Job Training, English Language Skills, and Employability: Evidence from an Experiment in Urban India

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I. Introduction

Individuals from low-income backgrounds often lack in-demand skills that can help them obtain employment, realize higher earnings, and experience upward economic mobility. Governments and development organizations have sought to respond to this gap by introducing a range of job training programs (Card, Kluve, and Weber 2010, 2018; Fox and Kaul 2018; World Bank 2018). These programs typically focus on vocational training as well as general science and math skills (De Grip and Sauermann 2012; Hanushek et al. 2017; Kluve et al. 2019).

A potentially important set of skills that low-income individuals in developing countries frequently lack is English language skills. Such skills are often required for work in emerging service sectors such as tourism, data entry, call centers, and business process outsourcing (Jensen 2012). English is used to carry out trade and commerce in and across linguistically diverse countries (Egger and Lassman 2012; Fenske and Kala 2021). Beyond the value of English language skills for enhancing human capital, the ability to communicate in English may also help workers signal their ability levels to prospective employers (Spence

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1973; Heckman, Stixrud, and Urzua 2006; Piopiunik et al. 2020). Surprisingly, there has been little emphasis on job training programs that focus on providing English language skills and essentially no rigorous evidence on the effectiveness of these programs, especially among low-income individuals in developing countries.

The purpose of this study is to provide new evidence on the economic value of learning English language skills in a developing country context. We examine whether participating in a training program that primarily focuses on English language skills increases the likelihood of employability and higher wages (as assessed or estimated by hiring managers through interviews). We also provide results on heterogeneous treatment effects and use these interactions to shed light on the empirical importance of rationales for providing training subsidies. We further examine whether improved English language skills are a mediating factor in explaining the effects of such a program on employability and estimated wages.

To fulfill these objectives, we conduct the first large-scale, randomized field experiment evaluating English language skills training. We focus on India, a developing country where only about 11% of the population speaks English (Census of India 2011, table C-17). There are half a billion workers in India, and many among them could potentially benefit from English language skills training. Furthermore, as India expands its services sector and further integrates with the global economy, linguistic barriers may exacerbate existing social and economic inequalities. In the experiment, 1,260 low-income youth in India were randomly assigned at the individual level to receive either an employability training program that emphasizes English language skills or a deferral to enter the program 12 months later. Treated individuals were enrolled for 100-minute sessions, 6 days a week for 1 year.

Because the randomized evaluation was interrupted by the COVID-19 pandemic and a national lockdown, we used innovative means to assess employability outcomes and English language skills. To measure employability outcomes, individuals from both the treatment and control groups participated in online, automated job interviews in which their responses were video recorded using software designed by one of the largest employability screening firms in the country. A team of third-party hiring managers then watched the videos and assessed the employability of the participants, with each individual assessed independently by multiple hiring managers.[1] To assess English language skills,

[1] The hiring managers in this study were selected from industries that students indicate are target private sector opportunities. In discussions with hiring managers as well as job-seekers, we learned that much of the hiring for entry-level jobs in these sectors takes place through formal processes rather than referral.

we conducted an over-the-phone assessment developed by the employability screening firm to measure participants' ability to speak and understand English. Beyond enabling us to assess treatment and control group participants during a pandemic and stringent lockdown, our measures of employability are distinct in that they enable us to obtain objective measures of employability and estimated wages for a large number of study participants in a developing country context with relatively high uptake and low cost.

We report four sets of results from the experimental analysis. First, the job training program increases employability and estimated wages for regular jobs and employability for jobs that require English language skills. Second, the program substantially increases English language (speaking and listening) skills. Third, we find that the program is effective for a range of groups delineated by gender, social class, or prior employment. Fourth, individuals participating in the training program enjoy an increased likelihood of employability and higher starting wages by having enhanced English language skills. Even though our results are robust, our methodological approach likely undercounts the labor market effects of learning English because of potential additional effects on exam-based opportunities such as the likelihood of completing a higher level of education or improving the chances of qualifying for a government job. Taken together, our results indicate that English language training has broad-based effects on the employability outcomes of individuals from low-income backgrounds.

This paper contributes to two main strands of literature. First, the findings advance the literature on the effectiveness of job training programs. Prior scholarship finds that job-search-assistance programs are highly effective, although skill programs generally show more mixed results (Card, Kluve, and Weber 2010, 2018). The evidence is the least clear for evaluations of skill programs in developing countries such as India, however, showing decidedly mixed results (Prillaman et al. 2017). Many of these programs do not prepare participants well for the job market. These programs, however, do not specialize in English, which might be the most important skill for many jobs in certain developing countries, especially with the growth in services-based economies. Perhaps job training that focuses on English language skills is key? We provide the first experimental evidence on this question.

Second, the findings contribute to our understanding of the broader question of how valuable English skills might be in the labor market of a developing country. Our paper builds on the few studies that examine the value of English language skills. Using survey data on employment and income from Mumbai, Munshi and Rosenzweig (2006) estimate considerably higher returns for English skills over schooling. Along the same lines, Azam, Chin, and Prakash (2013) estimate the association between English language skills and

wages, finding that hourly wages are on average 34% higher for men who speak fluent English and 13% higher for men who speak a little English relative to men who do not speak English. In a smaller study in West Bengal, Chakraborty and Bakshi (2016) find that a 10% lower probability of learning English is associated with declines in weekly wages of the order 8%. These results are in line with similar studies conducted in Turkey (Di Paolo and Tansel 2015), in China (Wang, Smyth, and Cheng 2017; Asadullah and Xiao 2019), and among Hispanics entering the labor pool in the United States (Gonzalez 2005). We provide the first experiment-based evidence on the value of English language skills.

II. Experiment and Data

A. Description of the Job Training Program

Freedom Employability Academy (FEA), formerly Freedom English Academy, provides a free, in-person employability training program for individuals age 15 or older. Individuals, mostly from low-income and lower middle-income households, sign up for 100-minute sessions for 6 days a week for 1 year. In contrast to other job training programs that tend to focus on providing skills for low-end jobs, FEA's curriculum focuses on providing skills that the organization believes will lead to professional jobs. The curriculum primarily focuses on English language training but also teaches computer skills, exposure to different kinds of professional opportunities, and the development of personal qualities such as the value of perseverance and hard work.

FEA operates branches across urban areas in northern India, with a concentration of branches in Delhi, the location of this study. At the beginning of the study in July 2019, FEA operated 54 branches in the metropolitan area, with each branch capable of supporting two concurrent sessions of 20 students, with 8 sessions scheduled per day (320 available slots at a single branch). FEA starts new sessions and enrolls students throughout the year. Instead of a program-wide start date like what one might find in a typical school system, FEA sessions start after a 7-day observation period with a full set of students. Because the training is free and the program is well regarded, most branches and sessions maintain long waiting lists of individuals who want to join the program.

B. Experimental Design and Data Collection

The randomized controlled trial was designed as follows. Whenever a new session in Delhi was opened between July 12 and August 28, 2019, all potential students from the branch's waiting list were notified; additionally, FEA posted its normal advertising in the neighborhood. Potential students came to the branch for 7 days of observation. At the start of this observation period, individuals

took a baseline survey in which they provided background information, indicated whether they were currently employed, and what their expected wages would be after participating in the job training program. On day 6, individuals were randomized to treatment (acceptance into the FEA program) and control conditions (deferral from the FEA program) within each session. On day 7, individuals were informed whether they had been accepted into the FEA program or whether they had been deferred from the program.[2]

Altogether, 1,260 individuals were included in the study, with 648 individuals randomized to the treatment group and 612 individuals randomized to the control group.[3] Table A1 presents tests for balance on baseline observables across the treatment and control conditions. The table presents the results from a total of eight tests comparing average baseline variable values between the treatment group and the control group.[4] Out of the eight tests, only one is statistically significant, and at the 5% level. As such, the results suggest that balance was achieved across the treatment and control conditions.

After the baseline stage, individuals in the treatment group attended the program. While the program is normally for a full year, it was interrupted by the COVID-19 pandemic. A national lockdown was implemented in India on March 25, 2020, preventing any further in-person instruction. FEA initially encouraged instructors to keep in touch with students every few days over WhatsApp, but no further instructional material was provided. As it became clear that the COVID-19 pandemic would bring long-term disruptions to operations, the decision was made to conduct end-line assessments from mid-June to mid-August 2020.

C. Outcome Measures

Two novel assessment tools, designed to measure the employability outcomes and English language skills, were administered to treatment and control participants. The two assessment tools were provided by one of India's leading

[2] Individuals were included in the study if they were 18 years or older, if they indicated that they planned to attend the course for a full year, and if they agreed to participate in the study. Individuals in the control group were deferred from the program until the conclusion of the study, at which time they were given preferential access for enrolling.

[3] Only 11 out of 648 students assigned to the treatment group did not enroll in the program. None of the students assigned to the control group enrolled in the program during the study period. Compliance of the control group was ensured through administrative procedures that FEA put into place to ensure that participants from the control group could not enroll during the period of study at any FEA branch.

[4] Heteroscedasticity-robust standard errors are estimated and reported.

employability assessment firms.[5] The first was an over-the-phone assessment to measure English language skills (listening and speaking). The second was an online, automated job interview assessment that video-recorded participant responses to a set of interview questions: first, five questions in Hindi, and then a different five questions in English.[6]

Once the end-line information was collected from all of the study participants, we recruited a team of 20 hiring managers to assess the employability of the participants. The 20 hiring managers were selected on the basis of their levels of experience and generally came from the sectors that participants had initially expressed interest in joining. Because they mostly worked at large companies, the hiring managers had experience in hiring across a variety of entry-level jobs.

For each study participant, three hiring managers were randomly selected and, blind to the participant's treatment condition, were asked to watch the participant's recorded interview. A hiring manager was asked to rate the likelihood that he or she would hire the participant on a 0–100 scale, along with the expected starting monthly salary if an individual were likely to join that organization. The likelihood of employability and the starting salary were averaged across the three hiring managers for each participant.

This simulated employability assessment has several benefits. Perhaps most important, it enables us to obtain objective measures of employability and potential wages. Objective measures are extremely difficult to obtain in developing countries such as India in which universal income tax data are lacking and researchers must instead rely on survey responses. Survey responses on immediate employability and expected wages can be inaccurate. Additionally, the control group received the treatment the following year, and any labor market outcomes measured beyond 1 year of the study might not be helpful. Employability and estimated wages at end line avoid this timing problem.[7]

[5] As of 2019, more than 5,000 companies used this firm's assessments to assist with their hiring decisions.

[6] According to both the assessment firm and the hiring managers that we included, résumé screening and interviews are generally regarded as the most important aspect for making hiring decisions. We chose not to include résumé screening in our simulated hiring assessment because non-skill-based factors such as religion, caste, and educational history would have improperly influenced the assessment. Also, hiring managers were asked how much weight was given to various parts of a job application in decision-making. They indicated that interviews are about twice as important in making hiring decisions as résumés (23.9% average weight given to résumés vs. 37.3% average weight given to interviews).

[7] The program itself could theoretically affect employability outcomes through a signaling effect in the market or by providing participants with information about the labor market, but in the experiment hiring managers (who were drawn from the real world) were asked to estimate students' employability on the basis of their recorded interviews and were blind to whether a student had participated in the

We furthermore are able to obtain these objective measures for a large number of study participants with relatively high take-up and low cost. Experiments that evaluate job training programs in either developed or developing countries typically have a difficult time tracking participants, especially when they are from disadvantaged backgrounds. In our case, it would have been extremely difficult to track low-income, urban youth with high rates of mobility and constantly changing contact information into their first post-program jobs. In addition, because our assessments were conducted through an online phone-based application, we were able to reach a large number of study participants and achieve a relatively high follow-up rate, even with the extreme challenge of a stringently enforced national lockdown (see sec. III.E). All of these advantages might prove useful in settings beyond the constraints imposed by COVID.

Reliance on a simulated employability assessment came with several benefits but likely undervalues the true effect sizes of the FEA program. This undervaluation is likely for two reasons. First, a core objective of the program is to expose students to career paths that they would not have otherwise considered to be viable. It is likely that those that attended FEA choose to apply for higher-earning jobs compared with those that did not attend FEA. Second, the skills that FEA develops are important for getting accepted into higher education programs. The FEA program also helps its students apply for higher studies. University degrees and other higher education certificates are highly valuable on the job market, as many professional-level jobs require them. Our simulated employability assessment cannot account for changes in individuals' career aspirations or enhanced abilities to pursue further studies, which might have increased long-term employability and earnings.

D. Statistical Analysis

Our general approach for estimating treatment effects is to regress outcomes measured at follow-up on a dummy variable indicating treatment assignment, baseline controls, and strata (sessions) by using the following model:

$$Y_i = \alpha_0 + \alpha_1 T_i + X_i\beta + \tau_j + \varepsilon_i,$$

where Y_i is the outcome of interest measured at end line for individual i; T_i is a dummy variable indicating the treatment assignment of individual i; X_i is

FEA program or not. The lack of positive signaling and labor market information effects would indicate that our experimental estimates are likely lower-bound estimates of the effects of the program.

a vector of baseline control variables, and τ_j denotes strata fixed effects. We estimate treatment effects with and without the baseline controls X_i. The baseline controls include gender, age, whether the individual attended or attends college, whether each parent attended high school or not, a wealth index (z-score) based on household asset ownership, whether the individual is currently employed, and expected monthly wages after training (in rupees). We estimate and present robust standard errors.

III. Results

A. Main Effects of Job Training on Employability and Estimated Wages

Individuals assigned to the job training program have higher levels of employability and estimated wages than individuals not assigned to the program (table 1). According to the objective and blinded evaluations of third-party hiring managers, individuals assigned to the program—even with the shortened program that resulted in an average attendance of 4 out of 12 months—are approximately 4.2 percentage points more likely to obtain employability in an entry-level job.[8] The result is statistically significant at the 1% level. According to the hiring managers, individuals assigned to the program also earn an average of 568 rupees per month more in starting salaries than individuals not assigned to the program (statistically significant at the 5% level).[9] The results are similar when we control for additional baseline covariates (even columns) or not (odd columns).

Turning to instrumental variable (IV), local average treatment effect (LATE) estimates, which examine the dosage effects of actually attending the program, as well as a simple extrapolation of the effects of increased dosage, we find large effects of the job training program on employability and wages. According to table 2, attending 1 day of the program increases the likelihood of employability in an entry-level job by approximately 0.04% (statistically significant at the 1% level—see col. 1). Attending 1 day of the program also increases an individual's monthly salary in that entry-level job by approximately 5.2 rupees (statistically significant at the 5% level—see col. 2). Extrapolating these

[8] The pandemic not only resulted in partial or full closures of FEA training centers for periods of time but also resulted in much more inconsistent attendance than in periods before or after the pandemic. Because FEA keeps strict attendance records, we were able to observe attendance each day. On average, a student attended the program for 104 days between the above-mentioned dates. Assuming a month has 30 days and students do not attend for four of those days per month (as Sundays are a holiday), students effectively attended the program for 4 months.

[9] The average highest monthly estimated starting salary for the control group was 12,324 rupees per month.

TABLE 1

EFFECTS OF ASSIGNMENT TO TRAINING PROGRAM ON EMPLOYABILITY OUTCOMES (AS ASSESSED BY HIRING MANAGERS THROUGH INTERVIEWS), AVERAGE TREATMENT EFFECT (INTENT-TO-TREAT) ESTIMATES

	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%)		Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees)	
	(1)	(2)	(3)	(4)
Treated (1 = yes)	4.127***	4.238***	535.909**	568.389**
	(1.129)	(1.131)	(231.225)	(232.561)
Control group mean	47.29		12,295.06	
Covariates	No	Yes	No	Yes
Observations	940	940	940	940

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions control for block (session) fixed effects. Covariates (even columns) include the following: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages after training (rupees).

** $p < .05$.

*** $p < .01$.

results, we find that attending 75% of the full program (or 9 out of 12 months) increases individuals' likelihood of obtaining employment in an entry-level job by 9.1 percentage points. Attending 75% of the full program also increases individuals' monthly salary by 1,223 rupees per month. By completing 9 months of FEA, an individual should expect a starting salary that is approximately 10% higher than if they had not enrolled in the program. Assuming individuals work for approximately 45 years (from the age of 21 to 65) and that they receive annual salary increments of 7%, those who complete 75% of the job training program make approximately 4,500,600 rupees more on average (in nominal terms) over their careers than those who do not attend the program.[10]

These estimates may well be lower-bound estimates because they only consider the direct effect of attending the program on how well individuals would, at present, fare in finding an entry-level job. They do not account for other ways in which the program might affect employability outcomes. For example, by increasing their skill levels through the program, individuals might

[10] We adopt a conservative 7% annual salary increment. Indian firms are routinely surveyed on salary increments. Aon Consulting has been surveying Indian firms for 26 years. Since 2007, the average salary increment has been 10.225%. Wilson Towers Watson also conducts salary increment surveys. Their data cover 2018–21, and their annual increments are in line with Aon's estimates. They suggest that the average salary increases 8.85%, although the COVID-19 pandemic hampered increments. It should be noted that these increments—as well as our projected career earnings—do not take inflation into account. For a full cost-benefit analysis that accounts for direct and indirect costs of the program as well as skill obsolescence and inflation in the estimation of lifetime wage benefits, see app. B.

TABLE 2

EFFECTS OF ATTENDING THE TRAINING PROGRAM (IN DAYS) ON EMPLOYABILITY OUTCOMES (AS ASSESSED BY HIRING MANAGERS THROUGH INTERVIEWS), LATE (TREATMENT ON THE TREATED, IV) ESTIMATES

	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%) (1)	Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees) (2)
Days attended	.039***	5.225**
	(.010)	(2.066)
Observations	940	940
R^2	.102	.125

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session) fixed effects and the following covariates: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages post-FEA training (rupees).
** $p < .05$.
*** $p < .01$.

be better positioned to complete further education (including college). We turn to the effects of the program on English language skills next.

B. Direct Effects on English Language Skills and English-Communicating Jobs

One of the main foci of the job training program is on improving English language skills, but does the program have a notable effect on these skills? We measure these skills by administering an oral English language test that captures both listening and speaking ability at end line. The experimental results show that after attending the program for approximately 4 months on average, the English language skills of treated individuals increased by approximately 0.2 SD (see table 3, cols. 1 and 2). The results are statistically significant at the 1% level.

TABLE 3

EFFECTS OF ASSIGNMENT TO TRAINING PROGRAM ON ENGLISH-SKILLS-RELATED OUTCOMES, AVERAGE TREATMENT EFFECTS (INTENT-TO-TREAT EFFECTS)

	Oral English Score (*z*-Score)		Hiring Managers' Assessment of Interviewee Getting an English-Skills-Related Job (%)	
	(1)	(2)	(3)	(4)
Treated (1 = yes)	.189***	.205***	4.347***	4.462***
	(.064)	(.064)	(1.145)	(1.150)
Control group mean	−.096		37.50	
Covariates	No	Yes	No	Yes
Observations	952	952	940	940

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions control for block (session) fixed effects. Covariates (even columns) include the following: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages after FEA training (rupees).
*** $p < .01$.

TABLE 4
EFFECTS OF ATTENDING THE TRAINING PROGRAM (IN DAYS) ON ENGLISH-SKILLS-RELATED OUTCOMES, LATE (TREATMENT ON THE TREATED, IV) ESTIMATES

	Oral English Score (z-Score) (1)	Hiring Managers' Assessment of Interviewee Getting an English-Skills-Related Job (%) (2)
Days attended	.002***	.041***
	(.001)	(.010)
Observations	952	940
R^2	.140	.134

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session) fixed effects and the following covariates: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages after FEA training (rupees).
*** $p < .01$.

We also measure the expected likelihood of participants being hired for jobs requiring English communication skills (table 3, cols. 3 and 4). Here we find that individuals assigned to the program are approximately 4.5 percentage points more likely in expectations to obtain employment in an entry-level job that requires English communication skills. The results are again statistically significant at the 1% level.

Similar to the LATE estimates on employability and assessed wage outcomes in general, the LATE estimates of the effects of the program on outcomes related to English language skills are substantial in magnitude (table 4). Attending the program for 75% of the time increases English listening and speaking language skills by 0.45 SD. Attending 75% of the program also increases the likelihood that individuals are expected to obtain employment in an entry-level job that requires English language skills by 9.2 percentage points.

C. Heterogeneous Effects

In addition to finding substantial effects of the job training program on the employability and wage outcomes of the average participant, we find positive effects for participants from different backgrounds. With the possible exception of wages per month in a general entry-level job (for which females earn more than males, statistically significant at the 10% level, and only for the specification with additional controls), we find no evidence that the effects of the program are different by gender (table 5). Similarly, we do not find that the effects of the program on any of the employability outcomes differ by mother's education level (attended high school or not—table 6) or current employment status (table 7). Taken together, these heterogeneous effects results show broad-based effects of the program on individuals from different backgrounds.

TABLE 5

EFFECTS OF ASSIGNMENT TO TRAINING PROGRAM BY GENDER (FEMALE YES/NO)

	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%)		Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees)		Oral English Score (z-Score)		Hiring Managers' Assessment of Interviewee Getting an English-Skills-Related Job (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated (1/0)	3.654**	3.533**	246.393	213.772	.213**	.202**	4.584***	4.499***
	(1.487)	(1.491)	(302.411)	(305.091)	(.087)	(.086)	(1.515)	(1.517)
Female (1/0)	−2.122	−2.247	−647.492*	−725.547*	−.148	−.184*	.005	−.168
	(1.816)	(1.840)	(370.620)	(374.568)	(.099)	(.100)	(1.854)	(1.889)
Treated × female	1.168	1.585	665.942	797.350*	−.039	.008	−.504	−.084
	(2.318)	(2.323)	(474.319)	(477.568)	(.127)	(.128)	(2.369)	(2.392)
Observations	940	940	940	940	952	952	940	940

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions control for block (session) fixed effects. Covariates (even columns) include the following: age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages after FEA training (rupees).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

TABLE 6

EFFECTS OF ASSIGNMENT TO TRAINING PROGRAM BY SOCIAL CLASS (MOTHER'S EDUCATION HIGH SCHOOL OR ABOVE YES/NO)

	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%)		Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees)		Oral English Score (z-Score)		Hiring Managers' Assessment of Interviewee Getting an English-Skills Related Job (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated (1/0)	3.865***	4.062***	491.014*	539.544*	.127*	.153**	3.905***	4.055***
	(1.412)	(1.412)	(286.975)	(288.198)	(.077)	(.077)	(1.414)	(1.425)
Mother high school or above (1/0)	1.681	2.027	217.548	162.079	.060	.025	1.676	2.206
	(1.818)	(1.861)	(392.699)	(399.464)	(.104)	(.107)	(1.864)	(1.933)
Treated × mother high school or above	.781	.551	135.449	90.402	.192	.163	1.343	1.276
	(2.392)	(2.400)	(513.655)	(516.529)	(.141)	(.142)	(2.517)	(2.526)
Observations	940	940	940	940	952	952	940	940

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions control for block (session) fixed effects. Covariates (even columns) include the following: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), wealth asset index (z-score), currently employed (1/0), and expected monthly wages after FEA training (rupees).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

TABLE 7

EFFECTS OF ASSIGNMENT TO TRAINING PROGRAM BY EMPLOYMENT STATUS (YES/NO)

	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%)		Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees)		Oral English Score (*z*-Score)		Hiring Managers' Assessment of Interviewee Getting an English-Skills Related Job (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated (1/0)	4.032***	4.195***	668.622***	702.569***	.201***	.215***	4.466***	4.648***
	(1.245)	(1.250)	(253.004)	(254.668)	(.070)	(.070)	(1.263)	(1.268)
Employed (1/0)	2.890	3.297	874.280*	826.252	−.085	−.093	2.086	2.595
	(2.290)	(2.360)	(502.148)	(521.458)	(.129)	(.132)	(2.397)	(2.455)
Treated × employed	.536	.268	−834.297	−836.611	−.077	−.062	−.768	−1.162
	(2.850)	(2.872)	(619.401)	(625.316)	(.169)	(.166)	(3.014)	(3.023)
Observations	940	940	940	940	952	952	940	940

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions control for block (session) fixed effects. Covariates (even columns) include the following: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), and expected monthly wages after FEA training (rupees). Joint *F*-test of all baseline covariates reveals no significant difference between the treatment and control groups (p-value > .10).

* $p < .10$.

*** $p < .01$.

Labor market discrimination is an often-used rationale for training subsidies. Another rationale for offering training subsidies is credit constraints: if training is valuable but potential low-income recipients lack the liquidity to pay for it, offering low-cost or free training may be a cost-effective way to improve access. The heterogeneity results shed light on the empirical importance of these rationales for providing subsidized or free training (Fairlie, Karlan, and Zinman 2015). If, for example, women face discrimination from employers, then subsidizing training may be a way of helping women overcome initial barriers to getting hired. However, we do not find evidence that women benefit more from the program. Additionally, program effects do not appear to be stronger for participants with lower family income or less prior work experience, which might be related to credit constraints limiting access to job training. Again, we do not find evidence of stronger effects for groups that are likely to be more constrained along these lines, suggesting that English language skills might be the key constraint addressed by the program.[11]

D. *Average Causal Mediation Effects: The Role of English-Language-Related Skills in Affecting Employability and Wage Outcomes*

Next, we examine the mediating role that an improvement in English language skills from the program plays in increasing overall employability and wages. In doing so, we apply the potential outcomes framework to estimate the average causal mediation effect of the increase in English language skills from the program on employability and estimated wage outcomes. The potential outcomes framework is used to define the causal mediation effect as the difference in potential outcomes when the mediator takes on different values, holding treatment status remains constant (see Imai et al. 2011). The assumption of "sequential ignorability," in which (*a*) the treatment is assumed to be ignorable or unconfounded (reasonable in our case because of random assignment) and (*b*) the mediator is assumed to be conditionally independent of potential outcomes given the treatment and observed covariates, enables the decomposition of the total effect into causal components that can be identified from the data. In practice, we used the "mediate" command in Stata to simulate the counterfactual outcomes and estimate the causal mediation effect.

Regarding the likelihood of obtaining an entry-level job, we find a statistically significant average causal mediation effect with English language skills explaining 22% of the effect. Regarding wages, we find a statistically significant

[11] We also provide quantile treatment effects estimates (see fig. A1). We do not find a clear pattern of differences in effects across different quantiles of wages per month (as assessed by hiring managers through interviews). Effects do appear somewhat larger around the middle quantiles of English score.

average causal mediation effect with English language skills (listening and speaking) explaining 30% of the effect. The results thus suggest that English listening and speaking skills taught in the program have an important positive effect on employability and estimated wages.

E. Attrition: Sensitivity Analyses

In this subsection, we assess the sensitivity of our results to attrition. Because of difficulties associated with following up with study participants during and after the national lockdown, our end-line survey and assessment experienced an attrition rate of approximately 24%. According to table A2, however, there was no significant difference between the treatment and control in the observable baseline characteristics of nonattriting participants. As with the original balance table (table A1), the same one out of eight variables is statistically different between the treatment and control groups at the 5% level. As such, the results indicate that balance was maintained, at least in baseline observable characteristics, across the treatment and control conditions.

Tables A3 and A4 further test the sensitivity of the main effect results to dropping sessions in which attrition levels were fairly high. We are able to drop sessions without affecting the internal validity of the estimates because study participants were randomized at the individual level within sessions that are strata or blocks (King et al. 2007). According to table A3, the effects of being assigned to the job training program on the likelihood of obtaining an entry-level job and on wages are similar in magnitude and largely still statistically significant after dropping sessions with more than 25% attrition (cols. 1 and 2), 20% attrition (cols. 3 and 4), and 15% attrition (cols. 5 and 6). Similarly, according to table A4, the effects on English language skills and the probability of obtaining an English-skills-related job are slightly larger in magnitude (and maintain their statistical significance) even after dropping sessions with more than 25% attrition (cols. 1 and 2), 20% attrition (cols. 3 and 4), and 15% attrition (cols. 5 and 6).

IV. Conclusion

An important barrier to earning more than subsistence levels and moving up the economic ladder in developing countries is having in-demand skills. In many low-income countries, tourism, multinational corporations, foreign direct investment, and international trade create demand for English language skills, even among less educated workers. In these countries, however, there is often a skills mismatch with too few low-income workers who possess adequate English language skills. Furthermore, businesses valuing English language skills might not be willing to invest in training new hires in these skills

because English is a general skill, not a firm-specific skill, and thus could be transferred easily to another employer.

We provide evidence on a previously untested potential solution to the skills mismatch: job training programs that focus on English language skills. Evidence from our field experiment in which low-income youth in India are randomly assigned to an employability training program that emphasizes English language skills indicates that receiving intensive English language job training increases employability and estimated wages. The effect sizes are large: attending 75% of the full program (or 9 out of 12 months) increases individuals' likelihood of obtaining employment in an entry level job by 8.8 percentage points off a base of 47.3%. Estimated monthly wages also increase by 1,176 rupees per month, which represents 9.6% of the control group mean.

We then examine the importance of English language skills as a component of this training. Does the program increase English language directly, and do English skills represent a mediating factor in explaining effects on employability and wages? We find that the job training program substantially increases English language (speaking and listening) skills. Additionally, we examine whether training increases the likelihood of being hired at jobs specifically requiring English communication and find even larger effects on employability and estimated wages for jobs that require English language skills. Using mediation analysis, we find that individuals participating in the training program enjoy an increased likelihood of employability and higher starting wages by having enhanced English language skills (explaining 22% of the effect). Taken together, our results indicate that English language training has broad-based effects on the expected employability and wage outcomes of disadvantaged youth.

The findings from our field experiment also contribute to our understanding of the broader question of whether and how valuable English skills are in the labor market of developing countries. They also build on the few previous studies of the value of English language skills in developing country labor markets. These studies generally find large positive estimates of labor market returns to English language skills (e.g., Munshi and Rosenzweig 2006; Azam, Chin, and Prakash 2013; Di Paolo and Tansel 2015; Asadullah and Xiao 2019). The evidence of positive effects driven by the exogenous variation in English language skills generated by our experiment is consistent with the findings from these previous observational studies. However, more evidence is needed on this important question. The scope of the potential benefits of improving English language skills in countries such as India with a labor force of roughly 500 million is immense.

Appendix A

A1. FEA Curriculum

At the time of the study, the Freedom Employability Academy (FEA) curriculum primarily focused on English language training. Indeed, the FEA program was marketed as an opportunity to learn English, and the entirety of the curriculum was in English. Secondary objectives of the curriculum were to develop basic computer skills, exposure to different kinds of professional opportunities, and personal qualities such as the value of perseverance and hard work. The curriculum, at the time of the study, could be found at this link: https://drive.google.com/file/d/1VEQ5BuTNfA5NFAy8zbnu39wYz2ntl6E1/view?usp=sharing.

A2. Questions Asked in Video-Recorded Interviews

Hiring managers were instructed to rate the candidate on the basis of responses to the following 11 questions (one question was asked in both Hindi and in English). Respondents were allowed to respond in whichever language they preferred.

1. Hello! Please tell me a little about yourself. What are your likes and dislikes? Do you have any hobbies? (Hindi)
2. Describe a situation when you helped someone. What was the situation? What did you do to help? (Hindi)
3. After a long time, you finally have a free evening with no work. How would you spend this time? (Hindi)
4. You recently got a new job. But first you need to attend a training for it. The training is in a different city, and you will have to travel there. You will have to make your own travel and hotel reservations, and the company will reimburse you later. How would you prepare for this trip? Which tasks would you address first? (Hindi)
5. Describe a time when you made a mistake or when you did not put enough effort into a task or project. What feedback did you receive? How did you change your approach as a result of this feedback? (Hindi)
6. After a long time, you finally have a free evening with no work. How would you spend this time? (English)
7. Describe a time when you made a mistake or when you did not put enough effort into a task or project. What feedback did you receive? How did you change your approach as a result of this feedback? (English)
8. You and a friend are discussing whether technology does more harm than good for humanity. You want to convince your friend to agree with

your own viewpoint. Choose one side of the debate and then argue your case. (English)

9. Describe a time in your work or studies when you experienced stress. What about the situation gave you stress? How did you deal with it? (English)
10. What are your strengths? Describe a weakness that you have recently overcome. How did this weakness affect your work? What did you do to overcome it? (English)
11. It is your last day of school. You are with a group of friends, and you decide that each person should give a short farewell speech. Each person should recount their school experience, fondest memories, regrets, and how they feel these years are going to influence their future life. Make a short conversational speech, as if you are talking to your friends. (English)

On the basis of the videos, hiring managers were asked to rate candidates on the following dimensions, with each candidate rated by three hiring managers:

1. What is the percent likelihood that you would hire the candidate for an entry-level office or services job (specifically, nursing, cabin crew, accountant, management, or analytics/data)? 0–100% _____%
2. If the candidate were on the job market, what is the highest monthly salary (including bonuses) that you would expect the candidate to be offered? Please give as precise and realistic a figure as possible. _____rupees/month (sliding scale)
3. What is the percent likelihood that you would hire the candidate for a job requiring English communication skills? _____% (sliding scale)
4. If the candidate had a stronger command of English and all else was equal, what would you expect the candidate's monthly salary to be (including bonuses)? _____rupees/month (sliding scale)

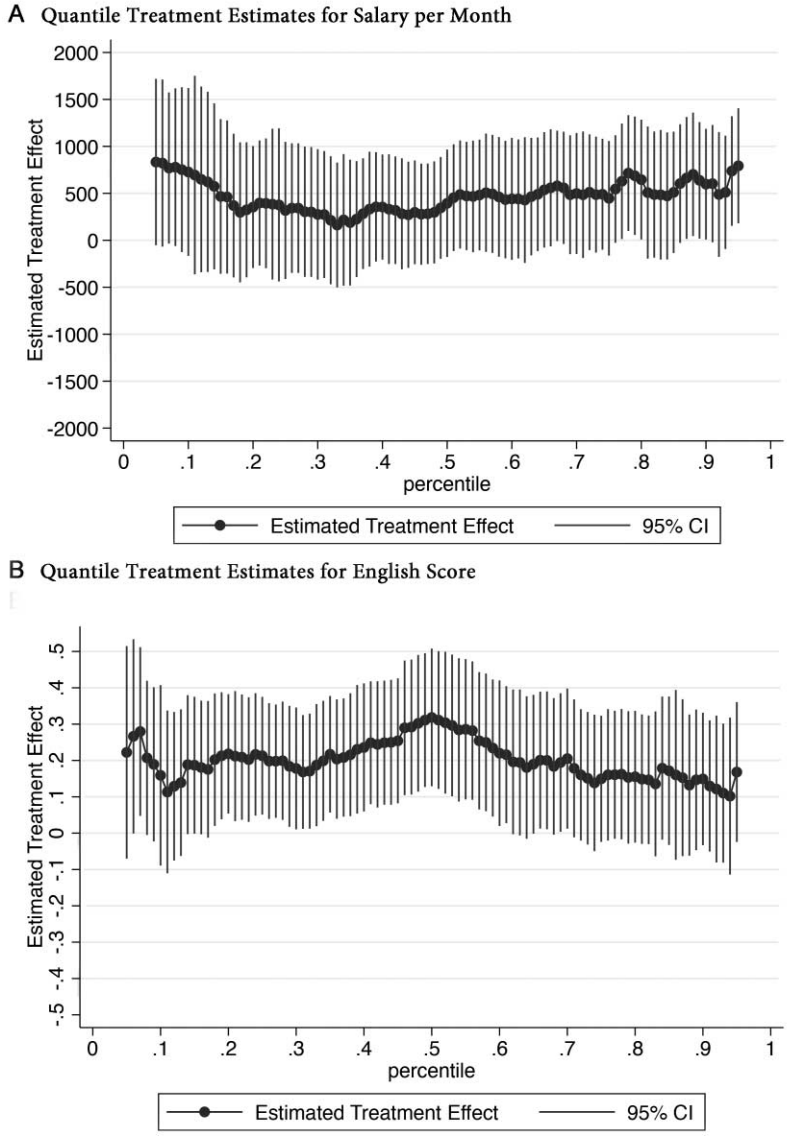

Figure A1. Quantile treatment estimates for salary per month. "Salary per month" refers to the hiring managers' assessment of interviewees' wages per month (rupees).

TABLE A1

BALANCE BETWEEN TREATMENT AND CONTROL ARMS

	Female (1 = Yes) (1)	Age (Years) (2)	College (1 = Yes) (3)	Dad Education (1 = Yes) (4)	Mom Education (1 = Yes) (5)	Wealth Index (z-Score) (6)	Employed (1 = Yes) (7)	Expected Monthly Wages (Rupees) (8)
Treated								
(1 = yes)	.004	−.111	−.054**	.037	.009	−.082	−.002	6,838.137
	(.027)	(.182)	(.023)	(.027)	(.025)	(.059)	(.021)	(6,701.212)
Mean	.475	20.680	.231	.480	.305	−.001	.164	39,318.3

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session)-fixed effects. Covariates are as follows: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages post-FEA training (rupees).

** $p < .05$.

TABLE A2

BALANCE BETWEEN TREATMENT AND CONTROL GROUPS AFTER ATTRITION

	Female (1 = Yes) (1)	Age (Years) (2)	College (1 = Yes) (3)	Dad Education (1 = Yes) (4)	Mom Education (1 = Yes) (5)	Wealth Index (z-Score) (6)	Employed (1 = Yes) (7)	Expected Monthly Wages (Rupees) (8)
Treated								
(1 = yes)	.035	−.230	−.060**	.046	.008	−.093	.002	7,777.678
	(.031)	(.216)	(.027)	(.032)	(.029)	(.069)	(.024)	(9,376.816)
Attrition								
(1 = yes)	.109**	−.176	−.003	−.031	−.064*	.028	.039	−7,176.272
	(.043)	(.287)	(.037)	(.043)	(.038)	(.094)	(.033)	(6,192.354)
Treated × attrition	−.097	.493	.028	−.063	−.029	.068	−.001	−8,155.247
	(.062)	(.466)	(.055)	(.065)	(.057)	(.142)	(.050)	(17,247.054)
Constant	.439***	20.791***	.260***	.471***	.320***	.033	.153***	38,001.698***
	(.023)	(.164)	(.020)	(.024)	(.022)	(.051)	(.017)	(3,762.410)
Observations	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session) fixed effects. Covariates are as follows: female (1/0), age (years), attending or attended college (1/0), father's education (some general high school or college = 1, otherwise 0), mother's education (some general high school or college = 1, otherwise 0), wealth asset index (*z*-score), currently employed (1/0), and expected monthly wages after FEA training (rupees).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

TABLE A3

ROBUSTNESS CHECK OF EFFECTS OF ASSIGNMENT TO FEA ON EMPLOYABILITY AND WAGE OUTCOMES

	Drop Sessions (Blocks) with >25% Attrition		Drop Sessions (Blocks) with >20% Attrition		Drop Sessions (Blocks) with >15% Attrition	
	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%) (1)	Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees) (2)	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%) (3)	Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees) (4)	Hiring Managers' Assessment of Interviewee Getting an Entry-Level Job (%) (5)	Hiring Managers' Assessment of Interviewee's Wages per Month (Rupees) (6)
Treated (1 = yes)	4.609***	572.139**	4.674***	558.359*	3.805*	209.518
	(1.426)	(286.981)	(1.668)	(335.262)	(1.940)	(386.122)
Observations	596	596	461	461	332	332

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session) fixed effects and no other controls.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

TABLE A4

ROBUSTNESS CHECK OF EFFECTS OF ASSIGNMENT TO FEA ON ENGLISH-SKILLS-RELATED OUTCOMES

	Drop Sessions (Blocks) with >25% Attrition		Drop Sessions (Blocks) with >20% Attrition		Drop Sessions (Blocks) with >15% Attrition	
	Oral English Score (*z*-Score) (1)	Hiring Managers' Assessment of Interviewee Getting an English-Skills Job (%) (2)	Oral English Score (*z*-Score) (3)	Hiring Managers' Assessment of Interviewee Getting an English-Skills Job (%) (4)	Oral English Score (*z*-Score) (5)	Hiring Managers' Assessment of Interviewee Getting an English-Skills Job (%) (6)
Treated (1 = yes)	.257***	5.609***	.264***	6.095***	.287***	4.993**
	(.079)	(1.443)	(.089)	(1.683)	(.103)	(1.938)
Observations	603	596	468	461	338	332

Note. Heteroscedasticity-robust standard errors are in parentheses. All regressions include block (session) fixed effects and no other controls.
** $p < .05$.
*** $p < .01$.

Appendix B

Cost-Benefit Analysis of the FEA Program

A cost-benefit analysis of attending the FEA program is presented below. We present details for the estimation of the direct cost per student (US$77.50), then estimate the opportunity cost for attending the full 12-month program, and finally estimate the discounted lifetime benefit in increased wages from attending the program (after appropriately accounting for skill obsolescence).

TABLE B1
COST-BENEFIT ANALYSIS OF ATTENDING FEA PROGRAM

Item	Approximate Cost per Branch per Year (USD)	Notes
Facilitators (teachers)	13,600	Branches have four facilitators that together cost approximately 85,000 INR per month
Facilities rent	3,200	Estimated rent costs include utilities
Training and supervision	4,800	Facilitator training and managers
Computers	1,600	Laptops are 24,000 INR, each classroom has 20 laptops, and they need to be replaced every 4 years
Materials and miscellaneous	1,600	
Total	24,800	

Note. Costs were converted to US dollars per year assuming 75 INR = 1 USD.

As each branch accommodates 320 students per year, the direct cost per student was approximately US$77.50, or 5812.50 rupees.

In regard to the opportunity costs incurred from attending the FEA program, we took the average of the highest monthly salary that hiring managers said control group students could earn (12,295.06 rupees), divided it by 4 (the FEA program is 100 minutes/day, or roughly 2 hours, which is one-fourth of an 8-hour workday), and multiplied it by 12 (months). The total cost of attending the program per student is thus 5,812.50 + 36,885.18 = 42,697.68 rupees (US$569.30).

To estimate the benefits of the program, we start by linearly extrapolating the IV effects of increased FEA attendance on wages (see table 2). In doing so, we conservatively abstain from the hiring manager's assessment that the program students would also be more likely to find a job. Assuming that the average student (age 20.7 in our sample) would work for 45 more years (just past the age of 65), that all employees receive annual wage increases of 7%, that skills are forgotten and are less valued over time (which we operationalize by reducing the annual wage increase by 1 percentage point every 10 years), and a discount rate of 3%, students who complete the full 12 months of FEA training earn 1,075,451.88 rupees more than students who do not attend the

program. The benefit-to-cost ratio from attending FEA for 12 months is thus 1,075,451.88/42,697.68 = 25.19. In other words, the return to attending the FEA program is more than 2,500%.

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