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The Influence of COVID-19 on Young Women's Labor Market Aspirations and Expectations in India

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Abstract

Youth unemployment and gender gaps in labor market outcomes are key policy challenges across developing countries. Young job-seekers may struggle to find jobs because of their biased beliefs and unrealistic aspirations about the labor market. This study examines whether exposure to the COVID-19 pandemic influenced the labor market aspirations and expectations of female vocational students in Haryana, India. Exposure to the pandemic lowered young women's wage aspirations and made them more realistic, especially in rural areas. A potential mechanism for these effects was the decline in rural women's willingness to migrate for work due to the pandemic.

The Influence of COVID-19 on Young Women's Labor Market Aspirations and Expectations in India[*]

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1 Introduction

Youth unemployment is a prominent concern among policy makers across the developing world, especially in countries where the young comprise a large and growing share of the population (Carranza and McKenzie, 2024). The substantial gender gap in youth labor force participation is an additional policy challenge in countries like India, where the labor force participation rate for young women (aged 15-29) is 39 percentage points (p.p.) below the labor force participation rate for young men (63.5 percent).[1] Besides demand-side factors, skill gaps, and matching frictions, the youth may struggle to find jobs and to stay employed because they have biased beliefs and unrealistic aspirations about the labor market. A growing body of literature has shown that young job-seekers often overestimate the current market wage and have too high a reservation wage (e.g., Kelley, Ksoll and Magruder (2024)). Although high aspirations can act as a motivator and spur effort, if the aspirations are unrealistically high, they can lead to frustration and poor labor market outcomes (Bandiera et al., 2020; Ray, 2006).

Rapid changes in the nature of work due to technological change, and most recently, the COVID-19 pandemic, are likely to exacerbate these challenges. COVID-19 dramatically slowed economic activity worldwide as governments implemented containment measures affecting firms' demand for labor and workers' ability and willingness to work. The negative effect of the pandemic on employment was disproportionately borne by women ("she-cession") due to greater disruptions in female-dominated industries and occupations, and a larger increase in women's care burden (e.g., Abraham, Basole and Kesar (2022); Chakravorty et al. (2023); Deshpande (2022)).

We study whether exposure to the COVID-19 pandemic influenced the labor market aspirations and expectations of young women in India, and specifically in the north Indian state of Haryana. The gender gaps in youth labor force participation and unemployment in Haryana are even larger than those at the national level. According to the 2022-23 Periodic Labor Force Survey, the labor force participation and unemployment rates for young women in Haryana are 12.5 percent and 21 percent, respectively, whereas the corresponding numbers for young men are 57.7 percent and 16.8 percent. We focus on aspirations for financial remuneration, which is one of the most important dimensions of what individuals value in a job.[2] We also examine whether the pandemic's impact on willingness to migrate is an underlying channel for our main results. This line of inquiry is driven by the significant detrimental impact of the pandemic on rural-to-urban migration in India (Arora et al., 2023).

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[1]Source: Periodic Labor Force Survey of India, July 2022-June 2023.

[2]In our sample, 93 percent of the respondents consider salary to be a very important aspect of a job.

Recent estimates suggest that, across India, around 11 million inter-state migrant workers returned home after the first lockdown (Imbert, 2020). We make a significant contribution to the literature on women's labor market participation in India. Examining the pandemic's impact on young women's wage expectations and aspirations is crucial for understanding their labor market choices and, thereby, the evolution of women's work in the future.

2 Data

Our analysis is based on primary survey data that we collected from a sample of 3,180 female students enrolled in vocational training institutes (also known as Industrial Training Institutes or ITIs) in the north Indian state of Haryana (Figure 1). The surveys were conducted in person at the ITIs between June and August 2022. Note that the Government of India rolled back almost all COVID-19 restrictions on March 31, 2022, i.e., a few months before our data collection. We selected students who, at the time of the survey, i) were in the final year of their ITI program and ii) had access to a smartphone.

Figure 1: Mapping the distribution of respondents
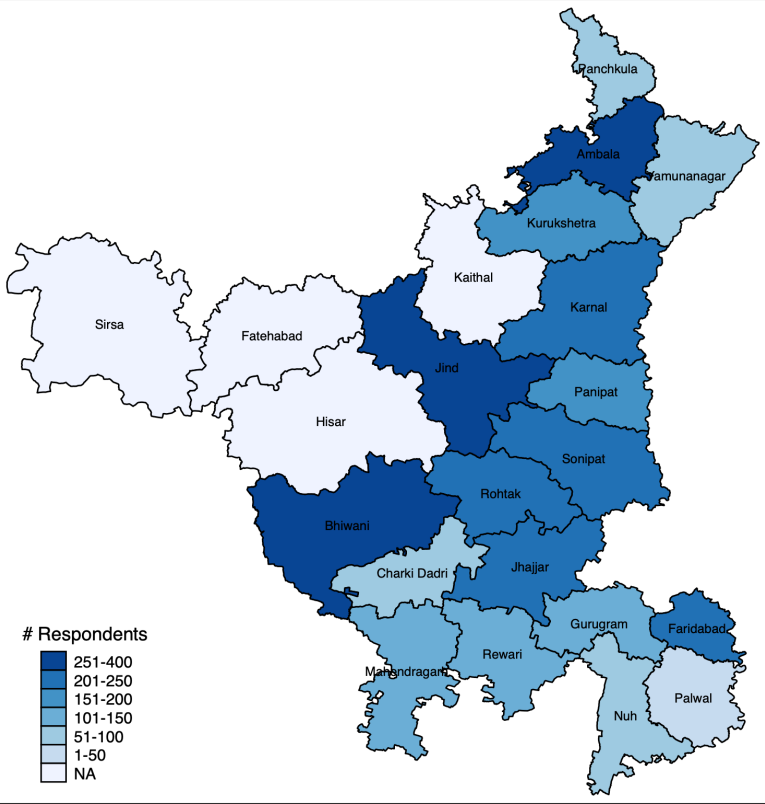
Notes: This figure displays the district-wise number of respondents in our study sample in Haryana.

Our sample is a subset of respondents who were interviewed during the baseline survey of

a randomized controlled trial (RCT) aimed at reducing informational barriers to job search among young women. In addition to the sample analyzed in this paper, the RCT sample includes students who had already graduated from their ITIs before the baseline survey. We exclude these respondents from the current study to focus on the impact of the pandemic on women at the cusp of making the school-to-work transition and from whom we collected data on exposure to the COVID-19 pandemic. Moreover, it was necessary that our sample women had access to a smartphone at baseline because the RCT will evaluate an intervention where information is disseminated through a phone-based jobs portal. However, the vast majority (95 percent) of female students approached for the survey had access to a smartphone, ensuring that our sample is representative of final-year female ITI students in Haryana.

We collected data from respondents about their socioeconomic characteristics, education, work experience, career aspirations and expectations, and willingness to migrate for work. To measure wage expectations, we asked respondents about their expected monthly earnings once they start working. Similar to Hogan (2004), we use the monthly reservation wage, i.e., the absolute minimum take-home salary that the respondent would accept for any permanent, full-time job per month after graduation, as a proxy for wage aspirations. To reduce the impact of measurement error, we winsorize the top and bottom 10 percent of the observations for the reservation wage and wage expectation variables.

At the time of the survey, our respondents were, on average, 22 years old and predominantly never-married, and 60 percent of them lived in a rural area (Table 1). Before joining the ITI, 83 percent of respondents had completed at least class 12 and only 17 percent had any work experience.

Career aspirations are high among our sample women. The vast majority of our respondents (95 percent) reported that they want to work after graduating from their ITI program. Moreover, almost half of the sample expressed a willingness to migrate to a different city or town for work if their salary increased by INR 5,000 (USD 60). However, 52 percent of the young women in our sample have unrealistically high wage aspirations, i.e., their reservation wage is substantially higher than what they expect to earn in the labor market.[3] Furthermore, the difference between their wage aspiration and expectation ("wage aspiration gap"), is positive. The reservation wage of an average respondent is higher than her expected salary by INR 2,735 (USD 33) per month.

Roughly half (48 percent) of our sample reported that their ITI training was interrupted by the pandemic (e.g., due to changes in course schedules, modified program duration, and

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[3]Female ITI graduates who are employed earned, on average, INR 8,697 in 2018 which is equivalent to INR 11,956 (USD 145) in 2023 (Ministry of Skill Development & Entrepreneurship, Government of India, 2018).

Table 1: Summary statistics

	Mean (1)	SD (2)
Age	21.69	4.37
Ever married	0.18	0.38
Lives in rural area	0.60	0.49
Scheduled caste or tribe	0.40	0.49
Other Backward Class	0.32	0.47
Completed class 12 before ITI	0.83	0.38
Mother is illiterate	0.31	0.46
Ever worked before ITI	0.17	0.38
Aspiration gap*	2,734.91	6,374.44
Reservation wage*	19,740.57	7,844.89
Expected starting salary*	17,005.66	6,819.30
Unrealistic high aspiration	0.52	0.50
Realistic aspiration	0.26	0.44
Unrealistic low aspiration	0.23	0.42
Willing to migrate for work$	0.48	0.50
Household affected by COVID	0.47	0.50
ITI education affected by COVID	0.48	0.50
Observations	3,180	

Notes: This table presents summary statistics for the estimation sample. Variable definitions are in the online Appendix. *INR per month. $ reflects willingness to migrate if salary increases by INR 5,000; the number of observations for this variable is 3,143.

shift to online classes), and 47 percent reported that their households were economically affected by COVID-19 through loss of jobs, business, or income, or a household member's illness.

3 Empirical Strategy

To estimate the effect of the COVID-19 pandemic, following Bau et al. (2022), we create a "leave-one-out" exposure measure for each respondent by calculating the share of other respondents from her ITI who reported being negatively affected by COVID-19.[4] One concern with this shock measure is that it relies upon self-reported data and might be biased due to measurement error. Thus, we leverage administrative data to construct an additional district-level "aggregate COVID-19 shock" measure defined as the population-adjusted cumulative number of COVID-19 deaths between January 30, 2020 and October 31, 2021. We obtained

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[4]More details on variable construction are presented at the end of the paper.

Figure 2: Mapping different measures of the COVID shock
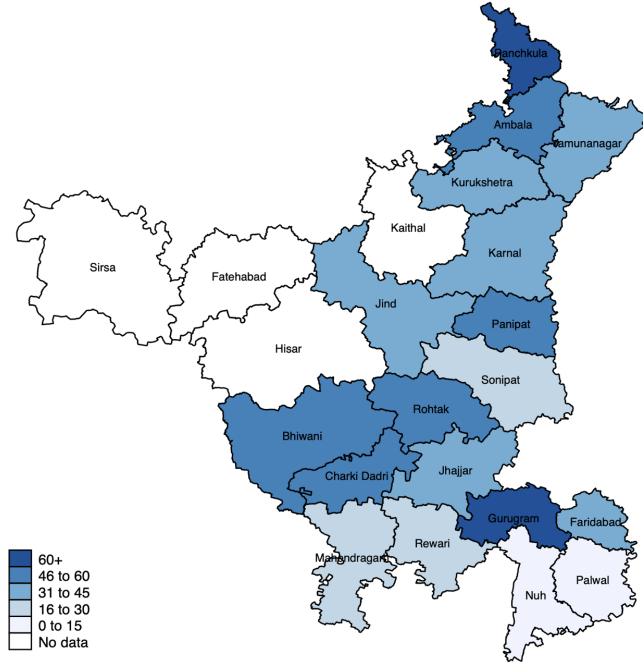
Notes: The figure on the left shows the district-wise variation in the COVID-19 death rate (per 100,000 population). The figure on the right shows the district-wise variation in the "leave-one-out" COVID-19 exposure of an average respondent. The numbers for Bhiwani and Charkhi Dadri refer to the two districts jointly.

the data on deaths from the Socioeconomic High-resolution Rural-Urban Geographic Platform for India (SHRUG) and adjusted it for d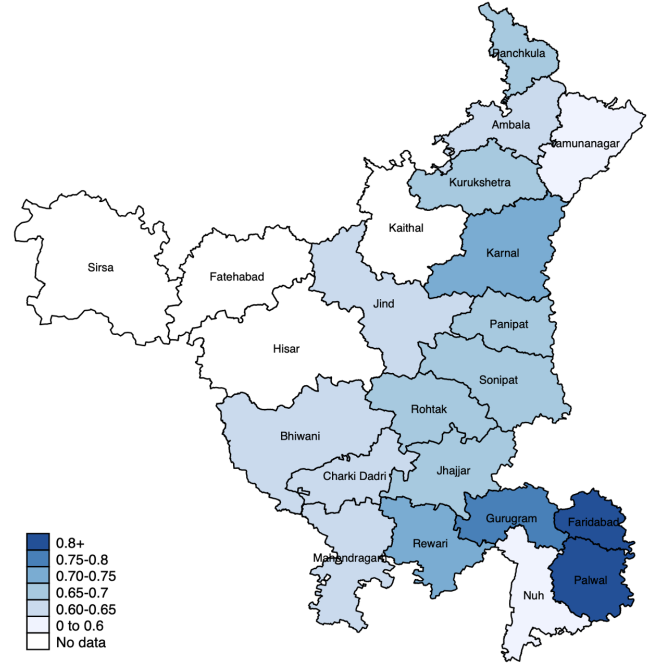istrict population using data from the 2011 Census of India. As Figure 2 shows, our "leave-one-out" COVID-19 measure has a similar geographic variation as, and is significantly correlated with, the district-level COVID-19 death rate, boosting confidence in our shock measure. The p-value of the correlation between our self-reported shock and district-level COVID-19 death rate is < 0.001. Later, we validate our results by conducting robustness checks using the district-level COVID-19 shock measure instead of the individual-level "leave-one-out" exposure variable.

We estimate the effect of exposure to COVID-19 on our outcomes of interest using the following regression specification:

$$Y_{itd} = \alpha + \beta COVID_i + \mathbf{X}_i^{'}\gamma + \delta_d + \epsilon_{itd} \tag{1}$$

where Y_{itd} is the outcome variable for woman i studying at ITI t located in district d at the time of the survey. The variable $COVID_i$ denotes the individual-level "leave-one-out"

Table 2: Correlation between COVID-19 shock and pre-pandemic observables

	Mom illiterate (1)	Father completed at least class 8 (2)	General Caste (3)
COVID shock	-0.094	0.105	0.010
	[0.098]	[0.104]	[0.113]
Outcome mean	0.31	0.70	0.28
Observations	3,180	3,136	3,180

Notes: This table presents the coefficient estimates from a regression of the respective pre-pandemic observable on our "leave-one-out" COVID-19 shock measure. Each column represents a separate regression. Robust standard errors clustered by ITI district are in brackets. Variable definitions are in the online Appendix. $^*p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

COVID-19 exposure variable. We also control for a vector of respondent characteristics ($\mathbf{X}_i$) that are likely to affect her labor market aspirations and expectations including her age, a categorical variable for her ITI program (or "trade"), and indicators for belonging to a Scheduled caste or tribe, an Other Backward Class, having ever married, living in a rural area, completing at least class 12 before joining the ITI, having an illiterate mother, and having ever worked before joining the ITI.[5] Moreover, we control for whether a respondent's district of residence differs from the district where the ITI is located since this may be relevant for their COVID-19 exposure.[6] Finally, we include fixed effects for district of ITI location, δ_d, to control for time-invariant district-specific unobservables.[7] We estimate robust standard errors and cluster them at the ITI level.

Our coefficient of interest, β, has a causal interpretation under the assumption that, conditional on socioeconomic characteristics and district-fixed effects, the variation in our "leave-one-out" COVID-19 exposure variable is exogenous to our outcomes of interest. To assess the validity of this assumption, in Table 2, we show that our shock measure is uncorrelated with respondents' pre-pandemic socioeconomic characteristics, such as parents' education and caste, that could impact our outcomes. We lack data on other pre-pandemic measures of socioeconomic status, e.g., household income. Moreover, as previously mentioned, our COVID-19 exposure variable is significantly correlated with the district-level COVID-19 death rate, and, as we show later, our results are robust to using this more

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[5]Although we have information on household asset ownership, we do not control for it because it may have been directly affected by the pandemic.

[6]Roughly a quarter of the respondents live in a district different from the district where the ITI is located.

[7]Our results are similar if we instead include fixed effects for district of residence. These results are available upon request.

aggregate measure of exposure.

4 Results

Table 3: Effects of exposure to COVID-19, rural versus urban

	Wage aspiration (1)	Wage expectation (2)	Aspiration gap (3)	Unrealistic high aspiration (4)	Realistic aspiration (5)	Unrealistic low aspiration (6)	Willing to migrate (7)
Panel A: Rural							
COVID shock	-4,868.791**	-2,218.601	-2,650.191***	-0.312***	0.243	0.068	-0.325***
	[1,692.240]	[1,591.703]	[690.605]	[0.082]	[0.176]	[0.135]	[0.089]
Outcome mean	19,491.57	16,550.58	2,940.99	0.53	0.25	0.22	0.50
Observations	1,898	1,898	1,898	1,898	1,898	1,898	1,875
Panel B: Urban							
COVID shock	-2,252.945	-890.597	-1,362.348	-0.159	0.034	0.125	-0.022
	[2,368.673]	[1,679.992]	[2,504.449]	[0.173]	[0.197]	[0.207]	[0.198]
Outcome mean	20,109.20	17,679.41	2,429.80	0.50	0.26	0.25	0.45
Observations	1,282	1,282	1,282	1,282	1,282	1,282	1,268

Notes: Rural and urban refer to a respondent's home location. All columns include the full set of controls mentioned in specification (1) except for a respondent's location. Robust standard errors clustered by ITI district are in brackets. Variable definitions are in the online Appendix. $^*p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$.

Table 3 presents results from estimating equation (1) separately for the rural and urban sub-samples. Panel A shows that exposure to the COVID-19 pandemic significantly decreased the wage aspiration (i.e., the reservation wage) of young women living in rural areas by 25 percent. The corresponding effect on their wage expectation (13 percent) was smaller and statistically insignificant. Together, these effects translate into a 90 percent decline in the aspiration gap among young rural women. The negative effect of the pandemic on the aspiration gap is driven by a decline in the share of respondents who have unrealistically high wage aspirations (column 4). Instead, the pandemic made the aspirations of young rural women more realistic (column 5). Urban women exhibit a similar pattern of results; however, the coefficients in Panel B are statistically insignificant.

Table 4 shows that the results for the overall sample are consistent with what we observe for the rural sub-sample. Exposure to the pandemic significantly decreased the wage aspiration gap by 77 percent, stemming from a larger decrease in wage aspirations relative to wage expectations. An average respondent's likelihood of having unrealistically high wage aspirations declined by half.

Next, we investigate potential mechanisms underlying the effects described above. Recent

Table 4: Effects of exposure to COVID-19, all sample

	Wage aspiration (1)	Wage expectation (2)	Aspiration gap (3)	Unrealistic high aspiration (4)	Realistic aspiration (5)	Unrealistic low aspiration (6)	Willing to migrate (7)
COVID shock	-4,516.319**	-2,401.699*	-2,114.620**	-0.263***	0.178	0.084	-0.238**
	[1,577.856]	[1,314.336]	[818.856]	[0.069]	[0.157]	[0.140]	[0.090]
Outcome mean	19,740.57	17,005.66	2,734.91	0.52	0.26	0.23	0.48
Observations	3,180	3,180	3,180	3,180	3,180	3,180	3,143

Notes: All columns include the full set of controls mentioned in specification (1). Robust standard errors clustered by ITI district are in brackets. Variable definitions are in the online Appendix. $^*p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

literature has established that the pandemic had a detrimental impact on migrants from rural to urban areas in India. As the unexpected lockdown measures were implemented, workers returned to their rural homes and experienced declines in salaries, consumption, and well-being; female workers were particularly vulnerable to this abrupt displacement (Allard et al., 2022). While affected men were, on average, able to subsequently remigrate and recover all of their pre-pandemic income, female re-migrants continued to experience lower income and employment (Arora et al., 2023). To the extent that young and inexperienced job-seekers form their wage expectations and aspirations on the basis of prevailing labor market conditions, the pandemic's negative impact on female migrants could be a potential channel for our findings. Therefore, in column (7) of Table 3, we analyze whether exposure to the pandemic reduced women's willingness to migrate for work, especially for rural women. We observe that the pandemic reduced rural women's willingness to migrate for work by 65 percent, whereas the effect on urban women was indistinguishable from zero. This decline in the desire to migrate could be driven by a decrease in the expected net benefit from migration due to greater uncertainty, fear of job loss, lower chances of reintegration, and lack of social security in the event of another COVID-19 wave.

4.1 Robustness Checks

Table 5 demonstrates the robustness of our findings to using a more aggregate measure of pandemic exposure, i.e., the district-level COVID-19 death rate. These regressions are based on a modified version of specification (1) where we replace the district fixed effects with the following district-level controls from the 2011 Census of India: population density, share of population that lives in urban areas, share of population that belongs to a Scheduled caste, share of population that is female, share of population that lives in slums, and total district population. We also control for the all-cause mortality rate in 2019 at the district level from

SHRUG and fixed effects for zones (i.e., groups of districts) within Haryana. Our inference relies upon robust standard errors clustered by ITI district.

Table 5: Effects of exposure to COVID-19 using district-level COVID-19 death rate, all sample

	Wage aspiration (1)	Wage expectation (2)	Aspiration gap (3)	Unrealistic high aspiration (4)	Realistic aspiration (5)	Unrealistic low aspiration (6)	Willing to migrate (7)
COVID death rate	-264.476	-181.186	-83.290	-0.006	0.003	0.003	-0.002
	[69.350]***	[57.614]***	[23.629]***	[0.001]***	[0.001]**	[0.002]	[0.001]**
Outcome mean	19,740.57	17,005.66	2,734.91	0.52	0.26	0.23	0.48
Observations	3,180	3,180	3,180	3,180	3,180	3,180	3,143

Notes: These regressions are based on a modified version of specification (1) where we replace the district fixed effects with the following district-level controls from the 2011 Census of India: population density, share of population that lives in urban areas, share of population that belongs to a Scheduled caste, share of population that is female, share of population that lives in slums, and total district population. We also control for the all-cause mortality rate in 2019 at the district level from SHRUG and fixed effects for zones (i.e., groups of districts) within Haryana. Robust standard errors clustered by ITI district are in brackets. Variable definitions are in the online Appendix. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$.

Additionally, Table 6 shows that our results are robust to conducting inference using wild-clustered bootstrapped standard errors.

5 Conclusion

Young job-seekers often have incorrect beliefs about the labor market and unrealistic wage aspirations that can prevent them from making optimal labor market decisions. Our study suggests that exposure to the pandemic lowered the wage aspirations of affected young women, especially for rural women, and made them more realistic without affecting their high willingness to work. However, this "correction" may also have a negative consequence for women's agency related to work decisions—this is because the decrease in their willingness to migrate is likely to decrease their expected income (and hence their agency) given that migration to urban areas is an important pathway to higher incomes for many rural households. Indeed, we find some suggestive evidence that COVID-19 reduced young women's ability to make independent decisions about whether they want to work and what type of work they want to do after graduation, especially in rural areas. Future research should evaluate whether the negative effect of COVID-19 on women's labor market aspirations influences their future LFP, employment, and income. Lastly, we note that our findings are drawn from a sample of female vocational trainees in Haryana who do not represent the average Indian woman.

Table 6: Effects of exposure to COVID-19 using bootstrapped standard errors, rural versus urban

	Wage aspiration (1)	Wage expectation (2)	Aspiration gap (3)	Unrealistic high aspiration (4)	Realistic aspiration (5)	Unrealistic low aspiration (6)	Willing to migrate (7)
Panel A: Rural							
COVID shock	-4,868.791	-2,218.601	-2,650.191	-0.312	0.243	0.068	-0.325
	[1,692.240]**	[1,591.703]	[690.605]***	[0.082]***	[0.176]	[0.135]	[0.089]***
	(0.022)**	(0.210)	(0.024)**	(0.007)***	(0.360)	(0.619)	(0.008)***
Outcome mean	19,491.57	16,550.58	2,940.99	0.53	0.25	0.22	0.50
Observations	1,898	1,898	1,898	1,898	1,898	1,898	1,875
Panel B: Urban							
COVID shock	-2,252.945	-890.597	-1,362.348	-0.159	0.034	0.125	-0.022
	[2,368.673]	[1,679.992]	[2,504.449]	[0.173]	[0.197]	[0.207]	[0.198]
	(0.608)	(0.581)	(0.682)	(0.408)	(0.844)	(0.777)	(0.917)
Outcome mean	20,109.20	17,679.41	2,429.80	0.50	0.26	0.25	0.45
Observations	1,282	1,282	1,282	1,282	1,282	1,282	1,268

Notes: Rural and urban refer to a respondent's home location. All columns include the full set of controls mentioned in specification (1). Robust standard errors clustered by ITI district are in brackets and p-values from wild-cluster bootstrapped standard errors are in parentheses. Variable definitions are in the online Appendix. $^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$.

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6 Variable Definitions

- Age: a respondent's completed age in years at the time of the survey.

- Ever married: an indicator variable that equals one if the respondent was married, divorced, separated, or widowed at the time of the survey, and zero otherwise.

- Rural: an indicator variable that equals one if the respondent's home location is rural, and zero otherwise.

- Scheduled caste or tribe: an indicator variable that equals one if the respondent belongs to a Scheduled caste or tribe, and zero otherwise.

- Other Backward Class: an indicator variable that equals one if the respondent belongs to an Other Backward Class, and zero otherwise.

- Trade: A categorical variable grouping together respondents of similar courses into the categories Beauty, Computer and IT, Mechanical and Electrical, Secretarial, Tailoring and Textiles, and Other.

- Completed class 12 before ITI: an indicator variable that equals one if the respondent had completed at least class 12 before starting her ITI training.

- Ever worked before ITI: an indicator variable that equals one if the respondent had ever worked for pay or profit before joining the ITI program, and zero otherwise.

- Mother is illiterate: an indicator variable that equals one if the respondent's mother is illiterate, and zero otherwise.

- Home vs. ITI district: an indicator variable that equals one if the respondent's residence at the time of survey is in the same district as her ITI, and zero otherwise.

- COVID shock: this variable is based on the following two indicator variables and then constructed using a "leave-one-out" criterion:

  - COVID-19 household shock: an indicator variable that equals one if a respondent reported that her household experienced severe illness or death due to COVID-19, job or income loss due to COVID-19, or had to borrow money due to COVID-19, and zero otherwise.

  - COVID-19 education shock: an indicator variable that equals one if a respondent reported that her ITI education was affected by COVID-19, and zero otherwise.

- – "Leave-one-out" COVID-19 shock variable: the leave-one-out share of respondents at the same ITI as the respondent who reported experiencing either the COVID-19 household shock or the COVID-19 education shock, as defined above.

- District-level aggregate COVID shock: the cumulative number of COVID-19 deaths that occurred between January 30, 2020 and October 31, 2021, per 100,000 district population from 2011 Census of India. As no more recent population data at the district level was available and the district Charkhi Dadri was only separated from Bhiwani and established as a new district in 2016, these two districts were analyzed as one district in our analyses.

- Reservation wage: the absolute minimum take-home salary (in INR per month) that a respondent would accept for any permanent, full-time job when she graduates from her ITI.

- Expected starting salary: the salary (in INR per month) that a respondent expects to earn when she starts working.

- Aspiration gap: the difference between winsorized reservation wage and winsorized expected starting salary (in INR per month).

  - – Unrealistic high aspiration: an indicator variable that equals one if the aspiration gap takes a positive value, and zero otherwise.

  - – Realistic aspiration: an indicator variable that equals one if the aspiration gap equals zero, and zero otherwise.

  - – Unrealistic low aspiration: an indicator variable that equals one if the aspiration gap takes a negative value, and zero otherwise.

- Willingness to migrate for work: an indicator variable that equals one if the respondent is willing to move to a different city for a salary increase of INR 5,000, and zero otherwise.

- District-level population density: population per-square kilometer from 2011 Census of India.

- District-level share of urban population: share of population living in urban areas out of the total population in the district from 2011 Census of India.

- District-level share of population living in slums: share of population living in slums out of the total population in the district from 2011 Census of India.

- District-level share of SC population: district-level share of population that belongs to a Scheduled caste out of the total population in the district from 2011 Census of India.

- District-level share of female population: share of female population out of the total population in the district from 2011 Census of India.

- District-level all-cause mortality rate in 2019: mortality rate for deaths from all causes in 2019 from SHRUG.

- District population: district population from 2011 Census of India.

- Zones: we combine neighboring districts in Haryana into the following five zones:

    – Zone A: Ambala, Kurukshetra, Panchkula, Yamunanagar
    – Zone B: Jhajjar, Sonipat
    – Zone C: Karnal, Jind, Panipat
    – Zone D: Faridabad, Gurgaon, Nuh, Palwal, Rewari
    – Zone E: Bhiwani, Charkhi Dadri, Mahendragarh, Rohtak