



Down and out? The gendered impact of the Covid-19 pandemic on India's labour market

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Abstract

The Covid-19 pandemic has created unprecedented disruptions in labour markets across the world including loss of employment and decline in incomes. Using panel data from India, we investigate the differential impact of the shock on labour market outcomes for male and female workers. We find that, conditional on being in the workforce prior to the pandemic, women were seven times more likely to lose work during the nationwide lockdown, and conditional on losing work, eleven times more likely to *not* return to work subsequently, compared to men. Using logit regressions on a sample stratified by gender, we find that daily wage and young workers, whether men or women, were more likely to face job loss. Education shielded male workers from job loss, whereas highly educated female workers were *more* vulnerable to job loss. Marriage had contrasting effects for men and women, with married women less likely to return to work and married men more likely to return to work. Religion and gender intersect to exacerbate the disproportionate impact, with Muslim women more likely to not return to work, unlike Muslim men for whom we find religion having no significant impact. Finally, for those workers who did return to work, we find that a large share of men in the workforce moved to self-employment or daily wage work, in agriculture, trade or construction. For women, on the other hand, there is limited movement into alternate employment arrangements or industries. This suggests that typical 'fallback' options for employment do not exist for women. During such a shock, women are forced to exit the workforce whereas men negotiate across industries and employment arrangements.

Keywords Covid-19 · India · Lockdown · Employment transitions · Gender · Self-employment

JEL Classification J1 · J16 · J6

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1 Introduction

Economies around the world are responding to the once-in-a-century shock delivered by the Covid-19 pandemic (Gentilini et al. 2020). The nature and severity of the impact have differed widely across and within countries. However, one aspect that has emerged fairly consistently across all economies has been the disproportionate impact that the pandemic has had on women—including their employment, incomes, care burden and health.

These impacts may differ from what we know about ordinary recessions. For example, Alon et al. (2020) find that, in the US, while economic downturns usually result in a higher employment volatility for men relative to women, the Covid-19 employment shock appears to have hit women's employment harder. They account for this on the basis of employment of women being higher in the sectors that have borne a disproportionately harder impact of the pandemic. Similar observations of the pandemic having a relatively higher impact on women's employment vis-a-vis men's have been reported by other studies as well (for example, Horsely, 2020, Farré et al. 2020).

Dang and Nguyen (2020) use data from a survey of six countries (China, Italy, Japan, South Korea, the United Kingdom, and the United States) to show that not only were women significantly more likely to lose jobs as a result of the pandemic, but they also experienced a much higher fall in their incomes as well. Once again, the segregation of men and women across industries is identified as an important explanatory factor for this differential impact. This over-representation of women in sectors that are relatively more severely impacted due to the pandemic appears to be an important explanation for various countries (World Bank, 2020a).

Along with the gendered nature of impact in the domain of paid work, unpaid work, which is predominantly carried out by women, also appears to be differentially impacted. The pandemic, and associated containment measures, resulted in closure of schools, childcare services, and other care services. This has further increased the burden of childcare within households. Studies, such as those by Andrew et al. (2020) for United Kingdom and Farré et al. (2020) for Spain, point out that this increased burden was disproportionately borne by women. Furthermore, studies also find that the burden of child-care responsibilities borne by women is less sensitive to changes in their employment status relative to men (Sevilla & Smith, 2020).

Similarly, while Alon et al. (2020) find that the child-care responsibilities have been borne more heavily by women, they also suggest that workplaces adopting more flexible work arrangements can promote higher gender equality by creating feasible conditions for men to contribute to household work.

For India, various small-scale and purposive surveys conducted during the nationwide lockdown in April and May 2020 also point to a greater likelihood of women losing work and a slower recovery post-lockdown.¹ But these studies are based on purposive, non-representative surveys. The Consumer Pyramid Household

¹ See https://cse.azimpremjuniuniversity.edu.in/covid19-analysis-of-impact-and-relief-measures/#other_surveys for a database of such surveys.

Survey of the Centre for Monitoring Indian Economy (CMIE-CPHS) is the only nationally representative data available for India for the lockdown period and thereafter to estimate overall dis-employment effects and income losses during the pandemic. Using these data, Bertrand et al. (2020) find that although unemployment rates returned to pre-lockdown levels by October 2020, workforce participation rates were between 37 and 38%, about two to three percentage points below pre-lockdown levels. Deshpande (2020) reports larger absolute losses in employment for men compared to women in April. By August 2020 employment had recovered for men, while for women, the likelihood of being employed in August was 9.5 percentage points lower than that for men, compared to the baseline period. They also find that there was an increase in the hours spent on housework by men during the lockdown, thereby narrowing the gender gap. Although the hours spent on housework by men had subsequently decreased four months post the lockdown, it had still not reached the pre-pandemic levels.

A study by the World Bank (2020b) measures the impact on employment and the subsequent recovery of the labour market. It finds that 43% of those employed in December had lost employment by April. However, by August 2020, 95% of the December workforce were back in employment. But, this recovery was accompanied by huge transitions of the workforce into informal employment, particularly self-employment, with nearly 30% of those who had formal jobs in April engaged as self-employed in August. Using regression estimates, they find that informal workers were especially vulnerable to employment loss compared to formal workers, even after controlling for industry of employment, occupation type and location.

In this paper, we use CMIE-CPHS data to provide an in-depth analysis of the gendered nature of impact of the Covid-19 pandemic, and the lockdown, in India along various parameters—the immediate employment impact of the lockdown, the subsequent recovery into employment, nature of fallback employment, and interaction of other social and demographic characteristics with the gendered impact.

We initiate the discussion by constructing employment trajectories over the pandemic, for a panel of individuals covering three time periods: pre-lockdown (December 2019–January 2020), lockdown (April–May 2020), and post-lockdown (August–September 2020). A simple comparison of trajectories reveals that for about 37 percent of women, loss of employment faced during the lockdown persisted even three months later, while this was the case for only 10% of men. About 65% of the pre-pandemic male workforce were unaffected in terms of job loss, compared to only 30% of women. Using a logistic regression we show that women were seven times more likely to lose work during the nationwide lockdown, and conditional on losing work, eleven times more likely to *not* return to work subsequently compared to men, even after controlling for differences in demographic and employment patterns, such as age, education, caste, marital status, type of employment (self, salaried, or casual), and industry of work.

Further, using logit regressions on a sample stratified by gender, we find that daily wage and young workers, whether men or women, were more likely to face job loss. A young worker (between 15 and 24 years) was nearly four times more likely to lose employment during the lockdown compared to a worker between 35 and 44 years. A male daily wage worker was twice as likely, and a female daily wage worker five

times more likely to lose work in comparison to their salaried counterparts. However, for certain aspects, there were significant differences between men and women in terms of their association with job loss and recovery. Education shielded male workers from job loss, whereas highly educated female workers were *more* vulnerable to job loss. Marriage had contrasting effects for men and women, with married women being less likely to return to work and married men more likely to return to work. Religion and gender intersect to exacerbate the disproportionate impact. Muslim women were more likely to not return to work while for men we find religion to have no significant impact on the likelihood of job recovery.

Finally, for those workers who did return to work, we find that a large share of men in the workforce moved to self-employment or daily wage work, in agriculture, trade or construction. For women, on the other hand, there is limited movement into alternate employment arrangements or industries. This suggests that typical ‘fallback’ options for employment do not exist for women. During such a shock, women are forced to exit the workforce whereas men negotiate across industries and employment arrangements. All results from the analysis are compared against the corresponding period in the previous year (baseline scenario) to demonstrate that the effects are particular to the pandemic year.

The rest of the paper is organized as follows. In Sect. 2 we describe the CMIE–CPHS data. Section 3 presents the results of the trajectory analysis. In Sect. 4 we present the results from the logistic regression analysis. Section 5 looks at transitions across employment types and industries. Section 6 concludes.

2 Data

The CPHS is a nationally representative survey of a panel of households conducted by the CMIE since 2014. The survey is conducted in “waves”, with the first wave of the year lasting from January till April. During a wave, approximately 1,70,000 households are approached and information on 800,000 individuals from those households is collected.² These same households are interviewed again in the second wave running from May to September, and then a third time between October and December. Therefore, for any household in the sample, information is available for three points in the year. Further, the sample of households within each month of a wave remains unchanged across waves. So, if a household is interviewed in the first month of wave one, it will be interviewed next in the first month of the second wave, and then again, in the first month of the third wave.

The survey collects information on the demographic aspects of individuals in the household, income from various sources, consumption expenditure on different items and assets acquired. It also collects information on employment status for every member in the household, and, industry of employment, occupational status, and other employment details for the working members in the household. During the

² There may be instances of non-response at the individual as well as the household level. Typically, in any wave, information is available for around 1,40,000 households and 5,70,000 individuals.

Table 1 Changes in Employment Status of trajectory sample

	December 2019 & January 2020	April & May 2020	August & September 2020
Employed	22,330	14,391	19,036
Unemployed	–	5586	797
Out of labour Force	–	2353	2497
Total	22,330	22,330	22,330

Source: Authors' calculations based on CMIE-CPHS unit level data

month of April 2020, owing to the economic lockdown and mobility restrictions, the CMIE-CPHS transitioned from a door-to-door to a phone survey, resulting in a significant reduction in sample size. Typically, in any given month of a wave, information for up to 40,000 households and 1,80,000 individuals is collected. During the month of April 2020, this fell to about 13,000 households and 60,000 individuals. In May 2020, although there was an increase to 15,000 households and about 75,000 individuals, this was still below the usual sample size.

To analyze the impact of and recovery from the pandemic and the economic lockdown, we construct a panel that is anchored around those households that were interviewed during the lockdown, and for whom we have pre-lockdown and post-lockdown information. During the months of April and May in the year 2020, India was in a complete economic lockdown, with a near-cessation of all economic activities. Therefore, households interviewed during the months of April 2020 and May 2020 comprise the lockdown sample. For this sample of households, pre-lockdown information is available for the months of December 2019 and January 2020 and the post lockdown information is available for the months of August 2020 and September 2020.

Since we are specifically interested in what happened to the *workforce* during the pandemic, we restrict our sample to only those individuals who were in the workforce prior to the lockdown, i.e. in December 2019 and January 2020, and were re-interviewed during and post the lockdown. We refer to this sample as the *trajectory sample*. This final sample consists of 22,330 individuals. Table 1 shows the breakdown of this sample by broad employment category.³

We confirm that there are no systematic differences between this reduced trajectory sample and the usual sample in terms of various demographic indicators. Table 2 compares the profile of the trajectory sample with the larger December-January workforce sample, i.e., the December-January workforce not restricted to the sample of households resurveyed during the lockdown months. We see that the composition of individuals in our trajectory sample in terms of social identities and employment arrangements is not different from the December–January workforce.

³ The “unemployed” category combines the categories of “unemployed, willing and looking” as well as “unemployed, willing, not looking.” Those individuals who report a status of “unemployed, not willing, not looking” are classified as being “out of the labour force.”

Table 2 Comparing trajectory workforce with monthly workforce (% share)

	December-January workforce	Trajectory sample
Women	11	10.5
Rural	68.1	68.3
SC/ST	32.1	32
OBC	40.7	41.2
Intermediate caste	8.5	8
General category	17.9	18.1
Hindus	87.6	89.4
Muslim	8.2	6.3
Permanent salaried	11.1	10.5
Temporary salaried	9.9	10.8
Daily wage workers	29.9	28.4
Self Employed	49.1	50.4

Source: Authors' calculations based on CMIE–CPHS unit level data

Men account for 90% of the December–January workforce.⁴ Scheduled Caste (SC) / Scheduled Tribe (ST) and OBCs (Other Backward Caste) account for 32% and 41% of the workforce, respectively, while General Category groups account for 18%.⁵ Approximately eight percent of workers were Muslims. Nearly half the workforce was self-employed. This distribution is not statistically significantly different from what we observe for the trajectory sample. All estimates, including for the reduced sample, are representative at the national level with the use of appropriate sampling weights.⁶

Finally, the analysis that we undertake in the following sections is replicated for a baseline, ‘normal’ period. The baseline period used here is the same time in the previous year. Therefore, we create a baseline sample consisting of those who were in the workforce in December 2018–January 2019 (months corresponding to the pre-lockdown sample), who are then tracked into April–May 2019 (months corresponding to the lockdown sample), and August–September 2019 (months corresponding to the post-lockdown sample). We compare all findings during the current period with this baseline to estimate the extent to which the likelihood of job loss and recovery differ during the pandemic from what is observed during normal times.

⁴ The labour force participation rate of women in these data is lower than that found in other national datasets such as the NSS Periodic Labour Force Survey. The possible reasons have been discussed in Abraham and Shrivastava (2019). Despite this low representation, we use this dataset because it is the only nationally representative survey for analysing Covid impact.

⁵ The Indian government has identified four broad caste groups based on their social identity and the historical disadvantages these communities have faced. The Scheduled Castes (SC), Scheduled Tribes (STs) and Other Backward Castes (OBC) have been historically economically and socially marginalized. Individuals falling outside these caste groups belong to the ‘General’ category and typically represent the dominant, privileged communities.

⁶ For a detailed discussion on the choice of weights, we refer the reader to Abraham et al., 2021.

Table 3 Employment Trajectories

Pre lockdown (Dec `19–Jan `20)	During lockdown (Apr–May `20)	Post lockdown Aug–Sept `20	Trajectory
Employed	Unemployed/out of labour force	Unemployed/out of labour force	No recovery
Employed	Employed	Unemployed/out of labour force	Delayed job loss
Employed	Unemployed/out of labour force	Employed	Recovery
Employed	Employed	Employed	No effect

3 Mapping the employment trajectories for men and women

For any individual who was working prior to the pandemic, i.e., in December 2019 or -January 2020, there are four possible pathways of employment depending on their employment status in the subsequent periods, i.e., during the lockdown in April–May 2020 and after the lockdown in August–September 2020.

- (i) *No effect*: Individuals following this trajectory remain employed during lockdown and post lockdown.
- (ii) *No recovery*: These individuals lost work during the lockdown and continue to be out of the workforce afterwards.
- (iii) *Recovery*: These individuals lost work during the lockdown but are able to return to work after the lockdown.
- (iv) *Delayed job loss*: They are employed prior to the lockdown, continue to be employed during the lockdown, but lose work after the lockdown.

Table 3 describes the time periods, employment status at each point and corresponding trajectory.

An individual is identified as ‘unemployed’ in this sample if they lost work during the lockdown (conditional on being employed prior to the lockdown), irrespective of whether they reported themselves as available or willing to work subsequently. Therefore, those who lost work includes those who report as ‘unemployed’ as well as those who report as ‘out of the labour force’. We use this definition since women, in particular, are more likely to report themselves as being out of the labour force, rather than as unemployed in the event of losing their jobs.⁷ Examining the trajectories of workers across various dimensions—gender, employment arrangement, industry, caste and religion allows us to understand how the impact on employment and the recovery varied across and within the demographic groups.

During the baseline period in 2018–19, 96% of workers followed a ‘no effect’ trajectory. About one percent faced a job loss without any recovery, while 1.75% lost jobs in April–May 2019 but had returned to work by August–September 2019.

⁷ The issues with relying on identity-based measures of employment and unemployment, and its gendered impacts are discussed in detail here: <https://cse.azimpremjiuniversity.edu.in/what-the-numbers-dont-tell-us-looking-beyond-standard-measures-of-employment-during-an-economic-lockdown/>.

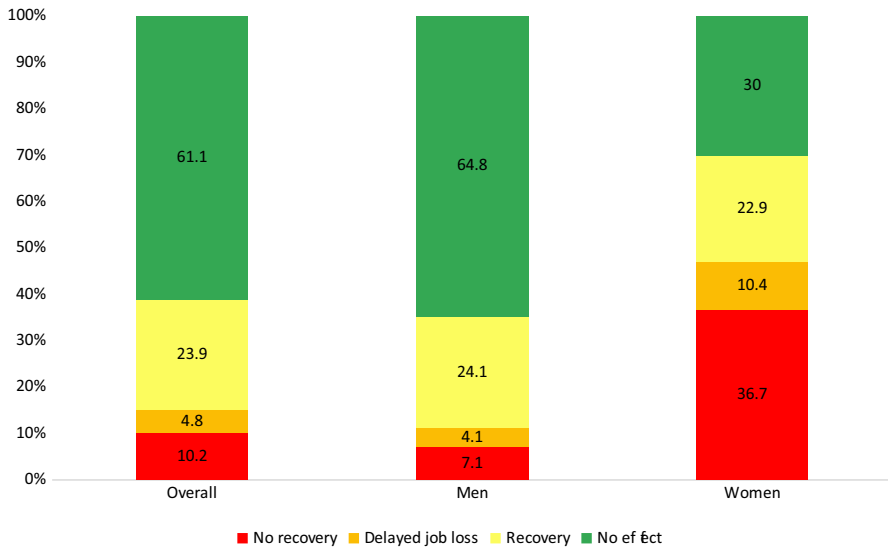


Fig. 1 Employment Trajectories, overall and by gender. Source: Authors' calculations based on CMIE–CPHS unit level data

In contrast, during the pandemic, only 61% of workers followed the ‘no effect’ trajectory, i.e., were employed prior to, during, and post the lockdown (Fig. 1). 24% followed the recovery trajectory. Notably, about 10% of the December–January 2019 workforce lost employment during the lockdown and continued to be unemployed in August–September, i.e., followed the no-recovery trajectory. The comparison with the baseline allows us to delineate the pandemic specific employment impact to some extent. Finally, a small share of workers, five percent, followed a delayed job loss trajectory, such that although they continued to be employed during the lockdown, they were unemployed after the lockdown, in August–September.⁸

However, these overall averages hide the gendered nature of the impact and the recovery process. We find that men and women have had very different experiences in terms of their employment experiences during and after the lockdown. *First*, while 65% of men who were employed pre-lockdown were unaffected in terms of employment both during and after the lockdown, the corresponding percentage of women following this *no effect trajectory* was merely 30%. In other words, while 35% of men lost employment during or after the lockdown, the corresponding percentage for women was almost double, i.e., 70%. *Second*, while seven percent of men who were employed prior to the lockdown lost work during the lockdown and remained unemployed even after the lockdown, i.e., they followed the *no-recovery*

⁸ In this analysis, to arrive at a nationally representative distribution of individuals in each trajectory, we use weights pertaining to the starting point, i.e., December2019–January 2020. However, we have also estimated the distribution across trajectories using weights from the terminal period of the trajectory, i.e., August–September 2020 (Wave 2 of 2020) as a robustness check. Results are unaffected by this change. For all subsequent analysis, the starting point weight has been used.

trajectory, the corresponding share for women was much higher at 37%. Third, although a similar share of male and female workers followed a *recovery trajectory*, this belies the gendered nature of recovery. When recovery is seen as a proportion to the share of all those who lost employment during the lockdown, the relative share of those who did not recover vis-à-vis those who recovered is much higher for women compared to men. Men were five times more likely to recover employment compared to women. These numbers highlight that not only were working women much more likely to be impacted due to the pandemic, but they were also much less likely to recover. Finally, women were also more likely to follow a *delayed job loss trajectory*, with 10 percent of those women who were employed prior and during the lockdown losing jobs after the lockdown, compared to only four percent men (Fig. 1).

While the general understanding has been that the lifting of restrictions on mobility and economic activity across most parts of the country would enable those who had lost work to return to work, we find that this is true only for men. Most women who were employed prior to the lockdown were either unemployed or had withdrawn from the labour force post the lockdown in August–September. Prior to the pandemic, about 70% of working age men were employed. In August–September, 88% of these men were able to either remain employed or return to work. In contrast, of the 10% of working age women who were employed, only 53% were able to remain employed or return to work as of August–September. Half of the pre-pandemic female workforce had lost employment and were unable to return to work post the lockdown.

During the same period last year, 92% of men and 64% of women experienced a no-effect trajectory. Therefore, while even in usual times, women are more susceptible to losing employment relative to men, this year particularly stood out with the gender gap widening considerably during the pandemic.

4 Regression analysis

4.1 Likelihood of Job loss and recovery for women versus men

The above analysis shows a clear disparity between men and women in terms of job loss and the subsequent recovery. However, the disparities could stem from women and men being engaged in different industries and employment arrangements, or/and due to the samples of men and women being systematically distinct in terms of social and demographic characteristics. To assess the gendered nature of this impact controlling for these factors, we estimate two binomial regressions. The first model estimates the likelihood of job loss, with a categorical dependent variable that takes value one if the individual lost employment either during (April–May) or after (August–September) the lockdown, and zero otherwise. The second model estimates, for those who lost employment during the lockdown, the likelihood of not recovering from job loss. Here, the categorical dependent variable takes value one if the individual having lost employment during the lockdown is unable to return to work subsequently, and zero if they lost work during lockdown but returned to

employment post the lockdown. Therefore, in both models, we are estimating the probability of an adverse event-job loss during the lockdown, and non-recovery from this job loss in the months after.

For both the models, the independent variable of interest is gender. Both regressions control for a vector of social, demographic, and economic characteristics. These include: caste group, religion, age, education, marital status, household size, children in the household, household's pre-pandemic income (in December 2019), region of residence in the pre-pandemic period, employment arrangement and industry of employment.⁹ Since our sample is collected over two months, it is likely that the intensity of lockdown (during April–May 2020) as well as the extent of recovery (August–September 2020) may differ between these 2 months. We introduce month dummies to account for this. We also control for state fixed effects.

The results are reported as odds ratios in column 1 and 2 of Table 4, where any value greater than one indicates a positive association with the dependent variable. For categorical independent variables, an odds ratio greater than one indicates that the likelihood of job loss or non-recovery is higher for the non-base category relative to the base category.

In the regression estimates of likelihood of job loss, we find that women are *seven times* more likely than men to lose employment, either during the economic lockdown or subsequently (column 1 in Table 4). This shows that, on average, even after controlling for various labour market and social and demographic attributes, including education, age, religion, experience, work arrangement or sector of work, presence of children in household, marital status, etc., women were more vulnerable to job loss compared to men.

The second regression estimates the likelihood of not recovering from the job loss having lost employment during the lockdown. Here too, we find stark differences between men and women. Compared to men, women were *eleven times* more likely to *not* return to work upon having lost employment during the lockdown (column 2 in Table 4). This difference, too, remains even after controlling for other characteristics. Note that we also control for household-level attributes and proxies for household care burden, such as presence of children, household size, marital status, etc., which are often cited in the literature as reasons for women's withdrawal from work.

Therefore, women are more vulnerable to job loss and less likely to return to work after having lost jobs, compared to men. This higher job loss cannot only be explained on the basis of women being in industries or employment arrangements that were more adversely affected during the lockdown. Moreover, the inability to return or withdraw from work cannot simply be attributed to increased household

⁹ Keeping sample size restrictions as well as distinct differences in the concentration of women vis-a-vis men in certain industries in mind, we aggregate industries into seven broad categories. These are agriculture, manufacturing (including heavy machines, pharmaceuticals, and other smaller manufacturing industries such as handicrafts, food and textiles), construction, trade (including, travel and tourism, hotels and restaurants), non-professional personal services, modern services (public administration, defence, media and publishing, financial services and professional services), health and education. Table 5 in the Appendix provides details of the industries under each category).

Table 4 Odds Ratio Estimates—Likelihood of Job Loss and No Recovery, overall, and for men and women

	(1)	(2)	(3)	(4)	(5)	(6)
	Job loss Overall	No Recovery Overall	Job loss: Men	Job loss: Women	No Recovery: Men	No Recovery: Women
Gender:female	6.809***	11.20***	—	—	—	—
(Base:male)	(1.516)	(1.810)				
Caste group: SC/ST	1.290*	0.523***	1.327**	1.001	0.555***	0.551***
(Base: general category)	(0.180)	(0.0848)	(0.185)	(0.370)	(0.103)	(0.122)
Caste group: OBC	1.160	0.608**	1.163	1.429	0.635**	0.739
(Base: general category)	(0.150)	(0.848)	(0.166)	(0.434)	(0.115)	(0.176)
Caste group:	0.922	1.011	0.850	1.625	1.088	1.237
Intermediate	(0.159)	(0.172)	(0.153)	(0.868)	(0.289)	(0.399)
Caste group: not stated	1.216	1.732	1.224	0.940	1.732	1.700
(Base: general category)	(0.354)	(0.609)	(0.336)	(0.699)	(0.609)	(1.128)
Religion: Muslim	0.990	0.877	0.965	1.515	0.631***	6.630***
(Base: Hindu)	(0.131)	(0.146)	(0.136)	(0.584)	(0.107)	(4.029)
Religion: others	1.040	1.733***	0.991	1.541	1.689**	2.765***
(Base: general category)	(0.194)	(0.260)	(0.184)	(0.944)	(0.348)	(1.004)
Education: <5th standard	1.456***	0.745**	1.633***	0.352**	0.791	0.537
(Base: graduate & above)	(0.136)	(0.0997)	(0.203)	(0.150)	(0.129)	(0.254)
Education: 6th-10th	1.230***	0.709***	1.336***	0.331**	0.745**	0.582
Standard	(0.0930)	(0.0824)	(0.0956)	(0.164)	(0.108)	(0.208)
Education: 11th-12th	1.137**	0.743**	1.208***	0.421**	0.795	0.384
Standard	(0.0710)	(0.105)	(0.0782)	(0.182)	(0.152)	(0.227)
Age: 15-24 years	4.796***	9.769***	4.178***	3.659***	13.41***	8.581***
(Base: 35-44 years)	(0.662)	(2.199)	(0.515)	(2.066)	(5.465)	(6.292)
Age: 25-34 years	1.611***	2.196***	1.519***	1.703	3.540***	2.061*
(Base: 35-44 years)	(0.164)	(0.342)	(0.177)	(0.752)	(1.354)	(0.875)

Table 4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	Job loss Overall	No Recovery Overall	Job loss: Men	Job loss: Women	No Recovery: Men	No Recovery: Women
Age: 45 + years	1.285** (0.135)	2.355*** (0.287)	1.376*** (0.151)	1.118 (0.325)	6.541*** (2.362)	1.811*** (0.390)
Employment arrangement: daily wage/casual labour	2.167*** (0.171)	1.006 (0.212)	2.000*** (0.150)	5.442*** (0.534)	0.974 (0.236)	1.554 (1.025)
(Base: Permanent salaried)	(0.250)	(0.249)	(0.252)	(2.636)	(0.260)	(1.316)
Employment arrangement: salaried temporary	1.511*** (0.171)	1.099 (0.212)	1.508*** (0.150)	1.475 (0.534)	0.961 (0.236)	1.775 (1.025)
Employment arrangement: self-employed	1.390** (0.228)	1.280 (0.296)	1.306* (0.205)	2.918** (1.332)	1.093 (0.2893)	2.176 (1.663)
Sector: agriculture	1.109	1.915***	1.147	0.748	2.068**	1.336
(Base: services-modern)	(0.248)	(0.472)	(0.220)	(0.507)	(0.671)	(0.759)
Sector: manufacturing	1.179	1.209	1.246	0.634	1.092	1.353
(Base: services-modern)	(0.250)	(0.203)	(0.242)	(0.390)	(0.240)	(0.763)
Sector: construction	1.327	1.025	1.385	0.804	0.953	1.494
(Base: services-modern)	(0.326)	(0.176)	(0.326)	(0.462)	(0.238)	(0.690)
Sector: trade	1.241	1.084	1.271	1.232	1.132	0.835
(Base: services-modern)	(0.330)	(0.176)	(0.331)	(0.764)	(0.243)	(0.347)
Sector: services—non-professional	1.458* (0.311)	1.074 (0.238)	1.453** (0.250)	3.599** (2.137)	1.045 (0.242)	1.333 (0.680)
(Base: services-modern)	(0.311)	(0.238)	(0.250)	(2.137)	(0.242)	(0.680)
Sector: services—health & education	1.495** (0.248)	1.505 (0.379)	1.177 (0.198)	2.694** (1.127)	1.552 (0.505)	1.318 (0.780)
(Base: services-modern)	(0.248)	(0.379)	(0.198)	(1.127)	(0.505)	(0.780)
Number of children in household	1.002 (0.0426)	0.915 (0.0894)	1.015 (0.0510)	0.996 (0.126)	0.976 (0.0682)	0.810 (0.104)
(Base: services-modern)	(0.0426)	(0.0894)	(0.0510)	(0.126)	(0.0682)	(0.104)
Household size	0.935*** (0.0196)	1.094* (0.0449)	0.931*** (0.0223)	0.982 (0.112)	1.087* (0.0475)	1.235* (0.152)
(Base: services-modern)	(0.0196)	(0.0449)	(0.0223)	(0.112)	(0.0475)	(0.152)

Table 4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	Job loss Overall	No Recovery Overall	Job loss: Men	Job loss: Women	No Recovery: Men	No Recovery: Women
Married	0.569*** (0.0826)	0.527*** (0.150)	0.430*** (0.0470)	2.285** (0.781)	0.243*** (0.0469)	3.058*** (0.972)
Monthly income in December 2019 (log)	0.917** (0.0360)	1.064 (0.0469)	0.901** (0.0387)	0.942 (0.0851)	1.105 (0.0859)	0.955 (0.0689)
Rural	0.678*** (0.0598)	0.865*** (0.0529)	0.658*** (0.0597)	0.804 (0.208)	0.844*** (0.0478)	0.753 (0.177)
(Base: Urban)	Yes	Yes	Yes	Yes	Yes	Yes
State-level controls	1.6340	.09183	2.568798	4.198944	.0528123	.6005594
Constant	223,330	7939	19,859	2009	6587	1220
Observations	0.1753	0.2431	0.1546	0.2199	0.2341	0.1618
Pseudo R square						

Exponentiated coefficients; Standard errors in parentheses; Standard errors clustered at the state level, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
 See Table 5 for details of industry classification

responsibilities (as captured household size and number of children in the household), lower education levels or less experience. The higher likelihood of women to lose jobs and not recover compared to men continues to be so even after controlling for all of these factors.

We also estimate these models for the baseline, i.e., the corresponding period in the previous year (2018–2019). During the baseline, women were twelve times more likely to lose employment compared to men indicating that women's employment is typically highly vulnerable. However, as the comparison of trajectories show, the share of women who do lose employment during the baseline is much lower (37%) than the share who lose during the lockdown (47%). Moreover, in the event of a job loss, while women were three times more likely than men to not recover, this ratio is far lower than what is observed during the pandemic (eleven times). Therefore, employment loss for women in the wake of the pandemic has been of a more permanent nature pointing towards the heavily gendered nature of the post-pandemic recovery process.

4.2 Correlates of job loss and recovery for men versus women

Next, we evaluate how, and if, the relation between different characteristics and job loss/recovery varies between men and women. For this, we stratify the regression models for job loss and recovery by gender. The first model estimates how the likelihood of job loss vis-a-vis not losing a job varies with the different characteristics separately for men and for women. The dependent variable, again, is a categorical variable that takes value 1 if the individual loses the job and 0 if they do not. The second model estimates, conditional upon jobs loss, how the likelihood of not-recovering vis-a-vis recovering varies with different characteristics, again separately for men and women. The dependent variable takes value 1 if the individual does not recover a job, and 0 otherwise. As before, we control for state fixed effects. The results are reported as an odds ratio in columns 3–6 of Table 4.

4.3 Age

We first analyse this difference in terms of age categories. We find young working age men (less than 35 years of age) as well as older men (45 years and above) were significantly more likely to lose employment relative to the base category (age group 35–44 years). Men in the youngest working age category, i.e. 15–24 years old, were the most likely to lose employment, with their odds of loss being 4.2 times higher than those in the base category. For women as well the youngest working age category, i.e., 15–24 years, were 3.7 times more likely to lose jobs compared to the base category. This is particularly alarming since the Indian economy even prior to the pandemic has been recording high level of youth unemployment (Mehrotra, 2018).

However, note that while those in the youngest category of both male and female workers are much more likely to lose jobs vis-a-vis other age categories, for women, unlike for men, the odds of job loss for all other age categories is not statistically

significantly different relative to the base category. This implies that this base category of female workers (25–34 years) were equally likely to lose jobs compared to those above 35 years. While experience and years on the job seems to stand men in good stead in holding on to their employment, for women in India's labour market, this does not seem to be the case.

In terms of recovery, for both men and women, the youngest working age group were least likely to recover relative to the base category of 35–44 years—with men in the age group of 15–24 years being 13 times more likely and women in the same age group being 8 times more likely to not return to work relative to the base category. The job loss for the young age group, therefore, appears to be of a relatively longer-lasting nature.

In sum, for both men and women, youth have been hit hard relative to the 35–44 years category. This could possibly be due to younger age groups having less experience and/or working at entry-level jobs including internships or apprenticeships, which would be hit harder during such an economic shock (ILO, 2020, Verick 2009). This finding is not unique to India. Other studies find that young people in the labour market have been adversely affected by the pandemic, particularly those in developing economies with 'flexible' labour markets (ILO, 2020). However, specifically in the Indian context, the benefits of greater experience and belonging to the 'prime' working age group seem to accrue more to men than to women.

4.4 Caste

In terms of caste identity, while the marginalised Scheduled Caste (SC) and Scheduled Tribe (ST) male workers were significantly more likely to lose work compared to the dominant caste groups, for women, there was no significant difference in the likelihood of job loss across caste categories. Thus, caste appears to shield men from job loss, but such caste-based privilege does not seem to be as important for women. In terms of recovery, on the other hand, on average, SC/ST men as well as women were more likely to recover employment (odds of no recovery being around 0.5 times relative to general caste groups).

The odds of recovery for Other Backward Caste (OBC) men were also higher relative to General category men, whereas the odds were not significantly different for women. Although these socially backward caste groups were more likely to lose as well as recover employment and particularly so for men, as we show in the next section, for most individuals who returned to work, the return was towards relatively more informal and precarious forms of work.

4.5 Religion

Religious identity did not have a significant relation with the likelihood of job loss either for men or for women. However, in terms of recovery, we find divergent experiences for men and women. Compared to Hindu men, Muslim men are significantly more likely to return to work. In contrast, for Muslim women, the likelihood of returning to work is significantly lower compared to Hindu women. Muslim women

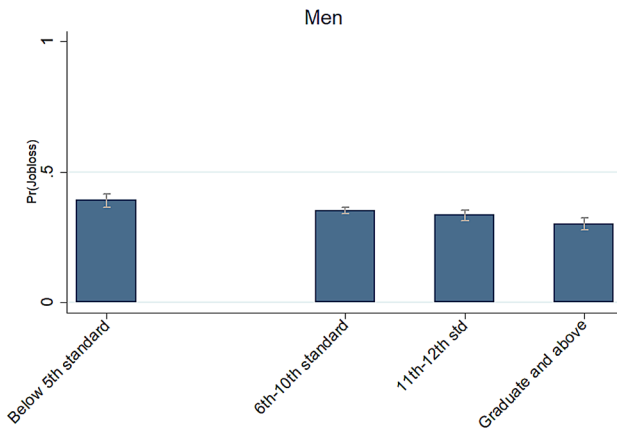


Fig. 2 Predicted probability of job loss for men, by education level. Source: Authors' calculations based on CMIE–CPHS unit level data

were 6.6 times more likely to not return to work post the lockdown upon having lost employment during the lockdown. Therefore, we find that the intersection of religion and gender had varying effects for men and women. Workforce participation rates among Muslim women were already extremely low, pre-pandemic at 5.1% compared to 9.2% overall. The limited recovery for Muslim women indicates a further decline in the workforce participation rates of this already under-represented group.

4.6 Education

We also find gender differential effects by level of education. First, we note that, on average, the male workforce is more educated than the female workforce. More than half the female workforce (54%) were either uneducated, or only educated up to primary level. The corresponding share for men was 36%. The majority of male workers had up to secondary education (40%), and about 14% were graduates or above. The corresponding number for women is 30% and 9%.

For men, we find that education has a 'protective' effect, with individuals having no education, or education below graduate being more likely to lose work compared to graduate men. This is possibly explained by men with greater education having access to relatively better, more secure jobs even within a particular type of employment or industry. For women, however, education has a surprisingly reverse effect. Figure 2 shows a steadily decreasing predicted probability of job loss with successive levels of education, for men. On the other hand, predicted probability of job loss for women increases as education levels increase (Fig. 3). Graduate women are more likely to face job loss compared to less educated women. It is possible that relatively more educated women are able to withdraw from the workforce in face of uncertain conditions such as the lockdown, while this option might not be available to less educated women who

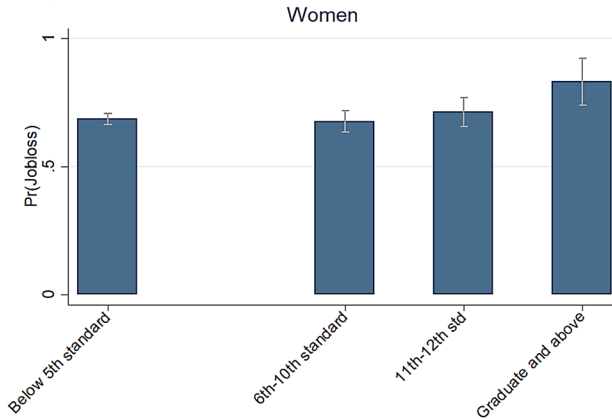


Fig. 3 Predicted probability of job loss for women, by education level. Source: Authors' calculations based on CMIE–CPHS unit level data

might parallelly face other constraints that limit their possibilities to withdraw. However, this effect is worthy of further examination.

Men with less than secondary education (6th to 10th Standard) were significantly more likely to return to work compared to graduate men. For all other educational categories, there is no significant difference in their likelihood of returning to work compared to the base category. For women, we find that education, at whatever level, had no significant relation with the likelihood of returning to work. So, for women, higher education did not shield them from the risk of job loss, neither did it benefit them in re-entering the labour market.

4.7 Type of employment

Men in permanent salaried employment are the most secure and are, therefore, least likely to lose employment. Similarly, women in permanent salaried and temporary salaried employment are least likely to lose employment. For daily wage work, while men were twice more likely to lose employment relative to the base category of permanent salaried work, women were five times more likely to lose employment compared to the base category. In other words, women appear more likely to face the brunt of precarious forms of employment relative to men. Notably, for both men and women, none of these employment arrangements had a significant effect on the likelihood of returning to work. A permanent salaried worker who lost work during the pandemic was equally likely to return or not return to work as compared to a daily wage worker, for both men and women.

4.8 Industry of employment

Different industries in the economy can, to some extent, be characterised by different levels of precarity. For example, modern services, mainly comprising public administration, defence, and professional services, tend to be less exposed to employment impacts in the context of such an economic shock relative to, say, non-professional personal services (such as petty shops, domestic workers) and trade. We find that men and women in non-professional personal services are significantly more likely to lose employment compared to their counterparts in modern services. Notably, women working in health and education services had a significantly higher likelihood of job loss compared to modern services, with odds of job loss being 3.6 relative to the base category. Whereas, for men working in health and education, the odds of job loss were 1.5 times the base category. This is crucial, given that women were overrepresented in this sector prior to the pandemic. Pre-pandemic, women constituted one-fourth of the workforce in this sector, far higher than their share in the workforce (10%). Therefore, the higher likelihood of job loss in this particular female-dominated sector translates to a large share of loss for the female workforce.

In terms of recovery, men in agriculture were significantly less likely to return to work relative to other sectors indicating that the loss of work for agricultural workers, particularly daily wage workers, was more permanent. For women, the sector of employment, pre-lockdown, did not have a significant impact on their likelihood of return to work.

4.9 Marital status, household size, and presence of children in the household

Next, we analyse how the likelihood of job loss and recovery varies with marital status, size of the household, and presence of children in the household for men and women. These factors can be seen as a proxy for domestic responsibilities within the household. We find significant differences in how they impact male and female labour market outcomes. Given the gendered nature of market work and household work, with women bearing a higher burden of household care work and men often ascribed the role of the breadwinner of the family, the difference is not surprising. We find that marital status has contrasting effects on the likelihood of employment loss between men and women. While married men were less likely to lose employment relative to unmarried men, married women were more likely to lose employment relative to unmarried women. This could be a result of increased household responsibilities compelling women to remain at home. In a similar vein, while married men were significantly more likely to return to work relative to unmarried men (odds of no recovery being 0.2), married women were 3 times more likely to *not* return to work relative to unmarried women. Similarly, a larger household is positively related to women's likelihood of not recovering a loss in employment, with the odds ratio being greater than one, while it did not affect the odds of recovery for men (with odds being close to

1). Notably, the presence of children did not have a significant effect on men and women's employment loss or return to work.¹⁰

4.10 Household income

Finally, we also examined how these likelihoods vary with the pre-pandemic household income and found that men belonging to a higher income household were slightly less likely to suffer job loss. For women, there are no significant differences in the likelihood of job loss depending on the household's initial income level.

Overall, while certain characteristics, such as age, have similar associations with job loss for both men and women, the magnitude tends to vary. Notably, the characteristics that may protect against the impact, such as higher education, higher income, permanent employment, caste privilege, among others, seem to shield men more than women. Some of the characteristics in fact have a reverse association with job loss and recovery for women.

5 Transitions in employment arrangement and industry of employment

We now investigate the nature of the recovery post-lockdown. Specifically, we want to understand whether a worker was able to retain, or return to, the same kind of work arrangement or industry post-lockdown that they were engaged in prior to the lockdown, or whether they transitioned to another type of work arrangement. While 88% of male and 46% of female workers were (back) at work by August–September 2020, it is possible that they had transitioned to different types of employment arrangements or industries than the ones in which they were engaged prior to the lockdown. For example, a permanent salaried worker might not have been able to remain in this kind of employment, and, instead, could have moved into less secure employment arrangements. Similarly, a worker in the Modern Services sector could have moved into another industry such as Construction or Agriculture.

To study these shifts across employment arrangements and industries, we present transition matrices. We calculate the share of pre-pandemic workers that transitioned to an alternative employment arrangement / industry and the share that continued in their pre-pandemic employment arrangement/industry. We do this for each employment arrangement/industry. We disaggregate these transition matrices by gender, in order to compare the extent to which these transitions varied between men and women. Finally, these transitions are also compared to the transitions in the baseline period, i.e., for the same months of the previous year. Within a transition matrix, values on the diagonal indicate the share of workers in the row-category

¹⁰ Different variables were used to control for the presence of children including variables differentiated by the age of the child in the household. We also used the time spent on household work during the baseline as a proxy for household responsibilities. None of these had a significant relation with the likelihood of job loss and recovery.

(employment status or industry type) that were able to remain in the same category after the lockdown. All non-diagonal values indicate transitions out of a sector or status.

Before presenting the results, we briefly report on the distribution of male and female workers across major employment and industry categories. Broadly workers are categorised into self-employed and wage-employed. The self-employed segment of the economy is mainly characterised by small-scale family-based household enterprises and micro enterprises (NSSO, 2019). Within the category of wage employment, the workers can be divided into permanent salaried, temporary salaried, and daily wage workers. According to the CMIE–CPHS, permanent salaried work is the most secure employment arrangement, followed by temporary salaried employment, and, finally, by daily wage or casual wage work, which is the least secure employment category.

In the pre-lockdown period (December–January), 51% of men were self-employed, followed by 28% in daily wage work and 21% in temporary and permanent salaried work. In contrast, the predominant employment arrangement for women was daily wage work (44%), followed by self-employment (34%). About 23% of women worked as salaried workers, either in permanent or temporary salaried work. We find that women are over-represented in daily wage work as well as temporary salaried work, i.e., the share of women in these arrangements is higher than their share in the workforce in general.

In terms of the industry of employment, nearly half of the male workforce was engaged in agriculture. Construction and trade are the other significant employers in rural areas accounting for 19% and 23% of the male workforce. For women in rural areas, like men, Agriculture was the main employer, with more than half (67%) of the female workforce working in this sector. Manufacturing and Health and Educational services employed 10% and 7% of the female workforce. In urban areas, for men, Trade, followed by Construction and Manufacturing were the main sectors of employment. For urban women, on the other hand, the main sector of employment is Non-Professional Personal services followed by Health and Education Services.¹¹ While men are represented in proportion to their share in the total workforce across all industries, women are over-represented in Agriculture and Health and Education, and in Non-Professional Personal services in urban areas, and Manufacturing in rural areas. This industrial segregation of women has been one of the salient features of India's female workforce (Agrawal 2016).

We analyze employment transitions during the post-lockdown recovery in two steps. First, for all those employed in the pre-pandemic period, we look at overall transitions to different kinds of employment arrangements as well as transition out of the workforce. After that, we examine transitions of those employed in the pre-pandemic period to different kinds of employment arrangements (i.e. not taking into consideration movement out of the workforce). So, this would include those workers who lost jobs during the lockdown and then returned to work, and those who did

¹¹ See Table 5 in Appendix for details of the disaggregation of these aggregate industry classifications.

Employment Status in December 2019–January 2020	Employment Status in August–September 2020						Total
	Daily Wage worker	Permanent Salaried	Temporary Salaried	Self Employed	OOWF		
MEN							
Daily Wage worker	48.8	2	5	32.2	12	100	
Salaried - Permanent	9.6	38	9.5	34.9	8	100	
Salaried - Temporary	17.7	7.3	30.6	28	16.3	100	
Self-employed	11.9	4.7	3.5	70.2	9.8	100	
Total	22.3	7.8	7.2	51.9	10.8	100	
WOMEN							
Daily Wage worker/ ..	35.7	0.4	3.5	9.9	50.6	100	
Salaried - Permanent	1.7	37.3	5.4	3.4	52.3	100	
Salaried - Temporary	8.7	3.8	27.3	5.4	54.8	100	
Self-employed	12.2	0.8	2.2	37.9	46.9	100	
Total	20.6	4.9	6.4	17.9	50.1	100	

Fig. 4 Transitions in Employment Arrangement between December–January 2020 and August–September 2020. Source: Authors’ calculations based on CMIE–CPHS unit level data

not lose work and remained employed throughout, albeit with a possible change in employment arrangement.¹²

Figure 4 shows the results of the first step. Each row represents the pre-lockdown employment arrangement of the worker (December 2019–January 2020) and each column represents the post lockdown employment arrangement (August–September 2020). A cell indicates the number of workers who transitioned to a column-specific employment arrangement as a proportion of their share in the row-specific employment arrangement.

The employment transition matrices reveal very different experiences for men and women. Recall that the trajectory analysis showed that 47% of women had moved out of the workforce after the lockdown (Sect. 3). The transition matrix also shows a similar shift across employment arrangements. In other words, for all employment arrangements, nearly half the female workers had withdrawn from work. When distinguished by pre-pandemic employment arrangements, we find that temporary salaried employment witnessed the highest exit with 55% leaving the workforce. A smaller, but substantial share, i.e., 46%, of self-employed women withdrew from the workforce. Comparatively, in the baseline period, overall, only 30% of women withdrew from the workforce, with the highest share being for temporary salaried workers where 35% withdrew. Thus, the effect of the pandemic is clear in the data.

For men, on the other hand, while there is there a smaller share who exit the workforce (as confirmed in the trajectory analysis), their experiences in terms of exit rates also vary substantially across employment arrangements. Here too, temporary

¹² We have performed this analysis separately for those that lost work during the lockdown and returned to work (employed initially, lost work and then returned), and those that remained employed in both periods. The results are qualitatively similar for both groups.

Employment Arrangement in December 2019–January 2020	Employment Arrangement in August–September 2020					Total
	Daily wage worker	Permanent Salaried	Temporary Salaried	Self Employed		
MEN						
Daily wage worker	55.2	2.3	5.9	36.6		100
Salaried - Permanent	10.3	42	11.3	36.5		100
Salaried - Temporary	21	9.7	35.9	33.4		100
Self-employed	11.8	5	3.8	79.4		100
Total	24.1	8.7	8.4	58.8		100
WOMEN						
Daily wage worker	71.5	0.8	6.9	20.9		100
Salaried - Permanent	3.7	84.4	9.7	2.2		100
Salaried - Temporary	13.8	10.6	65.8	9.8		100
Self-employed	21.4	1.5	2.4	74.8		100
Total	36.8	10.9	12.2	40.1		100

Low High

Fig. 5 Employment Transitions within the workforce. Source: Authors' calculations based on CMIE–CPHS unit level data

salaried men witnessed the largest exit. Permanent salaried workers were least likely to exit the workforce, with only 8% withdrawing. Self-employed workers were also close behind with only 10% exiting. Daily wage workers saw comparatively higher levels of exit with nearly 12% leaving the workforce, but this was much lower than what is seen among women. During the baseline, only about five to eight percent of men typically withdraw from the workforce.

Next, we examine employment transitions conditional on workers remaining employed in both periods (Fig. 5). Three points are worth noting here. *First*, we find that when women do remain in employment, they continue in the same kind of employment arrangement to a much greater extent than men. Eighty-five percent of permanent salaried women workers remained as such post lockdown. In comparison, 42% of permanent salaried men remained in the same employment, and the remaining moved into self-employment or daily wage work. We observe similar differences between men and women for all employment arrangements. In contrast, during the baseline, nearly 70 to 80% of male and female workers remain in the same employment arrangements.

Second, self-employment emerges as a clear fallback option for male workers. Around 37% of men in permanent salaried work, 37% of daily wage workers and 33% of temporary salaried workers move into self-employment. In contrast, for women, we do not see this influx of workers into self-employment. Only 2% of women in permanent salaried work, 1% in temporary salaried and 21% in daily wage work moved into self-employment. In comparison during the baseline, such

Industry in December2019- January2020	Industry in August-September 2020							
	Agriculture	Manufacturing	Construction	Trade	Non Professional Services	Modern Services	Health & Education	Total
MEN								
Agriculture	76.0	1.7	8.8	9.1	2.6	1.0	0.9	100
Manufacturing	15.1	33.9	16.0	20.5	7.6	4.6	2.5	100
Construction	24.9	4.3	48.9	15.5	4.8	1.2	0.5	100
Trade	14.6	6.1	12.7	52.4	6.7	4.4	3.1	100
Non Professional Services	17.2	6.0	15.2	23.7	32.9	3.2	1.9	100
Modern Services	10.1	6.7	9.1	24.2	8.2	34.9	6.9	100
Health & Education	18.5	5.2	6.6	26.0	4.9	10.1	28.7	100
Total	36.8	6.5	18.6	23.9	6.9	4.3	3.0	100
WOMEN								
Agriculture	92.6	0.3	2.5	1.4	2.7	0.1	0.4	100
Manufacturing	54.3	21.8	6.3	5.2	7.5	1.2	3.8	100
Construction	35.1	7.0	37.4	8.9	6.9	0.7	4.0	100
Trade	4.3	2.3	7.8	65.4	13.2	0.8	6.2	100
Non Professional Services	16.4	4.2	5.2	7.0	62.2	0.7	4.3	100
Modern Services	4.7	3.6	1.2	6.1	16.1	62.0	6.3	100
Health & Education	7.4	1.2	2.7	3.6	11.0	5.5	68.6	100
Total	59.7	3.5	5.6	8.1	11.8	2.7	8.6	100



Fig. 6 Transitions in Industry of Employment between December-January 2020 and August–September 2020. Source: Authors’ calculations based on CMIE–CPHS unit level data

transitions are much less frequent with only 12% of permanent salaried workers and 18% of temporary salaried and daily wage workers moving into self-employment.

Finally, when women do transition, we find that the only noteworthy movement is that 21% of self-employed women moved into daily wage, a higher share than that seen amongst men (12%). It is worth reminding the reader here that daily wage is the most precarious form of employment, where women also tend to be over-represented. This, taken together with the high exit of women from the workforce indicates that when women lose their usual employment, they are pushed down into the most precarious employment arrangements or out altogether—thereby, down and out.

The high volume of inter-arrangement transition that we find for men in the labour market can be interpreted as a fallback option being available for them, whereas the ‘stickiness’ seen for women is indicative of the lack of such options. If women lose their employment, they do not have the ease of re-entering into the labour market in alternative employment arrangements such as self-employment and daily wage work, like men. Instead, they are more likely to withdraw from work.

Agriculture often acts as a safety net for disemployed workers. However, as Fig. 6 shows, the movement of workers from other sectors towards this fallback sector is the case only for the male workforce. Nearly 70% of male workers in Agriculture remained in this industry. At the same time, Agriculture also has a relatively high

influx of male workers from other sectors. About 22% of Construction workers, 17% of Health and Education workers, and 15% of workers from Non-professional Services had moved into Agriculture. Besides agriculture, Trade and Construction also had a high influx of workers from other sectors. For instance, nearly a quarter of workers in Health and Education had moved to trade, as well as 22% of workers in Modern Services and non-professional Services.

For women, on the other hand, majority of the workers from every industry withdrew from the workforce. There was some movement of women in the Manufacturing industry into Agriculture (about 30%), and a smaller share (18%) from Construction moving into Agriculture. Besides this, across all other industries, there was only limited inter-industry movement for the female workforce.

This discussion reinforces the central theme of the paper, whereby in the event of a shock, while the men tended to move into alternate, albeit more precarious forms of employment, women were mostly pushed out of the workforce. When women did retain work and managed to transition to an alternative arrangement, it was more often to the most precarious arrangement.

6 Discussion and conclusion

The stringent economic lockdown in India affected workers across regions, industries, and employment arrangements. However, the impact has been quite gendered in its nature. Women, in particular, have been more adversely affected relative to men in terms of their labour market participation. Our findings suggest that during the lockdown, women were far more likely to lose work compared to men. Moreover, even after the lifting of the lockdown and with easing of mobility and other restrictions, women's recovery into employment has been substantially lower compared to men. While men experienced an almost-complete recovery into employment, a significant proportion of women experienced job loss of a more permanent nature. In an economy where women's work participation rates have been historically low and declining (Mehrotra & Parida, 2017), this adverse impact and muted recovery of women's workforce participation is particularly worrying.

Possible reasons for this gender disparity can be attributed both to the supply side as well as the demand-side factors. On the supply side, increased burden of household work, lack of socially or market-provided childcare options and shutdown of schools could force women to stay at home, as well as spend more time in care and other unpaid activities, as compared to men. Consistent with this, Deshpande (2020) confirms muted employment recovery for women with young children. While our regression estimates do not find a significant impact on the presence of children,

we find that that women from larger households (and hence having more domestic work) were less likely to return to work.

On the demand side, it has been argued that the disproportionately higher impact on women can be explained on the basis of women having a higher employment in those sectors most affected by the pandemic, such as health and education, and being employed in more tenuous employment contracts (World Bank, 2020a). This occupational and industrial segregation exposes women far more than men to the economic impacts of the pandemic (Oxfam, 2021). However, the results from our regression estimates show that the disproportionate impact on women remains even after controlling for industry and employment arrangements. Women, irrespective of the nature or industry of work, are more vulnerable to lose work and not return to work.

It is likely that other supply side factors that are not captured in our estimates explain the higher impact on and muted recovery of women in the workforce. In the face of an overall decline in labour demand, gender norms that ensure that scarce economic opportunities flow to men in preference to women, could constrain women's (re-)entry into the labour market. Such gender norms may also explain the relative lack of fallback options for women within the workforce, forcing them to move out entirely. In the face of such a shock, while men negotiate labour market spaces by moving across sectors and industries, women are often left with little or no choice and are forced to exit.

Further, continued restrictions on mobility and limited functioning of public transport facilities also differentially impact women more since they are relatively more dependent on public transport (Shah et al., 2017). For many women workers, increased police patrolling for enforcing social isolation rules have also exposed them to more instances of harassment and aggression, further affecting their return to work (ISST, 2020).

Taken together, our results point to large movements downwards and outwards, particularly for women workers. We believe that this study as well as other similar emerging analyses from India and elsewhere contribute to our rapidly evolving understanding of the differential impacts of the pandemic. These insights should prove useful in designing more effective policy support measures to counteract these effects and chart a path to a robust and inclusive recovery.

Appendix

See appendix Table 5

Table 5 Classification of Industries

Industry of occupation (CMIE variable)	Industry aggregation
Agriculture- allied activities	Agriculture
Crop cultivation	
Fishing	
Plantation crop cultivation	
Poultry farming, animal husbandry and	
Forestry including wood cutting	
Fruits and vegetable farming	
Utilities	Manufacturing
Mines	
Chemical industries	
Pharmaceutical manufacturer	
Machinery manufacturers	
Automobiles and other transport equipment manufacturers	
Metal industries	
Food industries	
Handicraft industries	
Soaps, detergents, cosmetics, toiletries	
Footwear and other leather industries	
Gems & jewelry	
Textile industries	
Real estate & construction	Construction
Cement, tiles, bricks, ceramics, glass and other construction materials	
Public administrative services	Services—modern
Defence services	
Personal & professional services	
IT & ITES	
Media and publishing	
Financial services	
Personal non-professional services	Personal non-professional services
Wholesale trade	Trade, hotels, restaurants, communication
Retail trade	
Travel and Tourism	
Hotels and restaurants	
Communication, post & courier	
Entertainment and sports	
Health	Education and health care
Education	

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Data availability The data for this project is proprietary but may be obtained with Data Use Agreements with the Centre for Monitoring Indian Economy (CMIE). Researchers interested in access to the data may visit <https://peopleofindiadx.cmie.com/> for details on subscribing to the data.

Code availability Code for data cleaning and analysis available with the corresponding author on request.

Declarations

Conflicts of interest The authors declare that they have no competing financial or non-financial interests to disclose.

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