

Gender and workplace interactions: who is likely to lose?

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Abstract

Workplace interactions have been identified as a valuable source of information and career advancement. This study examines workplace interaction by looking at personal ties of 1744 blue-collar workers in 2 garment manufacturing units in the National Capital Region (NCR) of Delhi, India. Data analysis shows that men have a more expansive set of personal ties, even after controlling for variation in interpersonal and workplace-related characteristics. Women's personal networks are smaller, clustered within their functional units and more homogeneous. While supervisors do not figure in personal networks of either gender, women are significantly less likely to mobilize interactions with supervisors for professional or personal purposes. Thus, women's personal ties at the workplace exhibit patterns that are opposite of those identified by existing literature as instrumental for career advancement.

KEYWORDS: gender, workplace ties, social networks, garment manufacturing, India

JEL CLASSIFICATION: D21, D22, J40, M510, Z130

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1 Introduction

A well established stylized fact in labor economics is that informal channels, such as social contacts or workplace ties, are a significant resource for job search for workers (Calvó-Armengol and Jackson (2007)). Indeed, jobs obtained through referrals vary from 50% to 87% in developed countries (Topa (2011)) and 44% to 70% in developing countries (Munshi and Rosenzweig (2006)). In addition, firms often rely on employee referrals for hiring and promoting workers because of their potential to minimize moral hazard and lower search costs (see Afridi et al. (2015) for a brief review of the literature).¹ It is not surprising, therefore, that individual's ties are often referred to as social capital (Fernandez et al. (2000), Baldassarri (2015)).²

However, implications of these ties on labor market outcomes vary drastically across different demographic groups and contexts, and thus warrant deeper inspection (Ioannides and Loury (2004), Calvó-Armengol and Jackson (2004), Calvó-Armengol and Jackson (2007), Afridi et al. (2015)). Multiple mechanisms may produce these differences, discussed briefly in section 2. The key understanding from this literature is that one must examine the structure, patterns, motives and expectations of individuals' ties within their micro context, in order to avoid over-generalization.³

To a great extent, an individual's context dictates the opportunities for establishing ties (Blau (1977)). The workplace provides opportunities (as well as constraints) for establishing ties that entail 'expressive' and 'instrumental' benefits (Ibarra (1992)).⁴

¹Recent studies have also shown the impact of workplace ties or interactions on other outcomes such as productivity, effort and earnings which is beyond the focus of this study (see Ashraf and Bandiera (2018) for a summary of recent literature on the impact of interactions in organizations on effort choice and productivity).

²I use the terms 'tie' and 'connection' interchangeably in this study.

³The role of ties as social capital has gained a lot of popularity across sociology, economics and political science based on the generic notion that they affect outcomes positively. However, micro econometric evidence shows that this may not always be the case (Baldassarri (2015)).

⁴'Expressive' benefits involve emotional, social support, higher closeness levels, and trust compared to ties that are exclusively for instrumental benefits (Moore (1990)). 'Instrumental' benefits involve access to resources (such as influence and information) that aid in career advancement (Ibarra (1997)).

Given the ‘workplace context’, an individual develops and maintains ties according to the purpose sought (Ibarra (1993), Wellman (1985)). Taking a cue from workplace ties literature, this study examines ‘personal ties’ of individuals within the context of their role as garment manufacturing workers.⁵

Most of our understanding of workplace ties come from white-collar job settings in developed countries. These studies highlight the disadvantages faced by women because they get excluded or may exclude themselves from influential ties that are instrumental in one’s career growth. This exclusion is associated with loss of valuable information, referrals, and perhaps the glass ceiling effect for women in organizations (see Brass (1985) for a brief review of this literature).

Women dominate blue-collar jobs in the garment manufacturing sector across developing countries. However, they are highly underrepresented at managerial levels (Naeem and Woodruff (2014), ILO (2017)). Similar trends prevail in India (Ranganathan and Shivarama (2017)). The most popular strategy with garment factories to hire supervisors is in-house promotion policy where recommendations from current line supervisors are given due weightage.⁶ Thus, having personal ties or “informal interactions” with supervisors can prove instrumental for one’s career.⁷ Absence of informal interactions is often associated with barriers to one’s career growth (Ibarra (1992)). The central theme of this paper is to examine personal ties of workers (who are most likely to be females) at the workplace with a focus on “informal interactions” with supervisors (who are most likely to be males). Moreover, Indian women

⁵Personal ties are the set of direct relationships of an individual with others (Ibarra (1992)). Workplace ties may also contain personal ties that originated in some other settings along with ties that arise purely due to working together in a team.

⁶As per the interviews conducted by the author with Human Resource Managers of different factories across India under IWWAGE Early-Career Research Fellowship – Award Year 2019. Using data from Bangladeshi factory, Heath (2018) show that 44% of supervisors had acted as a referee, albeit at worker level hiring.

⁷“Informal interactions” are non-task related communication, i.e., issues that do not come directly under the purview of the supervisor.

face strict cultural barriers regarding mobility and cross-gender interactions (Anukriti et al. (2020), Jayachandaran (2019)) that may perpetuate the existing power dynamics.⁸ Therefore, it is of practical importance to examine whether the structure of ties differs by a worker’s gender, within similar workplace context.

Taking a worker ‘*i*’ as the focal point, this study looks at personal ties (proxied by friendships) of 1744 blue-collar workers in two garment factories in the National Capital Region (NCR) of Delhi. These 1744 workers report in total 3358 ties (one-directional friendships). Cross-gender friendships are negligible, indicating strict gender homophily in friendships at workplace. 17% of workers do not report any friendships. The average number of friendships is around two. Even though women have a higher proportion of same-gender options available to them (85% of workers are women), they report significantly lower total number of friends (personal network size) and new friendships than men. Women have more homogeneous ties and are more likely to form friendships with workers from their regular line and same job rank (i.e., same functional group).

Only 0.56% of 3358 friendships are with supervisors indicating that supervisors are outside the personal ties of workers irrespective of the gender. However, there are significant gender differences in informal interaction patterns. Women are less likely to know their regular supervisor by name or reach out to them for emotional support. However, there are no gender differences in communication regarding non-personal non-task related issues.

Workers were asked the purposes for which they approached or could approach mentioned friends. Data show that while there are no gender differences in using these friendships for companionship, there are differences in expectations regarding

⁸One must note that women working in factories might have already overcome mobility restrictions (to some extent) that inhibit Indian women from going out and working. Thus, this is a selective sample of Indian women.

mobilization in the future. Women are less likely to extend monetary help to their friends, take up career advice or approach supervisors for monetary help. Additionally, other interpersonal characteristics like marital status, education, native state, age, experience, etc. and workplace context variables like designation, the proportion of females in a line, etc. are not correlated with a worker's network structure.

The tie structures and interaction patterns exhibited by the women in this study are associated with a limited flow of non-redundant information and influence. Workplace ties studies from developed countries have shown that individuals who establish weak ties with high-status individuals, non-kins, and whose interactions extend beyond their immediate work group tend to gain professionally from ties (Lin et al. (1981), Moore (1990)). This *suggests* that women might not be able to take advantage of weak ties availability at the factory.

There can be several explanations for these observed gender differences in social ties. Although pinning down the exact channel is beyond the scope of this study, I briefly discuss a few possible (but not exhaustive) factors that can give rise to these patterns in section 7. I want to emphasize that this study is descriptive and exploratory. The impact of differences in the pattern of ties on outcomes such as upward mobility within a firm or career advancement across organizations are questions left for future studies. However, to the best of my knowledge, this study is the first to look at the gender differences in workplace ties in developing country. It has the potential to contribute to the re-examination of organizational behavior. Although this study covers garment manufacturing factories, it can serve as a starting point for understanding labor-intensive sectors where a particular socio-demographic group dominates managerial positions, and ties are an important source of information and influence. This study also advocates the need to examine broader contextual constraints (such as cultural barriers) that are specific (or more severe) to women.

The remainder of the paper is organised as follows. In section 2, I present some of the stylized facts from existing research on the relationship between gender and social networks in developed countries and the growing literature on developing countries. Section 3 describes the context and setting of this study. Section 4 discusses the data set, measurement of variables, and the summary statistics. Section 5 presents the data analysis and results while section 6 shows the heterogeneity of findings. Section 7 discusses the results and 8 concludes.

2 Literature review

2.1 Workplace ties and gender : stylized facts from developed countries

One of the most stylized facts from workplace management and organization literature is that men have more extensive ties than women with powerful individuals in their organizations (Miller (1986)). In addition, there is strong gender homophily at workplace and networks are segregated by gender (Brass (1985), Ibarra (1992), McPherson and Smith-Lovin (1987)).⁹ Homophily and status of ties tend to be positively correlated for men and negatively for women (Ibarra (1992)). Women interact with men for instrumental benefits and establish ties with other women for expressive benefits. Additionally, ties with women are perceived to be less influential. Men tend to reap greater benefits from similar individual and positional connections, as well as from homophilous ties, relative to women (Ibarra (1992), Steven and Ports (1992), Ioannides and Loury (2004)).

Two popular perspectives have emerged as explanations of these observed gender differences. ‘Dispositional’ perspective argues that these gender differences in ties arise due to fundamental differences in behavior, preferences, and attitude by gender (Gilligan (1982)). For instance, women are more likely to form stronger, fewer ties,

⁹“Homophily is defined as the tendency for people to seek out or be attracted to those who are similar to themselves.” (McPherson et al. (2001))

and more ties with kin than men. Women’s ties are more ‘relational oriented’ and thus, they may not interact for career advancement. On the other hand, men interact with a variety of people and have numerous weak ties that give them access to non-redundant information.¹⁰

By contrast, the ‘structuralist’ perspective attributes these differences to the structural constraints that vary by gender. Historically, not only do men dominate positions of influence at the workplace, but they also have more opportunities to establish and maintain such ties. Many studies examining gender differences in tie structures support this perspective (Brass (1985), Moore (1990), Ibarra (1992), Ibarra (1993)). They find that controlling for differences in social positions reduces gender differences in network structures to a great extent. Further, Kanter (1977), Kanter (1979) argue that women do not occupy critical positions, but rather standardized jobs, and thus have little visibility and involvement in decision making. As a result, women find it difficult to establish instrumental ties.

Granovetter (1973) highlighted the strength of weak ties in his seminal work and since then this concept has been used widely in labor economics to show (theoretically and empirically) how smaller and tighter network density (i.e. fewer and stronger ties) can lead to unfavorable labor market outcomes for women (Montgomery (1990), Ioannides and Loury (2004), Calvó-Armengol and Jackson (2004), Mortensen and Vishwanath (1994), Lalanne and Seabright (2016)), Horvath and Zhang (2018), Lindenlaub and Prummer (2017)).

2.2 Workplace ties and gender: evidence from developing countries

The use of social ties is even more pervasive in the developing world due to either market failure and/or absence of social protection. For instance, Munshi and Rosen-

¹⁰“Relational orientation is the degree to which individuals engage in establishing and maintaining interpersonal relationships” (Hemmer and Kin (2020)).

zweig (2006) found that the use of referrals for landing jobs is quite common in India. In lab-in-the-field experiments conducted by Beaman and Magruder (2012), 45% of the experiment participants had helped a friend or relative in finding a job with their current employer in urban Kolkata (India). In a related study on garment factory workers, Afridi et al. (2020b) note that 64% (71%) of workers (supervisors) using the informal channel for job information, came to know about their current job opening through a factory employee. To summarize, existing studies from developing countries show the importance of employee referrals and, thus, workplace ties, but evidence on their structure and implications for women is limited.

Research from other contexts does show that women face disadvantages when information flows or is accessed through ties. For example, using experimental data from Malawi, Beaman et al. (2018) shows that men refer men despite knowing qualified women (due to strong gender homophily). However, women do not refer more qualified women (due to competition) for jobs. Further, Beaman and Dillon (2018) use social ties data from villages in Mali and find that women are less likely to receive valuable information regarding agricultural technology because they are away from influential nodes in the network. In another Malawi based study on information diffusion, Yishay et al. (2020) show that women are perceived to be less efficient in male-dominated roles even though no difference exists in the knowledge they possess.

Another critical observation from social network studies in India is that women may have an alternate use of ties that might not exist for men due to stricter cultural barriers for women. For example, in a related lab-in-the-field experiment based on garment manufacturing workers, Afridi et al. (2020a) observe that most women subjects came to participate in experiments only if they could find other women to accompany them. Using field experiments with SEWA bank customers, Field et al. (2016) show that getting trained with a friend improved the business activities of the

participants along with an increase in their household’s earnings and expenditures. Women coming from the restrictive social background were more sensitive to getting trained with a friend. Anukriti et al. (2020) using a sample of around 600 women from rural areas of Jaunpur district of U.P. show that having connections outside the household alters a woman’s belief about family planning (through information channel) and helps her overcome mobility restrictions (through companionship channel).

These studies point out that cultural barriers and perceptions may play an essential role in shaping the structure and objectives of ties in a manner distinct from men. Further, ties that are helpful in one context (e.g., same-gender ties providing companionship) can be a liability in other contexts (e.g., requirement of cross-gender referrals for career mobility).¹¹

The takeaway message from the literature on both developed and developing countries is that there exist multiple channels that can lead to differences in the structure and pattern of workplace ties, which may further exacerbate gender inequalities. However, studies exploring this notion are at a nascent stage for developing countries. This study attempts to fill this gap by examining personal network relationships with interpersonal characteristics (dispositional perspective) within workplace-related constraints (structuralist perspective).

3 Context and background

3.1 Women in garment manufacturing

Globally, women represent 68% of the workforce in garment manufacturing with huge inter and intra-country variations. A job in the apparel sector could be the first formal

¹¹In another context, Munshi and Rosenzweig (2006) show that previously disadvantaged group (girls) were able to take advantage of fewer network ties when traditional institutes (*jati* ties) met modern institutes (English education system). The traditional occupation of the *jati* influenced boys’ schooling choice in Mumbai. However, girls experienced less resistance from social networks due to their historic non-participation in the labor force. These findings further motivate the importance of the micro context in which ties are embedded, a theme followed in this study.

employment opportunity for many women in developing countries (ILO (2017), BSR (2017)). Using data from Bangladeshi garment factories, Heath and Mobarak (2015) show that a job in the garment manufacturing sector is associated with the better bargaining power, educational outcomes, and fertility decisions of women. Despite being in the majority and more productive as skilled operators, women in garment manufacturing face numerous challenges such as over-representation in low-paying and low-skilled tasks, under-representation at managerial positions, wage-gaps, un-supportive norms and power dynamics (ILO (2018)).

The most common stylized fact from various studies on garment factories is that men have historically dominated supervisory positions, which are higher than the worker positions most women are relegated to (discussed in detail later), in the management hierarchy (Naeem and Woodruff (2014)). As part of related on-going research based on garment factories in the National Capital Region (NCR), India, Afridi et al. (2020b) observe that 85% of workers are female and significantly more productive than male workers ($p < 0.01$), yet, there are no female supervisors. These establishments do not have women even in substitute, temporary supervisory roles.

In some industrial hubs of South India like Bangalore and Tirupur, women's participation in the blue-collar positions in the factory is as high as 90%. Over time these factories have started hiring females for supervisory roles, although males still dominate these positions. Currently, only 15-20% of supervisors in South Indian factories are females (Ranganathan and Shivarama (2017)). Studies are yet to address the causes of the failure of management to hire women supervisors despite the absence of any concrete evidence of them being worse performers than male supervisors in the long run (Naeem and Woodruff (2014), Ranganathan and Shivarama (2017)).

3.2 Importance of ties at the factory

Production in garment factories takes place in assembly-lines across multiple floors.¹² Each production line has operators responsible for stitching garments (sitting on stitching machines, one behind the other). A line also comprises workers called helpers who do complementary jobs of folding, pressing and marking intermediate garments pieces for operators. Operators' jobs involve more skilled tasks than helpers.

The focus of this study is on the personal ties of these workers that not only provide emotional support but act as a “system for making decisions, mobilizing resources, concealing or transmitting information, and performing other functions closely allied with work behavior and interaction” (Lincoln and Miller (1979)). They serve as a source of expressive and instrumental benefits (Ibarra (1993)).

Each line also has a designated manager called a supervisor who is directly responsible for the line's performance and management of the workers in the line. Supervisors are part of staff hiring and ranked above operators and helpers. The supervisory position is the first entry-level managerial post at the factory. Hierarchically, line in-charge, floor in-charge, and production-head succeed supervisor. The factory head is the top production managerial position at the factory and deals directly with CEOs and factory owners. In the sampled factories (similar to the garment factories in the developing countries), the managerial positions are dominated by men except for some intermediary HR positions. For a worker, ties with any of these functional groups entail instrumental benefits.

Discussions with the management of the sampled factories revealed no fixed time-bound promotion system. The hiring of supervisors takes place through an internal promotion process or referrals. Moreover, recommendations of existing supervisors

¹²For details on production floor organization and process refer to Afridi et al. (2020b) which covers the same set of factories.

play a significant role in screening workers for grade promotion, assistant supervisory and supervisory roles. Supervisors act as a link between workers and other managers, and thus ties with the supervisors are a primary source of instrumental benefits for the workers.

In the context of factories covered here, the importance of workplace ties is evident from the use of ties for obtaining job information for the current job of these workers. Statistics described here are from Afridi et al. (2020b) that covered a similar set of workers. From the 1744 workers in this study, 75% had used a tie for obtaining information on the job opening at the current factory(s). 65% of these job information ties were the employees of the respective factories at the time of joining of these workers. Conditional on job information ties working at the factory (at the time of the survey), 42% of these ties also referred the respondent to the management.

Further, around 50% of these job information ties were stitching operators, followed by managers, i.e., factory employees with line supervisory and above designation (29%). Conditional on the gender composition of the sample, a higher proportion of females used ties for job information (77% females, 63% males), but a higher proportion of males obtained referrals (40% females, 58% males). Also, 54% of males' job information ties were with managers, whereas this number was only 25% for females. The notable observation here is that males mobilized a higher proportion of supervisor-contacts for instrumental benefits, even though females form the majority of the workforce in garment factories.

3.3 Scope of interaction at garment factories

In the sampled factories, a typical day of a worker starts at 8 am and lasts until 5 pm (excluding overtime) with a 20-minute lunch break during mid-day. There are no prescribed time slots for tea/water/restroom breaks. Moreover, the management

does not have any specific policy of providing opportunities for worker interactions. Workers are usually assigned a line when they join the factory, but they can be reallocated across lines on a production floor. However, their positions are fixed within a line throughout a workday. Workers cannot choose the kind of task they perform or the lines they sit in or around whom they sit. They cannot choose the supervisors they work under either. Supervisors are designated to fixed lines by the management for a considerable period. Thus, a worker gets repeated opportunities to interact with the same set of co-workers and line supervisors. However, one must note that within a functional group on a day, mobility restrictions and demanding nature of work put severe constraints on the workers uniformly for establishing ties during working hours.¹³

Since worker movement across floors is highly unlikely as every floor is like a small factory with lines as sub-units, a floor spans the entire set of new social contacts the worker can build. The average line strength across the sample comprises 33 workers, with a range of 9 to 54 workers. Further, the average proportion of females per line is around 80% (Afridi et al. (2020b)). Thus, on any given day, the availability of same-gender contacts is significantly higher for females. The line-level functional group is the tightest and smallest network unit in the factory. Opportunities for forming new external contacts (i.e., across other floors and departments) are quite limited, but they are potential sources of new information (Ibarra (1993)).

To summarize, personal ties at the workplace are an important source of expressive and instrumental benefits. The factory work structure puts uniform constraints on availability, proximity, and frequency of interactions for workers within similar functional unit. Given these constraints, individuals will strategically choose ties and interactions to fulfill the purposes they seek. Since there is a limit on ties that an

¹³A worker's functional group consists of workers from her regular line and the same hierarchy.

individual can maintain, differences in the purpose itself can result in different tie structures.

4 Data and summary statistics

4.1 Data

The data come from two factories located in the industrial hubs of Faridabad and Gurugram (both in the National Capital Region, NCR) in the state of Haryana, India. While the former factory caters to foreign buyers, the latter primarily manufactures garments for the domestic market. 90% of the sample belongs to the exporting firm, which is significantly larger. Data on worker characteristics and workplace networks come from a census conducted between August - October 2015 (Afridi et al. (2020b)). The following section briefly describes the data collected through personal interviews of the workers. I create cross-sectional data for 1744 workers by combining data from different sources. The variables that measure workplace constraints, attendance and worker performance are taken directly from Afridi et al. (2020b).

4.1.1 Survey data

The survey collected information on all the workers in the stitching department through a questionnaire that was administered through personal interviews. Each personal interview lasted for approximately 20 minutes. The first section of the questionnaire gathered information on demographic characteristics, work experience in garment manufacturing, and joining date. The second section collected details on the process of obtaining the current job, and on the structure of job information ties if the job informant still worked at the factory. Details on worker-supervisor and co-worker interactions and ties were collected in sections three and four, respectively. These sections asked workers to report their regular supervisors and co-workers whom they

considered as friends. For each reported tie, a series of questions measuring the duration, frequency of interactions, communication, proximity, and mobilization followed.

4.2 Measurement of ties

Tichy et al. (1979) outlines an analytical framework that has formed the basis for several workplace ties based studies (e.g. Lincoln and Miller (1979), Brass (1985), Ibarra (1993), Moore (1990), Ibarra (1992), Ibarra (1997), Burt (1992)). My analysis here relies heavily on these studies for measuring the structure and interaction patterns of the ties at the sampled factories.

4.2.1 Personal ties

Personal ties consist of non-formal relationships that involve informal interactions (i.e. interactions not essential for accomplishing tasks in the organization). These relationships get formed due to liking and attractions (mostly arising from identity or group affiliation) when individuals work around each other (Rotemberg (1994)). In large factories like the ones considered here, workers come from similar socio-economic backgrounds and residential clusters (Afridi et al. (2020b)). Thus, another major source of personal ties is pre-factory relationships (older and stronger than new ties). In this study, I consider self-reported friendships with other workers employed at the factory as the set of personal ties. I use concepts of *size*, *diversity* and *range* from the network literature to measure the structure of personal ties, as follows:

Size: I take worker ‘*i*’ as a focal point to measure each unidirectional relationship reported as one friendship (tie). This measure gives the worker’s ‘*personal network size*’ at the workplace (Moore (1990)). Further, I distinguish between friendships that form after joining the factory (i.e. *new* friendships) and pre-factory ties (i.e. *older* friendships) to give us the size of new and older personal ties, respectively.

The sources of older friendships vary by neighborhoods, kinships, schools, training

centers, previous workplace, etc. Each type of tie may be associated with different benefits. For instance, neighborhood and kinship ties can provide childcare support to mothers and thus, women may have a higher proportion of these types of ties (Moore (1990)). Whereas pure workplace ties tend to be weak (e.g. acquaintanceship), they offer new information and might be easier to maintain (Ericksen and Yancey (1977), Lin et al. (1981), Granovetter (1973)).

On the one hand, older ties are ready-made and more trustworthy (Wellman (1985)). These might also help women overcome cultural barriers. Additionally, older ties may also help to ‘break the ice’ at a new workplace, increasing one’s personal network size. On the other hand, older ties may also have lock-in effects involving higher moral and emotional obligations (Hemmert and Kin (2020)). Thus, limited time-budget leads to a trade-off between different types of ties. An individual maintains an optimal composition depending upon the benefits offered and the costs imposed by the different types of ties (Boorman (1975)), which I try to capture by *diversity*.

Diversity: Diversity captures the variety in the origin of friendships at the workplace. I use three measures of diversity. First, the count of different sources of ties – *type of ties*. A higher number indicates more variety. Second, the proportion of *newer* friendships. Third, *diversity index* - share of each type of source in total friendships. The last two measures range from 0 to 1, and higher value indicates a more homogeneous structure of ties.

Range: The third measure of the structure of personal ties is the *range*, *viz.* proportion of friendships at the workplace that are outside the immediate functional group of the worker *i*. I use the count of friends (i) from non-regular lines, (ii) with different designations, and (iii) from other lines or designations (i.e. outside immediate functional group) to measure the range of ties of a worker.

4.2.2 Mobilization of personal ties

Ties provide a host of benefits apart from emotional support and knowledge spillovers. In fact, at times, the possibility of benefits dictates the formation of the ties. The questionnaire listed potential purposes for which workers might mobilize their friendships which are classified into two broad categories as follows.

Companionship: Sum of responses from questions that emphasized providing support through company (expressive benefits) during lunch, traveling, or medical emergencies. For every affirmative answer score of 1 is assigned; 0, otherwise.

Reciprocity: I measure reciprocity by the willingness to extend monetary help to the mentioned friend. The survey asked if the worker ‘*i*’ ever lent or can lend money (Rs. 500 and above) to the mentioned friend.¹⁴ A score of 1 means that the worker is willing to lend money.

For each worker, I collapse data from worker-friendship level to worker level to obtain mean scores. The final variables - *companionship index* ranges from 0 to 3. A score of 3 implies that the worker mobilizes all the friendships for all the aforementioned purposes; *reciprocity index* is the proportion of friends a worker can lend money to, ranging from 0 to 1. A higher value implies more use of ties for the mentioned purposes.

4.2.3 Supervisor ties

As discussed in Section 3, supervisors are the most common and immediate set of influential ties that can be most instrumental for a worker’s career. Unlike other studies, I take the source of influential tie fixed for all the workers sitting in line *l* and examine communication patterns between workers and supervisors through the responses given by the workers.¹⁵ Job requirement gives both men and women similar

¹⁴INR 500 translate into ≈ 7.5 USD (2015), equivalent to 2-3 days earnings of these workers.

¹⁵Workers may indeed have other sources of instrumental benefits in the factories. However, workers are least likely to select their supervisors, unlike other sources of influential ties. It is appropriate to assume

opportunities to interact with their respective supervisors, but whether and which type of workers derive instrumental (or expressive) benefits are interesting questions to ask.

I proxy supervisor interactions by communication with the designated supervisor and knowing the supervisor by name. Communication falls into two categories - *non-task issues* and *seeks emotional support*. Non-task issues are different from routine, on-the-stitching-floor problems that a supervisor is supposed to handle.¹⁶

4.2.4 Mobilization of supervisor ties

I look at the uptake of (i) *Career advice* given by supervisor and approaching him for (ii) *Monetary help* in the future. These responses measure the trust and comfort level that workers have while approaching supervisors.

4.3 Summary statistics

Table 1 describes the characteristics of a sample of 1744 workers of the stitching department.¹⁷ Overall, 85% of workers are women. An average worker is 30 years of age, married Hindu from an unreserved caste category with 3.6 years of experience in the garment industry. Table 1, Col(4) shows that men and women differ on almost all the characteristics except attendance rate. Panel A shows that women are more likely to be older, married, belong to upper caste and less likely to have migrated from Bihar, education above secondary level, or own a mobile phone.

Panel B of Table 1 shows an individual's work profile related characteristics. The majority of women employees are operators (high skilled type as opposed to helpers).

that this source of tie is most readily (and exogenously) available to all workers in a line 'l'.

¹⁶*Non-task issues* examples - discuss salary miscalculation, security issues, lack of other facilities at the factory, and emergency leave. *Seeks emotional support* examples - discuss personal issues such as credit crunch, family disputes, landlord related issues, etc.

¹⁷Full sample consisted of 1916 workers, but due to missing information on productivity and caste, the sample falls to 1744. Refer to Afridi et al. (2020b) for statistics on full sample. Caste categories are defined using the categorization given by the Government of India under its affirmative action policy - H (General or Unreserved), M (OBC), L (SC/ST).

More than half are first-time employees and have less experience as compared to males. The average efficiency per worker is around 31%, and women are significantly more productive.

Table 2 summarizes the structure of personal ties (measures of dependent variable). Around 83% of the workers report at least one friendship at the workplace. A majority of these ties are new, originating at the current factory (79%). An average worker reports around two friends at the factory. Average length of friendships is around two years. In general, workers have less diverse ties that are clustered within their functional units, as evident from Panels B and C. Table 2, Col (4), however, shows significant gender differences in size, diversity and range of personal ties with women having fewer total and new friendships, less diverse and restricted range as compared to men. Women have significantly more older friendships and lengthier ties. *t*-tests show no significant differences in mobilization of personal ties.

Table 3 depicts interaction patterns with the regular supervisor for the 1744 workers. On average, a worker has worked for nine months under the reported supervisor. Women are less likely to know their regular supervisor by name. Around 67% of workers report that they talk about non-task related issues with their supervisor with no significant difference by gender. The proportion of workers discussing personal issues (seeks emotional support) is quite low - 3.2%, with this figure being only 2.2% for women. Panel B shows the possibility of mobilization for benefits in the future. Women are less likely to consider career advice and seek monetary help. However, the overall uptake of future career advice is quite low at 2.6%. There are no significant differences in other sources of connectedness, such as caste or religion, as shown in Panel C.

In the next section, we examine whether the observed gender differences are significant when we control for variations in interpersonal characteristics and workplace

constraints.

5 Methodology and results

5.1 Methodology

I use the following estimating equation to examine the effect of gender on the structure of personal and supervisor ties of stitching department workers:

$$Y_i = \beta_0 + \beta_1 Gender_i + \gamma \mathbf{X}_i + \delta \mathbf{W}_i + \epsilon_i \quad (1)$$

where, Y_i is the measure of *size*, *diversity* and *range* as described in section 4.2.1. $Gender_i$ takes value 1 if female, X_i is a set of variables measuring interpersonal characteristics. Interpersonal variables are individual demographic characteristics such as marital status (married=1), religion (Hindu=1), native state (Bihar=1), age, years of experience in garment manufacturing and education level along with quadratic terms for age and experience. A worker’s performance is measured by her/his average efficiency for a period of 31 work days taken from Afridi et al. (2020b). W_i are variables measuring workplace related constraints such as designation (operator=1), factory dummy (export factory=1), and the mean proportion of females in the line l (‘Availability’ of same-gender ties). ‘Availability’ measure comes from the panel used in Afridi et al. (2020b).

β_1 is the main coefficient of interest and gives us the direction and magnitude of gender differences, after taking into account variation due to other personal characteristics.¹⁸

¹⁸Around 17% of workers reported no friendships making their personal network size zero. Running a probit model with the dependent variable as dummy=1 if a worker reported at least one friend, 0 otherwise; and interpersonal characteristics as controls, I find that probability of reporting a friend is insignificantly correlated with these covariates except (negatively with) H caste dummy. Wald statistics for overall test of significance is statistically significant. Thus, we cannot ignore this 17% of the sample. However, a simple procedure of censoring all dependent variables to zero for these observations will give misleading estimates in this particular setting. For example, consider dependent variable - ‘Number of new friends’ that takes

I use equation (1) for studying supervisor-worker informal interactions as well. Here Y_i is the measure(s) of communication, as defined in Section 4.2.2. I add controls for months of working under the reported supervisor and mean strength of the line (instead of the ‘proportion of females in the line’ used in personal ties analysis).¹⁹

5.2 Results

5.2.1 Personal ties

Table 4 shows results from estimating equation (1) for different measures of the structure of ties. Gender differences in the size of personal network persists even after controlling for interpersonal characteristics and work-profile related variables. Col (1) and (2) show that women report significantly fewer total and new friends. Refer to col (1), Table A1 for estimates from the first stage that gives the predicted probability of reporting personal network at workplace. Coefficients on diversity and range suggest that women have less diverse ties. Col (6) shows that women have more homogeneous ties as compared to men. β_1 is negative and significant in col(7),(9) indicating that women have fewer contacts outside their immediate functional groups.

Coefficients on interpersonal variables and other work profile related variables are mostly insignificant (not reported due to space constraints). Detailed results on the interpersonal variables for *size* of personal networks, by gender, are in Table A2,

value zero if an individual reports no new friendships and also because workplace network size is zero. This procedure treats both types of responses similarly, even though they are quite different (e.g. due to differences in trade-offs, constraints and underlying motivations for having a network *vs* no network and having new friends *vs* no new friends). Estimation of ‘hazard of exclusion’ (measured by inverse mill’s ratio) and using that in the outcome equation to address this issue has been recommended widely in network analysis literature (Marsden and Hurlbert (1987), Winship and Mare (1992)). I use ‘two-step heckman correction procedure’ (Heckman (1979)) by using “*heckman*” package from STATA on equation (1). Caste dummies H and M are used as exclusion restriction in the selection equation (for the same set of workers, Afridi et al. (2020b) demonstrate exogeneity between caste and line assignment of a worker and importance of caste networks at workplace but no heterogeneity in the impact of these networks by caste).

¹⁹Regressions for worker-supervisor interactions use clustered standard errors at the modal line levels of the worker. I use a modal line for each worker i.e. the line in which worker sat for the maximum number of days from the productivity data used in Afridi et al. (2020b). Correlation between reported line and the modal line is 0.9996, ($p < 0.01$). Since the two-step procedure does not allow clustering of standard errors, I also report results without clustered standard errors in Appendix A for worker-supervisor interactions.

(col(4)-(6)) and (col(7)-(9)).²⁰ Similar to the overall sample, we observe that variables related to interpersonal characteristics and the workplace are not correlated with size of personal network for either gender. Observations from Table 4 and Table A2, thus, leads us to the following conclusions:

Result 1: Women have smaller personal networks at the workplace as compared to men.

Result 2: Variations in interpersonal and workplace characteristics are insufficient for explaining the observed gender differences in personal networks.

5.2.2 Supervisor ties

Table 5 shows results for worker-supervisor communication with standard errors clustered at the modal line level. Females are significantly less likely to know their supervisor by name (col (1)) and seek emotional support with the supervisor (col (7)). The coefficient on ‘gender’ is negative for *non-task related* communication, albeit insignificant. ‘Months of working together’ has a positive and significant relationship with the different interaction measures and sub-samples.²¹ We, therefore, get the following result from Table 5

Result 3: Women are less likely to interact informally with their supervisors.²²

Note that the coefficient on worker efficiency is insignificant throughout. Additionally, similar to friendship ties (Table 4), coefficient on interpersonal and work-profile variables are mostly insignificant. This reinforces our result 2.

²⁰(Col(2), (3), Table A1 give details of the first stage Heckman correction procedure.)

²¹Results without clustered standard errors reported in Table A3 give similar conclusions for the main coefficient of interest (β_1)

²²Similar results if we add line fixed effects (which also serve as a proxy for supervisor fixed effects).

5.2.3 Mobilization of ties

Table 6 depicts the benefits and expectations from friendships with co-workers and supervisors. Col (1) shows no gender differences when friendships are mobilized for company during lunch, travelling to work and medical emergency. However, col (2) indicates that females are less likely to extend monetary help to their friends. Also, they are less likely to consider career advice and approach their supervisor for monetary help (Col(3) and (4)). To summarize, we observe significant gender differences in workers' perceptions regarding future benefits from workplace ties.²³ Summarizing Table 6 we conclude:

Result 4: Women are less likely to leverage ties with their supervisor.

6 Heterogeneity

The existing literature has shown a strong correlation between certain interpersonal characteristics like marital status, education level and work-status with individuals' network structure (Moore (1990)). Even though results from equation (1) show insignificant association between interpersonal characteristics and personal network patterns, I conduct the analysis by sub-samples of worker characteristics to check for heterogeneity in these associations.

I run equation (1) on: (i) married/unmarried, (ii) above or equal to median level education and below median, (iii) above or equal to median factory attendance rate and below, (iv) above or equal to median number of working days and below, (v) above or equal to median per worker efficiency and below. I find no heterogeneity by the aforementioned sub-samples except for marital status. The negative correlation between size and gender is driven by the non-married sub-sample, i.e., there are no differences in personal ties of married men and women, but unmarried women have

²³Refer to Table A4 for results with non-clustered standard error on expectations from supervisor.

smaller networks as compared to unmarried men (see Table 7). However, I do not find heterogeneity in the informal interactions with the supervisor for any of the sub-samples.

Further, as discussed earlier, around 75% of workers had mobilized their social ties to obtain job information. I check if this experience of mobilization of ties for instrumental benefits has any heterogeneous association with the overall results.²⁴ Analogous to Table 7, I report results for sub-samples by job information source in Table 8. Panel B shows that the negative correlation between gender and personal ties are driven by the women who did not use ties for job information.²⁵

Thus, in our sample, marriage and prior successful mobilization of ties for instrumental benefits is associated with mitigation of gender differences in workplace network composition. Interestingly, marriages in India are associated with patrilocal-patrilineal shocks that significantly restrict women’s benefits from social ties (Anukriti et al. (2020)). However, migration to urban industrial hubs due to marriage may weaken restrictions imposed by patrilocal-patrilineal shocks and thus necessitate further investigation.

Table A5 shows gender differences in ties used for job information (Panel A) and differences in workplace ties of women who successfully used ties for job search *vs* who did not or could not (Panel B and C). Conditional on job information source still employed at the same factory, Panel A shows that women’s job information sources live in close proximity (high proportion of post-migration neighbors), involve higher level of trust (ever lent money) and are lengthier (higher average length of ties) as compared to men’s. Panel B shows similar patterns in personal ties of women

²⁴Using data from Bangladeshi garment factories, Heath (2018) shows that only 14% of workers who did not receive a referral in their first job, received referral later versus 44% of workers who received referrals in their first job.

²⁵I find no heterogeneity for informal interactions with supervisors for the same sub-samples.

who used job search ties as compared to women who did not. Even though prior mobilization is positively correlated with network size, these women still maintain strong ties with higher degree of relational orientation.²⁶

The findings above underline the relevance of future studies that focus more rigorously on these channels and which may provide useful insights on cultural barriers and implications of social ties on female labor force participation.

7 Discussion

The analysis shows consistent differences in the structure of men’s and women’s personal ties even after we take interpersonal variation and structural constraints into account. Result 1 is quite surprising because factories have ample homophilous ties options for women at the blue-collar level, unlike men. One of the most important observation from our data is that women have lower expectations regarding help from supervisors (the primary source of instrumental benefits).

There can be several explanations of these results. In the Indian context, one needs to look beyond structural and dispositional perspectives. Gender norms can manifest themselves in several ways and explain these patterns. For instance, various sections of Indian society (similar to many other developing countries) emphasize maintaining the “purity” of women. Any interactions with men outside the family are frowned upon (Jayachandaran (2019)). This type of social conditioning may voluntarily restrict women from useful interactions with men at the influential positions and benefit from “strength in numbers” (Jayachandaran (2019)).

Gender norms also result in lack of awareness regarding instrumental benefits of ties, lack of aspirations, and different objectives or time constraints that may hinder the development of instrumental ties for women. Future studies focusing on

²⁶Following Granovetter (1973) definition of tie strength as the function of “the amount of time, the emotional intensity, the intimacy (mutual confiding) and reciprocal services”.

disentangling these effects can provide useful policy recommendations that may help managements identify high potential women through in-house referral programs.

We also observed that women and men exhibit similar pattern of ties if they had mobilized ties for current job information or are married. These events might have helped women overcome cultural barriers and mitigate safety concerns through companionship or shift in aspirations. However, women's informal interactions with supervisors are quite limited, irrespective of sub-samples considered. Further exploration is required on the kind of ties that help women achieve similar professional outcomes as men.

The critical finding from all the results above is that structure of women workplace ties are opposite of those identified in the literature for career advancement. While testing the impact of these gender differences in ties on career outcomes is beyond the scope of this study, the emerging patterns *suggest* that the reliance of managements on employee referrals can be inimical to women's career mobility. Examining this further can help us understand the factors that constrain the demand for women at supervisory positions.

8 Conclusion

This study examines the interaction patterns of workers in garment factories. It finds significant differences in the pattern of workplace ties by gender. Women have fewer personal ties but not when the purpose of the tie is companionship. Supervisors do not figure in the personal networks of the workers, but women are less likely to approach them for help or career advice. Neither variation in interpersonal characteristics like experience, performance, education, nor workplace related variables like designation or attendance explain these gender differences.

In the context of the Indian manufacturing sector, which is dominated by males

at managerial positions, one needs to examine the role of gender norms in explaining these observed differences. Further examination is required to understand whether cultural barriers restrict women workers from cross-gender interactions. However, irrespective of the causes of these gender differences in workplace ties, firms can act as ‘network equalizers’ by encouraging cross-gender interactions and female representation at higher managerial level.

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Table 1: Worker characteristics

	Overall	Female	Male	Diff
	(1)	(2)	(3)	(4)
	1744	1481	263	(2)-(3)
<i>A. Demographics</i>				
Age (years)	29.637 (0.164)	30.190 (0.174)	26.521 (0.433)	3.669*** (0.450)
Proportion married	0.756 (0.010)	0.795 (0.010)	0.540 (0.031)	0.255*** (0.028)
Proportion Hindu	0.931 (0.006)	0.937 (0.006)	0.897 (0.019)	0.040*** (0.017)
Prop. of migrants from Bihar	0.264 (0.011)	0.252 (0.011)	0.335 (0.029)	-0.083*** (0.029)
Prop. of secondary & above educated	0.170 (0.009)	0.159 (0.026)	0.232 (0.010)	-0.073*** (0.025)
Proportion H	0.468 (0.012)	0.488 (0.013)	0.361 (0.030)	0.126*** (0.033)
Proportion M	0.311 (0.011)	0.302 (0.012)	0.365 (0.030)	-0.063** (0.031)
Proportion L	0.220 (0.010)	0.211 (0.011)	0.274 (0.028)	-0.063** (0.220)
Prop. owning mobile phones	0.698 (0.011)	0.664 (0.012)	0.890 (0.019)	-0.226*** (0.30)
<i>B. Work Profile</i>				
Proportion of operators	0.806 (0.009)	0.828 (0.010)	0.681 (0.029)	0.148*** (0.026)
Experience in garment manufacturing (yrs)	3.574 (0.092)	3.344 (.094)	4.870 (0.283)	-1.526*** (0.254)
Average efficiency	0.311 (0.005)	0.316 (0.005)	0.284 (0.012)	0.032** (0.013)
Attendance rate [#]	0.920 (0.002)	0.919 (0.002)	0.925 (0.005)	-0.006 (0.006)
Proportion of first time employee*	0.489 (0.012)	0.539 (0.013)	0.214 (0.025)	0.325*** (0.033)

Note: Col (5) is based on *t*-test for differences in mean. [#] Attendance rate calculated for 61 working days, missing for 0.23%, *Joining date missing for \approx 2% of the analysis sample. H (Unreserved), M (OBC), L (SC/ST) are administrative caste categories as specified by Government of India under affirmative action policies. Average efficiency taken from Afridi et al. (2020b). Source: Factory survey data, Aug-Oct 2015. Standard errors in parentheses. Significant at *10%, **5% and ***1%.

Table 2: Personal ties at the factory

	Overall	Female	Male	Diff
	(1)	(2)	(3)	(4)
<i>A. Friendships per worker</i>	N=1744	N=1481	N=263	(2)-(3)
Reported atleast one friend	0.830 (0.009)	0.821 (0.010)	0.821 (0.024)	0.009 (0.025)
No. of friendships with co-workers	1.757 (0.034)	1.730 (0.036)	1.893 (0.094)	-0.164* (0.094)
No. of new friendships	1.390 (0.033)	1.352 (0.035)	1.605 (0.092)	-0.252*** (0.092)
No. of old friendships	0.364 (0.019)	0.377 (0.018)	0.289 (0.047)	0.088* (0.050)
Average length of friendships (yrs.)	2.177 (0.087)	2.177 (0.095)	1.746 (0.214)	0.432* (0.242)
<i>B. Diversity</i>				
Type of friendships	0.944 (0.011)	0.949 (0.012)	0.916 (0.028)	0.033 (0.031)
Prop. of new friendships	0.634 (0.011)	0.626 (0.012)	0.683 (0.028)	-0.057* (0.031)
Prop. of each type of friend	0.575 (0.009)	0.584 (0.010)	0.526 (0.023)	0.057** (0.026)
<i>C. Range (No. of friends)</i>				
Outside line	0.568 (0.021)	0.539 (0.022)	0.734 (0.074)	-0.195*** (0.06)
Different designation	0.137 (0.007)	0.126 (0.008)	0.196 (0.022)	-0.070*** (0.021)
Outside functional unit	0.737 (0.024)	0.697 (0.024)	0.966 (0.078)	-0.269*** (0.066)
<i>D. Mobilization</i>				
Companionship Index	1.497 (0.022)	1.503 (0.024)	1.461 (0.056)	0.042 (0.042)
Reciprocity Index	0.774 (0.771)	0.771 (0.787)	0.787 (0.774)	-0.161 (0.016)

Note: Col (4) based on t -test for differences in mean. $\approx 17\%$ of 1744 workers reported having no friendship with the co-workers. Statistics presented here are calculated after replacing no friendships with zeros. Mean differences are stronger when conditioned on reporting atleast one friend. ‘Old friendships’ are the ties which formed before coming to the factory such as from school, native village, kinship or neighborhood (pre-factory ties). Source: Factory survey data, Aug-Oct 2015. Standard errors in parentheses. Significant at *10%, **5% and ***1%.

Table 3: Supervisor ties

	Overall	Female	Male	Diff
	(1)	(2)	(3)	(4)
<i>A. Interactions</i>	N=1744	N=1481	N=263	(2)-(3)
No. of months worked under reported supervisor	9.311 (0.363)	9.305 (0.392)	9.340 (0.970)	-0.035 (1.015)
Knows supervisor by name	0.874 (0.008)	0.867 (0.009)	0.909 (0.018)	-0.041* (0.022)
Discusses non-task issues	0.672 (0.017)	0.677 (0.019)	0.646 (0.043)	0.030 (0.048)
Seeks emotional support	0.032 (0.004)	0.022 (0.004)	0.088 (0.017)	-0.066*** (0.012)
<i>B. Mobilization (in future)</i>				
Uptake of career advice in future	0.026 (0.004)	0.020 (0.004)	0.065 (0.015)	-0.045*** (0.011)
Can seek monetary help	0.402 (0.012)	0.355 (0.012)	0.665 (0.029)	-0.310*** (0.032)
<i>C. Other sources of connections</i>	N=1450*	N=1234	216	(2)-(3)
Belong to same caste (=1)	0.359 (0.014)	0.361 (0.014)	0.352 (0.033)	0.009 (0.035)
Belong to same religion (=1)	0.657 (0.012)	0.650 (0.014)	0.699 (0.031)	-0.049 (0.035)

Note: Col (4) based on *t*-test for differences in mean. *Conditional on knowing supervisor's name (required for mapping with supervisor database). Source: Factory survey data, Aug-Oct 2015. Standard errors in parentheses. Significant at *10%, **5% and ***1%.

Table 4: Personal ties at the workplace

	<i>Size</i>			<i>Diversity</i>			<i>Range</i>		
	No. of friends	No. of new friends	No. of old friends	Types of friendships	Prop. of new friendships	Share of each type	Outside line	Different designation	Outside functional grp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender (β_1) (Female=1)	-0.354* (0.191)	-0.379* (0.198)	0.025 (0.107)	0.011 (0.053)	-0.057 (0.054)	0.074* (0.042)	-0.475*** (0.130)	-0.081 (0.084)	-0.405*** (0.138)
Experience(yrs)	-0.014 (0.026)	0.052* (0.027)	-0.066*** (0.015)	-0.002 (0.007)	0.025*** (0.007)	0.006 (0.006)	0.002 (0.018)	0.005 (0.011)	-0.003 (0.019)
Operator (=1)	0.162 (0.106)	-0.030 (0.110)	0.192*** (0.059)	0.049 (0.030)	-0.048 (0.030)	-0.008 (0.023)	0.084 (0.072)	-0.770*** (0.046)	-0.452*** (0.076)
Worker's avg. efficiency	0.144 (0.248)	0.238 (0.255)	-0.094 (0.139)	0.099 (0.069)	0.020 (0.070)	0.052 (0.054)	0.049 (0.169)	0.048 (0.108)	0.070 (0.178)
Prop. of females in the line	-0.827 (1.129)	-0.663 (1.163)	-0.164 (0.629)	-0.004 (0.313)	-0.108 (0.317)	0.308 (0.243)	1.296* (0.765)	-0.677 (0.491)	0.426 (0.809)
Constant	2.619** (1.277)	2.856** (1.317)	-0.237 (0.713)	1.003*** (0.355)	1.060*** (0.359)	0.467* (0.276)	-0.458 (0.867)	1.338** (0.556)	0.599 (0.916)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
χ^2	19.847*	28.955***	43.644***	11.750	36.495***	24.273**	61.049***	397.579***	93.325***
λ	-1.219	-1.131	-0.088	-0.307	-0.185	-0.043	-0.517	-0.256	-0.456
N	1744	1744	1744	1744	1744	1744	1744	1744	1744

Note: Dependent variable in Col(2) is count of friendships that originated at current factory; Col(3) is count of pre-factory friendships with sources ranging from childhood friends, neighborhood, native village, past co-workers, etc.; Col(4) is count of different types of sources of friendships; Col(5) is proportion of new friendships out of total friendships; Col(6) mean share of friends per tie, Col (7)-(9) is number of friendships outside regular line, with different designation and non-regular line or designation (i.e. outside functional unit), respectively. All regressions run using *heckman* package STATA. Characteristics controls in outcome equation are married, Hindu, migrant from Bihar, age-sq, experience-sq, and education level. See col(1) Table A1 for results on selection equation. Standard errors in parentheses. Source: Factory worker survey, Aug-Oct 2015; Afridi et al. (2020b)) for ‘Proportion of females in the line’ and ‘Worker’s average efficiency’. Significant at *10%, **5% and ***1%.

Table 5: Interactions with supervisor

	<i>Knows supervisor by name</i>			<i>Discusses non-task issues</i>			<i>Seeks emotional support</i>		
	Overall	Female	Male	Overall	Female	Male	Overall	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender (β_1) (Female =1)	-0.369*** (0.126)			-0.034 (0.065)			-0.676*** (0.146)		
Experience (yrs)	0.030 (0.030)	0.037 (0.029)	-0.113 (0.083)	0.067*** (0.020)	0.072*** (0.023)	0.009 (0.033)	0.069 (0.046)	0.036 (0.048)	0.214** (0.108)
Months worked with supervisor	0.054*** (0.018)	0.050*** (0.017)	0.142** (0.064)	0.011*** (0.003)	0.011*** (0.003)	0.012*** (0.003)	0.015*** (0.004)	0.012** (0.005)	0.029*** (0.007)
Operator (=1)	0.223 (0.143)	0.144 (0.159)	0.872*** (0.307)	0.265*** (0.051)	0.305*** (0.057)	0.151 (0.092)	0.272 (0.201)	0.340 (0.251)	0.059 (0.273)
Worker's avg. efficiency	-0.006 (0.242)	0.016 (0.255)	0.329 (0.598)	0.036 (0.104)	0.067 (0.120)	-0.040 (0.224)	-0.207 (0.359)	-0.254 (0.319)	-0.251 (0.592)
Mean strength of worker's line	-0.010 (0.008)	-0.011 (0.009)	-0.000 (0.012)	0.006 (0.005)	0.007 (0.006)	0.000 (0.008)	-0.001 (0.010)	-0.001 (0.010)	-0.007 (0.021)
Constant	0.155 (0.979)	-0.793 (1.178)	2.232 (2.153)	0.127 (0.389)	-0.149 (0.479)	0.560 (0.490)	-4.115*** (1.373)	-9.370*** (2.365)	1.467 (2.124)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R sq	0.098	0.092	0.284				0.124	0.101	0.181
R-sq				0.171	0.177	0.206			
N	1744	1481	263	1744	1481	263	1744	1481	263

Note: Col (1)-(3)((7)-(9)) shows results for probit regression with dependent variable taking value 1 if worker knows supervisor by name (seeks emotional support), 0 otherwise. Dependent variable in Col (4)-(6) is sum of response to questions - (i) discusses different type of non-task issues (1 if yes) and (ii) asks supervisor for emergency leave directly (1 if yes). Characteristics controls include dummy for caste categories H and M, married, Hindu, migrant from Bihar, age, age-sq, experience-sq, and education level. Robust standard errors clustered at the reported line level in parentheses. See Table A3 for results without clustered standard errors. Source: Factory worker survey, Aug-Oct 2015; Afridi et al. (2020b) for 'Mean strength of worker's line' and 'Worker's average efficiency'. Significant at *10%, **5% and ***1%.

Table 6: Mobilization of workplace ties

	<i>Friendships</i>		<i>Expectations from supervisor</i>					
	Companionship Index	Reciprocity Index	Career advice	Monetary help	Career advice	Monetary help	Career advice	Monetary help
	<i>Overall</i>		<i>Overall</i>		<i>Female</i>		<i>Male</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender (β_1) (Female=1)	0.052 (0.065)	-0.025* (0.014)	-0.436*** (0.169)	-0.627*** (0.104)				
Months worked with supervisor			0.007 (0.004)	0.010*** (0.004)	0.009** (0.005)	0.009** (0.004)	0.003 (0.007)	0.014* (0.008)
Experience (in yrs)	-0.008 (0.016)	0.009 (0.006)	-0.115** (0.055)	-0.005 (0.021)	-0.167** (0.070)	0.011 (0.024)	-0.026 (0.078)	-0.128*** (0.048)
Operator (=1)	0.065 (0.057)	0.032 (0.023)	-0.207 (0.172)	0.077 (0.090)	-0.292 (0.233)	0.042 (0.095)	-0.077 (0.244)	0.164 (0.237)
Worker's avg. efficiency	0.345*** (0.106)	0.030 (0.034)	-0.474 (0.315)	0.042 (0.181)	-0.658* (0.385)	0.004 (0.182)	0.020 (0.505)	0.338 (0.370)
Prop. of females in the line	-0.029 (0.531)	-0.189* (0.108)						
Mean strength of worker's line			0.003 (0.011)	-0.002 (0.009)	0.003 (0.013)	(0.010)	0.009 (0.015)	-0.011 (0.012)
Constant	2.320*** (0.566)	0.930*** (0.184)	-0.690 (1.102)	0.536 (0.778)	-1.539 (1.372)	-0.120 (0.867)	1.023 (0.876)	0.933 (1.396)
Characteristics								
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-sq			0.080	0.059	0.079	0.022	0.051	0.059
χ^2	61.388***	43.089***	92.436***	183.821***	38.161***	34.568***	48.707***	53.011***
(λ)	-0.510	0.006						
N	1744	1744	1744	1744	1481	1481	263	263

Note: The dependent variable in col (1) is sum of proportion of friends who give company for lunch/travelling daily/ helped or expected to help during medical emergency (ranges from 0 to 3), col (2) is proportion of friends an individual can lend Rs. 500 and above (ranges from 0 to 1). Results from using *heckman* package, STATA on equation (1) in col(1)-(2). Results from probit model on equation (1) in col(3)-(8). Robust standard errors clustered at the reported line level in parentheses for col(3)-(8). See Table A4 for results without clustered standard errors. Characteristics controls as defined in Table 4 for col(1)-(2) (Table 5 for col(3)-(8)). Source: Factory worker survey, Aug-Oct 2015; Afridi et al. (2020b) for 'Proportion of females in the line', 'Worker's average efficiency' and 'Mean strength of worker's line'. Significant at *10%, **5% and ***1%.

Table 7: Personal ties at the workplace (by marital status)

	<i>Size</i>			<i>Diversity</i>			<i>Range</i>		
	No. of friends	No. of new friends	No. of old friends	Types of friendships	Prop. of new friendships	Share of each type	Outside line	Different designation	Outside functional grp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A: SUBSAMPLE = MARRIED									
Gender (β_1)	-0.128	-0.217	0.090	0.037	-0.097	0.007	-0.272	-0.012	-0.286
(Female =1)	(0.262)	(0.292)	(0.176)	(0.076)	(0.092)	(0.067)	(0.181)	(0.117)	(0.192)
Constant	3.474**	3.410**	0.064	0.995**	0.894*	0.383	-0.394	1.354**	0.533
	(1.441)	(1.613)	(0.967)	(0.422)	(0.506)	(0.367)	(0.992)	(0.644)	(1.056)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
χ^2	16.725	16.404	29.727***	14.870	21.332**	14.602	22.716**	349.359***	65.442***
λ	-0.658	-1.094	0.436	-0.281	-0.375	-0.222	0.203	0.132	0.054
N	1319	1319	1319	1319	1319	1319	1319	1319	1319
B: SUBSAMPLE = NOT- MARRIED									
Gender (β_1)	-0.539*	-0.529**	-0.010	-0.024	-0.001	0.149**	-0.749**	-0.130	-0.564**
(Female=1)	(0.286)	(0.247)	(0.109)	(0.064)	(0.054)	(0.059)	(0.349)	(0.111)	(0.274)
Constant	0.736	0.747	-0.010	0.858	0.947*	0.813	-2.485	2.156*	-0.295
	(2.867)	(2.471)	(1.080)	(0.631)	(0.531)	(0.587)	(3.500)	(1.100)	(2.752)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
χ^2	7.403	16.895	15.842	11.501	17.494	14.360	8.496	81.710***	13.059
λ	-1.928	-1.553	-0.376	-0.125	0.094	0.395	-2.355	-0.345	-1.851
N	425	425	425	425	425	425	425	425	425

Note: As elucidated in Table 4

Table 8: Personal ties at the workplace (by job information source)

	<i>Size</i>			<i>Diversity</i>			<i>Range</i>		
	No. of friends	No. of new friends	No. of old friends	Types of friendships	Prop. of new friendships	Share of each type	Outside line	Different designation	Outside functional grp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A: SUBSAMPLE = USED TIES FOR JOB INFORMATION									
Gender (β_1)	-1.089	-0.762	-0.327	-0.064	0.118	0.216	-0.529	-0.010	-0.344
(Female =1)	(1.969)	(1.261)	(0.709)	(0.235)	(0.291)	(0.298)	(0.389)	(0.240)	(0.325)
Constant	-1.841	0.071	-1.912	0.642	1.744	1.425	-0.803	2.335	1.276
	(12.291)	(7.869)	(4.422)	(1.464)	(1.819)	(1.863)	(2.429)	(1.500)	(2.022)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
χ^2	0.841	4.663	8.904	3.194	11.265	2.006	21.781*	192.565***	58.895***
λ	-6.765	-4.331	-2.434	-0.806	1.001	1.025	-1.337	0.825	-0.254
N	1300	1300	1300	1300	1300	1300	1300	1300	1300
B: SUBSAMPLE = CAME THROUGH FORMAL PROCESS									
Gender (β_1)	-0.273	-0.385*	0.112	-0.003	-0.135*	0.059	-0.610***	0.103	-0.464***
(Female =1)	(0.210)	(0.224)	(0.131)	(0.062)	(0.078)	(0.050)	(0.177)	(0.112)	(0.167)
Constant	2.964*	3.777**	-0.813	0.898**	1.602***	0.178	-1.045	1.392*	-0.389
	(1.527)	(1.626)	(0.953)	(0.453)	(0.565)	(0.367)	(1.288)	(0.811)	(1.216)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
χ^2	16.124	25.061**	12.993	8.019	14.181	22.291**	28.298***	83.506***	45.870***
λ	-0.576	-0.649	0.073	-0.302	-0.443	0.060	-0.832	0.492	-0.202
N	444	444	444	444	444	444	444	444	444

As elucidated in Table 4

Table A1: Probability of reporting atleast one friend (First stage estimates)

	Reports atleast one friend		
	<i>Overall</i>	<i>Female</i>	<i>Male</i>
	(1)	(2)	(3)
Gender (β_1) (Female=1)	0.295** (0.117)		
Experience (yrs)	0.006 (0.025)	0.009 (0.028)	-0.050 (0.068)
Operator (=1)	-0.083 (0.096)	-0.025 (0.107)	-0.227 (0.252)
Worker's avg. efficiency	-0.273 (0.185)	-0.199 (0.199)	-0.570 (0.524)
Prop. of females in the line	-1.844** (0.763)	-1.156 (0.892)	-4.272** (1.804)
Married (=1)	-0.086 (0.120)	-0.106 (0.138)	0.048 (0.287)
Bihar (=1)	0.028 (0.086)	0.028 (0.094)	-0.117 (0.246)
Hindu (=1)	0.042 (0.147)	-0.015 (0.169)	0.166 (0.324)
Education level	0.003 (0.041)	-0.007 (0.044)	0.080 (0.124)
Experience-sq	-0.000 (0.002)	0.000 (0.002)	0.001 (0.004)
H	-0.158 (0.098)	-0.150 (0.108)	-0.194 (0.263)
M	-0.061 (0.107)	-0.089 (0.117)	0.142 (0.271)
Age (in years)	-0.089* (0.051)	-0.047 (0.058)	-0.206* (0.121)
Age- square	0.001 (0.001)	0.000 (0.001)	0.003 (0.002)
Factory (=1 if export factory)	0.335 (0.281)	0.219 (0.328)	1.086* (0.616)
Constant	3.887*** (0.877)	3.039*** (1.016)	7.121*** (2.177)
χ^2	19.847*	15.637	9.230
λ	-1.219	-0.279	-1.482
N	1744	1481	263

Note: As elucidated in Table 4. Dependent variable takes value 1 if worker reported at least one friend, 0 otherwise.

Table A2: Size of personal ties

	No. of friends	No. of new friends	No. of old friends	No. of friends	No. of new friends	No. of old friends	No. of friends	No. of new friends	No. of old friends
	<i>Overall</i>			<i>Female</i>			<i>Male</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender (β_1) (Female=1)	-0.354* (0.191)	-0.379* (0.198)	0.025 (0.107)						
Experience (yrs)	-0.014 (0.026)	0.052* (0.027)	-0.066*** (0.015)	-0.021 (0.026)	0.059** (0.027)	-0.080*** (0.016)	0.054 (0.079)	0.016 (0.076)	0.037 (0.045)
Operator (=1)	0.162 (0.106)	-0.030 (0.110)	0.192*** (0.059)	0.184* (0.101)	0.017 (0.106)	0.167*** (0.063)	0.020 (0.254)	-0.215 (0.240)	0.234 (0.144)
Worker's avg. efficiency	0.144 (0.248)	0.238 (0.255)	-0.094 (0.139)	-0.023 (0.230)	0.101 (0.242)	-0.124 (0.144)	0.900 (0.637)	0.608 (0.607)	0.293 (0.363)
Prop. of females in the line	-0.827 (1.129)	-0.663 (1.163)	-0.164 (0.629)	-1.246 (1.041)	-1.544 (1.094)	0.299 (0.651)	-1.190 (1.837)	-0.915 (1.735)	-0.275 (1.043)
Age	-0.003 (0.067)	-0.045 (0.069)	0.041 (0.038)	-0.050 (0.058)	-0.094 (0.061)	0.044 (0.036)	0.065 (0.147)	0.029 (0.140)	0.036 (0.084)
Age-sq	0.000 (0.001)	0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.002* (0.001)	-0.001 (0.001)	-0.001 (0.002)	-0.000 (0.002)	-0.001 (0.001)
Married(=1)	0.013 (0.130)	-0.080 (0.134)	0.093 (0.072)	0.057 (0.141)	-0.029 (0.148)	0.086 (0.088)	-0.196 (0.290)	-0.283 (0.275)	0.087 (0.165)
Bihar(=1)	0.095 (0.089)	0.045 (0.092)	0.051 (0.050)	0.134 (0.087)	0.087 (0.091)	0.047 (0.054)	-0.118 (0.249)	-0.156 (0.235)	0.038 (0.141)
Hindu (=1)	-0.169 (0.152)	-0.175 (0.156)	0.006 (0.085)	-0.143 (0.149)	-0.210 (0.156)	0.067 (0.093)	-0.282 (0.358)	-0.051 (0.342)	-0.231 (0.205)
Education level	0.075* (0.042)	0.048 (0.043)	0.027 (0.023)	0.075* (0.042)	0.046 (0.044)	0.030 (0.026)	0.055 (0.122)	0.057 (0.115)	-0.002 (0.069)
Experience-sq	-0.000 (0.002)	-0.004** (0.002)	0.004*** (0.001)	0.001 (0.002)	-0.004** (0.002)	0.004*** (0.001)	-0.004 (0.004)	-0.003 (0.004)	-0.001 (0.002)
Factory dummy (=1 if exporting)	0.595* (0.309)	0.511 (0.318)	0.084 (0.171)	0.596* (0.317)	0.581* (0.333)	0.016 (0.198)	0.720 (0.598)	0.737 (0.561)	-0.017 (0.338)
Constant	2.619** (1.277)	2.856** (1.317)	-0.237 (0.713)	3.104*** (1.107)	3.708*** (1.163)	-0.604 (0.692)	2.006 (2.687)	1.914 (2.555)	0.092 (1.530)
N	1744	1744	1744	1481	1481	1481	263	263	263
χ^2	19.847*	28.955***	43.644 ***	15.637	18.511*	40.314***	9.230	14.766	12.167
λ	-1.219	-1.131	-0.088	-0.279	-0.052	-0.228	-1.482	-0.820	-0.662

Note: As elucidated in Table 4.

Table A3: Interactions with supervisor (*without clustered standard errors*)

	<i>Knows supervisor by name</i>			<i>Discusses non-task issues</i>			<i>Seeks emotional support</i>		
	Overall	Female	Male	Overall	Female	Male	Overall	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender (β_1) (Female =1)	-0.369** (0.149)			-0.034 (0.051)			-0.676*** (0.171)		
Experience (yrs)	0.030 (0.030)	0.037 (0.034)	-0.113 (0.102)	0.067*** (0.012)	0.072*** (0.013)	0.009 (0.030)	0.069 (0.056)	-0.000 (0.003)	0.016 (0.013)
Months worked with supervisor	0.054*** (0.007)	0.050*** (0.008)	0.142** (0.062)	0.011*** (0.001)	0.011*** (0.001)	0.012*** (0.003)	0.015*** (0.004)	0.001*** (0.000)	0.005*** (0.001)
Operator (=1)	0.223** (0.104)	0.144 (0.114)	0.872*** (0.325)	0.265*** (0.043)	0.305*** (0.048)	0.151 (0.097)	0.272 (0.187)	0.014 (0.010)	0.011 (0.041)
Worker's avg. efficiency	-0.006 (0.216)	0.016 (0.230)	0.329 (0.775)	0.036 (0.084)	0.067 (0.091)	-0.040 (0.221)	-0.207 (0.355)	-0.014 (0.020)	-0.007 (0.094)
Mean strength of worker's line	-0.010* (0.006)	-0.011* (0.006)	-0.000 (0.020)	0.006*** (0.002)	0.007*** (0.002)	0.000 (0.006)	-0.001 (0.010)	-0.000 (0.001)	-0.001 (0.003)
Characteristics									
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.155 (0.828)	-0.793 (0.936)	2.232 (2.432)	0.127 (0.331)	-0.149 (0.383)	0.560 (0.713)	-4.115*** (1.468)	-0.254*** (0.084)	0.467 (0.303)
Pseudo R-sq	0.098	0.092	0.284				0.124		
R-sq				0.171	0.177	0.206		0.024	0.113
N	1744	1481	263	1744	1481	263	1744	1481	263

Note: As elucidated in Table 5.

Table A4: Expectation from supervisor's interaction (*without clustered standard errors*)

	Career advice	Monetary help	Career advice	Monetary help	Career advice	Monetary help
	<i>Overall</i>		<i>Female</i>		<i>Male</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Gender (β_1) (Female=1)	-0.436** (0.182)	-0.627*** (0.100)				
Months worked with supervisor	0.007 (0.005)	0.010*** (0.002)	0.009 (0.006)	0.009*** (0.002)	0.003 (0.010)	0.014** (0.006)
Experience (in yrs)	-0.115** (0.049)	-0.005 (0.023)	-0.167*** (0.064)	0.011 (0.025)	-0.026 (0.091)	-0.128* (0.065)
Operator (=1)	-0.207 (0.161)	0.077 (0.085)	-0.292 (0.195)	0.042 (0.095)	-0.077 (0.303)	0.164 (0.200)
Worker's avg. efficiency	-0.474 (0.377)	0.042 (0.165)	-0.658 (0.461)	0.004 (0.178)	0.020 (0.702)	0.338 (0.463)
Mean strength of worker's line	0.003 (0.009)	-0.002 (0.004)	0.003 (0.011)	0.000 (0.005)	0.009 (0.020)	-0.011 (0.012)
Characteristics						
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Factory F.E	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.690 (1.411)	0.536 (0.648)	-1.539 (1.965)	-0.120 (0.750)	1.023 (2.358)	0.933 (1.480)
Pseudo R-sq	0.080	0.059	0.079	0.022	0.051	0.059
N	1744	1744	1481	1481	263	263

Note: As elucidated in col(3)-(8), Table 6.

Table A5: Personal ties and job information source

	Overall	Female	Male	Diff
	(1)	(2)	(3)	(4)
<i>A. Job information ties/ Obs</i>	430	370	60	(2)-(3)
Post migration neighborhood ties	0.521 (0.024)	0.546 (0.026)	0.367 (0.063)	0.179*** (0.069)
Referred worker to management	0.421 (0.024)	0.394 (0.025)	0.583 (0.064)	-0.189** (0.068)
Tie is a supervisor	0.286 (0.022)	0.246 (0.022)	0.533 (0.065)	-0.286*** (0.061)
Same designation	0.458 (0.024)	0.481 (0.026)	0.317 (0.061)	0.164** (0.069)
Line worker	0.616 (0.023)	0.649 (0.025)	0.417 (0.065)	0.232*** (0.067)
Ever lent money	0.201 (0.019)	0.216 (0.021)	0.100 (0.039)	0.116** (0.056)
Length of ties (yrs)	7.352 0.367	7.603 0.388	5.813 1.075	1.789* 1.057
Obs	(1481)	Mobilized ties(1133)	Formal process(348)	(2)-(3)
<i>B. Women personal ties</i>				
No. of friends	1.73 (0.036)	1.795 (0.042)	1.517 (0.071)	0.278*** (0.085)
No. of new friends	1.352 (0.035)	1.418 (0.041)	1.138 (0.068)	0.280*** (0.083)
No. of old friends	0.377 (0.019)	0.377 (0.022)	0.379 (0.040)	-0.002 (0.045)
Companionship Index	1.503 (0.024)	1.545 (0.027)	1.367 (0.052)	0.177*** (0.057)
Can extend monetary help (prop.)	0.771 (0.011)	0.793 (0.012)	0.7 (0.024)	0.093*** (0.025)
Length of ties (yrs)	2.177 (0.095)	2.084 (0.109)	2.480 (0.188)	-0.396* (0.223)
<i>C. Women's expectation from supervisor</i>				
Uptake of career advice	0.020 (0.004)	0.021 (0.004)	0.143 (0.006)	-0.007 (0.008)
Can borrow money	0.355 (0.012)	0.363 (0.014)	0.330 (0.025)	0.032 (0.029)

Note: Data in panel A conditional on job informant currently employed at the factory. Data in panel B and C is for women sub-sample, women who used (did not use) their social ties for current job information shown in col(2) (col(3)). Col (4) based on *t*-test for differences in mean. Source: Factory survey data, Aug-Oct 2015. Standard errors in parentheses. Significant at *10%, **5% and ***1%.

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