# Job Search Platform and Labor Market Outcomes of Blue Collar Workers

**Summary of findings from Delhi (2019-21)**

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# 1 Executive Summary

- Sample of over 7000 individuals (men and women) were part of this study for over two years (2019-21) in Delhi to understand the blue-collar labor market and the potential role of a hyperlocal job matching platform.
- Baseline survey was conducted in 2019 to understand labor market participation, occupational choice, demographic and social factors of men and women in the sample.
- Clusters of households (and individuals residing therein) were randomly allocated to 3 groups, thereafter - (1) main respondents (married couples) offered registration on the hyperlocal job matching platform, (2) main respondents and the women's social network offered registration to encourage labor market participation of women, and (3) neither main respondents nor their social network offered platform registration.
- Offering registration on the job portal with the social network (group (2)) enhances the take-up of platform registration compared to group (1).
    - Offering on-boarding with peers improves the registration rate from 24% in the group offered the service without network to 26% in the group (2).
    - Of the individuals offered to on-board the job search platform, 70% men and 66% women showed interest in registering.
    - The overall registration rate was at 44%. 80% of the on-boarded individuals were successfully registered.
- There exist gender differences in job preferences as well as job offers received by men and women.
    - Women are interested in working in private salaried jobs or domestic help and services while men were open to a larger number of job profiles.
    - Women's salary expectations are higher than their current earnings, relative to men. They also want to work closer to their homes than men.
    - Women, on average, receive more job offers than men. However, their job acceptance is lower.
- The labor market outcomes of main respondents offered registration along with peers (group 2) are significantly better than group (1) and group (3) in 2021, compared to 2019.

  - Being assigned to treatment with their peers (group 2) increases the probability of being employed by 4.6% along with a more than 55% increase in days and hours of work, relative to men in the group not offered the platform registration (group 3).
  - Male respondents in group 2 shift to relatively more secure salaried work and away from vulnerable daily wage and piece-rate earnings.
  - While there is no overall impact on the work status of women, their labor market performance in group 2 is better than in group 1.

- Take-up of the job-matching platform can be increased if individuals' peers and networks are also engaged in the process.
- The significant mismatch between expectations and actual job/salary offers suggests the need to provide more information to workers on how job matching platforms function, particularly women workers.
- The labor market performance of individuals who are on job matching platforms can be improved further by aligning worker expectations and preferences with the services of the platform. This can be achieved through a well-designed information package and support services.

## 2 Background and Context

Labor markets in developing economies are characterized by high levels of worker absenteeism and turnover. This has adverse impacts on output and productivity as employers have to bear large costs in the hiring and training of workers, as well as in coping with unanticipated worker absences.

One proposed explanation for the high levels of absenteeism and turnover observed in these markets is the low quality of matches between employers and workers. Recruitment processes in these settings are often highly informal – for example, employers typically rely on word-of-mouth and referrals when hiring new workers. Further, workers in these settings are often inexperienced and lack formal qualifications, which makes it difficult for them to search for jobs and credibly signal their skills and competencies to potential employers. The recent proliferation of digital job matching platforms provides an exciting opportunity to explore how technology can be harnessed and scaled up to improve the quality of employer-employee matches and subsequently improve the labor market outcomes of workers. This is particularly significant for India, where lack of employment opportunities has been a major concern in the last few years.

We report the findings of a two-year study (2019-21) conducted with over 7000 low and semi-skilled individuals residing in low-income areas in Delhi to understand their job preferences, take-up of job-matching platforms, and their subsequent labor market performance.

# 3 Digital Job Search Platform

We partnered with Helpers near me (HNM) job-matching platform - a hyperlocal mobile and web app-based job aggregation platform that connects potential employers directly with multiple blue-collar workers located physically close to them for permanent or temporary hiring, much like Uber.

Once a respondent registers on the aggregator's portal, the platform's algorithm (based on location, type of work – short-term gigs or long-term contracts, wage offer, etc.) matches the requirements of employers with the profiles of the respondents. The potential employer can then call the profiled worker(s) on his/her registered phone number to make a job offer.

The job matching platform potentially reduces the job search costs of blue-collar workers, as follows:

- The platform does not require the respondent (a potential employee) to have a smartphone, a feature phone was sufficient to receive calls from the matched, potential employer.
- There is no registration cost for the respondent, who only needs to provide an ID (for verification purposes) and at the time of registration provide information on previous work experiences and their job preferences to the platform. This information would then allow the platform to match the individual with potential employers.
- Employers who obtain a match pay a service charge to the platform. No payments are required of the worker for a successful match.
- Since workers can connect with many potential nearby employers without physically looking for work or any intermediaries or job contractors, this technology potentially reduces the job search costs significantly (for both ends of the market).
- Furthermore, the worker can accept a job offer as per her preferences, including location and salary.

# 4 Sample and Study Design

Our sample consists of households from 108 randomly selected polling stations from 5 districts of the National Capital of Delhi between May 2019 and June 2021. We randomly surveyed a total of 1613 households and 3,127 married couples in the age group of 18-45 years (henceforth, the main respondents) residing in these households. In addition, we interviewed over 4000 peers who were in the social network of the female main respondents.

Our study was conducted in 3 steps – (1) Baseline survey, (2) Intervention, and (3) Endline Surveys.

*Baseline Survey*: The baseline survey was conducted in May-July 2019. It was conducted separately (and in privacy) with the husband and the wife to obtain information on their own education, work history, work preferences, gender norms, and attitudes towards women's labor force participation. In addition, we elicited information on the individual's social network through a name generator process using contextual/situational references, e.g., who they usually spend their leisure time with (e.g., go to the park, ask for help during an emergency, chat on the phone or borrow money from). Two of the closest peers (as ranked by the respondent) were interviewed by phone to collect information on their own work history, gender norms, and attitudes.

*Intervention*: Following the baseline survey we conducted the intervention, which was providing the job matching portal information and offer of registration to randomly selected households in our sample between November 2019 and February 2020. For this purpose, the 108 sampled polling stations were randomly split into three parts, with 36 polling stations in each group, that served as our three treatment arms as follows.

Treatment 1 (T1): In the first treatment arm (T1) we provided information about an efficient way to search for jobs - researchers visited the randomly sampled households and provided detailed information on how the job matching platform works, the registration process and its potential benefits in obtaining work. This was followed by showing a testimonial video that was developed with the platform of a worker who benefited from registering on the platform. The testimonial video was tailored to the gender of the respondent. Thereafter, we offered to register the respondent (husband and wife separately) on the job-matching platform.

Treatment 2 (T2): In the second treatment arm (T2) the same procedure was followed as in T1. Thereafter, we offered to register the couple and up to two of the wife's peers in her network (at baseline) for this service during the intervention visit. While the registration

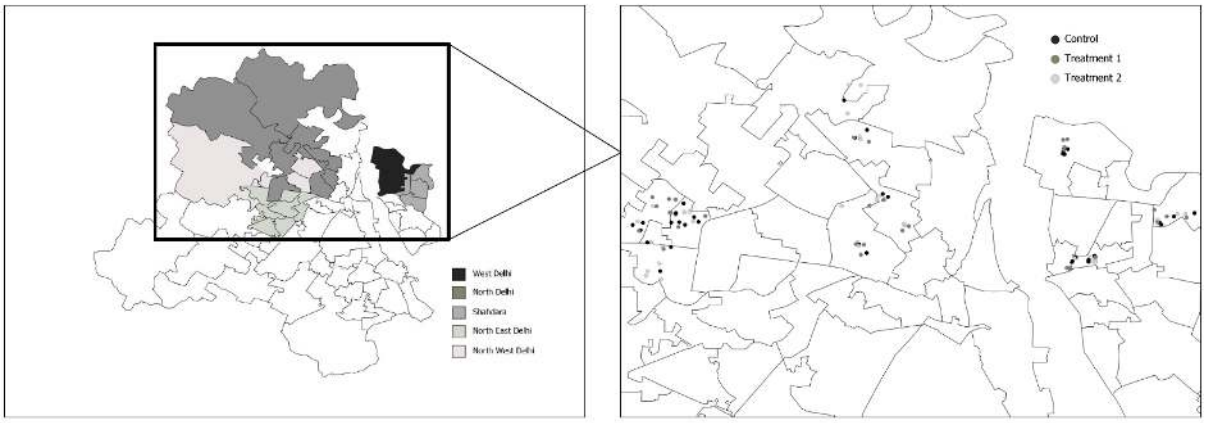
offers were made in-person to the couples, the offer to register up to two of the woman's peers in her social network was made by phone after the visit to the main respondents.

Control (C): In the control group (C) we did not offer to register the respondents or their network to the job-matching platform.

*Endline Survey*: To measure the impact of the intervention on the respondents' and the treated networks' work status we conducted two follow-up or endline surveys. Endline 1 was conducted after approximately 6 months (Aug-Nov 2020) while Endline 2 was conducted over a year (about 14 months) after the intervention (Apr-June 2021). At both endlines, we resurveyed the main respondents as well as their peers in the network (including any included in the intervention) on their labor market activity in the previous 3 months. We also obtained data on the sample of registered respondents' (main and network) reported job preferences at the time of registration and job acceptances from the job-matching platform over a year (from the date of registration until June 2021) following the intervention. Since the platform only recorded whether a match took place or not, we collected detailed self-reported data on job offers, as well, during both endline surveys. Note that the first endline survey was immediately following the stringent Covid-19 lockdown in India. Since economic activity was severely disrupted during this reference period, we report the findings from Endline 2 only.

Figure 1 shows the geographical spread of the sampled areas.

Figure 1: **Sampled districts, and polling stations of Delhi (by treatment groups)**

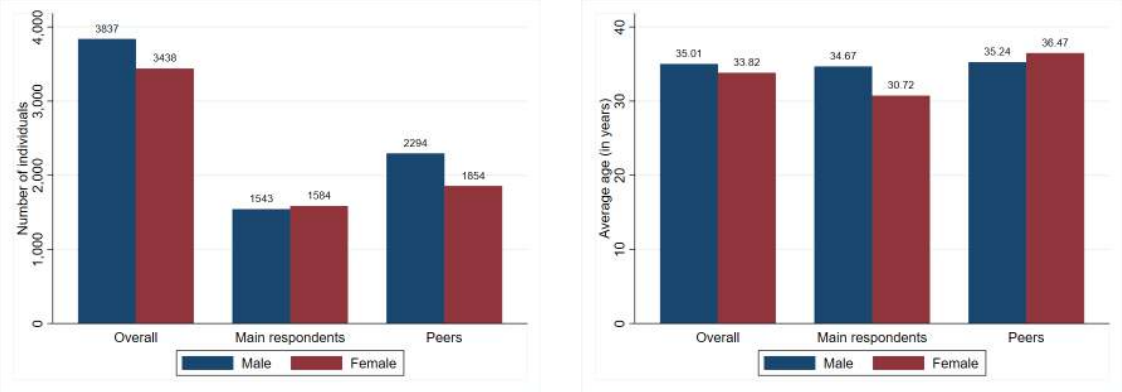


# 5 Sample Characteristics (Baseline, 2019)

Our sample of main respondents consists of 3,127 individuals. In addition, the peers of the main respondents were also contacted over the phone to collect data on their work status and gender attitudes. We interviewed 4,148 peers who were in the respondent's social network.

The average household size is slightly over 5 with 19% living with multiple generations (joint family) and about 57% of sampled couples having a child below the age of five years. A majority of households are Hindu (82%) and over 40% of the households belong to the socio-economically disadvantaged SC-ST group. Over 1/3rd of the sampled households are natives of Delhi and have lived at the same location for 28 years.

Figure 2: **Gender and age composition by type of respondent**




a: **Gender composition** b: **Average age by gender**

Figure 2 shows the gender and age composition in our sample. There are slightly more male respondents as more male peers were reported. Individuals in our sample are relatively young (34 years), with some education (over 60% have above the primary level of education (Figure 3) and high usage (94%) of mobile phones.

The employment rate, irrespective of gender, is 60%, comparable to the married individuals in the 18 - 45 age group in Delhi. 16% are engaged in wage labor or casual work, 21% are self-employed and 22% have salaried jobs in government and private institutions.[1] The unemployment rate is low at 3%, while 38% of the sample is not looking for work and, therefore, not in the labor force. The average earnings are 6,000 INR per month but conditional on working it is 11,000 INR per month. The characteristics of the network at baseline are comparable in age, education, and work status to the main respondents.

These data show significant differences in work characteristics by gender. Women are 72 percentage points less likely to be working in the reference period than men (Figure 4). While men were most likely to be engaged in salaried jobs, of the wives working

[1]These labor market participation variables are based on the reported main activity over the previous year.

Figure 3: **Education of respondents by gender and type of respondent**

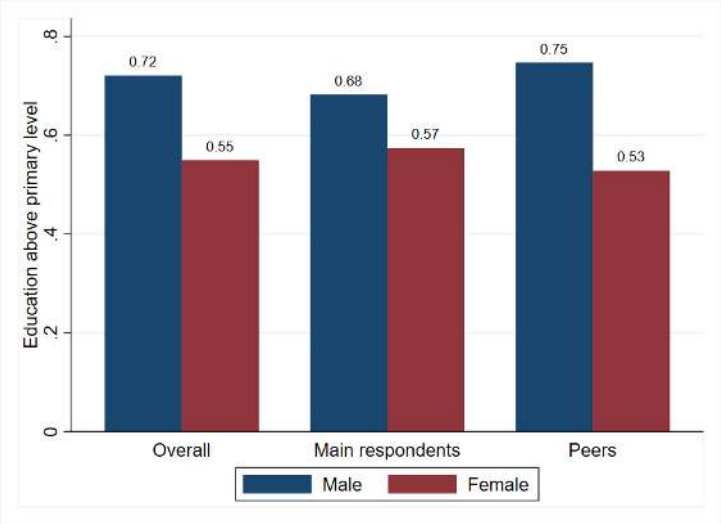
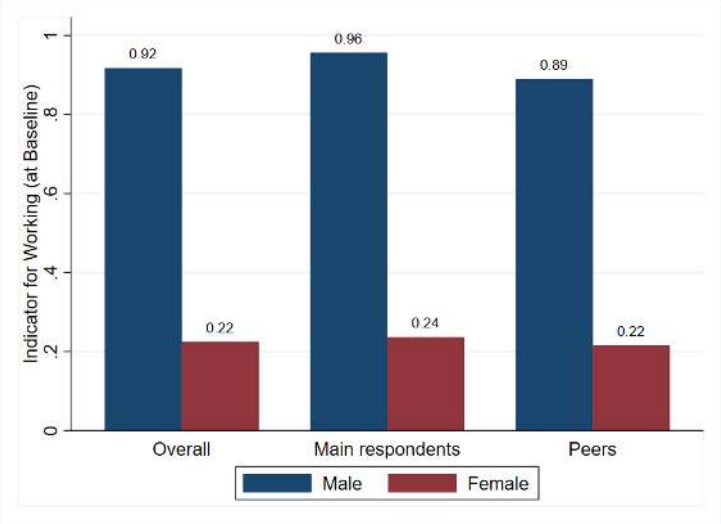
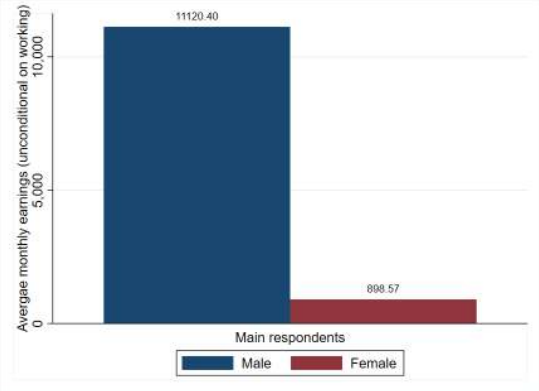



Figure 4: **Work status of respondents by gender and type of respondent**

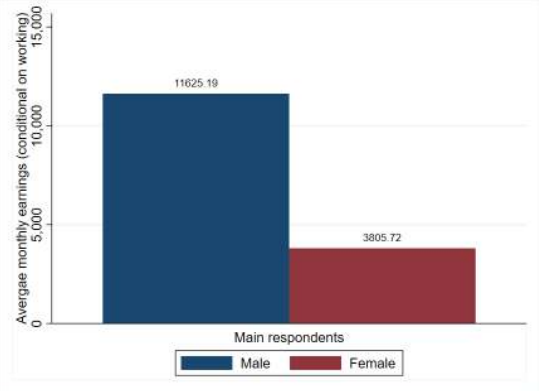


the majority are self-employed. More strikingly, $3/4^{ths}$ of the women are not in the labor force. Consequently, men earn more than ten times the average earnings of wives. Conditional on working, the average earnings of men and women are 11,600 INR and 3,800 INR, respectively (Figure 5).

Figure 5: **Average monthly earnings of main respondents by gender**




a: **Unconditional on working**




b: **Conditional on working**

# 6 Analysis of platform on-boarding, registration and job preferences (Intervention, 2019-20)

## 6.1 Platform on-boarding

A total of 2,801 individuals were offered the option to on-board the portal in the treatment groups (T1 and T2) over the period November 2019 - February 2020. Of these, 1,900 individuals expressed interest in and 1,880 successfully on-boarded the job search platform (67.1% of those informed about the portal and offered registration).

Figure 6: **Interested in onboarding by gender and type of respondent**

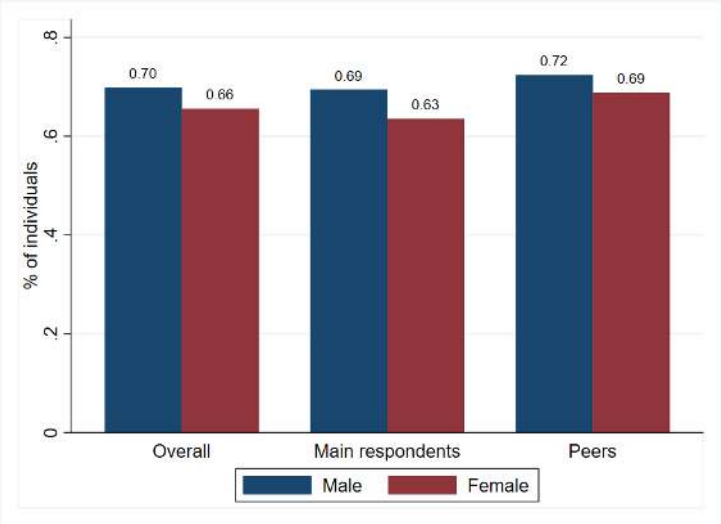



Figure 7: **Onboarding by gender**

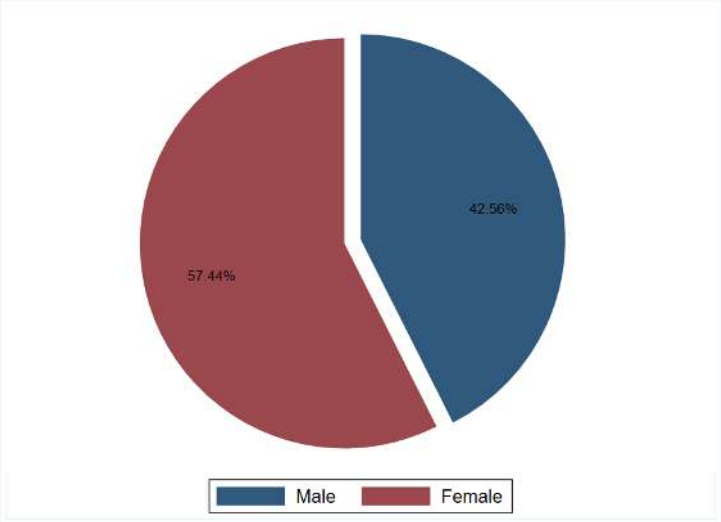
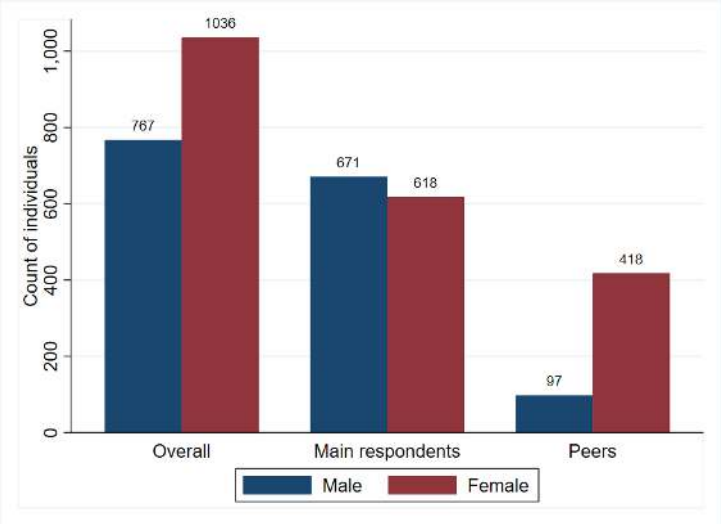



Figure 6 shows that men showed a greater interest in registration but the onboarding

was higher for women (Figure 7). This higher on-boarding is driven by the female peers of women who were offered the option to register for the portal (Figure 8).

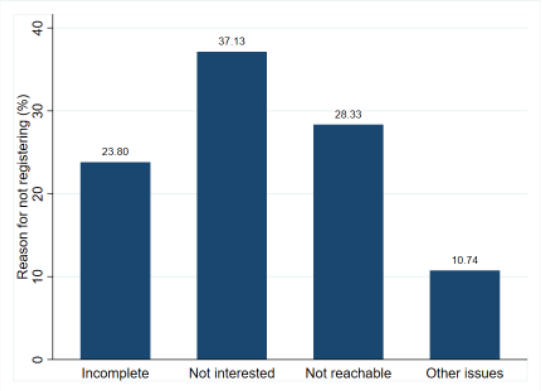
Figure 8: **Onboarding by gender and type of respondent**



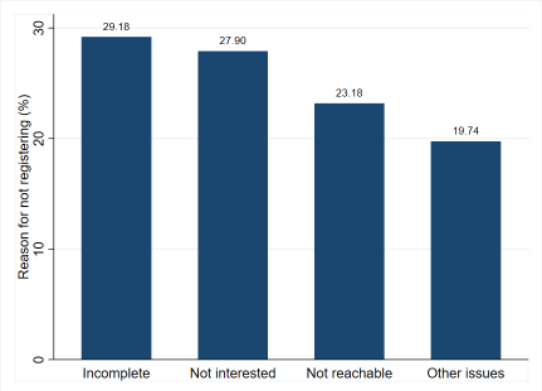

## 6.2 Registration

Of the onboarded people, 826 (44%) were successfully registered. Figure 9 delves into the reasons for non-registration reported by the onboarded individuals. While 37% of main respondents expressed a lack of interest (after initially expressing a desire to join the portal), 28% were not reachable via a phone call from the portal, for 23% the process was incomplete and 11% reported other issues (like a family constraint, language barrier, age problem, etc.). Peers mainly reported an incomplete registration process and a lack of interest.

Figure 9: **Reasons for an unsuccessful registration**




a: **Main respondents**

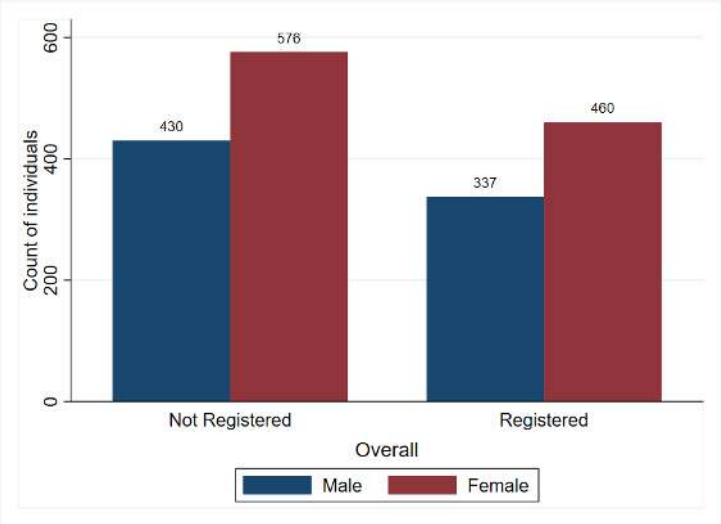



b: **Peers**

### 6.2.1 Characteristics of registered individuals

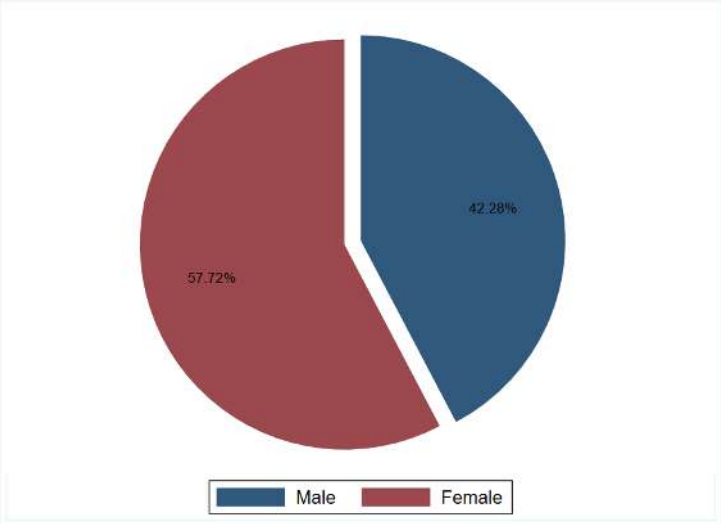
If we take a look at the gender composition of the onboarded individuals, the registration rates (ratio of registrations to onboarding) are similar across the two sexes (at 78%). Figure 10 shows the distribution of registration by gender of the individuals who onboarded the job search platform.

Figure 10: **Registration count by gender and type of respondent of onboarded individual**




As the onboarding was higher for women, their absolute registration count is also higher than men. Looking at the total registration by gender in Figure 11, 58% are women and the remaining 42% are men.

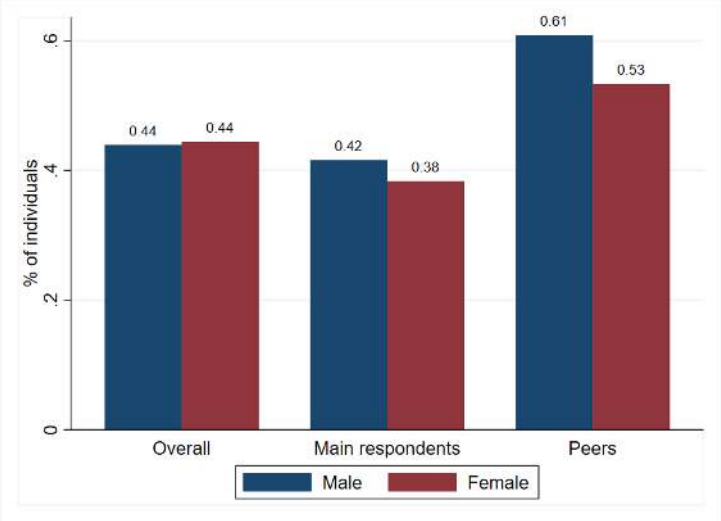
Figure 11: **Gender composition of registered individuals**




While the overall registration rates are similar by gender, there are differences between main respondents and their peers. Figure 12 shows that registration rates are higher for

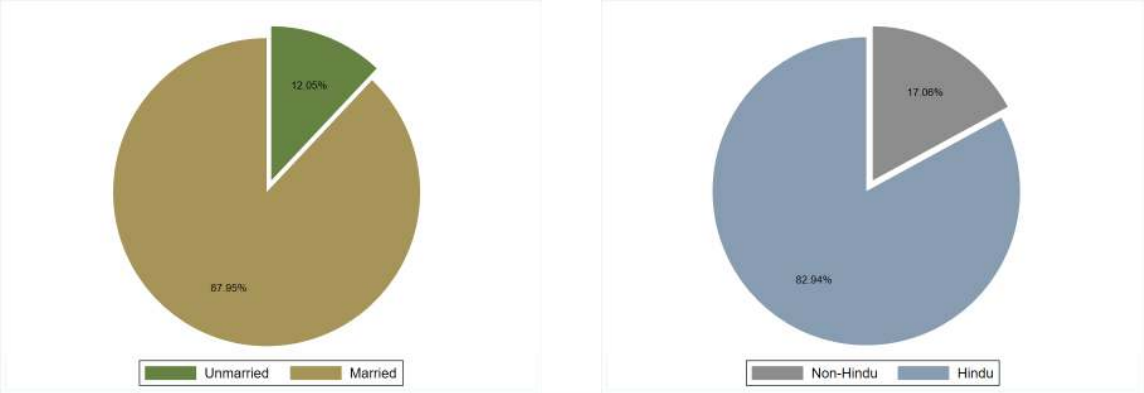
peers than main respondents and for men in both the categories.

Figure 12: **Registration rates by gender and type of onboarded individual**




Since the sample is primarily in the 18-45 age group, most of the people in the sample are married and a majority of them are Hindu (Figure 13).

Figure 13: **Marital Status and Religion of registered individuals**




a: **Marital Status** b: **Religion**

## 6.3 Job preferences

For the registered individuals, the job search platform collected information on job histories, job profiles they are interested in, and the expected salary along with other demographic details. They also created a genuine score to capture the genuineness of the registered individual in obtaining employment. Figure 14 plots the distribution of this score. It ranges from 30 to 100 and is mostly clustered around the higher end of the range, between 80-95. Splitting the genuine score by gender, we find that men have higher scores relative to women in both the categories – main respondents as well as peers (Figure 15).

Figure 14: **Distribution of Genuine Score**

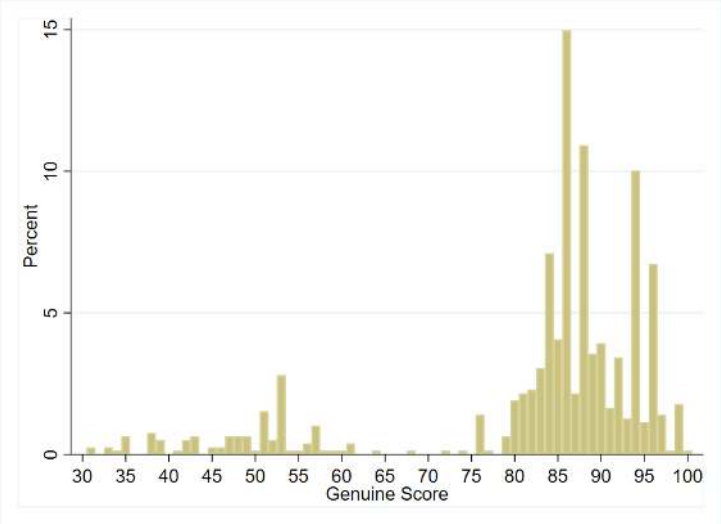
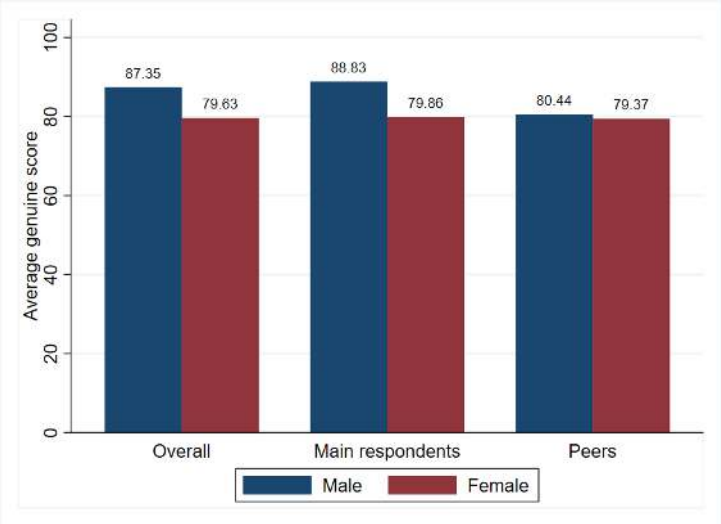
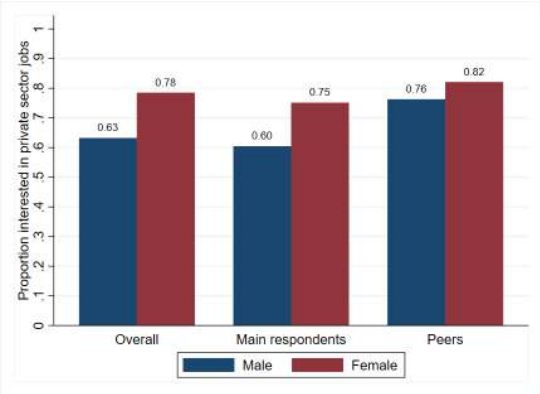



Figure 15: **Genuine Score by gender and type of respondent**

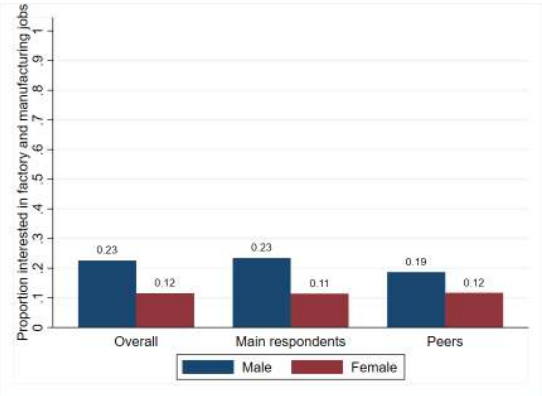


Next, we show the job preferences of individuals as per the information collected by the portal at the time of registration in Figure 16. Data from the platform shows that women were interested in working in private salaried jobs (78% - e.g. beautician, telecaller), and domestic help and services (38% - cook, babysitting, and caring jobs). In contrast, men were open to a larger number of job profiles (private jobs (63% - delivery boy, office helper, and salesman), factory and manufacturing jobs (23% - machine operator and technicians), domestic help and services (26% - driver, peon, etc.), and construction work (9%)).

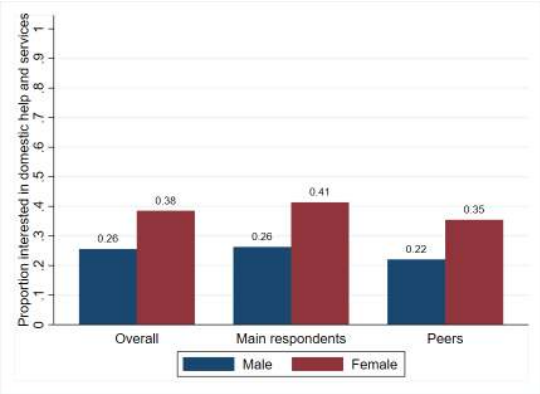
Figure 16: **Job preferences by gender and type of respondent**



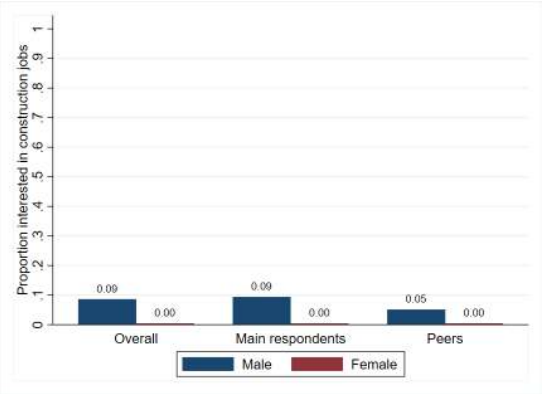

a: **Private**




b: **Factory and Manufacturing**




c: **Domestic help and services**




d: **Construction work**

Women expected a monthly salary of over Rs 10,000 while men expected 35% higher salary of Rs 13,500 (Figure 17). There is not much difference in the expected salary of main respondents and peers by gender. Surprisingly, there is a significant mismatch between expectations and the actual earnings of women. Working women in our sample earn only Rs 3,800 on average but expect much higher wages. This mismatch is way smaller for men who earn about 12,000 per month. This underscores the need to provide more information to workers on how job matching platforms function, particularly women workers.

Finally, we look at the distances the registered members are willing to travel for work in Figure 18. Women want work within a 4 km distance from their homes. In contrast, men were willing to travel double the distance by women.

Figure 17: **Expected Salary by gender and type of respondent**

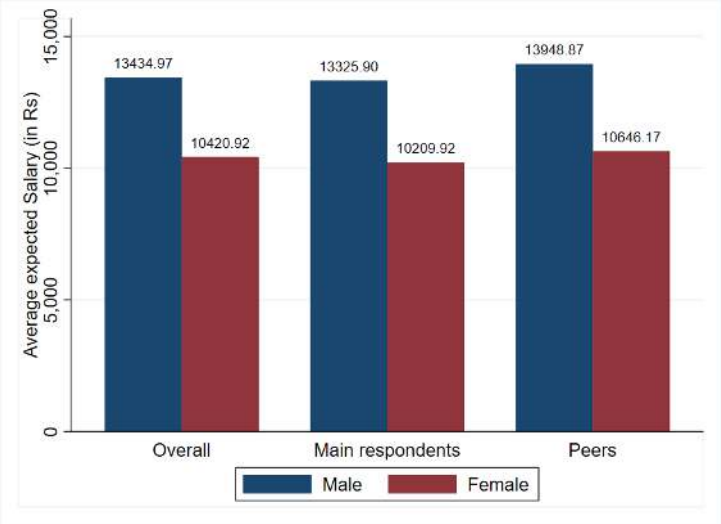
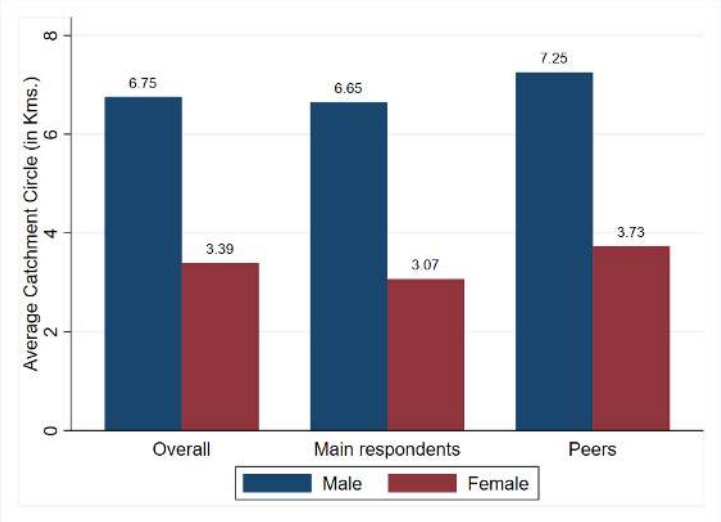


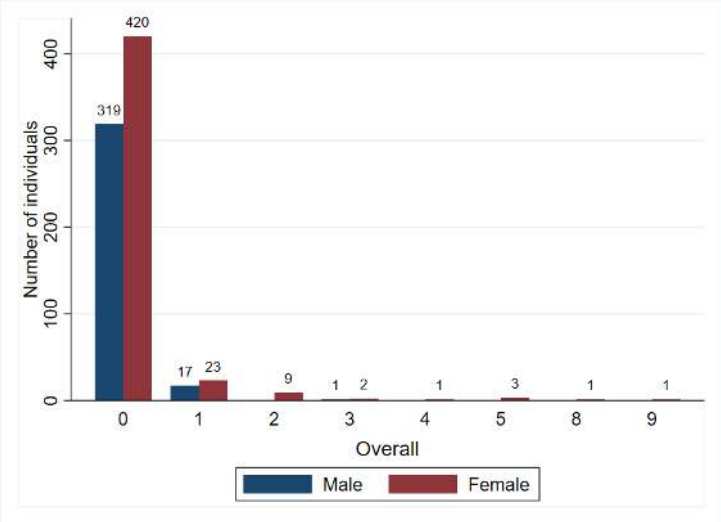

Figure 18: **Catchment circle by gender and type of respondent**



## 6.4 Job offers through portal

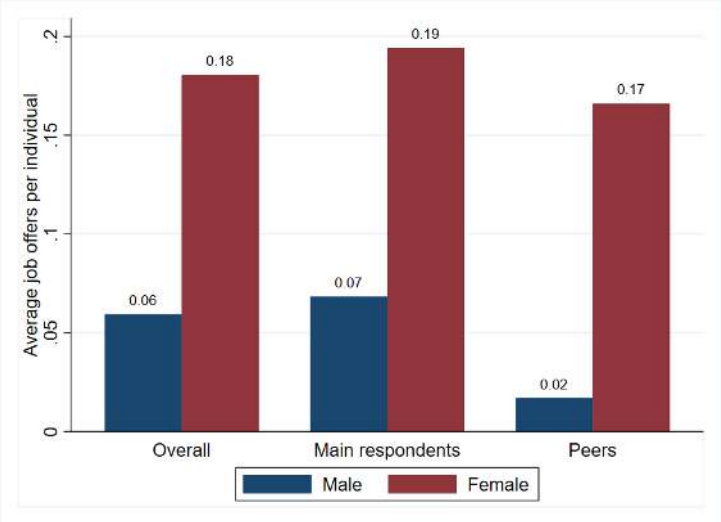
Using the portal data, we plot the number of job offers extended to a registered individual by gender in Figure 19.

Figure 19: **Distribution of registered individuals over number of job offers**




The job offers received on average were higher for the main respondents than peers, for both the sexes (Figure 20).

Figure 20: **Average job offer by gender and type of respondent**




Since, the job matching platform did not require a smartphone to receive job offers, at the platform end, data on job offers is incomplete. The platform only recorded whether a match took place or not. Hence we collected detailed self-reported data on job offers, as well, during both endline surveys. The plots below use this survey data that combines information collected at both the endlines.

Figure 21 clearly shows the number of job offers reported by respondents are higher than the portal records. Thereby, the average offers per registered respondent are also higher (Figure 22).

Figure 21: **Distribution of registered individuals over number of job offers (self-reported)**

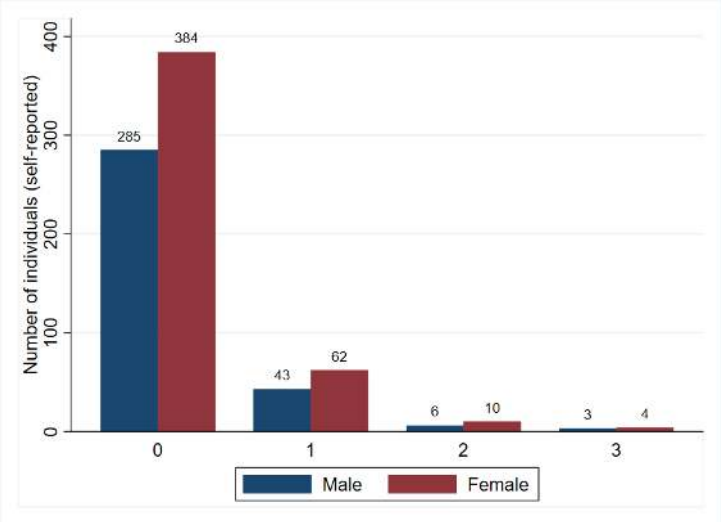
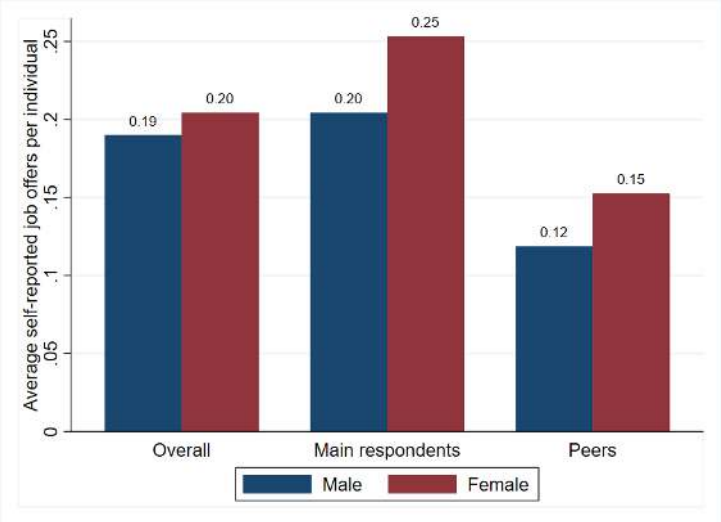



Figure 22: **Average job offer by gender (self-reported)**



# 7 Impact of Intervention on Labor Market Outcomes (End-line, 2021)

In the previous sections of this report, we presented the data on the full study sample. We now show the impact of the intervention for the sample of matched husband-wife pairs at Endline 2, for whom we have more complete information.

The following plots show the econometric regression estimates of the impact of the intervention based on the 1,377 matched husband-wife pairs, that is a total sample of 2,754 individuals at Endline 2. The dots represent the estimated effect of offering registration on the job portal on employment, days and hours of work, monthly earnings, occupation, and earning type, relative to the control (C) group which was not offered the portal registration (the bars around the dots show the 95% statistical confidence interval). The plots are color-coded – blue indicates the estimated effect of being offered the job portal registration on labor market performance for men, and maroon represents the effect on women. The red line at 0 indicates no estimated effect of the intervention. The reference period for all employment outcomes is three months before the date of the endline survey.

In each figure, we first show the 'Overall' estimates that report the impact of offering registration on the job portal relative to the control group which did not get the registration offer, the estimates for T1 or 'Without network' group compared to the control (C) group, and finally, we report estimates for T2 or treatment 'With network' relative to control (C) group. Since assignment to each of the three groups was random, the characteristics of the individuals across the three groups were comparable at baseline. Hence, any difference in labor market outcomes between treatment and control groups after intervention can be attributed to the effect of the intervention.

## 7.1 Impact on the probability of being employed

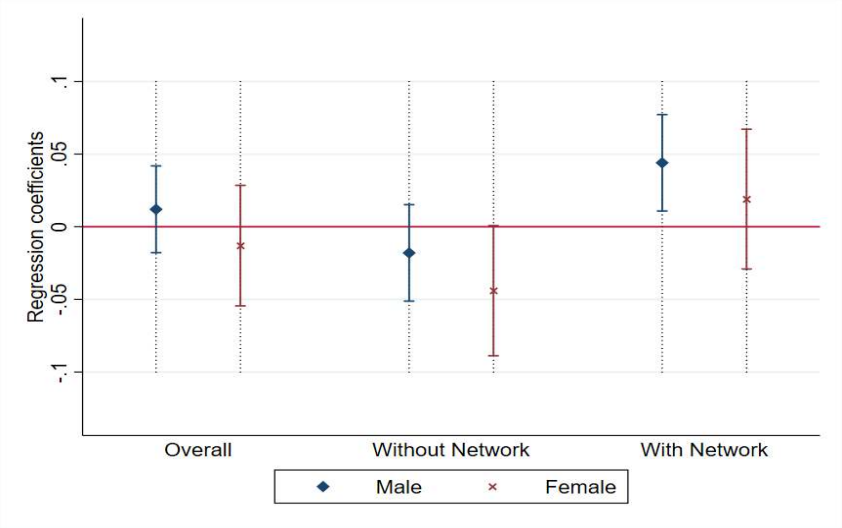
The dots in Figure 23 represent the estimated effect of offering registration on the portal on the probability that the individual was employed during the survey reference period.

Being assigned to treatment with the network (T2) increases the probability of working for men by 4.4 percentage points (pp), i.e. 0.044 on the Y-axis multiplied by 100. This is equivalent to a 4.58% increase relative to men in the control group in 2019. Even though the coefficient on women is statistically insignificant, the impact on both women and men in T2 is significantly higher than that of T1 (treatment without network).

## 7.2 Impact on type of work

Furthermore, we analyze the treatment effects by occupation categories (wage labor, self-employed and salaried) to test for occupational shifts in Figure 24. Interestingly, while

Figure 23: **Impact of treatment on employment status**




women showed no overall impact on their work status, their self-employment in T2 increased by 4.5 pp (41%). For men, the improvement in labor market outcomes due to treatment was not due to any specific occupation category. However, we do find a marginal decline in wage labor or casual work of women overall and in T1 for both men and women.

## 7.3 Impact on work intensity

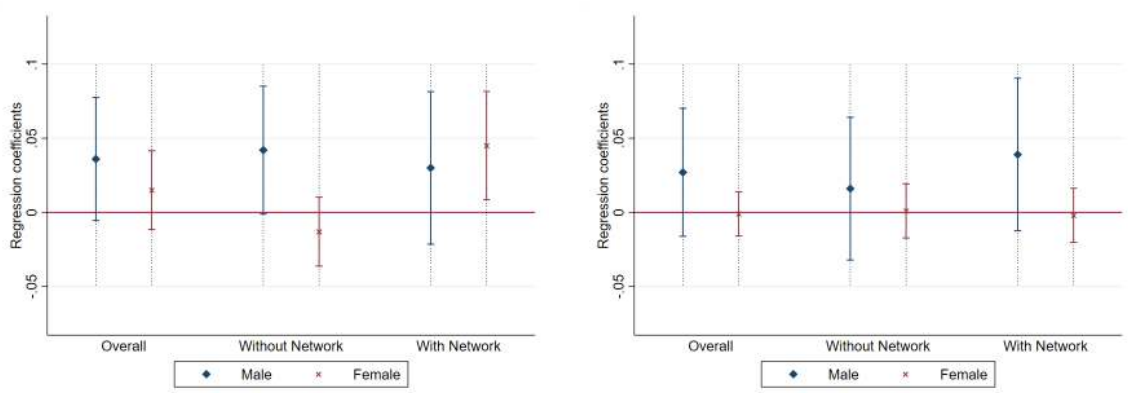
Next, we examine the impact of treatment on the days worked in a week and the hours worked in a day. There is a positive effect of treatment on the log of days worked by men (Figure 25). Men in the treatment group worked 43.1% more days relative to the control group. This overall impact is due to the T2 intervention - men in T2 worked 55.2% more days. Women experienced no significant treatment effect, instead, there is a marginal decline in the number of days worked. However, for both men and women, the impact of the T2 treatment is significantly positive relative to that of T1.

We find similar effects on the log of hours worked (per day). We find that male hours of work increased by 44.1% primarily coming from the T2 arm (Figure 26). Men in the T2 group worked 58.5% more hours per day relative to the control group. Again, while women show no overall effects of treatment, their hours of work declined by 33% in T1. Consequently, the insignificant positive impact of T2 is different from T1 for both sexes.

## 7.4 Impact on monthly earnings

At Endline 2, the overall treatment effect on the log of monthly earnings is muted for women, while for men it surges 92.4% (Figure 27). The treatment-wise effects for women

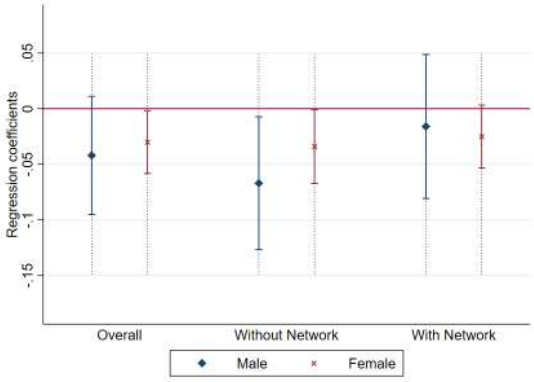
Figure 24: **Impact of treatment by type of work**




a: **Self-employment**




b: **Salaried**




c: **Wage labor**

Figure 25: **Impact of treatment on number of days worked in a week**

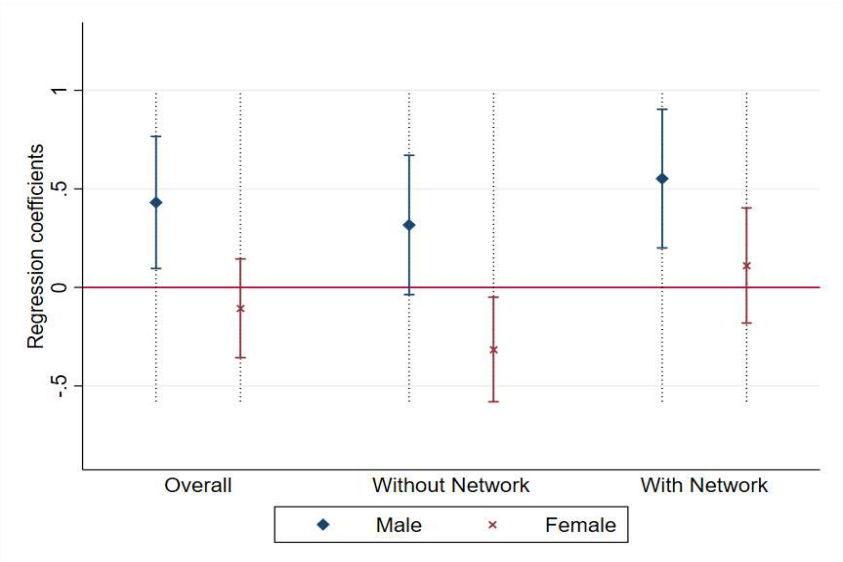
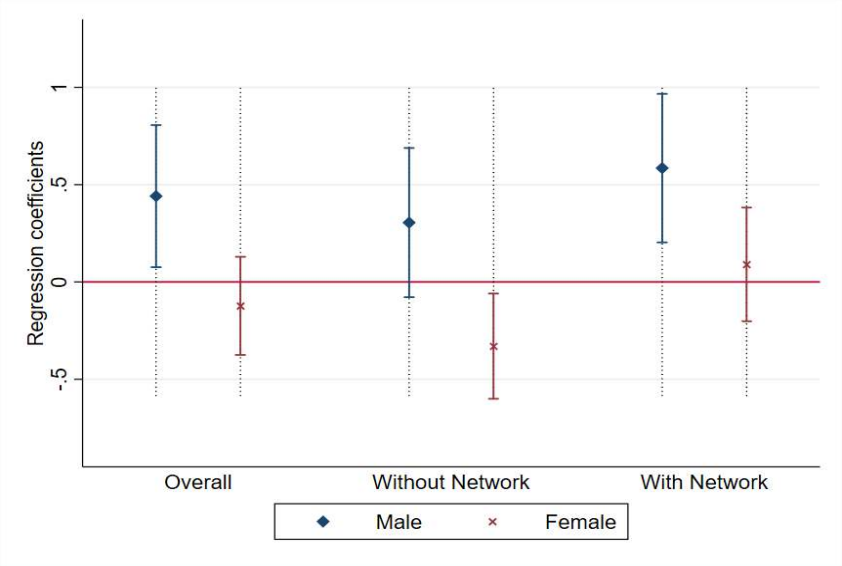
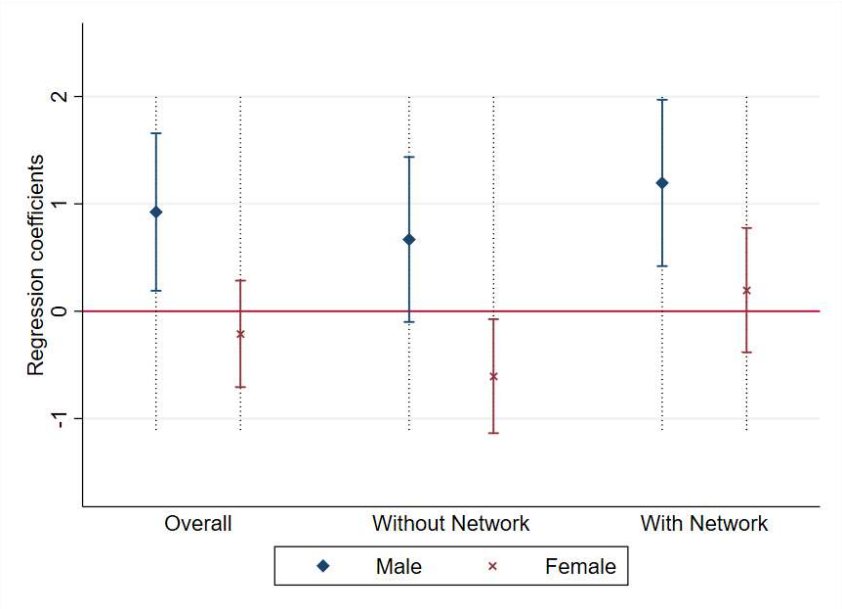


Figure 26: **Impact of treatment on number of hours worked in a day**




show a negative effect of 60.5% for those in T1 and a positive but insignificant effect of 19.6% in T2. The difference in the impact across the two treatment arms is significant at a 1% level of significance. Husbands, in both the treatments (T1 and T2), show a positive effect which is insignificant for T1 (66.8%) but significant for T2 (119.5%). Consistent with the findings above, the differential between T2 and T1 continues to remain significant for women and men.

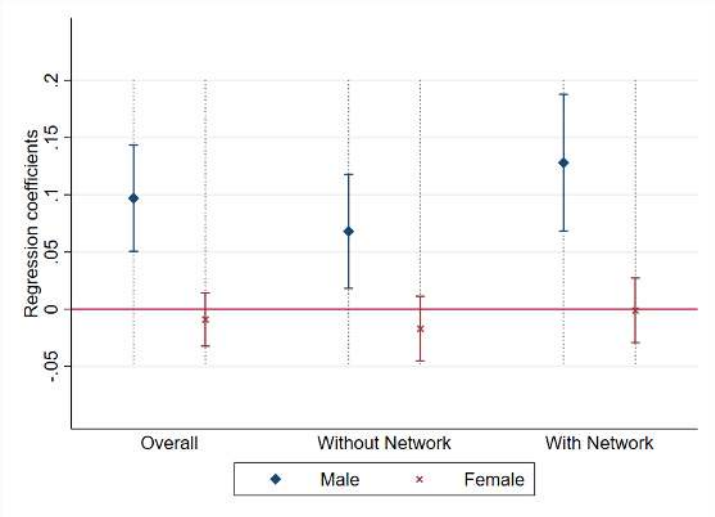
Figure 27: **Impact of treatment on monthly earnings**



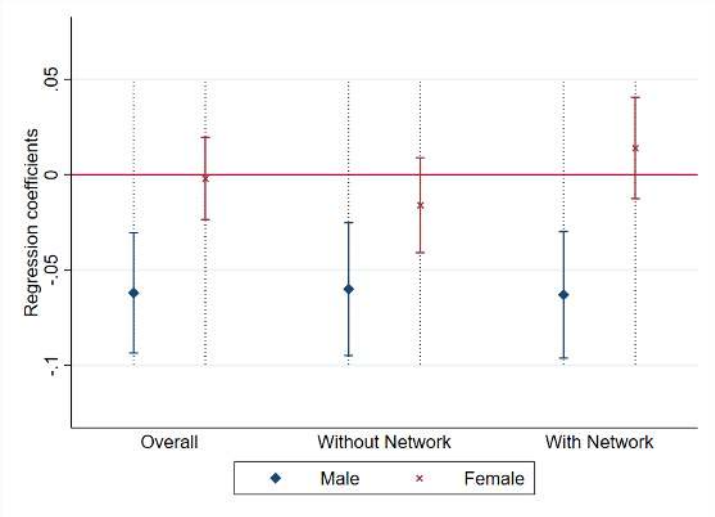
## 7.5 Impact on type of earnings

We also examine the impact on the nature of earnings (Figure 28). Interestingly, we find that treatment results in a shift of men to relatively more secure salaried work and away from the more vulnerable daily wage and piece-rate payment arrangements. Although the magnitude of the effect for men is larger in treatment with the network, it is not significantly different from treatment without the network. The effect on women's type of earnings is insignificant.

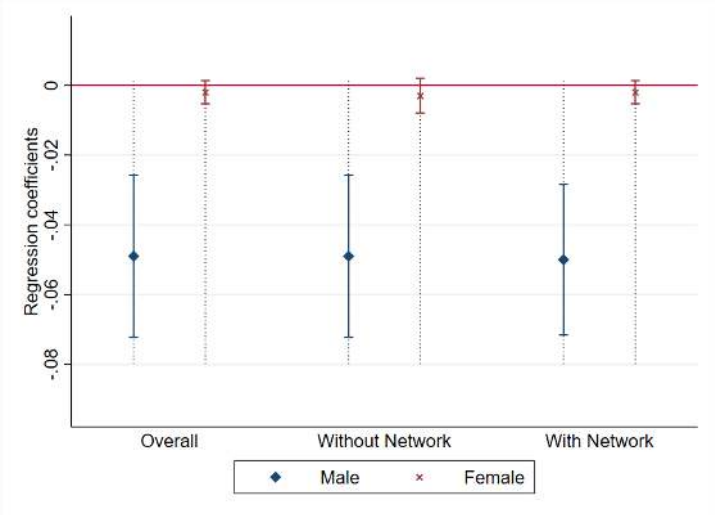
Figure 28: **Impact of treatment on type of earnings**




a: **Salary**




b: **Piece rate**




c: **Daily wage**

# 8 Conclusion

One year after the offer to register on the job matching portal, the labor market outcomes of men in the network treatment group in 2021 improved significantly, compared to 2019. The probability of being employed increased by 4.6% and workdays (per week) increased by 55.2%, relative to the control group which was not offered the platform registration. Consequently, men's monthly earnings more than doubled. There was no significant effect on men's outcomes in the non-network treatment arm.

While women's overall work status (extensive or intensive) and earnings did not show a significant impact in either treatment group, their labor market outcomes were better in the network treatment than without network treatment, a year after the intervention. Furthermore, the proportion of women who report being self-employed increased by 41% in the group in which women and their peers were offered registration on the matching platform. We also find evidence that registration rates were higher for women whose peers registered on the job portal.

Hence, adoption of this technology and resulting improvements in labor market outcomes are more likely when peers also register on the platform. Since the number of people offered registration in the network treatment was higher than in the other arm, the flow of information on job openings was higher in the former group. This, coupled with the significant overlap between women's network and their husbands' - male non-coresident family members constitute 24% of the women's social network/peers with whom they interact most often - suggests that men benefited from the diffusion of information on job openings within the network.

In contrast to the impact on men's employment, the observed effect on women can be attributed to conformism to gender norms. We document a high preference for home-based work and work closer to home for women (over 80%) and male bread-winner norm in our sample. Consequently, the findings indicate that while men took advantage of the information on job openings on the digital matching platform, women's probability of taking up home-based work, such as tailoring, increased in the network treatment arm.

# 9 Acknowledgements

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