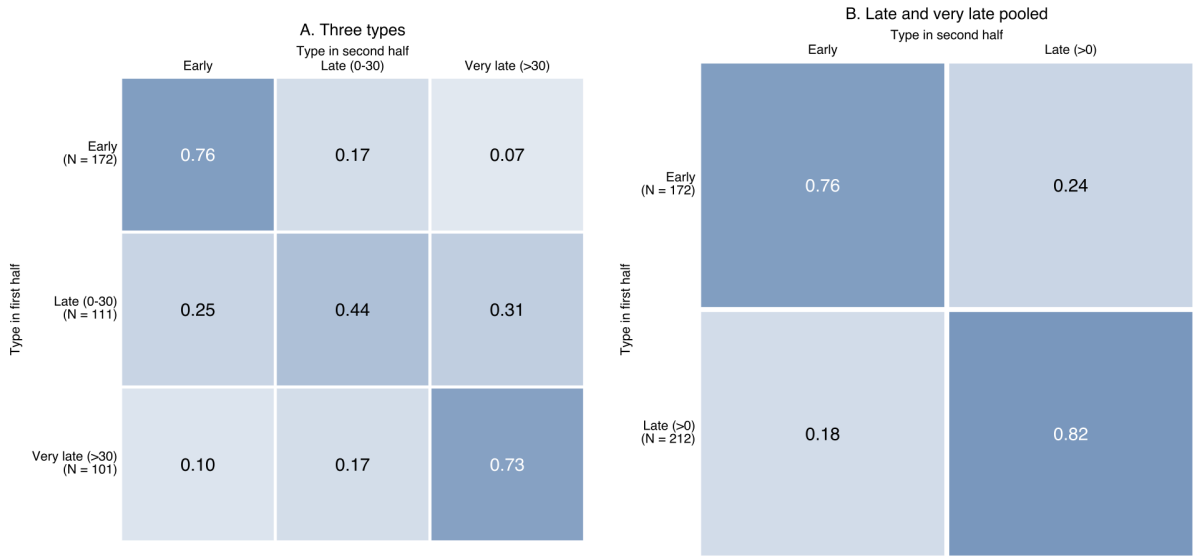
(a) Measures that could help increase production



(b) Why is coordination in worker arrival times important

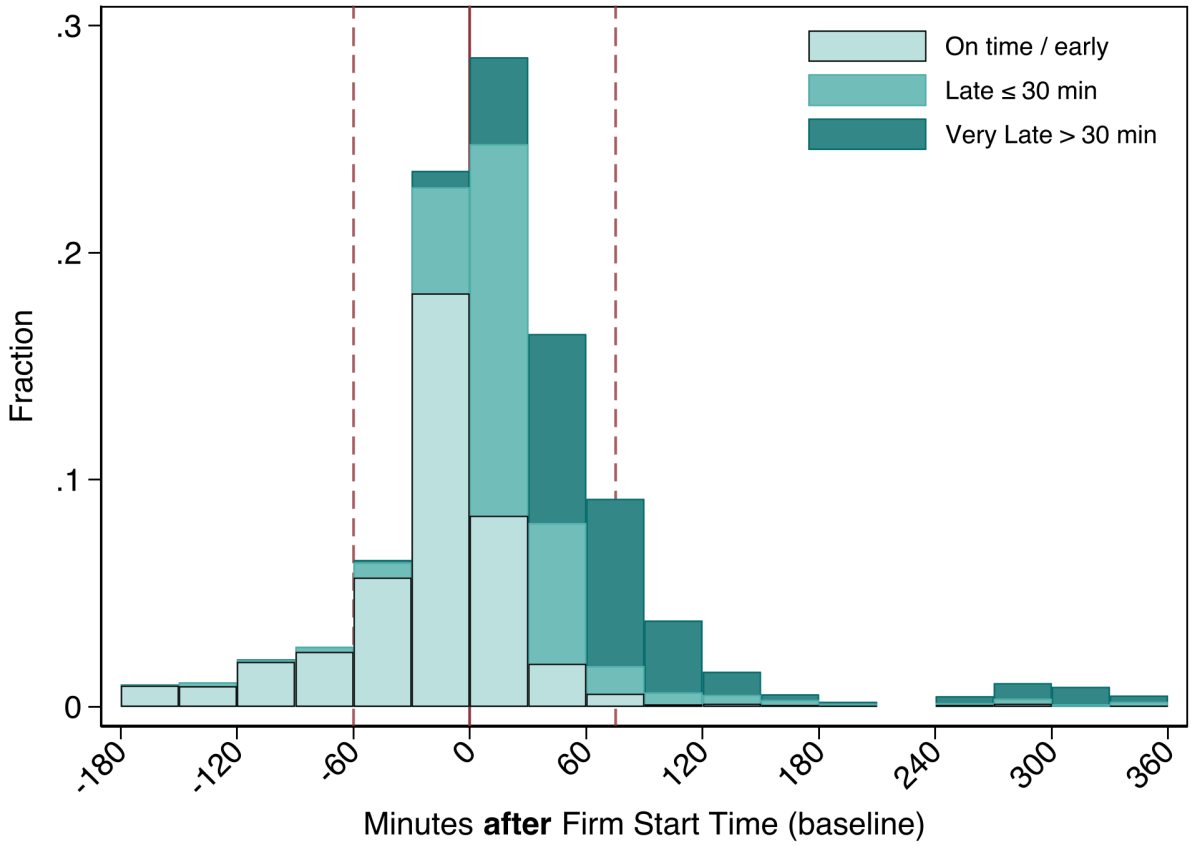
Notes: Panel A reports owner's responses from the question "*What type of measures would help increase production?*", with options unprompted. N = 71. Panel B reports owner's responses from the question "*If everybody starts work at the same time, how will it improve production?*", with options 1 = Workers don't have to wait for others, 2 = Workers don't have to switch tasks, 3 = Helps me fulfill orders on time and get more orders, and 4 = Others.

Figure A5: Stability of Lateness Types Within the Pre-Incentive Period



Notes: Each worker is classified as "Early", "Late" (0–30 minutes) or "Very Late" (more than 30 minutes) separately in the first and second half of the firm's pre-incentive production days, using the worker's mean arrival deviation in each half. Rows give the type in the first half and columns the type in the second half; each cell is the share of the row's workers, so rows sum to one, and darker cells hold a larger share. Panel B pools "Late" and "Very Late". The sample is workers present on at least two days in each half.

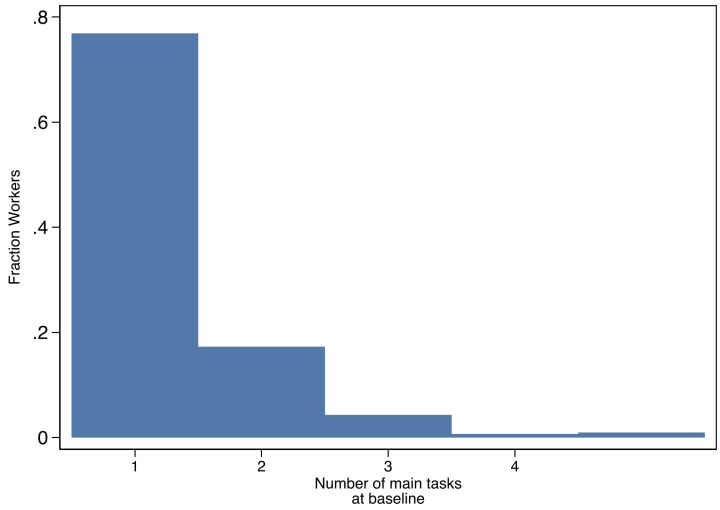
Figure A6: Worker Arrival Times by Worker Type



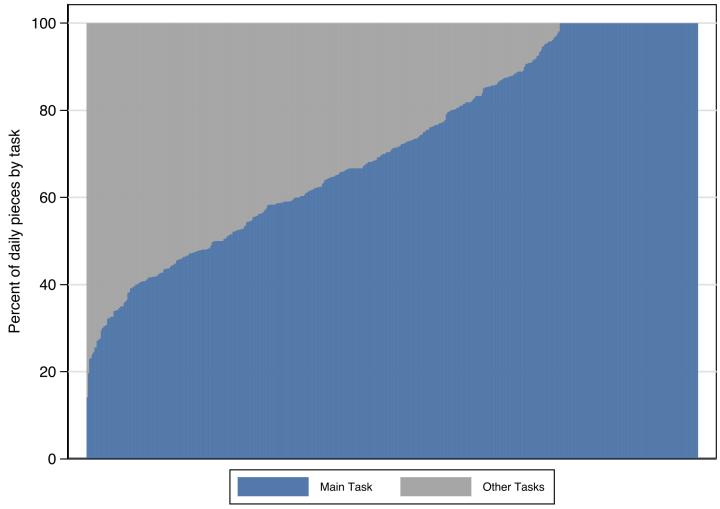
Notes: This figure plots the distribution of worker arrival times, in minutes relative to the owner's preferred start time, during the pre-incentive weeks in all 92 firms, as in Figure 2. Each bar is decomposed into "Early", "Late" and "Very Late" worker types, showing how arrival times vary by worker types.

Figure A7: Task Specialization at Baseline

(a) Number of Main Tasks per Worker

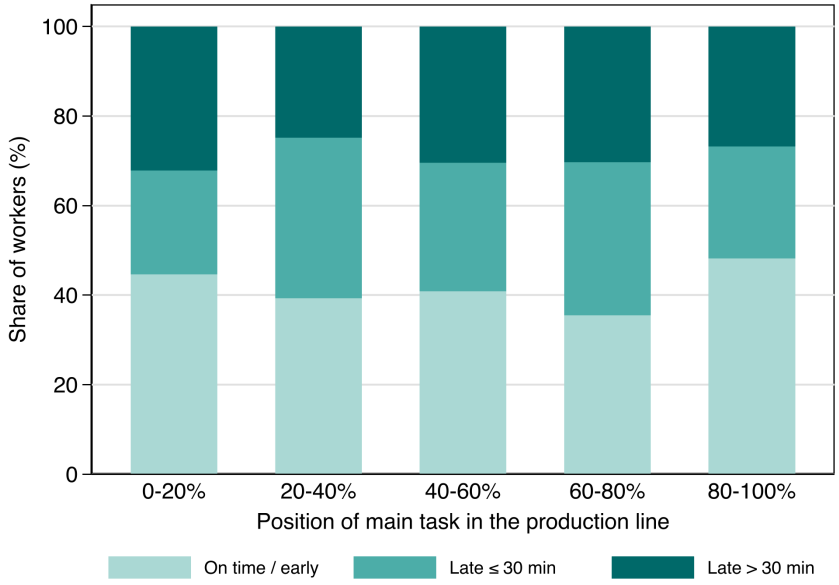


(b) Share of Daily Output from the Main Task



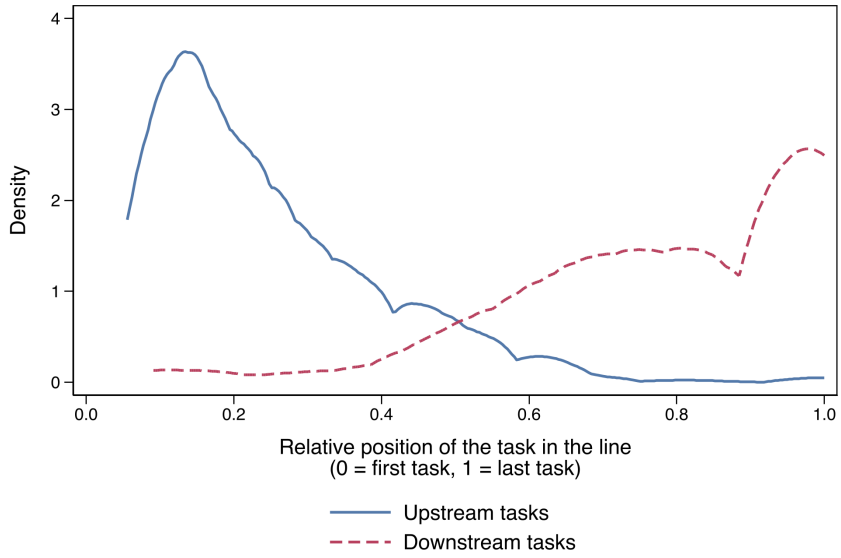
Notes: Panel A shows the distribution of the number of main tasks per worker. Panel B shows the share of each worker's daily pieces from their main task and from all other tasks, averaged over pre-incentive days; each bar is one worker, and workers with more than one main task have all main tasks counted together. For every worker, I define a "Main Task" as a task that I observe the worker performing every day she was present in a given pre-incentive week.

Figure A8: Baseline Lateness by Position of Main Task in the Production Line



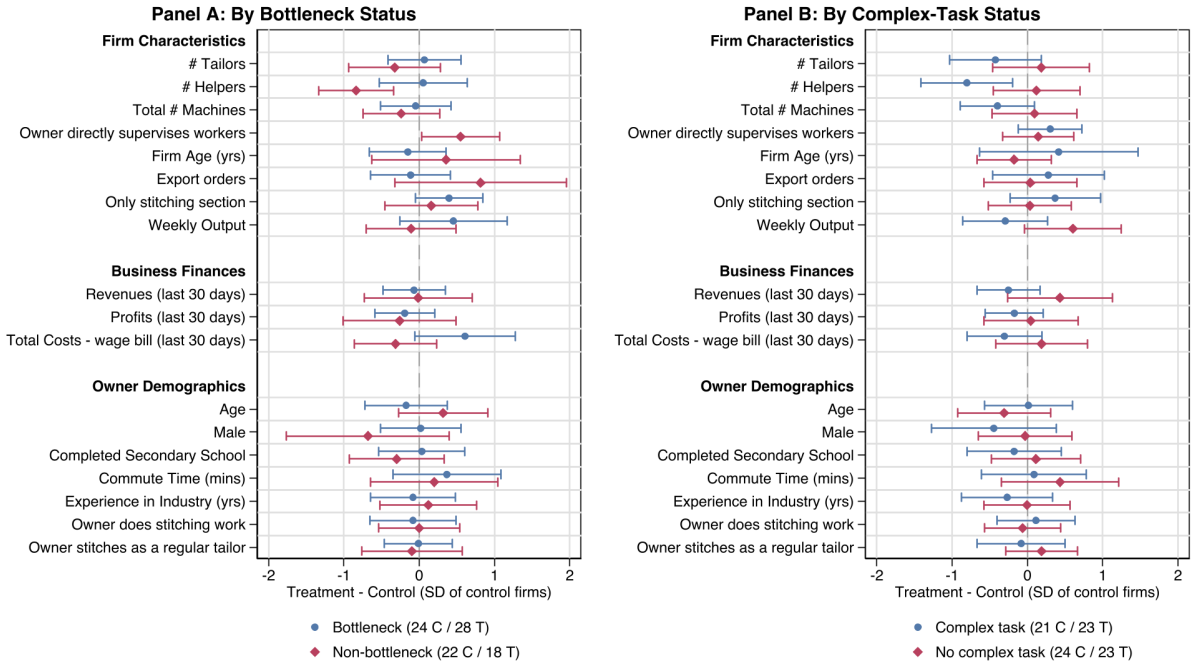
Notes: This figure plots the share of "Early", "Late" and "Very Late" workers by the position of their main task in the production line. Task order is divided by 9, the median number of tasks per product, and capped at 1, so that relative task order denotes fifths of the production line.

Figure A9: Position of Upstream and Downstream Cut-off Tasks in the Production Line



Notes: This figure plots the distribution of the relative position in the production line of tasks classified as upstream cut-off tasks (solid line) and downstream cut-off tasks (dashed line). Relative position is a task's order in the production line divided by the total number of tasks for that product (0 = first task, 1 = last task). Upstream cut-off tasks are tasks that must be completed before remaining tasks can proceed (e.g., attaching shoulders on a t-shirt); downstream cut-off tasks are tasks that must be completed for a garment to be finished (e.g., bottom hems on a t-shirt, or elastic bands on pants). Data from the baseline style rosters.

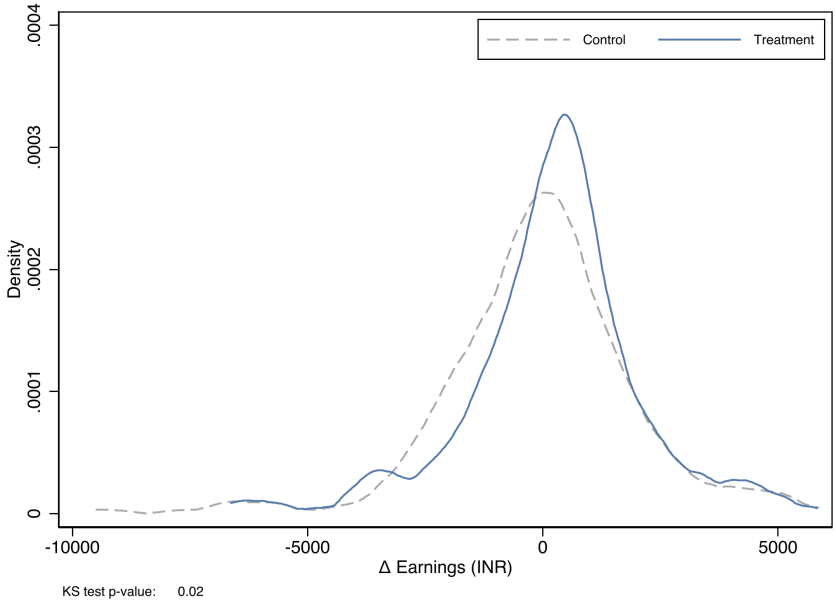
Figure A10: Balance on Baseline Firm Characteristics Within Firm Subsamples



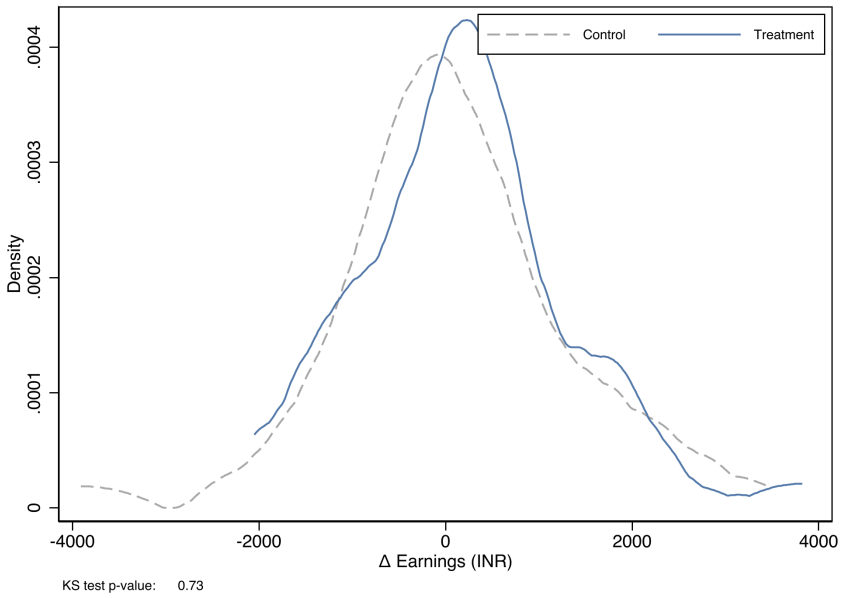
Notes: This figure reports balance between treatment and control firms within four subsamples. Bottleneck firms have at least one upstream worker who was late at baseline. Complex Task firms produce at least one baseline style with a complex (singer) task. Each marker is the treatment–control difference from a regression of the characteristic on a treatment indicator with strata fixed effects and robust standard errors, divided by the SD among control firms in that subsample, with a 95% confidence interval. Panel labels report the number of control (C) and treatment (T) firms in each subsample. Owner supervision is omitted for Bottleneck firms because all control firms in that subsample supervise.

Figure A11: Distribution of the Change in Weekly Earnings

(a) Worker level

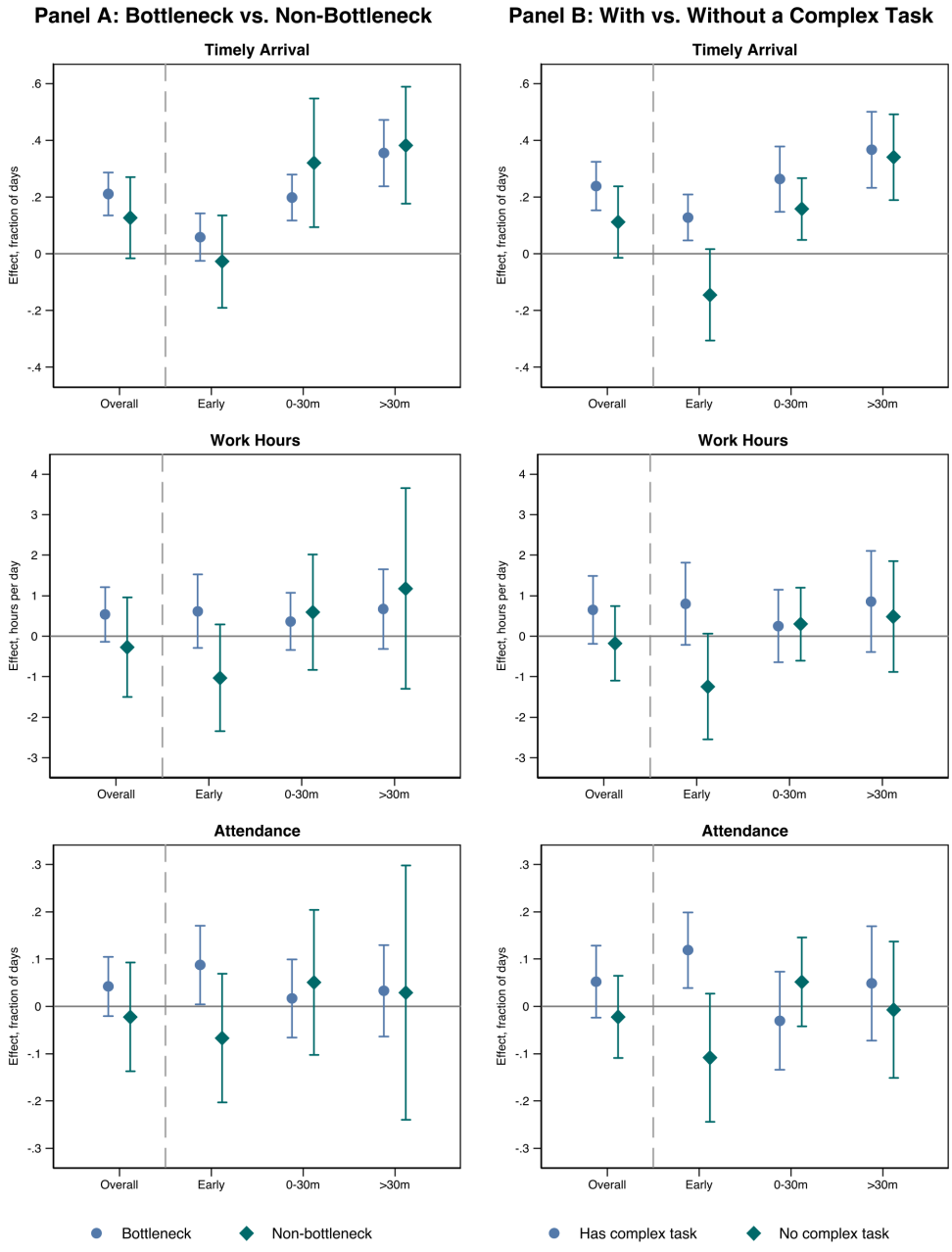


(b) Firm level



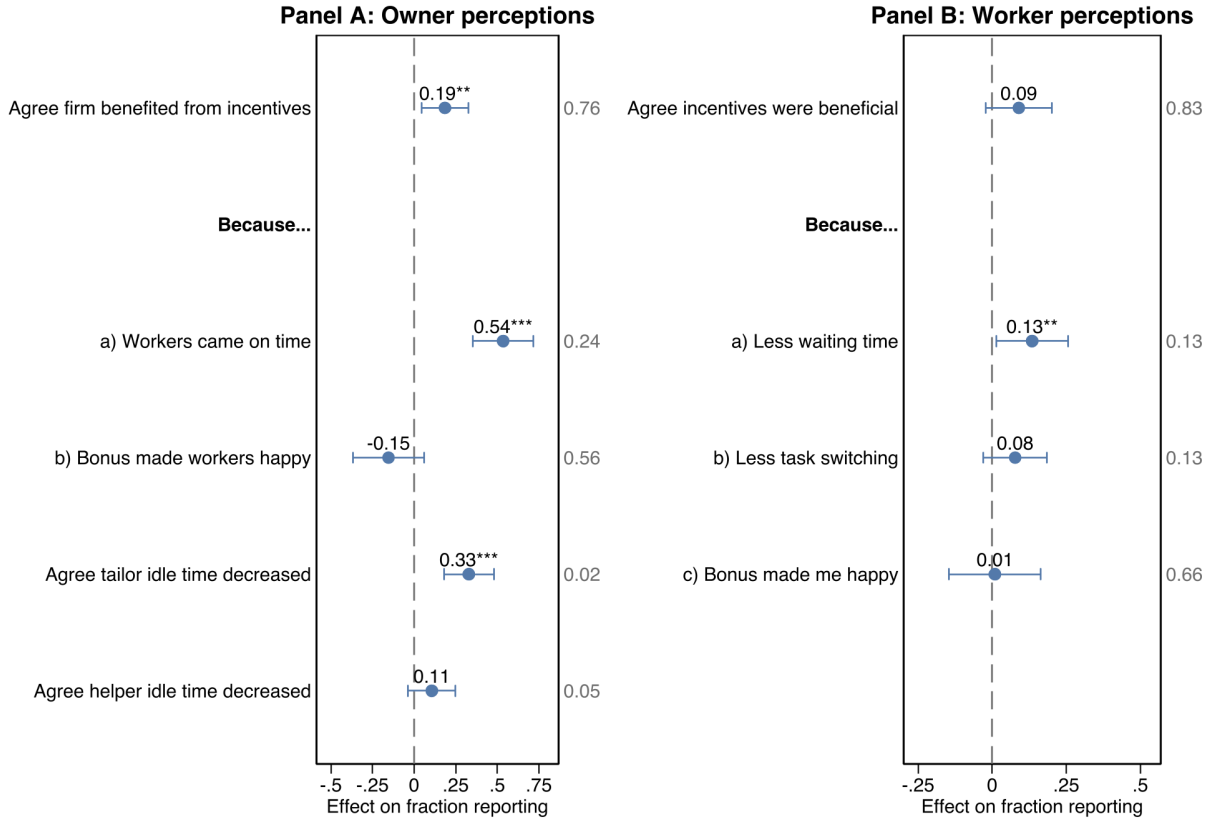
Notes: Kernel densities of the change in weekly earnings (INR, excluding incentives) between the pre-incentive and incentive weeks, for treatment (solid) and control (dashed) firms. Panel A: each worker's mean weekly earnings in the incentive weeks minus their mean in the pre-incentive weeks. Panel B: the firm average of the worker-level change. Earnings are coded as 0 for absent workers and winsorized at the 99th percentile. The KS test p-value is from a two-sample Kolmogorov–Smirnov test of equal treatment and control distributions.

Figure A12: Treatment Effects on Labor Supply by Bottleneck and Complex-Task Status



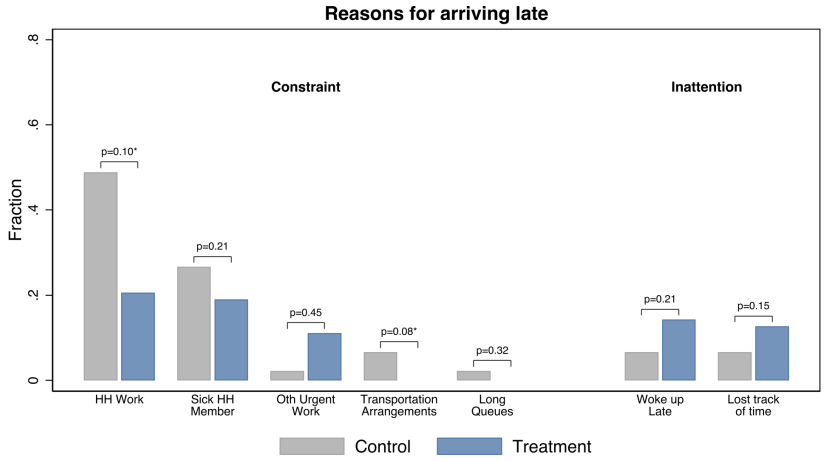
Notes: Each marker is the T × During coefficient from a separate regression on that group of firms, with a 95% confidence interval; standard errors are clustered at the firm level. Overall is the average effect; Early, 0–30m and >30m are the effects for workers who were early, 0–30 minutes late and more than 30 minutes late at baseline. Rows are outcomes. Panel A (left) splits firms by bottleneck status (at least one upstream worker late at baseline); Panel B (right) by whether the firm has any baseline complex (singer) task. Data at the worker-day level; all regressions include worker, day-of-week and round by week fixed effects.

Figure A13: Perceptions about the Experiment at Endline

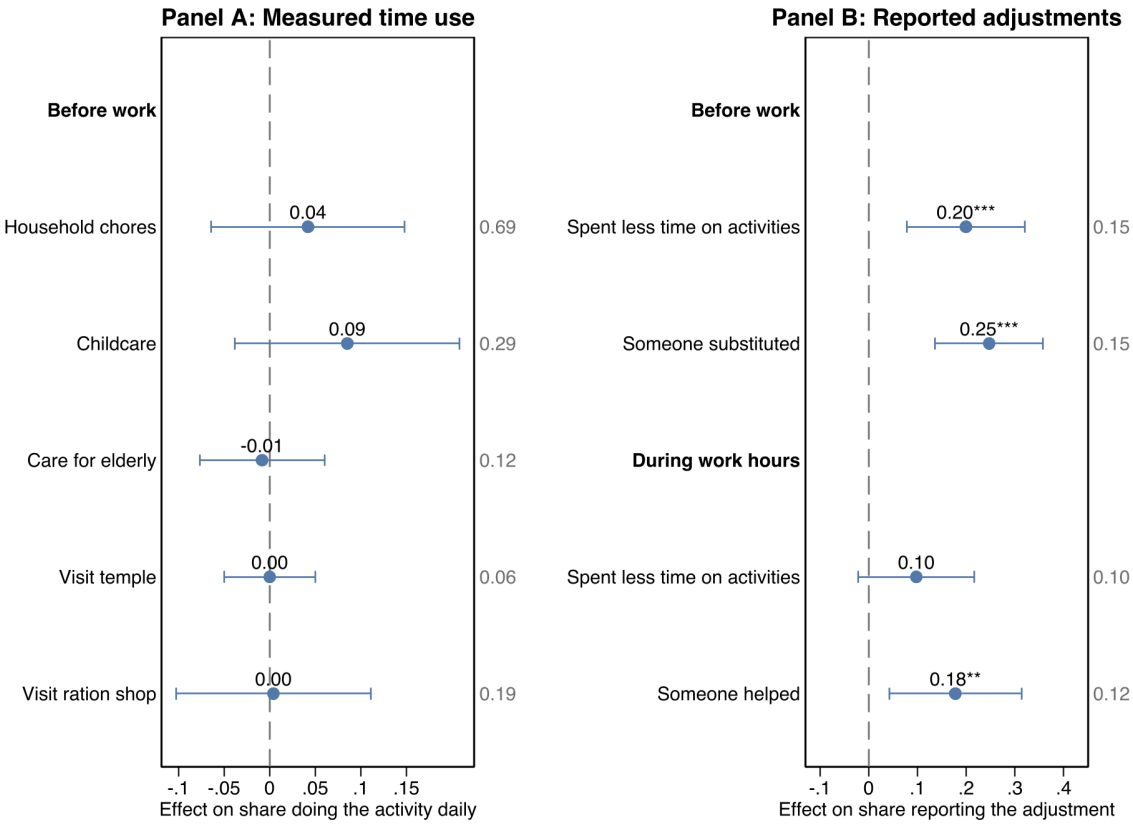


Notes: This figure reports treatment effects on owner and worker perceptions of the incentives, from the endline survey. Panel A uses the owner survey, at the firm level. Panel B uses the worker survey, at the worker level. The top row of each panel is whether the respondent agrees that the incentives benefited the firm (Panel A) or were beneficial (Panel B). Respondents who agreed were then asked how the incentives helped, and could select more than one reason. Each reason is coded 1 if selected and 0 otherwise, including for respondents who did not agree, so each estimate is a share of all respondents. The last two rows of Panel A are whether the owner agrees that tailors' and helpers' idle time decreased. Each row is from a regression of the outcome on a treatment indicator with strata fixed effects. Bars show 95% confidence intervals, with robust standard errors in Panel A and standard errors clustered at the firm level in Panel B. Numbers on the right are control means. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure A14: Reasons for Lateness, Time Use and Reported Adjustments



(a) Reasons for arriving late



(b) Time use and reported adjustments

Notes: This figure reports worker responses from the endline survey. Panel (a) reports the share of control and treatment workers selecting each reason for not arriving on time in the previous week, among the 108 workers who reported at least one such day. Reasons are select-multiple, so shares do not sum to one. Because this sample conditions on non-compliance, which treatment affects, these differences are descriptive. p-values are from a regression of each reason on a treatment indicator with strata fixed effects. In panel (b), the left plot reports treatment effects on whether the worker does each activity daily before work, and the right plot reports treatment effects on whether the worker reports each adjustment to their activities before and during work hours.