

What Constrains Young Indian Women's Labor Force Participation? Evidence from a Survey of Vocational Trainees

Soledad Artiz Prillaman, Rohini Pande, Vartika Singh, Charity Troyer Moore *

April 27, 2017

Abstract

How do young men and women fare under India's vocational (skills) training and job placement programs, and what constrains their subsequent job take-up and retention? Evidence for Policy Design (EPoD) partnered with a large, government-funded skills training and job placement program to survey 2,610 former vocational trainees in 2016. We find a large male-favored gender gap in job placement: at 85%, young men are 13% points more likely than young women to receive a job offer. Young men are also 26% points more likely to accept jobs (with rates at 70% for males and 56% for females). We also identify high drop-out rates after vocational training: 74% of respondents who accepted a job after training had left it by the time of the survey (on average, 9 months after completing training), and only 20% of this group that had left their jobs were employed. Furthermore, there are stark gender differences in the reasons trained youth refuse jobs and subsequently drop out of the labor force. For young women, family concerns are the primary reason, while compensation and personal preferences are the primary reasons young men cite for refusing and leaving jobs after vocational training. However, for both young men and women, access to post-migration support is correlated with longer post-placement job tenure.

Introduction

At only 27% - and compared to 83% for males¹, India's female labor force participation rate is lower than all G20 countries outside of Saudi Arabia². Furthermore, India's fe-

*We would like to thank Sayantam Mitra and Sahibjeet Singh for their assistance in the data collection and cleaning process, and to the JPAL Post-Primary Education initiative for funding this survey.

¹National Sample Survey (NSS) 68 data from 2011-2012 for adults age 15 - 65. The NSS definition of a labor force participant includes individuals who participated in informal labor, and some types of unpaid labor. More specifically, anyone who has worked in their household as an own account worker, self-employed, helper in the household, unpaid family workers in enterprises, regular salaried/wage employees, casual wage laborers in public works or other types of work, and those who did not work but were seeking and/or available for work. Those considered not in the labor force are anyone whose usual principal activity status includes attending an educational institution, attending domestic duties only, attending domestic duties and was also engaged in free collection of goods, tailoring, weaving, etc. for household use, recipients of rent, pension, remittance, etc.; those not able to work due to disability; prostitutes; those who did not work due to sickness (for casual workers only), and a non-standard "others" category.

²Based on World Development Indicators data for 2014 for females age 15 and older

male labor force participation appears to be declining in spite of increases in education, declines in fertility, and continued economic growth. This trend is concerning, given the potential efficiency gains low female employment leaves on the table at the macro level (Kabeer and Natali 2013, World Bank 2012), and the strong relationship between women's economic empowerment and development outcomes of interest, including children's education, females' age of marriage, and even girls' health (see, for example, Sivasankaran 2014, Qian 2008, and Jensen 2012).

At the same time, the government of India has focused significant attention on ensuring it capitalizes upon its potential demographic dividend- of which females could play an important part. Of the 12.8 million Indians that enter the labor force each year (OECD, 2012), many are inadequately trained to meet the demands of the country's growing economy, while others remain excluded from the labor force entirely. In light of these concerns, the government has promoted an expansive set of vocational training programs, known in India as skilling or skills training, to better prepare youth to meet the demands of the labor market. These efforts clearly present opportunities to draw young women into the labor force. Yet, there is a dearth of empirical evidence on how well these programs are meeting their intended goals, and even less is known about the particular challenges facing women in entering and remaining in the labor force.

Here, we utilize original survey data from 2,610 former skills trainees in India to begin to shed light on the post-training and job placement experiences of youth trained under one of India's major skills training and placement programs in its Skill India initiative. This program targets rural, below the poverty line youth to receive 3 months of skills training and then be matched to jobs in their corresponding trade. The primary goal of this program is job placement in semi and high-skilled sectors. As a result, it is important to evaluate the performance of such programs not only for their educational output but also for their ability to meet labor force demands.

Our findings highlight significant "leaks" in the skilling pipeline where trainees leave the labor force, ultimately resulting in low retention and labor force participation rates after training. We also focus on gender-specific outcomes and find that women overall have lower job offer and acceptance rates, despite similar job tenure to men. We do, however, find that receipt of support following migration is a positive correlate of longer job tenure.

The remainder of this brief first describes the government skilling and placement program in more detail and then turns to a description of the sample and data collection and examines non-response rates for the population of interest. We then examine job offer and placement outcomes for youth respondents, identifying gender-specific constraints to labor force participation. We conclude by pointing out areas for future investigation.

Skill India and Youth Training

The government of India began an ambitious skilling initiative - Skill India - in 2015 with the goal of providing training to 400 million people by 2022. Under this initiative, at least 23 central ministries, in addition to state and lower-level bodies and the private sector, have introduced and implemented skills training programs. The trainees we survey participated in one of the largest government programs under the Skill India initiative.

This particular program provides skills training for poor (known as Below Poverty Line or BPL), rural youth between the ages of 15 and 35 through certified partner implementing agencies, private training agencies approved and funded by the government coordinating body. Training centers are typically based in rural or semi-rural locations and recruit youth from nearby catchment areas to participate in the skills training programs. The training is provided free of charge, and all materials - uniforms, course materials, and room and board or travel expense reimbursements are given to trainees. Training, which occurs in a variety of trades and includes a soft skills component, typically lasts for three months, inclusive of one month of on-the-job training to help youth acclimate to life in the labor force.

The government provides funding to partner implementing agencies contingent upon the successful placement of at least 70% of trainees in jobs after their skills training concludes, ensuring training centers are incentivized not only to train youth, but also to ensure the youth are subsequently placed in a minimum wage job. In addition, the government provides post-placement support in the form of cash transfers to former trainees for anywhere from two to six months (depending on their new job location) when they join a new job after training, provided they receive continued proof of employment of the candidate from the training centers³.

Data Collection

With support from our government partner, we conducted a phone survey of 2,610 former skills trainees from March 15 through May 22, 2016. The survey lasted approximately 25 minutes per candidate interviewed. Survey responses, as well as tracking of call attempts and success rates, were recorded using digital data entry software, and respondents were interviewed by enumerators of the same sex.

The survey sample frame was drawn from two administrative data sources supplied by our government partner, which provided contact details for former trainee candidates, as well as limited information on post-training outcomes. The sample included information

³The program varies some by state, but the details described here generally characterize its implementation across the country.

on youth trained at over 120 different training centers across seven major states (Bihar, Chhattisgarh, Gujarat, Madhya Pradesh, Odisha, Rajasthan, and Uttar Pradesh). In order to draw more precise inferences about the experiences of women post-training, we purposively oversampled women and trainees that were likely to have been offered a job, as indicated by a variable indicating the candidate’s status (placed, not placed, in training, etc.) and training completion dates in the administrative data. For logistical reasons, we limited the sample to Hindi and Oriya-speaking areas, the latter allowing us to focus on an area with high out-migration to ensure we could better understand the post-placement experiences of migrants.

In total, our team attempted to interview 7,607 former trainees, making up to 7 attempts per respondent. Surveys for 2,610 respondents were successfully completed. Table summarises the information on survey response rates and highlights the primary reasons that respondents did not complete the survey. This descriptive evidence highlights that non-response was mainly due to inability to reach the respondent and inactive phone numbers rather than respondents opting out of the survey. While females are less likely to have completed a survey than males, the reasons for not completing the survey look relatively similar across genders. Both these factors alleviate concerns about selection bias in our results.

Table 1: Summary of All Calls (by Gender)

	Gender					
	Female		Male		Total	
	%	N	%	N	%	N
Completed Survey						
No	67.4	4035	53.2	861	64.4	4896
Yes	32.6	1954	46.8	757	35.6	2711
Total	100.0	5989	100.0	1618	100.0	7607
Reason Survey was Not Completed						
Invalid Alternate Number	14.2	572	10.0	86	13.5	658
Not reachable	57.6	2322	59.7	513	58.0	2835
Number not active	21.6	872	22.7	195	21.8	1067
Not interested	3.1	124	3.1	27	3.1	151
Discrepancy	3.5	141	4.5	39	3.7	180
Total	100.0	4031	100.0	860	100.0	4891

Source: Sample from DDU-GKY administrative data (MRIGS and pre-MRIGS) (n=7,607)

However to further test for selection bias due to survey non-response, Table more systematically evaluates whether there are clear correlates with survey response rates. Table reports the findings from descriptive regressions of survey completion for a range of covariates. The dependent variable in these regressions is whether the respondent completed the survey. Non-response coded in this way is either the result of a respondent declining or not finishing a survey or a respondent being unable to be reached for the

survey. Given the reasons for non-response indicated in Table , the vast majority of non-response cases are likely indications of an inability to reach the respondent.

Table 2: Correlates of Survey Attrition

Dependent Variable: Survey Successfully Completed

	(1)	(2)	(3)
Gender	-0.0680* (0.0278)	-0.120*** (0.0301)	-0.133*** (0.0400)
Other Backward Caste	0.00871 (0.0203)	-0.00340 (0.0399)	0.0307 (0.0641)
Scheduled Caste	-0.0229 (0.0175)	-0.0140 (0.0228)	-0.0612* (0.0288)
Scheduled Tribe	-0.0465* (0.0222)	-0.0528 (0.0289)	-0.0573 (0.0398)
Minority	-0.0816 (0.0563)	-0.139 (0.0724)	-0.129 (0.107)
Hindu	-0.0634 (0.0335)	-0.102* (0.0473)	-0.0665 (0.0510)
9-10 Years of Education		0.0420 (0.0376)	0.0667 (0.0637)
11-12 Years of Education		0.113** (0.0390)	0.137* (0.0606)
12+ Years of Education		0.195*** (0.0498)	0.278*** (0.0754)
Employed in IT			0.254* (0.121)
Employed in Manufacturing			0.271 (0.141)
Employed in Services			0.332** (0.124)
Date Joined			0.0000487 (0.000175)
N	6,359	2,858	1,428

Note: Standard Errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Models estimated with linear regression and include state-district and training agency fixed effects.

There are two evident correlates of survey non-response. First, men appear more likely to complete the survey than women. Second, education is positively correlated with survey completion. The positive correlation between IT and service sector employment even while controlling for education may reflect greater use of technology (and thereby phones) by this group of trainees, although the sample size is much smaller in this estimate due to a large amount of missing data in the government's administrative records.

The empirical estimates we present in the following sections control for these covariates which may be correlated with both survey non-response and the outcomes investigated, and so mitigate the potential that selection on these observables into survey response alters our findings. That said, we return to survey non-response after presenting the preliminary results to examine how results differ when bounding estimates using the entire sample frame.

Results

Who receives job offers post-skilling?

Figure 1 shows the particularly leaky pipeline for women from training to employment, highlighting the gender gaps in placements and job acceptance rates.

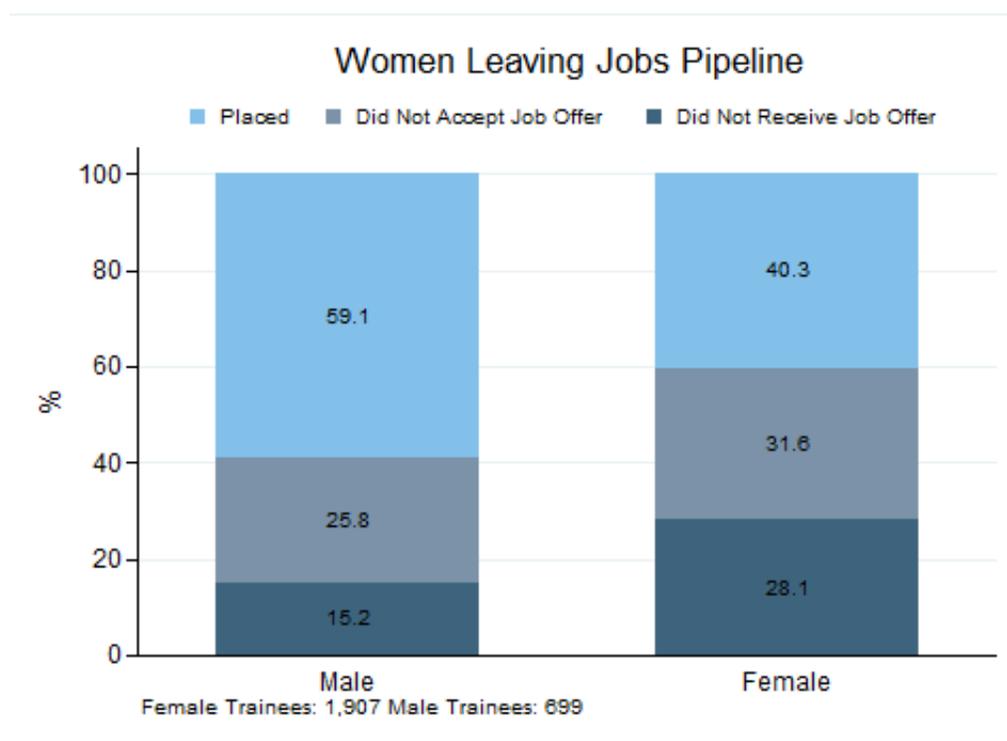


Figure 1: Trainees Receiving Job Offers, Accepting Job Offers, and Being Placed in Jobs

On average, 75% of respondents in our sample received a job offer after participating in the government skills training program.⁴ We found, however, that male trainees received

⁴As mentioned, we aimed to survey trainees that were likely to have been placed in a job, which likely inflates this percentage. While we did not know with certainty beforehand whether a potential respondent had received a job, we over-sampled respondents that were marked in administrative data as having completed on the job training or being placed in a job. However, while the overall percentage may be higher

job offers more frequently than female trainees: 72% of female trainees and 85% of male trainees reported receiving a job offer at the end of their training.

Why are female offer rates 13% points lower than offer rates for males? Table 3 reports the percentage of men and women that trained in each trade and the percentage of those who trained in that trade that received job offers. The final column reports the difference in the likelihood that male trainees received a job offer from the likelihood that female trainees received a job offer.

As can be seen in Column 5, female trainees overall are less likely to receive job offers than male trainees, and this difference is evident even when comparing trainees in the same trade. In particular, women appear to suffer from worse offer rates in retail/sales, IT/basic computers, accounting, tailoring, and support/services, fields in which 76.6% of women train overall. For example, 13.31% of women train in tailoring as compared to only 1.51% of men, yet women are 19 percentage points less likely to receive a job offer than men if they train in tailoring. The negative correlation between gender and the likelihood of receiving job offers holds additionally after controlling for age, age squared, education level, caste category/ minority status and training agency in addition to trade: with this model, overall women were still 8.58% less likely to receive a job offer than men.

Who accepts job offers post-skilling?

Only 72% of female trainees and 85% of male trainees *receive* job offers. Of those that receive job offers, only 56% of female trainees and 70% of male trainees report accepting their job offers (see Figure). This is further evidence of the leaky pipeline for all trainees, but particularly for women: only 40% of female trainees end up placed in jobs (59% for male trainees).

Figure 2 also shows that all trainees are less likely to accept jobs farther away from home: 78% of men accepted jobs when they were in their natal district but only 66% of men accepted jobs which were outside of their natal district (61 and 53% respectively for women).

It is clear that women are less likely to accept job offers than men, but why do trainees

than the value for the entire population of trainees under the program, the relative differences between the offer rates for men and women should not be systematically or substantially different than that for the overall population.

Table 3: Percentage of Trainees who Received Job Offers, by Gender and Trade

	Women		Men		Significant Difference?
	% Trained	% Offered Job	% Trained	% Offered Job	
Overall		71.9		84.9	13.00*
Retail/Sales	21.15	72.85	17.19	85.96	13.12*
IT/Basic computers	18.50	74.03	19.00	84.13	10.10*
Accounting	15.96	66.32	21.57	86.71	20.39*
Tailor	13.31	70.95	1.51	90.00	19.05*
Hospitality/Nursing	10.71	76.80	10.56	84.29	7.49
BPO	9.83	78.09	8.60	80.70	2.61
Support/Services	7.68	62.59	9.95	81.82	19.23*
Other skills	1.93	74.29	2.41	75.00	0.71
Manufacturing/Automobile	0.94	82.35	9.20	86.89	4.53

Note: Columns 2 and 4 report the percentage of male and female trainees that were trained in each trade. Columns 3 and 5 report the percentage of male and female trainees that received job offers by trade. Column 6 reports the difference between the percentage of men receiving job offers relative to women. * denotes that this difference is significant at $p < .1$ with standard errors clustered at the PIA district.

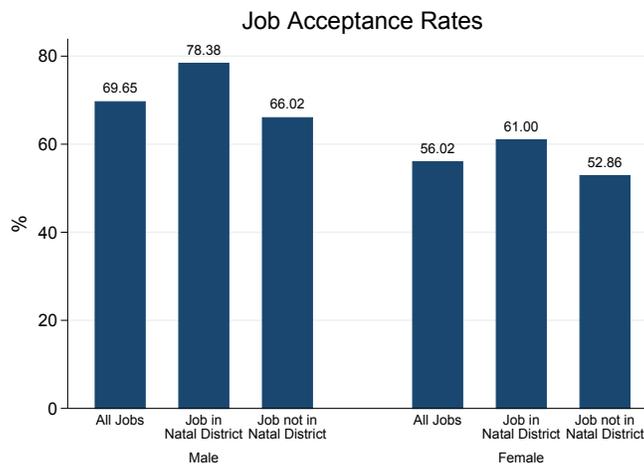


Figure 2: Trainees Accepting Job Offers by Gender and Job Location

not accept their job offers? The response to this question is also divided along gendered lines, as shown in Figure 3. Female trainees most often cite personal and family concerns, as well as concerns related to migration as the reason to reject a job offer. Male trainees, on the other hand, most often report rejecting job offers due to inadequate pay or other work-related concerns.

Figure 3 highlights that concerns around migration reduce the number of trainees placed in jobs. Job offers may partially reflect trainees’ concerns: women are more likely than men to receive a job offer in their natal district (44% of women compared to 38% percent of men). However, female trainees and male trainees are equally likely to receive an out-of-state job offer, at just over 25% of trainees. Migration may also indirectly affect male trainee’s placement rates, as overall pay for migrants is slightly **lower** than for non-migrants.

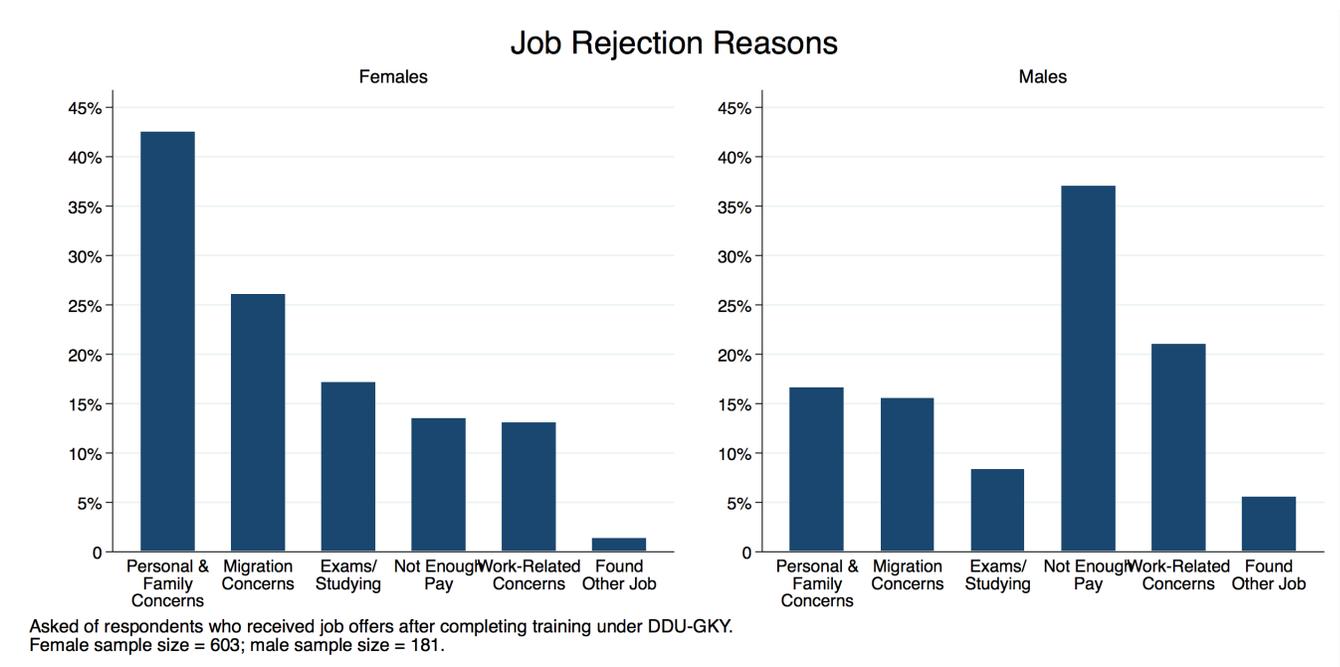


Figure 3: Top Reasons Reported for Rejecting Job Offers, by Gender

How long did trainees remain in placed jobs?

Unfortunately, trainees did not remain employed long after placement: 74% of respondents who accepted a job offer after training had left the job by the time we interviewed them. Of those who left their jobs, 23% left their job within one month of placement, including nearly 10% who accept the job but joined for a day or less. Another 18% of placed trainees left their jobs in the fourth month, and an additional 8% left after the sixth

month. These dropout rates are somewhat exacerbated by migration for employment: trainees who migrated were 4% points more likely to have left their job within the first month than trainees that stayed in their natal district to work. These differences related to migration disappear by the 3 month mark, however. It also important to note that large numbers of placed trainees drop out of their position after exactly 3 and 6 months, coinciding with the conclusion of the incentive payment provided at that point by the government.

Figure 4 further demonstrates the high rates of drop-out from placed positions in the first year: more than 95% of youth who had left their jobs did so within the first year.

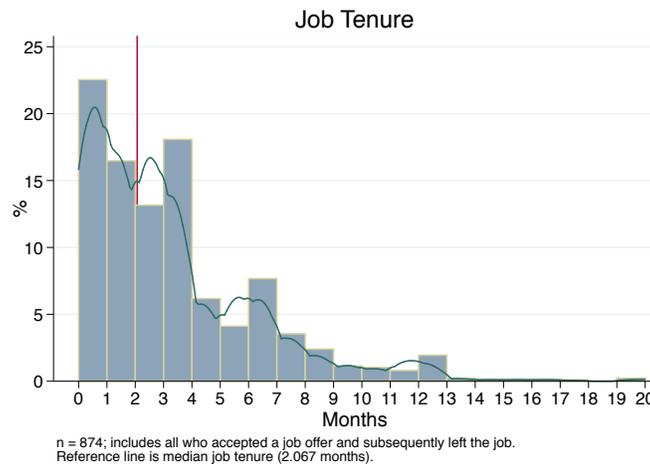


Figure 4: Job Tenure, Trainees Who Left their Job

Youth, however, are not moving into different jobs. At the time of the survey, only 20% of those who had left their jobs were employed. Again, this varies by gender: 33% of men, but only 12%, of women were employed.

When asked the reasons they left their job, trainees' responses mirrored the reasons that trainees rejected job offers. While both men and women cited workplace concerns - including difficulty of the job, personal problems at work, or being laid off - as a major reason behind leaving the position, men were substantially more likely to cite pay as a major reason for leaving. Women were more likely than men to cite personal issues - including personal problems at home, family pressure, marriage/pregnancy, health issues, or personal problems - as the reason for leaving their job. Men and women were equally likely to report that migration concerns were a key reason behind their drop-out. This is evident in Figure 5 below.

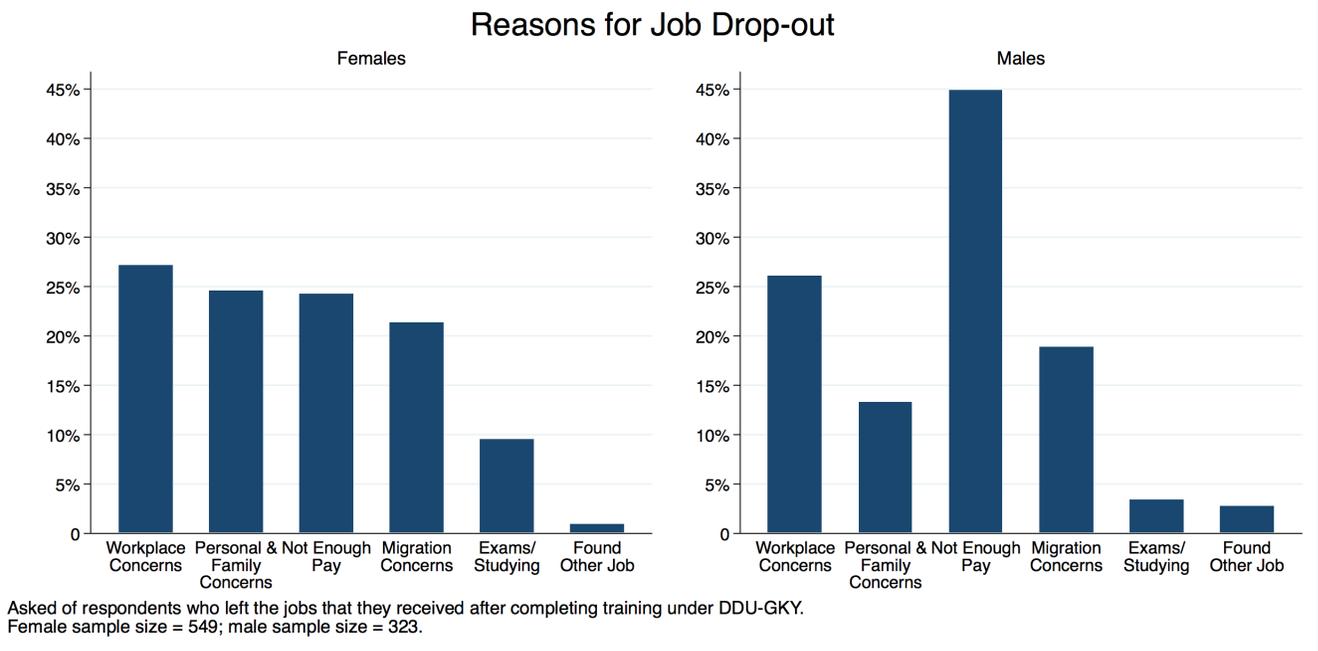


Figure 5: Top Reasons Reported for Leave Placed Job, by Gender

What factors are correlated with longer job retention?

Our analysis suggests both demographic and structural characteristics that are clearly associated with a higher likelihood of remaining in a job. Table 4 reports the correlations between demographic and structural factors and the tenure in a job after training as calculated from a Cox proportional hazard model of job duration with right censoring due to survey timing.

As shown in Table 4, demographically, gender (females are more likely to still be in their jobs than males), non-migration (associated with staying longer), and age (younger trainees are more likely to stay in their jobs) are all correlates of job tenure even when accounting for salary and placement support.⁵ For example, from the first column of Table 4, women are roughly 26% less likely to leave their jobs than men.

In addition to these demographic characteristics, our data highlights several aspects of the design of the government’s skilling program that could improve job retention rates. In the survey, respondents who migrated for work and later left their jobs were asked whether they received any of seven different types of migration support: assistance find-

⁵These results are robust to controlling for training end dates, location of origin, field of training, education, marital status, caste, and compensation offered. Certain trades, notably basic computers and tailoring, are also associated with higher probabilities of having left jobs.

Table 4: Correlates of Longer Job Retention

	<i>Dependent Variable: Job Tenure</i>			
	(1)	(2)	(3)	(4)
Female	0.743**	1.052	0.417***	1.121
Received Migration Support			0.644*	0.565*
Migration Support \times Gender			1.327	0.783
Migrate for Placement	1.205*	1.120		
Job Contract		0.602***		0.550***
Placement Salary	1.000	1.000	1.000	1.000
Age	0.742**	0.686**	0.594**	0.642**
Age ²	1.006*	1.008**	1.01**	1.008**
10th Pass Education	1.331	1.782**	1.412	0.876
12th Pass Education	1.223	1.342	1.386	0.795
ST	1.151	0.927	1.452	0.912
SC	1.000	0.823	1.300	1.002
OBC	0.962	0.785	1.268	0.865
N	921	645	535	386
Sample	All	All	Migrants	Migrants
Trade Fixed Effects	Yes	Yes	Yes	Yes
PIA Fixed Effects	Yes	Yes	Yes	Yes

Note: Significant at the * 10%; ** 5%; and *** 1% level. Coefficients represent the hazard ratios: a hazard ratio > 1 implies that the variable is positively correlated with job dropout; a hazard ratio < 1 implies that the variable is negatively correlated with job dropout. Models estimated using a Cox proportional hazards model.

ing accommodation, opening a bank account, setting up an account to receive government benefits, getting a phone number or SIM card, finding food, finding medical help, and using public transportation. The far left bar of figure 6 shows the mean tenure for individuals who received no migration support, at just over 2 months. Each bar to the right shows the mean tenure for individuals who received one additional form of migration support (irrespective of type of support), while the far right bar shows the mean tenure for individuals who received five or more types of support, at just over 7 months. While the result is purely correlational - in particular, being on the job longer may increase exposure to potential migration support- it is clear that those who benefit from the most types of migration support were also those on the job longest.

This is further validated in Table 4, where the receipt of any migration support is negatively correlated with job dropout. Even more, women who have received migration support are the least likely group of former trainees to leave their placed positions (see the interactive effects in columns (3) and (4) of Table 4). Additionally, salary is not correlated with job tenure, however receipt of a job contract is positively correlated with job duration.

This is important for skilling programs given that 54% of placed trainees in our sample migrated for their job, including 25% who migrated out of state. A naive estimate suggests for each additional type of migration support provided, retention increases by .66 months and, importantly, the benefits of migration support are reaped by *both* genders. Given the potential challenges migrants face, providing post-placement support to former trainees- both men and women- poses a fruitful area for further investigation.

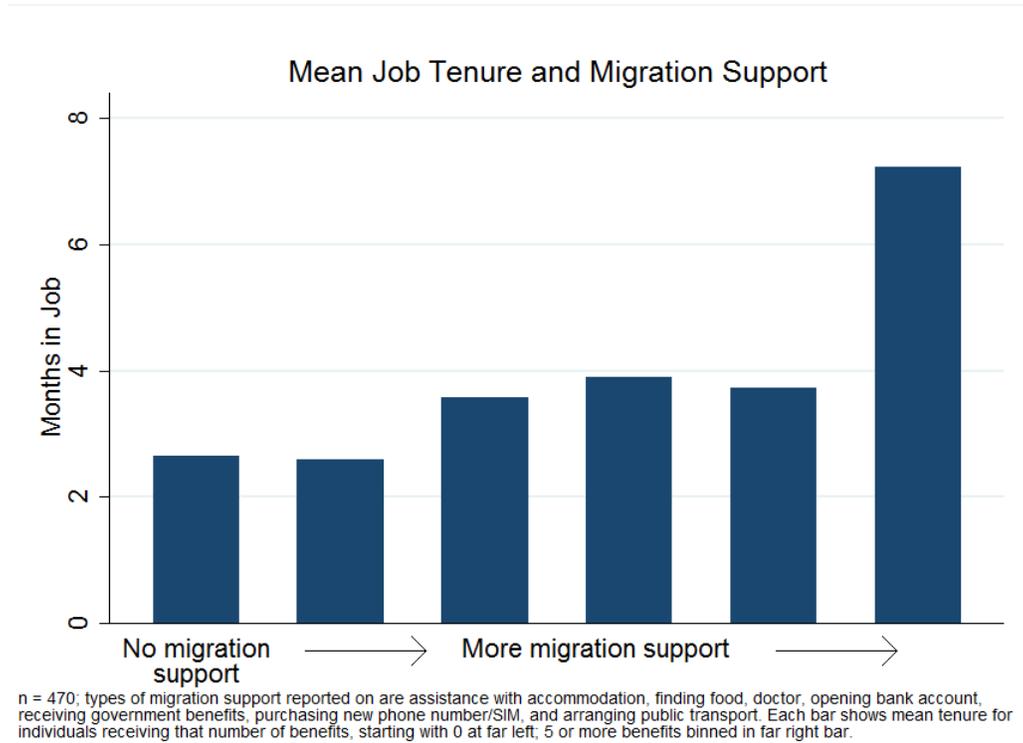


Figure 6: More Migration Support Associated with Longer Tenure

Robustness: Bounding for Selection

To demonstrate the robustness of our results to selection concerns from survey nonresponse, Table 5 reports the bounds on our main gender estimates. From the basic regression with controls, as reported in the main text, women were 10.33% less likely to receive a job and 15.92% less likely to accept a job but no less likely to stay in a job. The three following rows provide the bounds on the regression estimates when dealing with potential influence of survey nonresponse and attrition. In particular, the Lee Bounds allow us to control for the main covariates of attrition (See Table) to identify the bounded range on our estimated relationships. The worst case Manski bounds are quite large and therefore not

particularly informative, however, when looking at the Lee bounds the negative relationship between gender and job offers and acceptances holds. At the low end, these suggest that women are 10.97% less likely to accept a job and .85% less likely to accept a job offer. Overall, these bounds help to provide robustness for our gendered findings even in the case of survey nonresponse.

Table 5: Robustness of Gender Differences to Bounding for Selection

	Job Offer	Job Acceptance
Regression with Controls	-.1033***	-.1592***
Manski Bounds Worst Case Estimate	[-.4400 , .5600]	[-.5130 , .4870]
Lee Bounds without Covariates	[-.2811 , -.0616]	[-.4314 , .0825]
Lee Bounds with Covariates	[-.2082 , -.1097]	[-.2887 , -.0085]

Notes: Each of three key outcome variables are represented in the columns, with job offer and job acceptance being binary indicators for former trainees and job tenure as an indicator of duration in months. The first row reports the linear regression results, include age, age squared, education level, caste category/ minority status and training agency. The second row reports the worst case Manski bounds with a 0% error rate and arbitrary errors (Horowitz and Manski, 1998), the third row reports the Lee bounds without covariates, and the fourth row reports the Lee bounds controlling for caste category and education level (Lee, 2009). The coefficients report the estimated effect of being a woman.

Conclusions

Our survey findings suggest many poor rural youth that participate in skilling have not effectively integrated into the labor force after their training and placement in an initial job. They also highlight that female trainees are less likely to receive job offers, accept those offers, and therefore be placed in jobs than males. Despite these challenges, female trainees stay employed at least as long as male trainees and are less likely to drop-out of the labor force as a result of insufficient pay or poor working conditions. This suggests that efficiency gains could be made by better integrating women into the labor force.

This survey highlighted several potential areas that skilling programs could address to increase job placements, particularly for women. First, women are more likely to train in trades with higher gender gaps in job offer rates, and they are less likely to receive offers overall, despite being as likely to migrate out of state for jobs they do accept as men. The structural reasons for these low offer rates deserve further study. Second, women are less likely to accept job offers, and they report family as a key constraint. Understanding how to encourage training agencies and programs to find jobs considered suitable for rural women and encouraging households to support young women’s employment aspirations are important areas that merit further investigation.

Last, our survey highlights the importance of post-placement, and particularly post-migration,

support in increasing job retention rates. Systematically testing whether improved post-placement support, particularly through bank accounts, improves retention rates is a promising area for further investigation.

References

Horowitz, J. and C. Manski (1998), "Censoring of Outcomes and Covariates due to Survey Nonresponse: Identification and Estimation Using Weights and Imputations," *Journal of Econometrics*, 84, 37-58.

Jensen, R (2012), "Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India", *The Quarterly Journal of Economics*, 127(2): 753-792.

Lee, D. S. (2009), "Training, wages, and sample selection: Estimating sharp bounds on treatment effects." *Review of Economic Studies* 76: 1071-1102.

OECD (2012), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, OECD Publishing.

Qian, N (2008), "Missing Women and the Price of Tea in China: The Effect of Sex-Specific Earnings on Sex Imbalance", *Quarterly Journal of Economics*, 123(3): 1251-1285.

Sivasankaran, A (2014), "Work and Women's Marriage, Fertility and Empowerment: Evidence from Textile Mill Employment", Harvard University.

Appendix

Table 6: Summary statistics for regression covariates

Variable	Mean	Std. Dev.	N
Received Migration Support	0.802	0.399	627
Job Contract	0.388	0.488	766
Placement Salary	5040.177	399.912	2314
Age	21.593	3.261	2610
Age ²	476.911	160.642	2610
10th Pass Education	0.143	0.35	2608
12th Pass Education	0.508	0.5	2608
Scheduled Tribe	0.157	0.364	2550
Scheduled Caste	0.314	0.464	2550