Flexible work arrangements and firm outcomes: experimental evidence from India's garment sector

Shreya Chandra

- Small, informal firms in Tirupur's garment manufacturing sector hire workers on contracts which permit considerable flexibility in work schedules for workers.
- This study experimentally tests whether flexibility affects firm output by incentivising workers to arrive on time for a period of four weeks.
- As a result of incentives, workers in treatment firms are more likely to arrive on time, produce and earn more relative to workers in control firms. The increase in timely arrival is driven by female workers. However, total output and output per hour increase for all workers in treatment firms.
- Treatment firms produce higher total output and revenues. The increase in revenues exceeds the increase in total labour costs *including* the cost of incentives.
- While owners agree that incentives were helpful, most were not willing to continue paying such incentives on their own. Surveys suggest the role of frictions in hiring and contracting, and concerns about long-term reputation with workers.
- The long-run feasibility of such incentives would depend crucially on provision of public services, such as childcare, school and public transportation, and regular water supply.

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About the study

Flexibility at work is an important job attribute for workers around the world. Remote or hybrid work arrangements have become common in many industries today, allowing workers to manage time and location more freely (Hansen et al., 2023; Aksoy et al., 2025). In low- and middle-income countries, flexibility can encourage workers to remain in self-employment and casual work arrangements (Cefala et al., 2024) or be a crucial enabler of female labour force participation (Jalota and Ho, 2023; Ho et al., 2024; Adhvaryu et al., 2025).

While worker preferences for flexibility have been documented widely, we know little about how providing flexibility affects firms, particularly in manufacturing jobs in informal labour markets. Providing flexibility can be costly for firms, especially in production settings that require close coordination among workers.

This study investigates the effect of flexible work schedules on firm outcomes in the context of a large garment manufacturing cluster in Tirupur, Tamil Nadu.

Firm, owner and worker characteristics

The average firm in my sample hires six tailors (excluding owners) and has been operating for six years. Owners directly supervise workers in almost all firms; owners also perform stitching work in 80% of firms. Average profits in the last 30 days reported at baseline were INR 30,000 (GBP 260).

The average worker in my sample is 37 years of age (similar to owners), 44% are male, and most workers are married with at least one child of school-going age. Nearly 90% workers live within a 15-minute commute to the firm, and the average tenure of workers is 2.5 years.

Organisation of production in Tirupur's small, informal firms

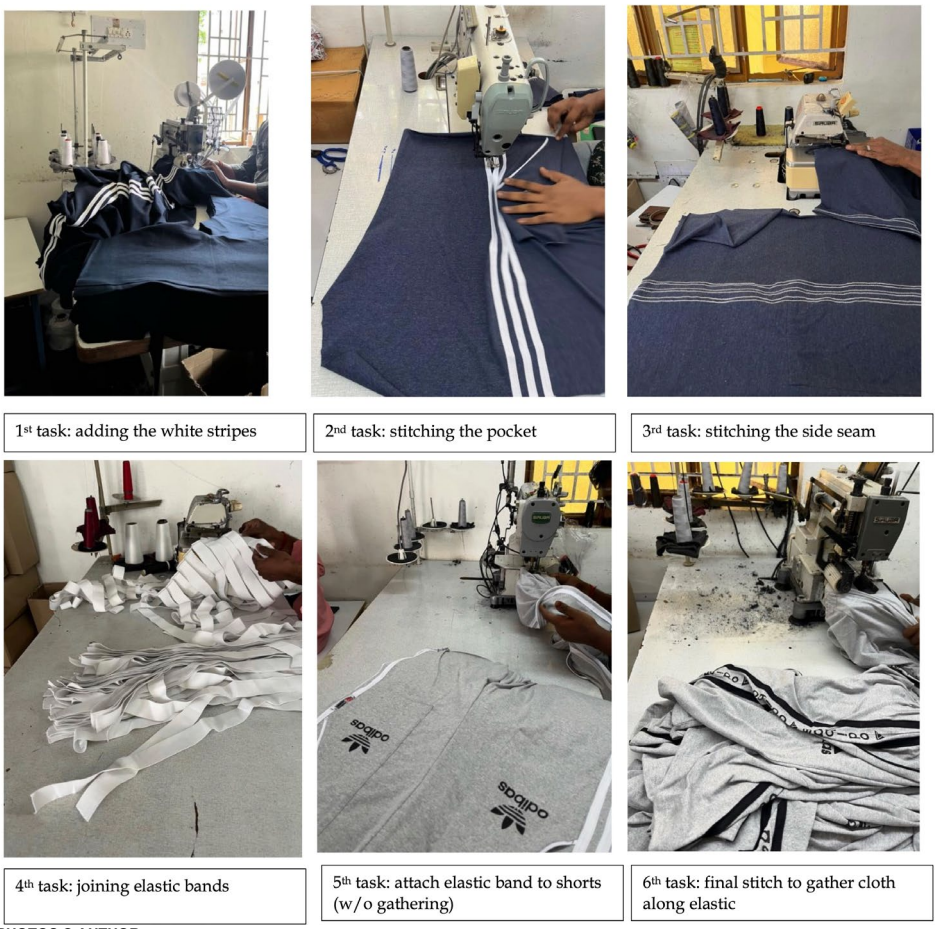
Firms are organised as batch processing lines with tailors performing distinct operations on a production line. Operations are performed sequentially to assemble the final product (Figure 1). This means that differences in worker arrival times can either

a) limit a worker's ability to specialise on their expert task because they need to fill in for a late worker who usually performs the preceding task, or
b) increase idle time if they need to wait for the preceding task to be completed.

Thus, flexible work schedules may slow production and reduce productivity by increasing idle time or limiting specialisation. Additionally, firm owners rely on

recurring orders; credibly committing to order quantities is key to securing future work. If owners are uncertain about worker arrival times, they may under-commit order quantities and operate below capacity, suggesting the existence of slack in production.

Figure 1: Tasks being put together to produce the final output – shorts



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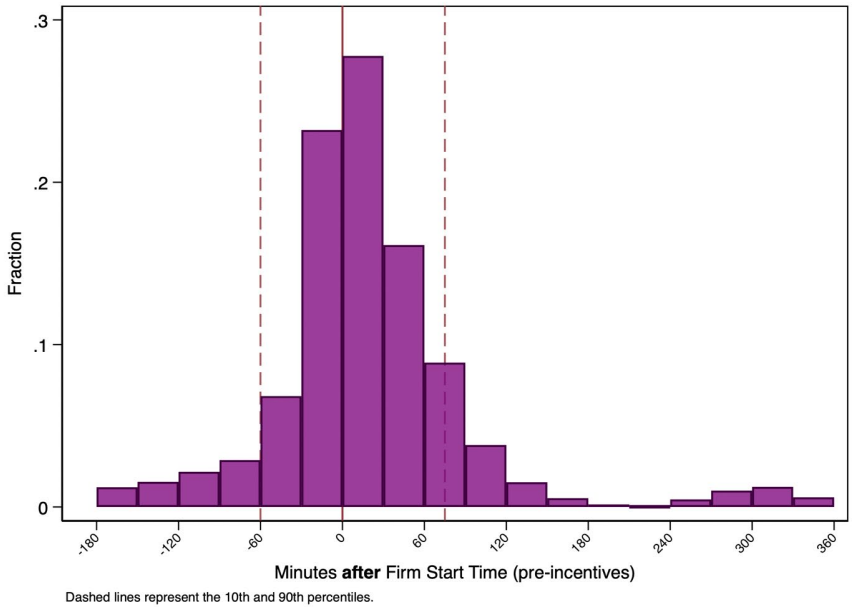
Dispersion in worker arrival times

Tailors are paid on piece-rate contracts and are free to choose their work schedules. As a result, there is substantial dispersion in worker arrival times at the firm, ranging from one hour early to two hours late (Figure 2).

The experiment and data

I conducted a randomised control trial with 97 firms in Tirupur to test whether flexibility in worker arrival times affects firm outcomes. In treatment firms, all workers were eligible for a daily incentive if they were present at the firm and arrived before the firm's stated start time (henceforth, start time) for four weeks. The daily incentive was INR 100, around 15% of average daily earnings. In control firms, all workers were eligible to receive unconditional incentives to address concerns about income effects on worker labour supply and effort during the same four-week period.

FIGURE 1: Dispersion in worker arrival times at the firm



I collected daily data for a period of six weeks: two pre-incentive weeks and four incentive weeks. Every day, I collected data on worker attendance, arrival times, work hours, and output for each task performed in the day. Every week, I collected records of deliveries and new orders received from firm owners. I also collected task compositions of all orders produced by the firm, along with product- and task-specific piece-rates paid to owners and workers, respectively.

Does flexibility affect firm outcomes?

1. **Treatment incentives were successful in encouraging workers to arrive on time.** Workers in treatment firms were 40% more likely to arrive on or before time relative to workers in control firms. Reassuringly, unconditional incentives in control firms boosted worker morale, but did not affect labour supply outcomes (Figure 3).

2. **The increase in on-time arrival is almost entirely driven by workers who were consistently late at baseline, and women.** At baseline, 60% of late workers (0-30 minutes late), and 80% of very late workers (more than 30 minutes late) are women.

3. **Workers in treatment firms produce and earn more because of the incentives.** Total weekly worker output and earnings increase by 35% and 24% respectively in treatment firms, equivalent to ~1,000 more pieces per week. More importantly, increases in worker output are realised by all workers in the firm, and not just workers who changed their arrival times because of the incentives. Worker output per hour – a

proxy for productivity – increases by 10% for all workers in treatment firms.

4. **Total firm output increases, with evidence suggesting that incentives were profitable for owners.** Total firm output (the number of finished pieces) increased by 30%, equivalent to ~800 more pieces per week. Consequently, total weekly revenues increases by INR 12,000 on average (12% relative to control firms), and total labour costs including worker incentives increases by INR 6,000 (15% relative to control firms). Since labour costs comprise nearly 60% of total variable costs to the firm, this suggests that the incentives were profitable for firms in the short run.
5. **Owners expand firm capacity by increasing the quantity of new orders received during incentive weeks.** Incentives reduced uncertainty in worker arrival times, encouraging owners to commit to higher order quantities – the total number of *new* orders received in treatment firms increased by 16%, equivalent to ~500 pieces. Anecdotally, treatment firm owners reported spending more time fulfilling orders and sourcing for new orders relative to control firms.
6. **When workers arrive on time, tasks are allocated more effectively within the firm.** Tailors in treatment firms allocate more time towards stitching tasks and are less likely to perform non-stitching tasks that are usually done when there is an urgent order, or when tailors have idle time. In endline surveys, both owners and workers in treatment firms are more likely to agree that tailors experienced less idle time in the firm during incentives, relative to control firms.

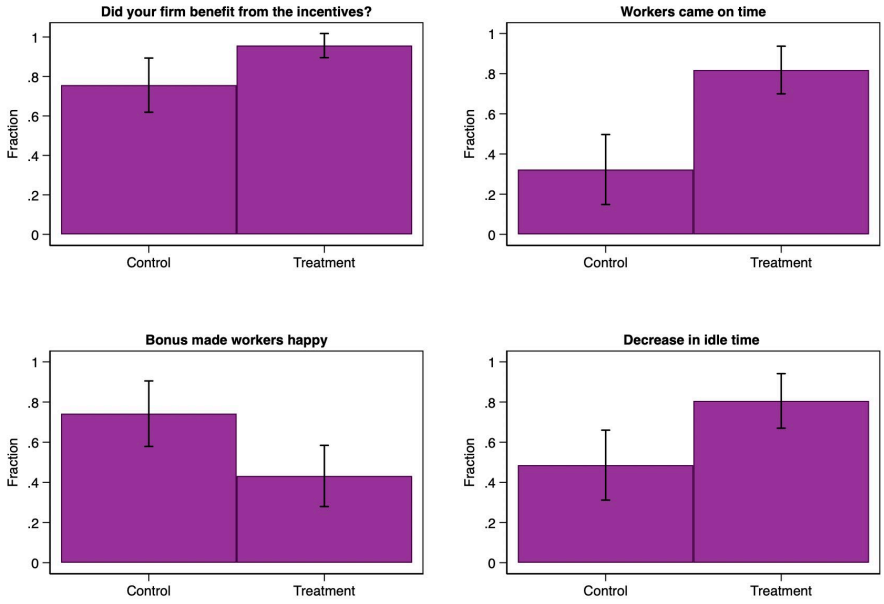
Do owners continue incentives?

These findings suggest that flexibility does hurt both worker and firm output. This motivates two questions:

Why didn't owners enforce common start times for workers before the study?

The existing equilibrium in which these firms operate make it hard for a single firm to enforce common work start times without raising wages or incentivising workers. Firms are located in dense clusters which organise workers similarly: 95% of firms pay workers on piece-rate contracts; 80% were okay with workers arriving 30+ minutes late. When asked about the consequences of enforcing common work start times *without* incentives, owners believed that workers might leave the firm/refuse to work at the firm (52%), or be less willing to work extra hours when there are urgent orders (38%), or that it would harm the relationship with workers (31%). These reasons suggest a combination of hiring frictions, idiosyncratic nature of demand, and reputation concerns for owners.

FIGURE 3: Owners perceptions about the incentives from Endline surveys



Are owners willing to incentivise workers to arrive on time?

76% of treatment owners were willing to continue the incentives if the research team continued to pay for them, suggesting that owners found the incentives useful. However, only 26% were willing to continue the incentives on their own. On average, owners were willing to contribute only INR 30 per day, a third of the incentives previously offered.

Surveys suggest low willingness to pay may reflect incorrect beliefs about either the profitability of incentives, or workers' responses to such incentives. Alternatively, it may also reflect long-run considerations. For example:

- In the long run, worker responses may depend on institutional factors, such as markets (or lack thereof) for childcare, transportation (public transit, school buses), or the quality of public infrastructure that workers spend considerable time towards weekly, such as collecting municipal water when it is available, or queuing up to purchase groceries from government ration shops.
- Owners may also face contracting frictions: 7 out of 40 treatment firm owners said that they would be willing to contribute the full amount of the incentive previously offered. However, many owners expressed concerns about being able to implement such incentives themselves.

Lessons for policy

The study demonstrates that while workers in informal firms value and exercise flexibility at the workplace, it comes at a cost to both workers and firms. However, it appears difficult for firm owners to enforce timely arrival without incentives, given that workers have strong preferences for flexibility. There are two broad categories of policy takeaways from this project:

1. **Addressing hiring frictions faced by small firms is key**

   Most small, informal firms hire tailors on piece-rate contracts, while larger firms are more likely to hire tailors on shift-rate contracts. In terms of flexibility, the key distinction between these contract types is that the former explicitly incentivises workers to work fixed-hour shifts with well-defined start times. 80% of small firm owners agree that piece-rates do not incentivise timely arrival, which hurts firm output. However, 50% reported offering piece-rate contracts *because* workers prefer flexibility, and 80% agreed that piece-rates make it easier to hire and retain workers relative to shift-rate contracts. Thus, policies addressing search and hiring frictions in the labour market can enable firms to adopt alternate hiring contracts that better suit their production process.

2. **Industrial policies should be complemented by policies addressing factors that drive workers preferences for flexibility**

   This paper documents workers' strong preferences for flexibility as a possible barrier to firm growth. Understanding what drives such preferences is key to industrial policy. Many workers in my sample report spending time on household duties (collecting municipal water), childcare, and picking/dropping their children to school both ***before and during*** the workday. Policies addressing the quality of public infrastructure – such as regular water supply, school buses and childcare can enable workers to supply labour more regularly to firms.

Transitioning from self-employment and home production to employment in firms (or wage-jobs) is a key driver of economic development. However, the take-up of wage-jobs remains low and is characterised by high job separation rates (Bandiera et al., 2022; Breza and Kaur, 2025). Addressing drivers of flexibility can have broader implications for rates of wage-employment in low- and middle-income countries.

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