Pre-Analysis Plan: Measuring Workers' Willingness to Comply with Social Norms in Pakistan

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September 9, 2024

1 Introduction

This document describes our pre-analysis plan to investigate:

1. Whether firm's top managers can monetarily be incentivized to disobey the social norm;
2. Gender difference in willingness to comply (WTC) with the social norm of strict physical separation of the sexes;
3. Correlates of WTC.

This study is related to the previous study registered under AEARCTR-0009222. While the current study investigates workers, the previous study investigates employers.

2 Sampling

We sample 600 adult male workers who has a minimum experience of three months as a production worker in the garment manufacturing industry. At least some part of the work experience has to be on the factory floor, rather than from home. An adult is defined as someone who is 18 years or older. A production worker in the garment manufacturing industry is someone who does knitting, dyeing, cutting, embroidery, stitching, finishing, packing, and laundry, and washing.

3 Conceptual Framework

Cultural values such as *purdah* (curtain) and *izzat* (honor) dictate behaviors of women and men in Pakistan, and seemingly influence employers' decisions. Our fieldwork, conducted in the summer

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of 2021 and funded by PEDL, and existing studies suggest that seven types of costs can potentially be incurred when hiring women. These are 1) investment in providing safe physical workspace (Makino, 2019); 2) cost of providing additional training due to the underlying education gender gap (Minardi et al., 2021) ; 3) cost of additional management burden to mitigate and solve harassment and disputes (fieldwork); 4) cost of providing safe transportation (Field et al., 2020; Cheema et al., 2020); 5) compensating for household and care work (Amir et al., 2018); 6) internal mental cost of breaking away from social norms that promote women and men to be physically segregated (fieldwork); and 7) reputation cost of overstepping such norms (Bernhardt et al., 2018).

There is a meaningful distinction between cost types 1-5 and cost types 6 and 7 as they differ in how they affect firms' behaviors. We consider the first category the "economic" costs of hiring women. All of the economic costs, if incurred, directly enter a firm's profit function and decrease its profit assuming perfect competition, profit maximization, and constant marginal revenue.[1] For example, building a separate women-only bathroom to accommodate female workers requires paying a one-time investment, which increases the firm's average total cost.

Meanwhile, we call the second category "non-economic" costs, which may not affect the firm's profit function as straightforwardly as the economic costs. In addition, however, these non-economic costs possibly affect the firm's top manager, whose norm adherence intentionally or unintentionally may permeate how he manages it. For instance, the top manager may believe that his reputation among his business peers, family members, and friends will be tarnished by deviating from norms and hiring women at his firm. If so, he may conclude that the expected reputation cost is higher than the expected benefit of hiring women at his firm, hence deciding to hire only men.

Furthermore, this distinction is salient because of its implication for future interventions. Following the earlier example, if the firm is constrained by its inability to absorb the cost of building a women-only bathroom, it may be incentivized to hire women if the cost is borne by someone else. However, the firm may still decide not to hire women even after the bathroom subsidy if its top manager adheres to norms for fear of damaging his reputation. To relax the latter constraint requires an entirely different set of interventions.

4 Data Collection Methods

This data collection is an extension to the previous study registered under AEARCTR-0009222. Whereas the previous study measures employers willingness to comply with social norms (WTC) with the Becker-Degroot-Marschak (BDM) mechanism (Becker et al., 1964), this study quantifies workers' WTC with a simplified version of the BDM mechanism. We decided to modify the game for workers to match their the literacy and numeracy levels. The BDM experiment is accompanied by a survey that collects data on workers' age, gender, education, and views on women and female employment.

[1] Some types of costs can be more variable while others are fixed. While this distinction is important, this project currently focuses on understanding if these costs affects firms' behaviors at all.

4.1 Marble Sorting Game

We conduct a marble sorting game with a simplified BDM mechanism to elicit workers' willingness to comply with social norms that idealize strict physical separation of the sexes. We use a variation of the BDM mechanism called the multiple price list (MPL) method. It has respondents reject or accept different prices, rather than asking them to name their willing prices as in the traditional BDM. The MPL method is applied in the round 2 of the sorting game.

In this game, a worker is asked to sort marbles for a short period of time for a monetary prize. The prize is determined by the quantity he sorts in the given time multiplied by a fixed rate. He is also offered a helper who can help him sort more marbles, thus increasing his prize earnings. Randomly chosen, 50 % of the sample is offered a female helper. If the female helper joins him to play the game, the quantity sorted by her times a different fixed rate will be given to him. His prize earnings, if he plays with the female helper, is the sum of the contributions by him and the female helper.

Each worker plays two rounds. He plays the first round alone, and is offered a helper in the second round. The second round has the MPL-BDM method, in which the worker is asked to reject or accept five different rates. These rates are for calculating the prize earning based on the quantity sorted by the helper. The worker's rate is fixed throughout the game. WTC is the lowest of the rates he accepts at which he is willing to play this game with the female helper.

Following the BDM mechanism, whether the worker plays with the female helper and the rate used to convert her sorted quantity to a monetary prize is determined by a randomly drawn rate from the uniform distribution of the five rates. This rate is drawn after the top manager reveals his lowest willing rate. If the randomly drawn rate is greater than or equal to his willing rate, he plays the game with the female helper and uses the randomly drawn rate for her. If it is less than his willing rate, he plays alone. This random drawing is the key aspect of the BDM mechanism; it induces truth-telling because the top manager has no control over if he gets to play the game with the female helper.

The other 50% is offered a male helper, which produces a comparison group that enables us to learn about the roles of potential attributes, other than the helper's gender, that may affect the norm compliance price point.

5 Outcomes of Interest

The primary outcome is workers' willingness to comply with social norms. The outcome comes from the marble sorting game. This is the lowest willing rate for the helper reported by each top manager. The greater the lowest willing rate is, the more willing he is to comply with the social norm of physical segregation of the sexes.

6 Estimation and testing

We have listed the three analytical goals of this paper in the introduction. While the first one will be achieved through our observation of the marble sorting game outcomes, the last two require statistical estimation. We explain our estimation procedures for these goals in this section.

6.1 Gender difference in WTC

We estimate the following with OLS:

$$WTC_i = HelperGender_i\beta + \eta_i$$

where WTC_i is the lowest rate for the helper at which worker is willing to work with the female helper in the marble sorting game; $HelperGender_i$ is the gender of the helper offered.

6.2 Correlates of WTC

We estimate the following with OLS:

$$WTC_i = X_i'\beta + \eta_i$$

where X_i' is the worker characteristics including sex, age, education level, experience in the business, if his wife has out-of-the-home employment, daughter's education level, whether he has worked with a female colleague on the production floor, and whether he has had a female boss.

7 Additional Analysis

We plan to conduct the following additional analyses:

1. Exploring the difference in productivity (quantity of marble sorted) by the gender of the helper.

2. Compare the prior and posterior beliefs about helpers' ability by gender.

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