

Does the gender of your co-worker matter?

Evidence from call centres in India



In brief

- Several theories suggest that gender integration in the workplace may have negative effects in gender-segregated societies. This study presents results from a randomised controlled trial conducted in India on the effect of gender integration on employee productivity.
- The study was implemented in call centres located in five Indian cities. A total of 765 employees were randomised to either mixed-gender teams (30-50% female peers) or control groups of same-gender teams.
- When employees are assigned to a mixed-gender team, the study finds precisely estimated zero effects on both productivity (intensive margin) and share of days worked during the study period (extensive margin).
- There is an overall increase in peer monitoring and team support for women assigned to mixed-gender teams relative to the control team. For male employees, the study finds that conditional on being assigned to mixed-gender teams, men with progressive gender attitudes have higher productivity than men with regressive gender attitudes.
- There is an overall increase in knowledge sharing, dating, and comfort with the opposite gender for male employees in mixed-gender teams, relative to all male teams.

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Overview of the research

Most occupations in South Asian countries (Duraismy and Duraismy, 2014) and the world (Goldin, 1994) are gender segregated with women sorting into lower paying and lesser skill intensive jobs than their male counterparts. Removing the barriers to entry in the workplace for women in these developing economies will be crucial in boosting their labour supply (Goldin, 2014, 1994). However, adverse gender norms and gender segregation practices in South Asia may further increase these entry barriers and make firms sceptical of integrating women into the workplace (Chowdhury et al., 2018).

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Gender integration in the workplace may have negative effects on employee productivity (Akerlof and Kranton, 2000; Bertrand et al., 2015). This could cause decreases in employee productivity if opposite gender employees **1) are uncomfortable or distracted by each other’s presence** (Kandel and Lazear, 1992) **2) face communication barriers while interacting** (Hamilton et al., 2012), **3) have higher socialisation and dating due to lack of alternate avenues to meet the opposite gender**. On the other hand, there could be mutual learning and knowledge spillovers (Hamilton et al., 2012).

The question is especially pertinent in a traditional country setting where gender roles are more rigid. Often in such traditional settings, prolonged interactions with members of a different gender as equals and outside of family, happens in the workplace. Under this study, an experiment is conducted in call centres located in five Indian cities of Patna (in the state of Bihar), Udaipur (Rajasthan), Hubli (Karnataka), Noida (Uttar Pradesh), and Mumbai (Maharashtra). Using matched pair randomisation¹ on past productivity, I randomise call centre employees or customer sales representatives into mixed-gender (30-50% females) and same-gender teams. A total of 765 employees (297 male employees in mixed-gender teams, 320 in all-male teams; 67 female employees in mixed-gender teams, and 81 in all-female teams) were seated with their new teams for a median of 12 weeks.² Male and female co-workers in mixed-gender teams were mapped to sit on alternate seats to intensify opposite gender exposure.

1. In matched pair randomisation method, two units are matched on a list of important characteristics and then, one of them is randomly assigned to ‘treatment’ (subjected to intervention) and the other to ‘control’ (not subjected to intervention). In this study, I match employees on the basis of gender and past productivity (using 3-4 weeks of pre-study administrative data) and then randomly assign one of them to mixed-gender team and the other to control.

2. Even though this is a sector that hires more women (as mentioned in text above), in centres where 25-30% of the employees were women, only mixed-gender teams and all male teams were formed. The women who were part of those mixed-gender teams did not have relevant control group of all-female teams. Therefore, these women are not included in the study. In the centres where women constituted 45% of the employees, all the three groups of mixed teams, all male and all female teams could be formed. In these cases, both male and female employees were a part of the study. The study has a higher number of male employees due to low proportion of female employees in the sample. This is because the female labour force participation rate is low in India so there are fewer women in the workplace relative to men.

There are many advantages to choosing call centres to conduct this experiment about the impact of gender composition of team members on employee performance. First, despite being male-dominated, the call centres or the Business Process Outsourcing (BPO) sector employs large number of female employees at the agent level (entry-level jobs involving making calls as customer support representatives) due to their comparative advantage in interpersonal skills (Jensen 2012). The second reason for choosing this setting is that these are entry-level jobs and employ young people with low prior exposure to different gender. The average age of an agent is around 21 years in my sample. A third reason is that there are uniform and consistent measures of productivity for all workers in this setting, relative to other work settings.

The daily administrative data on productivity, which is internally collected by call centres through automatic technology, is used to study worker productivity. The top three productivity variables are chosen depending on the nature of the businesses/processes after discussion and consensus with the call centre senior management. These include variables such as average call handling time, number of calls answered and sales made. After combining these three productivity variables, the aggregate productivity is standardised within each process.³ This makes the productivity variable comparable across all processes. At the extensive margin, I use share of days worked during the course of the study period from the day of appearing in the study. This is an unconditional measure based on showing up to work so there are no selection concerns.⁴

A team is an important entity in call centres. In a typical call centre, customer support employees or agents are grouped to form teams and agents interact with their team members on a daily basis in team meetings. As it is standard practice in call centres for teams to be seated together, changing the gender composition of different teams leads to changes in the gender composition of peers seated around a worker. Workers tend to interact with agents sitting next to them if they get stuck on a call and the team leader or manager is not around. Approximately, 66% of the respondents in the baseline survey agreed that they learned something from the agents sitting next to them.

3. Since I use an index of three top productivity variables for the productivity outcome, standardisation method is used to bring the productivity variables to the same scale. For this, I subtract each productivity variable by the control group mean and divide by the control group standard deviation. Then, I do a total of the three productivity variables and re-standardise the total using again the control group mean and standard deviation to form a composite index or z-score for productivity. This makes the productivity index comparable across centres and makes it easily interpretable as deviations from the control group mean.

4. Share of days worked is the proportion of days worked in the study period (from the employee's job starting date) out of the total number of days of the study. This is a measure of attendance, which is regardless of the work status and is therefore called an unconditional measure of attendance (also includes the measure of retention). If we were to study attendance from the study start-date or job-start date to the employee's last day of work, then such a conditional measure of attendance will fail to account for attrition. So, there could arise selection concerns/biases if a large number of employees in the treatment or control group show up to work despite being unhappy but then suddenly quit. The conditional measure of attendance will not be able to capture this effect but the unconditional measure combining both attendance and attrition, will be able to successfully capture this.

When asked about whose help they seek when stuck on a call at baseline, a vast majority of agents responded that they took help from the team leader (67%) followed by agents seated nearby (27%) and then others (6%). The importance of peer effect in this setting is supported by evidence from the economics literature that low-skilled or routine tasks have significant and larger peer effects when compared to high skill-intensive jobs (Cornelissen et al., 2017; Ichino and Falk, 2005; Bandiera et al., 2010).

Policy motivation for research

The call centre industry is the largest private sector employer in India, providing jobs to around 3.9 million people (NASSCOM Report, 2017). The call centres, which are a part of the study receive a subsidy from the central government (India BPO Promotion Scheme (IBPS)) for hiring female employees. Research on productivity improvements in this high growth sector is crucial for sustainable job creation for many young workers, particularly women. Policymakers in India are interested in further expanding these call centres to smaller cities and villages and are providing special incentives to firms to hire women.

Due to growth and an increase in employment opportunities, women who were previously doing unpaid care work or informal work, are entering the formal labour market in regions like Patna. These call centres also attract young workers from nearby villages within Bihar. There is causal evidence of improvements in poverty alleviation, health, education and fertility outcomes of women in small villages in India due to the availability of call centre job opportunities (Jensen, 2012). Therefore, understanding how to improve the quality of such jobs has implications for alleviating poverty, tackling unemployment, increasing female labour force participation rates and women's wellbeing.

The study provides an innovative way to study and enhance firm productivity, which can lead to employment generation. Overall output and productivity of an economy at the aggregate level depend on the productivity of these small firms. Understanding the determinants and constraints to worker productivity in the call centre industry will be useful in sustaining growth and output in the long run. In addition, the project also assesses how gender segregation policies practiced in social and educational institutions impact firm's productivity in a gender diverse workplace.

Key findings

1) Do opposite gender peers decrease male productivity?

There is no overall impact on either productivity (intensive margin) or share of days worked during study period (extensive margin) of being assigned to a mixed-gender team for male employees.

2) Are these results similar across all kinds of male employees?

I find that conditional on being assigned to mixed-gender teams, male employees with progressive gender attitudes have significantly higher productivity than those with regressive gender attitudes.⁵ This finding is consistent with theories on social identity and taste-based employee discrimination.

3) Was there any knowledge spillover or learning from opposite gender peers at all?

There is a 0.3 standard deviations⁶ increase in knowledge sharing for male employees, which is a survey response for if the employee benefitted from agents sitting nearby on work related issues. I do not find any evidence of knowledge spillover for women. This could be because, on average, women were more productive than men at the baseline.

4) What about incidence of dating among these young workers?

The male employees assigned to mixed-gender teams reported 19 percentage points higher incidence of dating than those in all-male teams at the endline. Around 54% of the male employees assigned to all-male teams reported to be dating, but not married, at the endline. So, there was an increase of 35% in dating for male employees assigned to mixed-gender teams compared to those in the control teams. In India, family elders arrange more than 90% of the marriages and most of these are intra-caste ([Centre for Monitoring Indian Economy, 2018](#)). The increase in dating for men in mixed-gender teams in the setting of small-town India, is therefore an important finding. Interestingly, the result on dating is driven by relatively progressive men in the mixed-gender teams.

5) Was gender integration in the workplace useful for female employees?

I find that there is no overall impact on either productivity (intensive margin) or share of days worked during study period (extensive margin) of being assigned to a mixed-gender team for female employees. However, these are less precisely estimated results, as there are fewer women in the sample because these workplaces are male-dominated. The next concern was whether these women are comfortable working in these male-dominated workplaces. For female employees, there is an increase in peer monitoring and comfort for those assigned to mixed-gender teams. The female workers in mixed teams received 0.2 standard deviations more peer monitoring and support relative to those in all-female teams.

5. To assess gender attitudes of the males in the study, a broad set of questions were posed to them, based on the current literature on measuring women's empowerment and gender attitudes (Dhar et al. 2018, Glennerster et al. 2018). The broad topics covered in these questions are education attitude, employment attitude, attitudes on traditional gender roles, and fertility attitudes.

6. Standard deviation is a measure that is used to quantify the amount of variation or dispersion of a set of values from the mean value (average) of that set.

Policy recommendations

In order to promote strong, stable, and broad-based economic growth, labour force participation of women is crucial in any economy. Creating a gender friendly work environment, free of discrimination against women is an important step towards increasing women's labour supply and achieving economic equality between men and women. However, India has been witnessing a rapid decline in female labour force participation rates (FLFPR). India has one of the lowest female labour force participation rates. Among Indian states, Bihar has been ranked at the bottom with FLFPR as low as 9 per cent (NSSO, 2011).

The study makes a case for integrating women into the workplace and also provides some other policy-relevant suggestions:

1) Not costly for firms to integrate women into all-male workplaces

There is no negative impact on either productivity or share of days worked during study period of being assigned to a mixed-gender team for male employees. There is evidence of gender discrimination in hiring practices in India, which is a potential cause of low female labour force participation rates of women (Chowdury et al., 2018). Additionally, the fastest growing sectors such as Telecom and Banking are dominated by men. In the Telecom sector around 83.8% of all employees are men; 78.8% in banking, financial services and insurance; and 74.7% in core sectors like oil and gas, power, steel and minerals, according to the India Skills Report 2017. Furthermore, most of these firms have not undertaken any hiring initiatives to improve the situation (India Skills Report (2017)). These male-dominated sectors might be sceptical in hiring women and the low representation of females in the senior management might be further increasing the entry barriers for women in these workplaces (Goldin 2014, Chowdhury et al. 2018). Given that I find precisely estimated zero effects on productivity, these are important findings providing supportive evidence for integrating women into workplace, without any additional costs to the firms.

2) Improving gender attitudes among men crucial for boosting productivity in gender-integrated workplaces

There is some evidence that cultural norms help in perpetuating gender gaps (Alesina et al., 2013; Bertrand et al., 2015). However, the harmful effects of perverse gender attitudes among men on their fertility decisions, their children's education and health, their spouse's labour force participation and autonomy etc. still remain under-studied. This paper finds some evidence for the impact of gender diversity at the workplace on the productivity of men with regressive gender attitudes. I find that men with regressive gender attitudes show up to work for the same proportion of days as men with regressive gender attitudes but have lower daily productivity. This finding suggests that there can be potential gains in productivity with investments in programs to improve gender attitudes among young men.

3) Gender-integrated workplaces can lead to social integration

In India, family elders arrange more than 90% of the marriages and most of them are intra-caste (Centre for Monitoring Indian Economy, 2018). The increase in dating for men in mixed-gender teams in the setting of small-town India, is therefore an important finding. Interestingly, the result on dating is driven by relatively progressive men in the mixed-gender teams.

References

- Alesina, A., P. Giuliano, and N. Nunn (2013). On the origins of gender roles: Women and the plough. *Quarterly Journal of Economics* 128(2), 469–530.
- Bandiera, O., Barankay, I., and Rasul, I. (2010). Social incentives in the workplace. *The Review of Economic Studies*, 77(2):417-458.
- Bertrand, M., J. Pan, and E. Kamenica (2015). Gender identity and relative income within households. *Quarterly Journal of Economics* 130 (2), 571–614.
- Chowdhury, A. R., Areias, A. C., Imaizumi, S., Nomura, S., and Yamauchi, F. (2018). Reflections of employers' gender preferences in job ads in India: an analysis of online job portal data. The World Bank.
- Cornelissen, T., Dustmann, C., and Schonberg, U. (2017). Peer effects in the workplace. *American Economic Review*, 107(2):425-56.
- Dhar, D., Jain, T., and Jayachandran, S. (2018). Reshaping adolescents' gender attitudes: Evidence from a school-based experiment in India. Technical report, National Bureau of Economic Research.
- Duraisamy, M. and Duraisamy, P. (2014). Occupational segregation, wage and job discrimination against women across social groups in the Indian labor market: 1983-2010. Preliminary Draft. Accessed on, 11(08):2017.
- Glennerster, R., Walsh, C., and Diaz-Martin, L. (2018). A practical guide to measuring women's and girls' empowerment in impact evaluations. Gender Sector, Abdul Latif Jameel Poverty Action Lab.
- Goldin, C. (1994). The u-shaped female labor force function in economic development and economic history. Technical report, National Bureau of Economic Research.
- Goldin, C. (2014). A grand gender convergence: Its last chapter. *American Economic Review*.
- Hamilton, B. H., Nickerson, J. A., and Owan, H. (2012). Diversity and productivity in production teams. In *Advances in the Economic Analysis of Participatory and Labor-managed Firms*, pages 99-138. Emerald Group Publishing Limited.

Ichino, A. and Falk, A. (2005). Clean evidence on peer effects. *Journal of Labor Economics*.

India Skills Report 2017 (2017). PeopleStrong (Firm) Wheebox (Firm), United Nations Development Programme (UNDP), All India Council for Technical Education (AICTE), Confederation of Indian Industry (CII), Association of Indian Universities (AIU) and LinkedIn.

Jensen, R. (2012). Do labor market opportunities affect young women's work and family decisions? Experimental evidence from India. *The Quarterly Journal of Economics*, 127(2), 753-792.

Kandel, E. and Lazear, E. P. (1992). Peer pressure and partnerships. *Journal of Political Economy*, 100(4):801-817.

Niederle, M. (2017). A gender agenda: a progress report on competitiveness. *American Economic Review*, 107(5), 115-19.