

Trust and Networks in Factories in Pakistan

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This study examines which worker and team characteristics lead to higher productivity in factories in a developing country using surveys and experiments with factory workers across multiple functions in Pakistan.

Introduction and Methodology

A lack of management skills is an important reason for low labour productivity in developing countries (Bloom and Van Reenen 2011; McKenzie and Woodruff 2016). This problem is compounded in small and medium sized exporting firms in developing countries as workers are often hired temporarily based on export orders. An important part of understanding weak management is understanding the selection of workers and team formation.

In this context, we conducted surveys with 421 factory workers and measured their individual and team-level productivity. They work in garments' factories in Faisalabad and Lahore, Pakistan - two large garments clusters in Pakistan, a country where garments exports make up 45 percent of total exports (Trading Economics). Both firms export various garments (shirts, trousers, medical uniforms, etc.) to Europe and are mid-sized firms.

These firms receive orders from international retailers and wholesalers, some of which are long-term partners but more often they engage in short-term contracts. Hence, production can be irregular, which means that the factories primarily (but not entirely) depend on temporary hiring. When an order is received, the firm does not hire individual workers, but teams of workers. These teams have been created by the workers themselves at the start of their careers and mostly remain stable over their careers. This endogenous team formation is a very interesting institution that could potentially solve many problems through the delegation of authority because these agents possess better information about each other compared to the principal. Thus, it may allow better team formation to occur, lead to lower conflict, and increase intra-team learning.

The workers do a variety of work such as cutting, stitching, pressing, packaging, and quality check, though 64.4 percent of our sample is made of stitchers. We focus on stitching teams because they make the largest part of the factory's employees and an even larger part of its wage roll (the highest average weekly wage in our sample is of a stitcher at Rs. 3500 followed by cutting at Rs. 2250). Stitching is also a task that requires a lot of skill unlike most other tasks listed and hence is of much greater interest because there exist greater complementarities between team members, potential for frictions, and the labour market for stitchers is thicker.

We collected data from workers on their education, work experience, family background, location preferences, social networks, cognitive skills, mental health, training, personality traits, management skills (for team leaders only), risk preferences, and trust and reciprocity with team members and non-team workers (the last three in incentivised experiments). As endogenous team composition could influence workers to care more for their teammates, but might not have changed more generalised behaviour, we measured these preferences towards teammates and other workers.

Further, we collected productivity data for all workers at the individual and team levels. We were only able to measure output per worker per period, but not quality. This is because we measure output at the end of the process, while internal quality checks happen at an intermediate stage, where we did not wish to intervene to the detriment of factory work. We collected the productivity data usually at three points in a day - morning, midday, late afternoon for around ten days. Thus, we have a panel of 421 workers and 7 teams over 7 and 13 days in Lahore and Faisalabad respectively - a total of 2766 data points. We measured trust and reciprocity using a standard investment game (Berg et al. 1995) and risk preferences using the Holt and Laury (2002) method.

Our goal is to understand basic facts about typical workers in the manufacturing sector and to understand what predicts higher productivity. We are able to do this by merging our detailed worker survey data with productivity data (which is otherwise not collected by small or mid-sized firms in most developing countries). This could help firms be able to better screen workers and increase productivity.

Findings

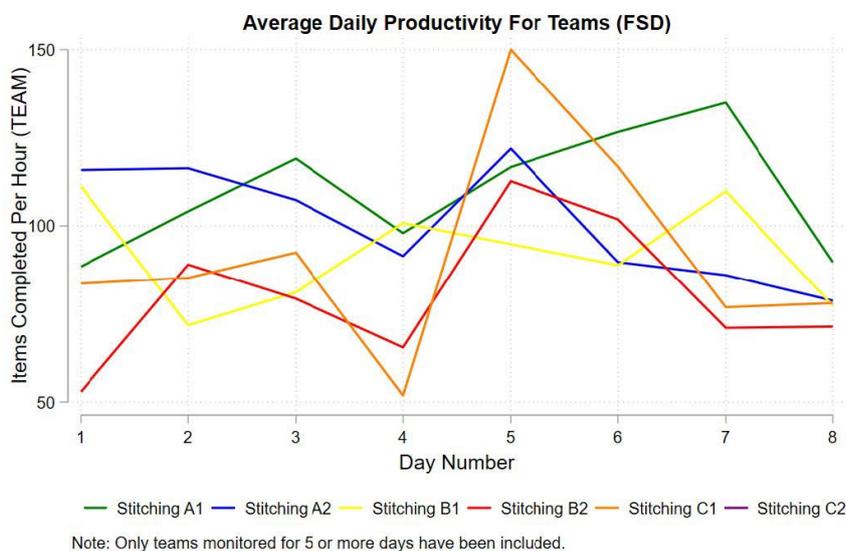
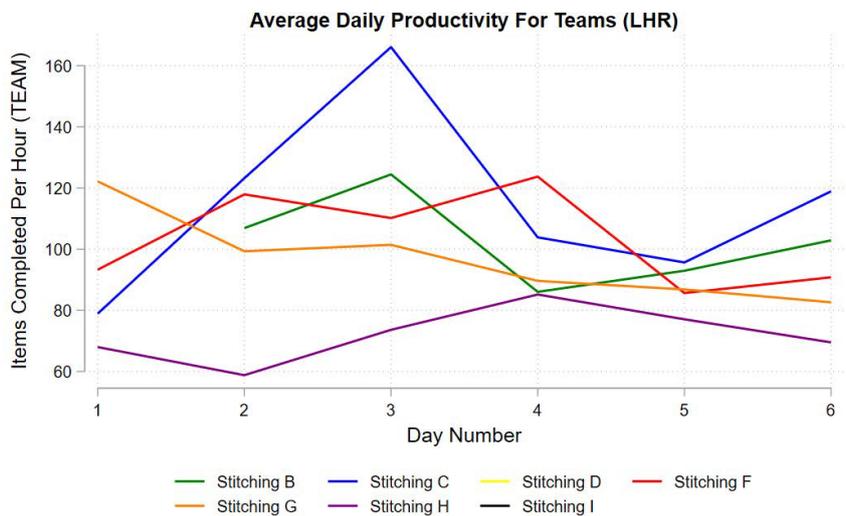
The mean age of workers is 29 years, with the youngest 15 years old and the oldest 64 years. This shows the nature of these factories – there are young workers because family networks matter a lot, and the young get hired quickly and trained on the job through family members. 62 percent of the workers are married, with an average family size of 2.3 children. These personal household issues may matter because they can have an impact on financial needs and be a constraint on the number of hours one can work. 12 percent of the workers had no formal schooling and the bulk of the workforce has relatively little education, with those who have no more than mid-level secondary education making up 67.9 percent of the workforce.

The first evidence we have on networks being important is about how the workers got to know about the job opening. Around 55.9 percent heard of it through a friend and 30.5 percent through a family member. We believe that this lowers costs for the management who are unable to easily verify skills and professionalism. An important part of our motivation to study this setting is that workers can form their own teams over their lifetimes. Hence, we would expect strong intra-team harmony. 86.4 percent of workers say that they like their team workers a lot and only 0.6 percent say that they do not like them a lot. Most become part of the team at the request of a team leader (48.8 percent), or through a friend who was on the team (32.2 percent).

However, it is interesting that at the same time as friendship and family networks mattering a lot, most workers care a lot about the ability of the team when joining. 70.1 percent say that they look at the ability of the team when joining compared to 13.8 percent who say that they look for friends and family being on the team. Even more directly, 65.5 percent say that they care a lot about ability and very little about connection when

choosing teams. Only 8.5 percent say that they care a bit about ability and a lot about a connection. This is further shown by the fact that 85.7 percent think that their team members are very competent with only 0.9 percent thinking they are weak.

Finally, we find substantial variation over time in terms of team productivity, which shows that improvements in incentives and management can potentially lead to higher productivity levels. We see substantial differences over time within teams as well as differences between teams.



Moving Forward

We would ideally test the endogenous team formation process against a neutral statistical method of team formation based on the type of data we collected. Can we put together individuals with optimal characteristics and create better teams than the ones workers created on their own or will we always miss the information possessed by agents themselves?

References

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