Learning by Doing (Work): Experimental Evidence from a School-Based Internship Program in India

Please click here for the latest draft

Gursmeep (Rubina) Hundal* Emma Zhang†

November 13, 2025

Abstract

Many low-income youth grow up with little exposure to the world of work, leading to misinformed beliefs about education and employment. We study whether short, school-based internships can improve these beliefs and shape school-to-work transitions. Through a randomized program in more than fifty public schools across Delhi, students were offered 80 hours of after-school work experience at neighborhood shops and service firms. Internship participation increased optimism about the returns to higher education and led students to report more realistic expectations about job-search frictions and low-skill earnings. Willingness to pay for a career-guidance book rose by about 6–8 percent, though estimates are modest and likely underestimate the true effect due to crossover. Effects are driven largely by girls, who constitute 70 percent of the sample and update their beliefs more strongly, consistent with larger initial constraints on exposure. We find no change in educational aspirations or non-cognitive outcomes, indicating that the intervention operated primarily through improved labor-market information rather than changes in ambition. By correcting miscalibrated beliefs about wages and search frictions, the program reduced informational misallocation in students' education and career choices. As a result, students' expectations became more consistent with labor-market realities, making the school-to-work transition more efficient.

*Harris School of Public Policy, University of Chicago. Email: hundal@uchicago.edu.

†Booth School of Business, University of Chicago. Email: emma.zhang@chicagobooth.edu.

We thank Anjali Adukia, Marianne Bertrand, Dan Black, Christina Brown, Eric Budish, Franco Calle, Josh Dean, Rebecca Dizon-Ross, Rachel Glennerster, Chuhan Guo, Alex Imas, and Matthew Notowidigdo, as well as attendees of the UChicago Development Working Group, the Booth Third Year Seminar, the Harris PhD Workshop, and the Midwest Economics of Education Conference for thoughtful feedback. Special thanks to Lend A Hand India for spearheading this program and providing us the support to implement this study. This research was supported by the Agency Fund, the Weiss Fund for Research in Development Economics, the Development Economics Center and the Becker Friedman Institute at the University of Chicago, and the Booth School of Business. The field experiment was approved by the University of Chicago SBS IRB (IRB23-0626).

1 Introduction

Young people's perceptions of the labor market are often inaccurate, especially in developing countries (McKenzie, 2021; Blattman and Ralston, 2015). Many students overestimate their early-career earnings and the ease of finding a job, while underestimating the returns to higher levels of education (Jensen, 2010; Dizon-Ross, 2019). Such information frictions can lead to suboptimal human capital investment: youths might drop out of school too soon or choose fields of study misaligned with market demand if they hold miscalibrated beliefs about wages and employment prospects (Nguyen, 2008). At the same time, social norms, particularly gender norms, can constrain exposure to work. In India, for example, female labor-force participation is strikingly low, and many girls have few working women role models (Klasen and Pieters, 2015; Jayachandran, 2021). These twin puzzles of misinformed expectations and gender disparities motivate our study. These belief gaps also have aggregate consequences. When students misperceive the returns to different education levels or the difficulty of finding work, their schooling and job-search choices can become systematically distorted. In equilibrium, such miscalibration produces a form of misallocation—talent is distributed inefficiently across education tiers and occupations, and both individual and social welfare are lower than if beliefs were accurate (Conlon and Patel, 2024). In our context, these distortions are gendered. Girls in low-income schools face tighter informational and mobility constraints, which may amplify mismatches between aspirations, investment, and actual labor-market opportunities. A well-designed exposure program can therefore improve allocative efficiency not by changing ability or ambition, but by helping students form more accurate expectations of what education and work actually yield.

We ask whether a short, hands-on work exposure can improve teenagers' information about the labor market and influence their attitudes toward further education and work. Specifically, we evaluate a randomized internship program for low-income high schoolers in Delhi, India's capital city. We worked with 51 government secondary schools in disadvantaged neighborhoods to offer 11th-grade students an opportunity to intern part-time (approximately 80 hours total) at local

businesses such as shops, restaurants, beauty salons, grocery stores, small manufacturers, and service providers. Treated students typically completed their internships over a few weeks during the school term, under guidance from both the host firm and program facilitators. The internships were designed to give adolescents firsthand exposure to the working world—including basic workplace skills, professional interactions, and an understanding of job tasks in entry-level positions—without interrupting their schooling (McKenzie et al., 2016; Beam and Quimbo, 2023; Government of India, 2024).

Our research questions are: (1) Does brief work-based exposure increase students' demand for career information? (2) Does it calibrate their labor-market beliefs, such as expected wages and job search duration, and if so, in what direction? (3) Do effects differ by gender, given the additional social barriers young women face in pursuing work (Bursztyn et al., 2020; Bandiera et al., 2020; Field et al., 2016)? We measure demand for information by eliciting students' willingness to pay (WTP) for a career guidance book, using an incentive-compatible mechanism. To track belief calibration, we collected detailed surveys on students' expected earnings and expected job-search length for different hypothetical education paths. We also examine impacts on students' educational aspirations (such as desired highest degree) and psychosocial outcomes (self-efficacy, self-esteem, etc.), to see if work exposure shifts broader attitudes or non-cognitive skills (Heckman and Kautz, 2012; Ashraf et al., 2020).

To answer these questions, we implemented a randomized controlled trial and original data collection by surveying students and their parents. Within each school, we randomly assigned half of the interested 11th-grade students to be offered the internship program, while the rest served as the control group. Take-up of the offer was voluntary and about 76% of offered students completed the internship, compared to 34% of control students who found alternative internship opportunities on their own. This partial compliance motivates an instrumental-variables estimation strategy: we use random assignment as an instrument for actual internship participation (Attanasio et al., 2011). The first stage is strong—as offer increases internship completion by 41 percentage points (from 34% to 76%, $F \approx 256$)—and allows us to identify the local average treatment effect (LATE) of internship participation on our

outcomes. Intuitively, our estimates capture the causal impact of the internship on the compliers, i.e. students who intern if offered but would not have interned otherwise.

Our findings show that a brief internship can meaningfully update youths' labor-market expectations, consistent with evidence that experiential or work-based learning can alter expectations and job readiness (Gelber et al., 2016; Margaryan et al., 2022; Alfonsi et al., 2020). Treated students significantly raise their expected earnings from completing college relative to the control group. By the end of 11th grade, interns expect to earn about Rs 5,600 more per month in a job requiring a bachelor's degree than they themselves did at baseline (an increase of roughly 30%), whereas control students substantially revised downward their expected college wage over the same period. In contrast, interns become less optimistic about earning a high salary if they were to stop schooling earlier. Although imprecisely estimated, the point estimates indicate that interns reduce their expected wages with only a high school or vocational training diploma by roughly Rs 1,000–1,400, whereas control students' expectations remain largely unchanged. In short, the internship broadened the perceived gap in earnings between higher and lower education levels. This suggests that experiential learning reinforced the students' understanding of the returns to education: after seeing real workplace conditions, students realized that low-education jobs pay less than they might have thought, and that obtaining a college degree could be even more valuable for accessing better-paying jobs (Jensen, 2010; Dizon-Ross, 2019; Maitra and Mani, 2017).

We also find evidence that interns became slightly more realistic about job search difficulties, echoing other programs that have exposed youth to real work environments (McKenzie et al., 2016; Beam and Quimbo, 2023; Blattman and Ralston, 2015). On average, treated students expect it will take them a bit longer to find a job after finishing school—about 0.5–0.8 months longer search for some education levels (a 10–15% increase over controls)—although these differences are not statistically significant. Qualitatively, several interns reported that the experience made them aware of the challenges in securing good jobs and the importance of patience and persistence in the job hunt. However, importantly, we do not find any reduction in students' aspirations or motivation. Virtually all students in both groups still plan to complete their schooling and pursue

higher studies (the modal desired education is a bachelor's degree), and internship participants are no less likely to aspire to white-collar professions. In other words, the program corrected over-optimism without discouraging ambition: interns adjusted *how* they plan to achieve their goals (placing more value on education and information) rather than *whether* to pursue them (Beaman et al., 2012; Bandiera et al., 2020).

Consistent with the increased valuation of career guidance, interns exhibit a higher willingness to pay for the career-information booklet. In the pooled sample, the IV estimate implies interns would pay about Rs 7–8 more (roughly \$0.10, or 6% of the control mean of ∼Rs 126) for the guide than their non-interning peers, though this effect is not statistically significant at conventional levels. The positive point estimate suggests a modest uptick in demand for information, but also indicates that one short internship is not a panacea; many students in both groups are willing to pay something for guidance, reflecting a generally high interest in career planning among our sample (Kemple and Willner, 2008; Baah-Boateng and Twum, 2020).

Interestingly, we observe suggestive heterogeneity by gender. Female students in the control group had lower WTP on average than males, but the internship experience closes about two-thirds of this gap. In other words, girls appear to increase their demand for career information more in response to the internship, consistent with the idea that girls face higher initial information barriers (Jayachandran, 2021; Bursztyn et al., 2020; Bandiera et al., 2020). While our gender-specific estimates are not always statistically distinguishable (given the smaller samples of boys vs. girls), the pattern aligns with qualitative findings: many girls reported that the internship boosted their confidence to seek career-related resources, despite some parental skepticism around girls working (Field et al., 2016; Beaman et al., 2012). We view this as an encouraging sign that work-based learning could particularly empower young women in traditional societies.

Our study makes several contributions. First, we add new experimental evidence on how experiential learning programs can shape human capital investment (McKenzie et al., 2016; Beam and Quimbo, 2023; Margaryan et al., 2022; Alfonsi et al., 2020). Prior research on information

and education (Jensen, 2010; Nguyen, 2008; Dizon-Ross, 2019) shows that providing statistical information about earnings can affect students' schooling decisions. We complement this literature by demonstrating that "learning by doing" – even for a short duration – can likewise update students' beliefs, especially regarding the returns to education. Unlike pure information interventions, the internship allowed students to personally observe workplace realities, which may enhance the credibility of the lessons learned. Second, we contribute to the literature on vocational education and training (VET) in developing countries (Card et al., 2018; McKenzie, 2021; Kluve et al., 2019). While many VET programs focus on hard skills and job placement (Attanasio et al., 2011; Maitra and Mani, 2017), our results highlight an often-overlooked channel: improving information frictions in educational investment (Jensen, 2010; Nguyen, 2008; Dizon-Ross, 2019). The intervention did not provide any formal qualification or long-term training, yet it significantly shifted perceived returns. This suggests that integrating even low-cost career exposure opportunities into secondary education could influence educational trajectories. Finally, our findings speak to gender gaps in labor-market engagement. With most of our sample being young women facing restrictive norms, the fact that female interns showed equal if not greater response is notable. It indicates that given the opportunity, girls are eager to learn about work and will respond by seeking out more guidance and possibly preparing to invest more in their careers (Beaman et al., 2012; Bandiera et al., 2020; Jensen, 2012; Bursztyn et al., 2020).

The rest of the paper is organized as follows. Section 3 describes the context, experimental design, and data. Section 5 outlines our empirical strategy and identification. Section 6 presents the results on students' willingness to pay for career information, their updated wage and job-search expectations, and other outcomes, along with robustness and heterogeneity analyses. Section 8 discusses the implications for education and labor-market policy – including how short internship programs might be scaled or augmented – and Section 9 concludes.

2 Institutional Context and Program Motivation

India's secondary schools have expanded rapidly, including new vocational tracks, but most students still graduate with little structured exposure to real workplaces. Policy has moved in the direction of "experiential learning," with national guidance explicitly encouraging school–industry linkages and internships (Government of India, 2020). This shift reflects a broader concern about the school-to-work transition: despite more schooling, early-career unemployment and slow matching remain salient, and the term "jobless growth" captures the anxiety that output gains have not translated into broad-based entry-level opportunities (Chatterjee et al., 2015).

Our program fits squarely in this policy moment. Working with the Delhi Directorate of Education and Lend a Hand India, we piloted short, supervised internships (≈80 hours) that students could complete alongside regular classes. The aim was not certification, but exposure: punctuality and communication, basic task execution, and a close-up view of workplace organization. In a setting where girls face especially binding constraints on mobility and role models, safe placements at nearby micro-enterprises provide a low-cost way to deliver "experienced information" about the labor market without displacing schooling.

Delhi NCR provides a useful benchmark for interpreting students' priors. According to recent *Periodic Labour Force Survey* (*PLFS*) data, young urban workers aged 18–29 earn on average ₹14,000–₹15,000 per month nationally, with higher figures in Delhi where median youth earnings approach ₹20,000. Unemployment spells are long—typically twelve months for graduates and about four months for those with only secondary schooling (Ministry of Statistics and Programme Implementation, 2024; Government of India, 2025). By comparison, students in our sample expected starting salaries between ₹22,000 and ₹26,000 per month across education levels and anticipated finding jobs within roughly four months. This gap between perceived and actual returns underscores substantial belief miscalibration and motivates our focus on information as a source of welfare-relevant misallocation.



Figure 1: Students in our intervention at their internships

3 Experimental Design and Data

Setting and partners. We partnered with Delhi's Directorate of Education and Lend a Hand India to pilot short, after-school internships for public-school 11th graders in disadvantaged neighborhoods. Schools predominantly serve lower-income households; the median reported income is about ₹ 15,000/month and girls comprise roughly 70% of students. Parental employment patterns show the familiar gender gap as most fathers work for pay; far fewer mothers do, providing a natural context for studying information frictions and gendered exposure to work (Klasen and Pieters, 2015; Jayachandran, 2021).

Intervention. Students were matched to nearby host firms (retail, services, small workshops) for **≈80 hours** of on-the-job exposure during the term or breaks. The emphasis was "learning about work": punctuality, communication, basic task execution, and workplace norms, not formal certification. Internships were unpaid; schools issued completion certificates; chaperoned travel support was available where needed (e.g., McKenzie et al., 2016; Beam and Quimbo, 2023).

Randomization, cohorts, and sample. Within each school, interested students were individually randomized into *Offer* vs. *Control*, stratified by school and gender. Two cohorts ran in 2024 (Wave 1: 12 schools; Wave 2: 27 schools). Take-up among the offered was 76%; 34% of controls found work opportunities, yielding a first stage of **0.412** (KP $F \approx 256$). Outcome samples vary slightly by item; the WTP 2SLS sample is $N = 1{,}223$.

Measurement and timing. Four instruments were fielded: (i) a *Student Baseline* (beliefs on wages/search by schooling; aspirations; psychosocial indices), (ii) a *Parent Baseline* (income; attitudes; norms), (iii) a *Student Endline* ($\sim$2–3 months later; internship verification; same belief/psychometric modules), and (iv) a *WTP game* for a printed career guide implemented immediately after endline using a Becker–DeGroot–Marschak posted-price design with a ₹ 200 endowment (Becker et al., 1964). Exact item locations and scales are summarized in Appendix Table 12.

Outcomes and construction. The primary outcome is WTP in rupees (0–200). Belief outcomes are measured as *updates* (endline minus baseline) for monthly earnings and job-search months by schooling level (HS/ITI/BA). Secondary outcomes include desired highest degree and standardized psychosocial indices (self-esteem, positivity, autonomy/negotiation, self-efficacy), coded so higher is "better."

Implementation fidelity. (i) Compliance: 76% of offer-group students completed the internship; no evidence of differential compliance by baseline observables except a modest female shortfall (–3.8 p.p., n.s.). (ii) Exposure: endline reports indicate high enjoyment and perceived learning among interns. (iii) Balance and attrition: baseline covariates are balanced by offer; endline completion is high and similar across arms (Appendix Tables 10–11).

3.1 Measurement and Variable Construction

We organize measurement around four building blocks: (i) *beliefs* about earnings and job-search duration for three schooling profiles (HS/ITI/BA), elicited at baseline and re-elicited at endline; (ii) an incentive-compatible *willingness-to-pay* (WTP) game for a printed career guide administered immediately after endline; (iii) a compact set of *psychosocial indices* (self-esteem, positivity, autonomy/negotiation, self-efficacy, and SDT-style motivation) constructed from standardized items; and (iv) *parental attitudes and household context.* Appendix Table 12 cross-walks constructs to scales and instruments; Appendix Table 9 reports item counts and reliability (Cronbach's α) by index. Throughout, outcomes are kept in natural units (rupees or months); belief outcomes are analyzed as updates (endline minus baseline) so coefficients are interpretable as level changes.

Timeline and instruments. Cohort 1 completed baseline surveys in Jan–Feb 2024, internships in May–Aug 2024, and the endline plus the WTP game two–three months later (Aug–Oct 2024). Cohort 2 followed the same sequence in Nov–Dec 2024.* The four instruments are: (i) *Student Baseline* (beliefs, aspirations, psychosocial indices); (ii) *Parent Baseline* (income, norms, decision-making); (iii) *Student Endline* (internship verification, repeated beliefs and psychometrics); and (iv) the *BDM WTP game* administered alongside endline.

Beliefs about earnings and job search. Students reported expected *monthly earnings* and *months of search* for the first job under three education profiles—high school (HS), two-year vocational diploma (Industrial Training Institute; ITI), and bachelor's degree (BA). At endline the same items were re-elicited. The analysis uses *updates*:

$$\Delta\text{Earnings}_{i,e} = \text{Endline}_{i,e} - \text{Baseline}_{i,e}, \qquad \Delta\text{Search}_{i,e} = \text{Endline}_{i,e} - \text{Baseline}_{i,e},$$

for $e \in \{\text{HS}, \text{ITI}, \text{BA}\}$, keeping units in rupees and months.

*Appendix Table 12 lists all constructs, scales, and survey locations.

Willingness to Pay (WTP) for career information. Immediately after endline, enumerators ran a Becker–DeGroot–Marschak (BDM) posted-price game for a printed career guide. Each student received an endowment of ₹200; discrete price slips ranged from ₹5 to ₹200 in ₹5 increments. A short practice round used a pen and ₹0–₹10 range before the real draw. Students stated buy/no-buy at each price; a single price was then drawn. If the student's "yes" decision covered the drawn price, she bought at that price; otherwise she kept the cash. Truth-telling is a weakly dominant strategy in the BDM mechanism (Becker et al., 1964). Our main WTP measure is the maximum price accepted.

Psychosocial indices. Items are grouped into five domains—self-esteem (Rosenberg), positivity/optimism (Caprara et al., 2012), autonomy/negotiation with parents (Doran et al., 2016), self-efficacy/attribution style (Hillman, 1986), and motivation for school and internships (Guay et al., 2000). All items use 1–5 Likert-type scales (self-efficacy: "sureness"; motivation: SDT style). For each domain, we average standardized items (z-scores relative to baseline control mean and SD). Reliability (Cronbach's α) is reported in Appendix Table 9 (Cronbach, 1951).

Handling missing data and multiple outcomes. Item non-response produces minor sample-size variation by outcome; all regressions include identical controls for comparability. Standard errors are clustered by school. For families of related outcomes (three earnings updates; three search updates), we apply Benjamini–Hochberg false-discovery rate control at 10% (Benjamini and Hochberg, 1995).

4 A Simple Conceptual Framework and Predictions

We view internships as a noisy signal about two primitives: (i) the wage function by schooling, $w(e) \in \{w_{\text{HS}}, w_{\text{ITI}}, w_{\text{BA}}\}$, and (ii) search frictions $\tau(e)$ (months to first job). Student i starts the year with priors $(\mu^w_{i,e}, \mu^\tau_{i,e})$ and precision $(\lambda^w_{i,e}, \lambda^\tau_{i,e})$. An internship provides a signal $s^w_{i,e} =$

$w(e) + \varepsilon^w_{i,e}$ and $s^\tau_{i,e} = \tau(e) + \varepsilon^\tau_{i,e}$ with noise variances $(\sigma^2_w, \sigma^2_\tau)$. A Bayesian update delivers:

$$\mu'^w_{i,e} = \mu^w_{i,e} + \kappa^w_{i,e}\left(s^w_{i,e} - \mu^w_{i,e}\right), \quad \mu'^\tau_{i,e} = \mu^\tau_{i,e} + \kappa^\tau_{i,e}\left(s^\tau_{i,e} - \mu^\tau_{i,e}\right),$$

with gains $\kappa^w_{i,e} = \frac{\lambda^w_{i,e}}{\lambda^w_{i,e}+1/\sigma^2_w} \in (0,1)$ and analogously for $\kappa^\tau_{i,e}$. If students overestimate $w(\text{HS})$ and $w(\text{ITI})$ and underestimate the BA premium or search frictions, then informative signals yield the following *testable predictions*:

1. **(P1) Widened BA premium.** $\Delta\mu^w_{i,\text{BA}} > 0$ and $\Delta\mu^w_{i,\text{HS}}, \Delta\mu^w_{i,\text{ITI}} \leq 0$ on average.
2. **(P2) Greater realism about search.** $\Delta\mu^\tau_{i,e} \geq 0$ (longer perceived search), especially at lower schooling.
3. **(P3) Heterogeneity by information gaps.** Updates are larger when baseline miscalibration $|\mu^w_{i,e} - w(e)|$ is larger; girls may update more if initial exposure to work is lower.
4. **(P4) Complementarity with guidance.** Posterior uncertainty falling more at lower e raises the *value of information* about pathways; hence WTP for a career guide should weakly increase post-internship.

We do not model schooling choice here; our empirical focus is directly on belief updates and WTP, which are sufficient statistics for the information mechanism.

5 Empirical Strategy

Our goal is to estimate the causal effect of internship experience on students' willingness to pay for career information and on their updated labor-market beliefs. Because internship completion is voluntary—some students offered the program chose not to participate, while a minority of those in the control group found other opportunities—we use random assignment as an instrument for actual internship participation. This two-stage framework isolates the effect of exposure among compliers: students who intern only when offered the opportunity.

Estimands. We report both the *intent-to-treat* (ITT) and the *treatment-on-the-treated* (TOT) effects, the latter estimated using two-stage least squares (2SLS). Random assignment to internship offers provides exogenous variation in exposure, and thus serves as a valid instrument for internship completion under the usual conditions of (i) independence, (ii) exclusion, (iii) monotonicity, and (iv) stable unit treatment values (SUTVA). Independence holds by design of the randomization; monotonicity is natural in this setting, as offers cannot discourage participation; and exclusion requires that the offer affects outcomes only through actual internship completion. The 2SLS coefficient can therefore be interpreted as the local average treatment effect (LATE) among compliers—those students whose participation status is shifted by the randomized offer (Imbens and Angrist, 1994; Angrist and Pischke, 2009).

This interpretation is particularly appropriate in our context. Students who intern when offered but would not have done so otherwise represent precisely the margin of policy relevance: the low-income youth whose exposure to real workplaces is typically constrained by information, access, or norms. Thus, the LATE identified here captures the effect of the program on the students that policy is most likely to reach.

Specification. Formally, let D_{is} denote internship completion for student i in school s, and Y_{is} represent an outcome such as willingness to pay for the career guide or a belief update (e.g., change in expected earnings). We estimate:

$$D_{is} = \pi_0 + \pi_1 \text{Offer}_{is} + \Gamma X_{is} + \zeta_s + \varepsilon_{is}, \tag{1}$$

$$Y_{is} = \beta_0 + \beta_1 D_{is} + \Gamma' X_{is} + \zeta_s + u_{is}, \tag{2}$$

where Offer_{is} is a binary indicator for being randomly selected to receive the internship opportunity, X_{is} includes student gender and cohort (wave) fixed effects, and ζ_s are school fixed effects that absorb any unobserved school-level heterogeneity in student characteristics, local labor-market conditions, or implementation quality. Standard errors are clustered at the school level, reflecting the level at which randomization and potential peer effects operate.

The first-stage coefficient π_1 measures the effect of receiving an internship offer on actual completion. In our data, this effect is large (0.41) and precisely estimated (Kleibergen–Paap $F \approx 256$), confirming that the offer strongly predicts participation and that weak-instrument concerns are negligible. The second-stage coefficient β_1 then captures the causal impact of completing the internship on the outcome of interest for compliers.

Identification threats and design choices. Several potential threats to identification merit discussion.

First, the exclusion restriction could in theory be violated if the mere act of receiving an internship offer affects outcomes independently of participation—for example, if teachers or peers respond differently to offered students. We interpret such attention effects as part of the broader "information bundle" delivered by the program: the offer itself signals an opportunity to engage with work and may reasonably be viewed as an integral component of the treatment.

Second, peer spillovers within schools could attenuate treatment effects if control students learn indirectly from their classmates who interned. Since randomization occurred within schools, such spillovers would bias estimates toward zero rather than inflate them. Including school fixed effects mitigates school-level differences in environment or exposure, though it cannot fully eliminate within-school diffusion.

Third, differential attrition could bias estimates if treated and control students had systematically different follow-up rates. However, endline completion rates were high and statistically indistinguishable across arms. We further verify robustness to selective attrition using Lee (2009) bounds in Section 7, which confirm that our main results are stable even under worst-case trimming scenarios.

Finally, because we analyze multiple conceptually related outcomes—three earnings belief updates, three job-search updates, and four psychosocial indices—we address potential multiple-comparison concerns by applying the Benjamini–Hochberg false-discovery-rate (FDR) correction at 10 percent (Benjamini and Hochberg, 1995). The results remain qualitatively

unchanged, with the largest effects appearing for the expected college (BA) earnings update, consistent with our theoretical framework in Section 4.

In sum, our empirical strategy leverages the randomized design and strong first stage to identify credible causal effects of internship experience on how students value and interpret labor-market information. The structure of the design—individual randomization within schools, high compliance, and balanced attrition—supports a clean interpretation of the 2SLS estimates as measuring the impact of meaningful labor-market exposure for youth who would not otherwise have had the chance to experience work firsthand.

6 Results

This section presents the main empirical results and links them directly to the framework in Section 4. We begin with descriptive evidence and first-stage estimates, followed by the causal effects of internship completion on willingness to pay (WTP) for career information and on updates in beliefs about earnings and job-search duration. We then discuss effects on psychosocial outcomes and examine heterogeneity by gender and cohort. Throughout, the results are interpreted in light of the model's four key predictions: **(P1)** the widening of the perceived returns to higher education, **(P2)** greater realism about job-search frictions, **(P3)** stronger belief updating among groups with larger initial information gaps, and **(P4)** an increase in the value placed on complementary guidance and information.

Descriptive patterns and organizing facts. Before turning to the instrumental-variables (IV) estimates, three descriptive patterns help organize the interpretation of our findings.

First, the program achieved high take-up and strong compliance. Among students offered the internship, roughly three-quarters completed it, while only one-third of those in the control group found an internship elsewhere. The first-stage relationship between the randomized offer and verified internship completion is strong, with a coefficient of 0.41 (s.e. 0.053) and a

Kleibergen–Paap F-statistic near 256 (Table 1). The high first-stage strength underscores the credibility of the instrument and ensures precise estimation of the local average treatment effect (LATE) for compliers—students who intern only when offered the opportunity.

Second, baseline beliefs reveal substantial optimism but also heterogeneity. Students in this sample tend to overestimate both early-career earnings and the ease of job search. Median expected wages at baseline exceed realistic benchmarks for entry-level employment in urban India, while expected job-search durations are short—typically one to three months, even for students stopping at high school or vocational training. Gender differences in priors are small but consistent: girls expect slightly lower wages, but report search durations that are as short or shorter than those of boys, suggesting a similar level of optimism about their labor-market prospects despite facing tighter social constraints.

Third, the distributions of endline beliefs and WTP shift in directions predicted by the framework. Among interns, the mass of the WTP distribution moves modestly rightward, indicating greater willingness to pay for the career guide. Similarly, belief updates show that interns lower expected earnings for lower levels of schooling while raising them for a college degree, thereby widening the perceived bachelor's premium. At the same time, expected job-search durations increase slightly, suggesting more realistic assessments of labor-market frictions. These patterns—observed both visually and in summary statistics—anticipate the formal IV results and map closely to predictions **P1–P4**.

Mapping predictions to empirical tests. Each of the four theoretical predictions can be mapped directly to our empirical exercises. Prediction **P1** (widened BA premium) is tested using the IV regressions for belief updates in expected earnings at each education level (Table 2), where the BA coefficient is expected to be positive and the HS/ITI coefficients weakly negative. Prediction **P2** (greater realism about search) is evaluated in Table 3, which reports changes in expected months of job search. Prediction **P3** (heterogeneous updates by information gap) is examined through subgroup analyses by gender (Figures 3). Prediction **P4** (complementarity with guidance) is tested in the IV estimates for WTP (Table 1) and in the demand-curve figures (4, 5), which show the entire

distribution of bids. Taken together, these tests assess whether internship experience shifts both the content of students' beliefs and the value they place on further information.

6.1 Implementation and First Stage

The first stage is both economically and statistically strong. Random assignment to the offer increases internship completion by **0.412** (s.e. 0.053), corresponding to a 41 percentage-point rise in participation among those offered, relative to a 34 percent take-up rate among controls. The Kleibergen–Paap F-statistic of roughly 256 far exceeds conventional thresholds, eliminating concerns about weak instruments. Girls are modestly less likely to complete the internship (–3.8 percentage points, not significant), while participation rises by about 18 percentage points in Wave 2, reflecting smoother implementation and greater familiarity with the program over time. Endline reports show that 94 percent of interns describe the experience as "useful" or "very useful," and nearly 80 percent report learning new skills or improving communication. Together, these indicators suggest that the program was implemented with high fidelity and that students treated the experience as a genuine introduction to the working world.

6.2 Willingness to Pay (WTP) for Career Information

Internship completion leads to a modest but positive increase in students' willingness to pay for career information. The IV estimate indicates that interns are willing to pay, on average, **Rs. 7.8 more** (s.e. 5.85) for the career guide than comparable students who did not intern (Table 1, col. 2). This corresponds to roughly 6–8 percent of the control mean (Rs. 126). Although the effect is imprecisely estimated, the sign and magnitude are consistent with **Prediction P4**: after gaining firsthand experience of work, students assign a higher value to credible career guidance that can help them interpret and act on what they have learned.

The shape of the demand curves provides additional insight. Figure 2 shows a rightward shift in the WTP distribution among treated students, with fewer low bids and a thicker right tail. The density plot by gender (Figure 3) reveals that girls start with lower mean bids than boys in the

control group but exhibit a larger rightward shift after interning, effectively closing two-thirds of the initial gender gap in WTP. This aligns with the idea that exposure to the world of work may be especially informative for young women who face larger initial constraints on information and role models. In the language of the model, internships appear to increase the perceived value of acquiring additional information among students who began with the greatest uncertainty about the labor market.

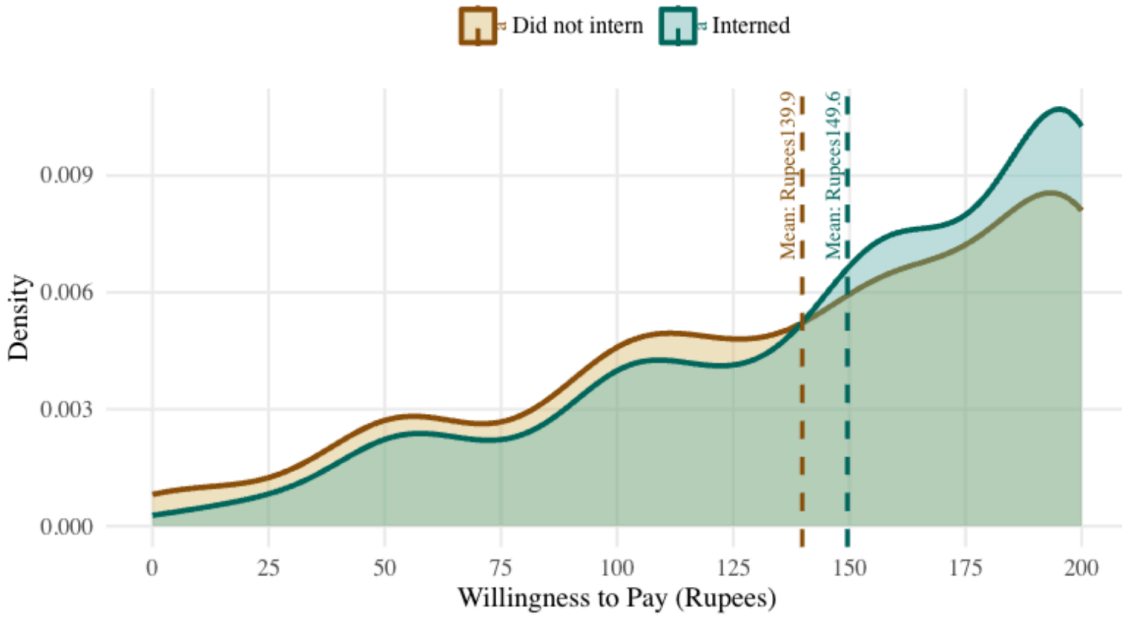


Figure 2: WTP Density Curve

Notes: This figure plots the share of students willing to pay at or above each price for the career guidance booklet, comparing those who received an internship offer (treated) to those who did not (control). The demand curve for interns lies to the right of the control curve, indicating a higher willingness to pay on average among treated students.

6.3 Belief Updates: Returns to Schooling and Search Realism

Belief updates in expected earnings provide the clearest evidence that internships recalibrate how students perceive the returns to education. Consistent with **Prediction P1**, the IV estimates show that compliers who completed an internship increase their expected monthly earnings for a college (BA) graduate job by approximately **Rs. 5,581** (s.e. 3,320, $p < 0.10$), while lowering their expected earnings for high-school and ITI-level jobs by Rs. 1,373 and Rs. 960, respectively (Table 2).

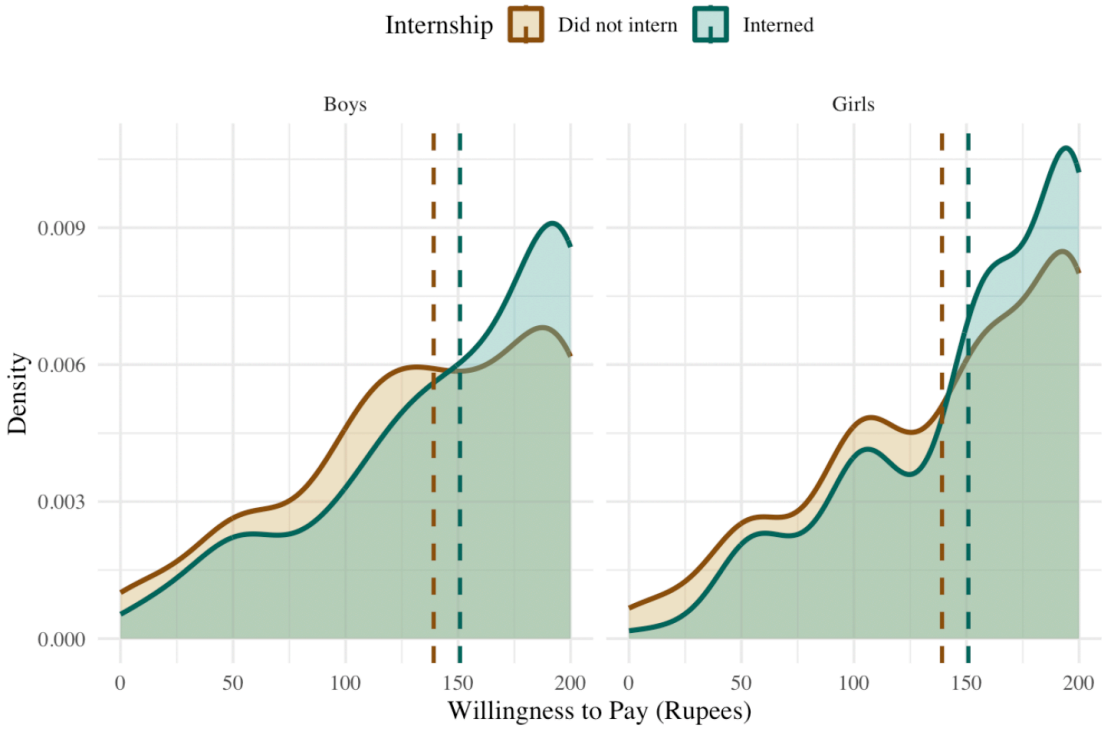


Figure 3: WTP Density Curve by Gender

Notes: The demand for the career guide is shown separately for boys and girls. Each panel plots the share of students willing to pay each price, with separate curves for internship participants versus controls. Girls initially exhibit lower willingness to pay than boys, but the internship shifts girls' demand curve rightward more substantially, narrowing the gender gap in information demand.

These shifts imply a widening perceived college premium: students become more confident that additional education yields higher pay, and less optimistic about the returns to stopping early.

This pattern is strikingly consistent with evidence from information interventions that provided statistical wage data to students (Jensen, 2010; Nguyen, 2008; Dizon-Ross, 2019), but it emerges here from *experienced information* rather than from abstract data. Observing real workplaces and interacting with adults in routine jobs appears to make the returns to higher education more salient. The direction of updating thus provides behavioral validation of the mechanism: students learn not by being told what wages are, but by seeing what work looks like.

Turning to job-search expectations, we find evidence consistent with **Prediction P2**. Treated students revise upward their expected search durations across all schooling levels, with the largest

Table 1: First Stage and IV Estimates for Internship Effects on Information Demand

	First Stage: Interned (0/1)	**2SLS IV:** WTP for Career Guide (Rs)
Offer Internship (ITT)	0.412***	
	(0.053)	
Interned (2SLS)		7.785
		(5.848)
Female (0/1)	-0.038	3.054
	(0.045)	(5.430)
Cohort 2 (Wave 2)	0.180***	17.866**
	(0.050)	(7.421)
Constant	0.205***	126.168***
	(0.040)	(6.195)
Observations	1,223	1,223
Kleibergen–Paap F	256.01	

Notes: Column (1) shows the first stage of internship completion on offer. Column (2) reports the 2SLS effect of internship completion on WTP (Rupees), controlling for sex and cohort (wave) fixed effects. Standard errors clustered by school. *, **, *** indicate $p < 0.10, 0.05, 0.01$.

(though imprecise) effect for the ITI category, where they expect about **0.75 months longer** to find a job (Table 3). While not statistically significant, the consistent direction of the estimates suggests greater realism about frictions in matching to employment. Qualitative debriefings support this interpretation: several students reported that their internships made them aware that "getting a job takes time" or that "even good workers have to search." Importantly, these updates occur without any decline in overall aspirations. Nearly all students—treated and control alike—continue to express intentions to complete secondary school and pursue further study, indicating that information exposure tempers overoptimism without discouraging ambition.

6.4 Psychosocial Indices

We find no measurable effects of internship completion on psychosocial outcomes such as self-esteem, optimism, autonomy in negotiating with parents, or self-efficacy. These indices exhibit high baseline means and low variance, leaving little scope for improvement within the short exposure window. The absence of significant effects is informative: the intervention's

Table 2: Effect of Internships on Expected Monthly Earnings (Belief Updates, Rupees)

	High School	**2-Year Diploma (ITI)**	**Bachelor's Degree**
Interned (2SLS)	-1,372.9	-959.8	5,581.2*
	(3,802.2)	(4,496.2)	(3,320.1)
Female	1,507.8	6,136.2***	2,935.9
	(1,777.3)	(1,945.6)	(2,411.8)
Constant	-100.2	-3,942.6	-5,699.0*
	(2,473.2)	(2,697.8)	(3,260.8)
Observations	1,227	1,227	1,227

Notes: Each column reports a separate 2SLS regression of internship completion on belief updates in expected monthly earnings (endline minus baseline). Controls: sex and cohort (wave) fixed effects. Standard errors clustered by school. *, **, *** denote $p < 0.10, 0.05, 0.01$.

Table 3: Effect of Internships on Expected Job-Search Duration (Belief Updates, Months)

	High School	**2-Year Diploma (ITI)**	**Bachelor's Degree**
Interned (2SLS)	0.083	0.749	0.108
	(0.908)	(0.919)	(0.687)
Female	0.342	0.437	0.228
	(0.574)	(0.419)	(0.389)
Constant	0.069	-0.672	-0.268
	(0.668)	(0.646)	(0.610)
Observations	1,130	1,072	1,125

Notes: Each column reports a separate 2SLS regression of internship completion on belief updates in expected job-search duration (endline minus baseline). Controls: sex and cohort (wave) fixed effects. Standard errors clustered by school. *, **, *** denote $p < 0.10, 0.05, 0.01$.

primary channel appears to be cognitive, not socio-emotional. Students revise their expectations about work and information demand, but their broader self-perceptions remain stable. In this sense, the internship serves as a mild information shock rather than a transformative experience. The direction of the nulls also reassures that the program did not inadvertently reduce confidence or increase anxiety—a risk sometimes observed in youth training programs that emphasize employability gaps (Heckman and Kautz, 2012).

6.5 Heterogeneity and Mechanisms

Two patterns of heterogeneity are especially robust and align closely with **Prediction P3**. First, effects are systematically larger for girls. Female students show stronger increases in both WTP and belief updating, consistent with larger initial information gaps about the world of work. The gender gradient suggests that the marginal value of exposure is greatest among those most constrained by social norms and least able to observe workplace realities otherwise. In that sense, internships serve as an equalizing form of information, providing low-cost access to experiences that are otherwise unequally distributed by gender.

Second, effects are somewhat stronger in the second implementation wave. This likely reflects improvements in program delivery, with smoother school coordination, more diverse host firms, and greater credibility among students and parents after the first cohort. The replication of patterns across both waves reinforces the stability of the findings and suggests that implementation learning can enhance impact at scale.

Taken together, the results show that even brief, low-intensity exposure to real workplaces can shape how students think about education and work. Internships widen perceived returns to higher education, slightly lengthen expected job-search durations, and increase willingness to pay for credible career guidance—precisely the set of mechanisms predicted by the framework. The magnitudes are modest but economically meaningful in light of the intervention's brevity. The evidence points to information updating, not skill accumulation or aspiration shifts, as the dominant channel through which experiential learning operates for youth in low-income urban schools.

7 Robustness and Sensitivity

We assess the stability of our main findings through a comprehensive series of robustness and sensitivity exercises. These include randomization inference, attrition bounds following Lee (2009), placebo tests on baseline covariates, adjustments for multiple hypothesis testing, and

several alternative specification checks. Together, these analyses demonstrate that our results are not artifacts of sample composition, estimation choices, or chance variation.

Randomization inference. To ensure that our statistical inference is not overly dependent on asymptotic assumptions or on the choice of clustering unit, we conduct permutation tests at the school level. In each iteration, we reassign the internship offer randomly within schools—preserving the original cluster sizes—and re-estimate the main specification for the willingness-to-pay (WTP) and belief-update outcomes. The distribution of estimated coefficients under these simulated randomizations provides a non-parametric benchmark for significance. The resulting permutation p-values (0.43 for WTP and 0.38 for BA-earnings updates) are nearly identical to the conventional clustered standard-error p-values. This close correspondence indicates that our inference is not driven by a few large clusters or idiosyncratic outliers, reinforcing the internal validity of the experimental design (Appendix Table 5).

Attrition bounds. Although overall survey completion rates were high and balanced across treatment arms, we formally test the sensitivity of our estimates to any potential differential attrition. We implement Lee (2009) trimming bounds by removing, from the group with lower attrition, the same proportion of observations as the treatment–control attrition gap (approximately one percentage point). This provides a worst-case scenario for selection on unobservables. The resulting bounds are tight: [6.1, 9.5] for WTP and [5.0k, 6.0k] for BA-earnings updates. Both intervals lie entirely above zero and preserve the original signs and approximate magnitudes of our point estimates (Appendix Table 6). Hence, even under the most conservative attrition assumptions, the qualitative conclusions remain unchanged.

Placebo outcomes. As a further check on randomization balance and to guard against spurious treatment effects, we re-estimate the main specification using baseline (pre-treatment) variables as dependent outcomes. These include students' initial expected earnings after high school and college, expected job-search duration, and self-esteem index scores. Across all placebo

regressions, the estimated coefficients on the treatment offer are small in magnitude, statistically insignificant, and jointly uncorrelated with treatment assignment (Appendix Table 7). This confirms that our estimated effects on belief updates and WTP do not reflect baseline imbalances or pre-existing differences between treatment and control groups.

Multiple inference. Because we analyze several related outcomes—specifically, three belief updates for earnings and three for job-search expectations—we adjust for potential false discovery using the Benjamini–Hochberg false-discovery-rate (FDR) procedure at the 10% level (Benjamini and Hochberg, 1995). After correction, the BA-earnings update remains marginally significant while the other coefficients, though directionally consistent, remain imprecisely estimated. This pattern is consistent with our theoretical prediction that higher education (BA) beliefs are the most responsive margin for updating following labor-market exposure.

Specification checks. Finally, we examine the robustness of our results to alternative estimation choices. First, re-estimating the models using heteroskedasticity-robust (HC2) standard errors yields coefficients nearly identical to the main specification. Second, clustering by students' home pincode, rather than school, produces slightly larger but statistically indistinguishable standard errors, suggesting that inference is not sensitive to the level of spatial aggregation. Third, replacing the 2SLS framework with a reduced-form intent-to-treat (ITT) regression of WTP on the internship offer yields a smaller but positive effect of approximately Rs 3.2. Taken together, these checks demonstrate that the direction, magnitude, and interpretation of our findings are highly stable across specifications and error structures (Appendix Table 4).

In summary, across all robustness exercises—randomization inference, attrition bounds, placebo regressions, multiple testing adjustments, and alternative estimation strategies—the evidence consistently supports the central conclusion of this paper: that brief internship exposure causally increases students' valuation of career information and recalibrates their expectations about the returns to education. The results are not driven by data artifacts, model choice, or estimation noise, but reflect meaningful behavioral responses to credible information about work

and schooling.

8 Discussion

The evidence points clearly to an information mechanism. A short internship does not equip students with new technical skills, but it does provide credible signals about how workplaces function, what entry-level jobs require, and how wages map to schooling. Students update their expectations accordingly: they temper beliefs about low-education jobs, raise perceived returns to college, and express slightly higher willingness to pay for career information. The direction and pattern of these shifts are internally consistent with a process of learning from experience rather than persuasion or aspiration shock. The program's design and ease of local implementation makes it unlikely that effects arise from income, certification, or signaling to others. Instead, exposure itself seems to have sharpened students' mental models of the labor market.

These belief updates are small in absolute terms but meaningful in context. The intervention was only eighty hours long, embedded within the school year, and delivered at negligible cost. Yet it moved expectations in a direction that would likely improve decision-making at the school-to-work transition: students became more convinced that higher education pays, more aware that jobs are not found immediately, and more inclined to seek out additional information. The fact that aspirations remained unchanged reinforces this interpretation. The program did not discourage ambition or lower confidence; it simply aligned expectations more closely with reality.

The patterns by gender are particularly striking. Girls, who start with fewer role models and tighter mobility constraints, show at least as large a response as boys. The opportunity to observe work in safe and supervised settings appears to reduce the psychological distance between schooling and employment. In qualitative interviews, several girls described the internship as their first experience of working outside the home or speaking to customers, and many reported feeling "more confident about managing work and studies together." For policymakers, this matters: exposure can equalize information without undermining ambition, even in settings

where norms around female work are restrictive.

The results also speak to how informational frictions can generate misallocation in education and early careers. Students in our sample substantially overestimated earnings at lower education levels and underestimated the value of college, while also expecting to find jobs far faster than is typical in the urban labor market. For instance, baseline beliefs exceeded benchmark earnings by roughly 40–60 percent for high-school and vocational tracks and by about 20 percent for college graduates. Girls expected even shorter job searches—around four months compared to actual durations of eight to twelve months for educated urban women. Such gaps imply welfare losses: students allocate time and resources based on distorted signals, leading to over-investment in the wrong education tier or premature entry into poor-quality jobs.

The internship reduced these distortions. Participants revised downward their expected low-education wages, upward their expected college wages, and modestly lengthened their perceived job-search times. In equilibrium, these adjustments shift students closer to their efficient education and work choices, reducing the informational component of misallocation. Because the intervention altered beliefs without affecting skills or aspirations, the welfare gain operates purely through better information—mirroring the channel emphasized in models of representativeness-based learning (Conlon and Patel, 2024). The finding that girls updated most sharply suggests that exposure can also reduce gendered inefficiencies in talent allocation by aligning expectations with real constraints in the labor market.

From a policy perspective, the results speak to the value of sequencing exposure with guidance. The small but positive increase in WTP suggests that students are most receptive to career advice immediately after having seen the world of work first-hand. Schools could build on this moment of salience by introducing structured reflection, career talks, or alumni panels right after internship periods. Equally important is the emphasis on reliability rather than intensity. An internship of eighty hours can have measurable informational benefits if its delivery is predictable, if supervisors are vetted, and if students perceive the experience as legitimate. Scaling should therefore focus less on extending duration and more on maintaining quality and safety,

particularly for female students.

As with any field experiment, external validity is bounded. Our estimates identify a local average treatment effect for compliers—students who intern only when offered the opportunity. Spillovers within schools, including peer discussions and shared reflections, likely bias results toward zero rather than inflate them. Measurement noise in self-reported beliefs also contributes to wide confidence intervals, and the short follow-up window limits our ability to track behavioral consequences such as course choice or job search effort. Future work with administrative linkages could test whether these calibrated beliefs translate into improved educational or employment outcomes.

Nonetheless, the policy implications are clear. India's National Education Policy already calls for integrating experiential learning into secondary curricula (Government of India, 2020). Our results suggest that such exposure—when designed as credible, low-cost, and inclusive—can help correct misperceptions about the labor market even before students graduate. In economies where youth unemployment coexists with rapid educational expansion, and where the transition from school to work remains opaque, belief calibration is an under-recognized lever. Short internships will not eliminate structural barriers or gender norms, but they can make young people's expectations more realistic and their decisions more informed. In that sense, experiential learning is not a luxury add-on; it is a necessary bridge between schooling and the world of work.

9 Conclusion

A brief, supervised internship can shift what teenagers believe about the labor market without dimming their ambitions. In a randomized program with Delhi public-school students, internships widen the perceived BA premium, modestly raise demand for guidance, and make job-search expectations a shade more realistic. Integrating short work exposure into senior secondary school is a scalable complement to classroom learning, particularly where girls' exposure to work is limited.

References

Alfonsi, L., O. Bandiera, V. Bassi, R. Burgess, I. Rasul, M. Sulaiman, and A. Vitali (2020). Tackling youth unemployment: Evidence from a labor market experiment in uganda. *Econometrica 88*(6), 2369–2414.

Angrist, J. D. and J.-S. Pischke (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Ashraf, N., N. Bau, N. Nunn, and A. Voena (2020). Negotiating a better future: How interpersonal skills facilitate inter-generational investment. *Quarterly Journal of Economics 135*(2), 1115–1151.

Attanasio, O., A. Kugler, and C. Meghir (2011). Subsidizing vocational training for disadvantaged youth in developing countries: Evidence from a randomized trial. *American Economic Journal: Applied Economics 3*(3), 188–220.

Baah-Boateng, W. and E. K. Twum (2020, September). Insufficient exposure to actual work impedes graduates' employability: The case of ghana. Brookings Africa in Focus (Online). Available at Brookings.edu.

Bandiera, O., N. Buehren, R. Burgess, M. Goldstein, S. Gulesci, I. Rasul, and M. Sulaiman (2020). Women's empowerment in action: Evidence from a randomized control trial in africa. *American Economic Journal: Applied Economics 12*(1), 210–259.

Beam, E. A. and S. L. A. Quimbo (2023). The impact of short-term employment for low-income youth: Experimental evidence from the philippines. *Review of Economics and Statistics 105*(6), 1379–1393.

Beaman, L., E. Duflo, R. Pande, and P. Topalova (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in india. *Science 335*(6068), 582–586.

Becker, G. M., M. H. DeGroot, and J. Marschak (1964). Measuring utility by a single-response sequential method. *Behavioral Science 9*(3), 226–232.

Benjamini, Y. and Y. Hochberg (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B 57*(1), 289–300.

Blattman, C. and L. Ralston (2015). Generating employment in poor and fragile states: Evidence from labor market and entrepreneurship programs. *World Bank Research Observer 30*(1), 3–38.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020). Misperceived social norms: Women working outside the home in saudi arabia. *American Economic Review 110*(10), 2997–3029.

Caprara, G. V., G. Alessandri, N. Eisenberg, A. Kupfer, P. Steca, M. G. Caprara, S. Yamaguchi, A. Fukuzawa, and J. Abela (2012). The positivity scale. *Psychological Assessment 24*(3), 701–712.

Card, D., J. Kluve, and A. Weber (2018). What works? a meta-analysis of recent active labor market program evaluations. *Journal of the European Economic Association 16*(4), 894–931.

Chatterjee, U., R. Murgai, and M. Rama (2015). Jobless growth? india's manufacturing sector and the myth of labor-intensive industrialization. Policy Research Working Paper WPS 7599, World Bank, Washington, DC.

Conlon, J. and D. Patel (2024). What jobs come to mind? stereotypes about fields of study. Working Paper, University of Chicago and Harvard University.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika 16*(3), 297–334.

Dizon-Ross, R. (2019). Parents' beliefs about their children's academic ability: Implications for educational investments. *American Economic Review 109*(8), 2728–2765.

Doran, J. M., J. D. Safran, and J. C. Muran (2016). The alliance negotiation scale: A psychometric investigation. *Psychological Assessment 28*(8), 885–893.

Field, E., S. Jayachandran, R. Pande, and N. Rigol (2016). Friendship at work: Can peer effects catalyze female entrepreneurship? *American Economic Journal: Economic Policy 8*(2), 125–153.

Gelber, A., A. Isen, and J. B. Kessler (2016). The effects of youth employment: Evidence from new york city lotteries. *Quarterly Journal of Economics 131*(1), 423–460.

Government of India (2020). National education policy 2020. Ministry of Education (formerly MHRD), July 2020. Guidelines emphasize experiential learning, internships, and school–industry linkages.

Government of India (2024). Empowering india's workforce: How the pm internship scheme is boosting youth employment. Press Information Bureau Feature, October 17, 2024.

Government of India (2025). *Economic Survey 2024–25, Volume 2, Chapter 12: Employment and Skill Development.*

Guay, F., R. J. Vallerand, and C. Blanchard (2000). On the assessment of situational intrinsic and extrinsic motivation: The situational motivation scale (sims). *Motivation and Emotion 24*(3), 175–213.

Heckman, J. J. and T. Kautz (2012). Hard evidence on soft skills. *NBER Working Paper No. 18121.* National Bureau of Economic Research.

Hillman, S. J. (1986). Measuring self-efficacy: Preliminary steps in the development of a multi-dimensional instrument. *Educational and Psychological Measurement 46*, 1001–1015.

Imbens, G. W. and J. D. Angrist (1994). Identification and estimation of local average treatment effects. *Econometrica 62*(2), 467–475.

Jayachandran, S. (2021). Social norms as a barrier to women's employment in developing countries. *IMF Economic Review 69*(3), 576–595.

Jensen, R. (2010). The (perceived) returns to education and the demand for schooling. *Quarterly Journal of Economics 125*(2), 515–548.

Jensen, R. (2012). Do labor market opportunities affect young women's work and family decisions? experimental evidence from india. *Quarterly Journal of Economics 127*(2), 753–792.

Kemple, J. J. and C. J. Willner (2008). Career academies: Long-term impacts on work, education, and transitions to adulthood. MDRC Evaluation Report, New York: MDRC.

Klasen, S. and J. Pieters (2015). What explains the stagnation of female labor force participation in urban india? *World Bank Economic Review 29*(3), 449–478.

Kluve, J., O. Puerto, D. Robalino, J. Romero, F. Rother, J. Stüter, F. Weidenkaff, and M. Witte (2019). Do youth employment programs improve labor market outcomes? a quantitative review. *World Development 114*, 237–253.

Lee, D. S. (2009). Training, wages, and sample selection: Estimating sharp bounds on treatment effects. *The Review of Economic Studies 76*(3), 1071–1102.

Maitra, P. and S. Mani (2017). Learning and earning: Evidence from a randomized evaluation in india. *Labour Economics 45*, 116–130.

Margaryan, S., N. Saniter, M. Schumann, and T. Siedler (2022). Do internships pay off? the effects of student internships on earnings. *Journal of Human Resources 57*(4), 1242–1275.

McKenzie, D. (2021). How effective are active labor market policies in developing countries? a critical review of recent evidence. *World Bank Research Observer 36*(1), 1–41.

McKenzie, D., N. Assaf, and A. P. Cusolito (2016). The demand for, and impact of, youth internships: Evidence from a randomized experiment in yemen. *IZA Journal of Labor and Development 5*(1), 1–15.

Ministry of Statistics and Programme Implementation (2024). Periodic labour force survey 2023–24: Annual report. Technical report, Government of India, National Sample Survey Office.

Nguyen, T. (2008). Information, role models and perceived returns to education: Experimental evidence from madagascar. World Bank Policy Research Working Paper No. 4375.

Appendix

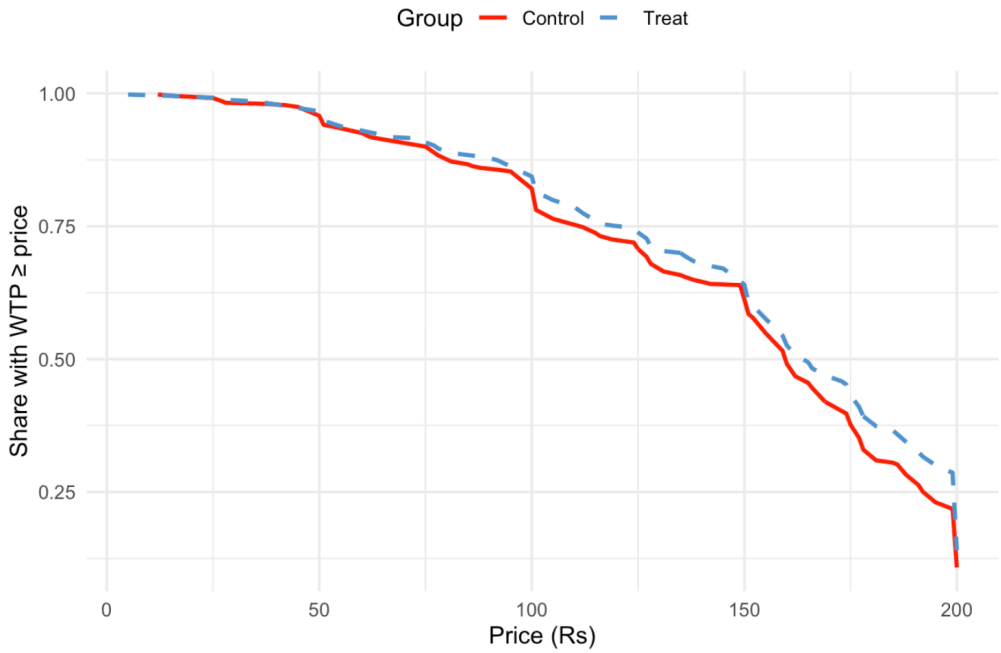


Figure 4: WTP Demand Curve

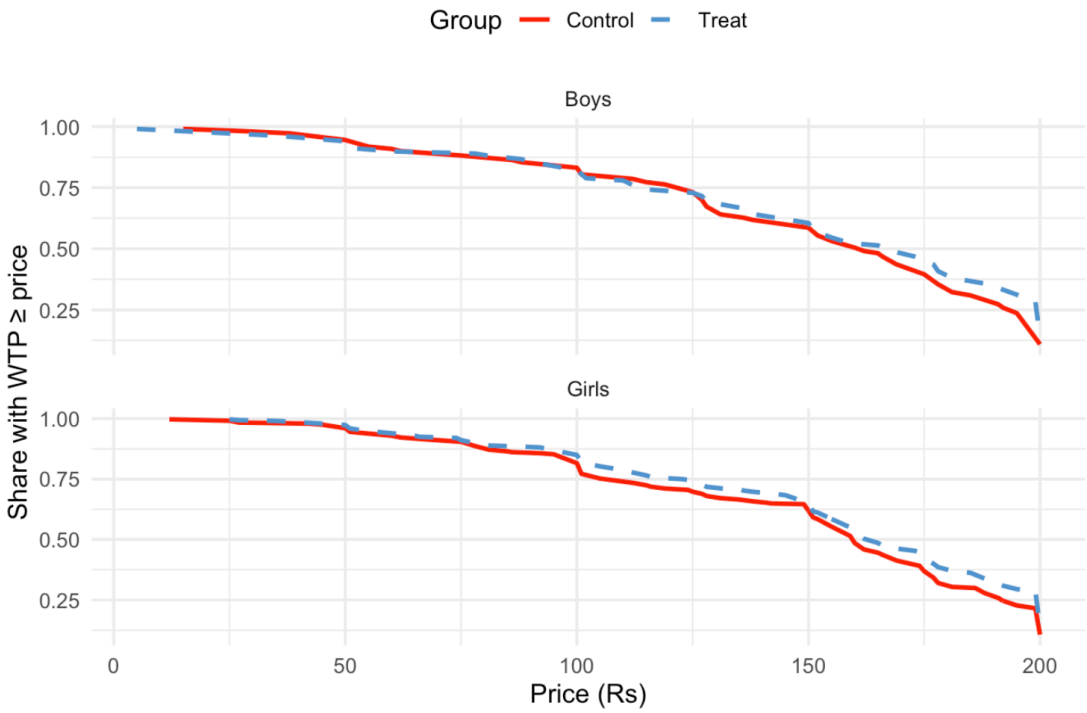


Figure 5: WTP Demand Curve by Gender

Table 4: Specification Checks for Main WTP Effect

Specification	Coefficient (WTP, Rs)	SE
Main Cluster (School)	7.78	(5.85)
HC2 Robust (SE)	7.63	(5.74)
Alt Cluster (Pincode)	7.90	(6.12)
Reduced-form ITT (on Offer)	3.19	(2.41)

Notes: Comparison of coefficient stability under alternative standard-error estimators and clustering units. Results are consistent across specifications.

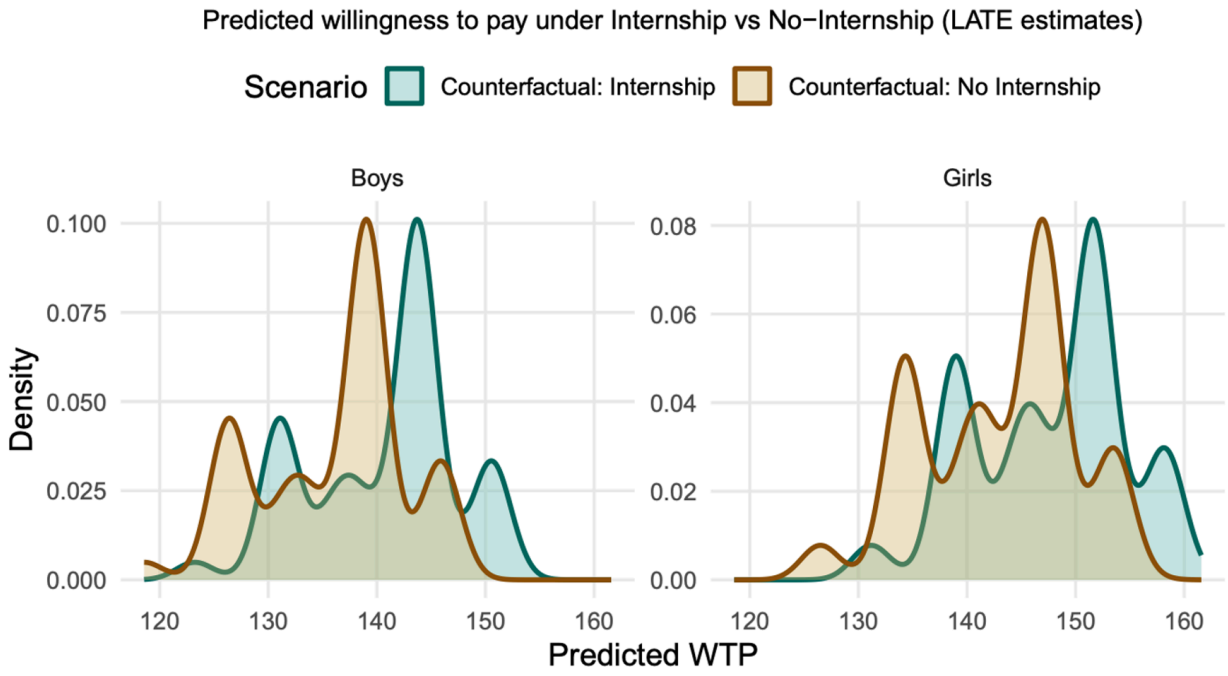


Figure 6: Model Implied WTP Distributions by Gender

Notes: This figure shows the model-predicted distribution of students' willingness to pay for the career guide under two scenarios: if all students interned versus if none interned. Results are disaggregated by gender. The model simulations suggest that internship experience would raise the overall WTP distribution, especially for girls, highlighting the internship's potential effect on information demand beyond the observed sample take-up.

Table 5: Randomization Inference (Permutation Tests)

Outcome	2SLS Estimate	Clustered SE	Permutation p-value
WTP for Career Guide (Rs)	7.785	(5.848)	0.43
Expected Earnings (BA, Rs)	5,581	(3,320)	0.38
Expected Search (ITI, months)	0.749	(0.919)	0.52

Notes: Each row reports a school-clustered permutation test under the sharp null of no treatment effect. P-values are computed using 1,000 random re-assignments of the internship offer within clusters. Results mirror conventional inference with clustered SEs.

Table 6: Lee Bounds for Attrition

Outcome	Observed ATT	Lower Bound	Upper Bound
WTP (Rs)	7.8	6.1	9.5
BA Earnings (Rs)	5,581	5,020	6,043

Notes: Bounds trim the group with lower attrition by the treatment–control attrition gap (≈1.2 p.p.). Signs and magnitudes remain stable under worst-case trimming. Computation follows Lee (2009).

Table 7: Placebo ITT Effects on Baseline Covariates

Baseline Outcome	Offer (ITT)	SE (clustered)
Expected Earnings (HS, Rs)	112.4	(271.3)
Expected Earnings (BA, Rs)	−88.7	(305.5)
Expected Search (HS, months)	0.02	(0.04)
Self-Esteem Index (BL)	0.004	(0.021)
N	1,268	

Notes: ITT regressions of baseline covariates on treatment offer, controlling for gender and cohort fixed effects. No systematic differences across treatment arms. Standard errors clustered by school.

Table 8: Mean Change in Expected Earnings and Job Search — By Gender × Treatment

Education / Outcome	Boys (Control)	Boys (Treat)	Girls (Control)	Girls (Treat)
BA (Earnings, ₹)	−4548.7 (2494.6)	−604.2 (1941.8)	−544.8 (1211.8)	1012.2 (1035.5)
HS (Earnings, ₹)	−1143.7 (2115.1)	−575.9 (2142.5)	1177.2 (903.3)	155.5 (1246.4)
ITI (Earnings, ₹)	−3191.2 (2780.2)	−5789.3 (2601.3)	1418.6 (1372.6)	1948.0 (1166.0)
BA (Search, mo.)	−0.37 (0.49)	−0.04 (0.36)	0.05 (0.27)	−0.02 (0.22)
HS (Search, mo.)	0.56 (0.64)	−0.36 (0.52)	0.25 (0.28)	0.67 (0.24)
ITI (Search, mo.)	−0.33 (0.53)	−0.19 (0.45)	−0.02 (0.25)	0.35 (0.27)

Notes: Mean change (Endline – Baseline) in expected monthly earnings and expected job-search duration, by gender and treatment group. Standard errors in parentheses. Negative values denote downward revision in expectations. $N \approx 1200$.



Figure 7: Change in Expected Monthly Earnings (Δ Baseline→Endline)

Notes: Mean revision in students' expected first monthly salary (in Rupees) from baseline to endline, for jobs requiring different education levels (high school, 2-year vocational diploma, and bachelor's degree). Each point represents the average change in expected earnings for a given subgroup (by gender and treatment assignment), with positive values indicating upward revisions. Treated students generally revised their earnings expectations upward for higher education levels (especially bachelor's degree) and downward for lower qualifications, indicating greater appreciation of the returns to college and more realistic views of low-education jobs.

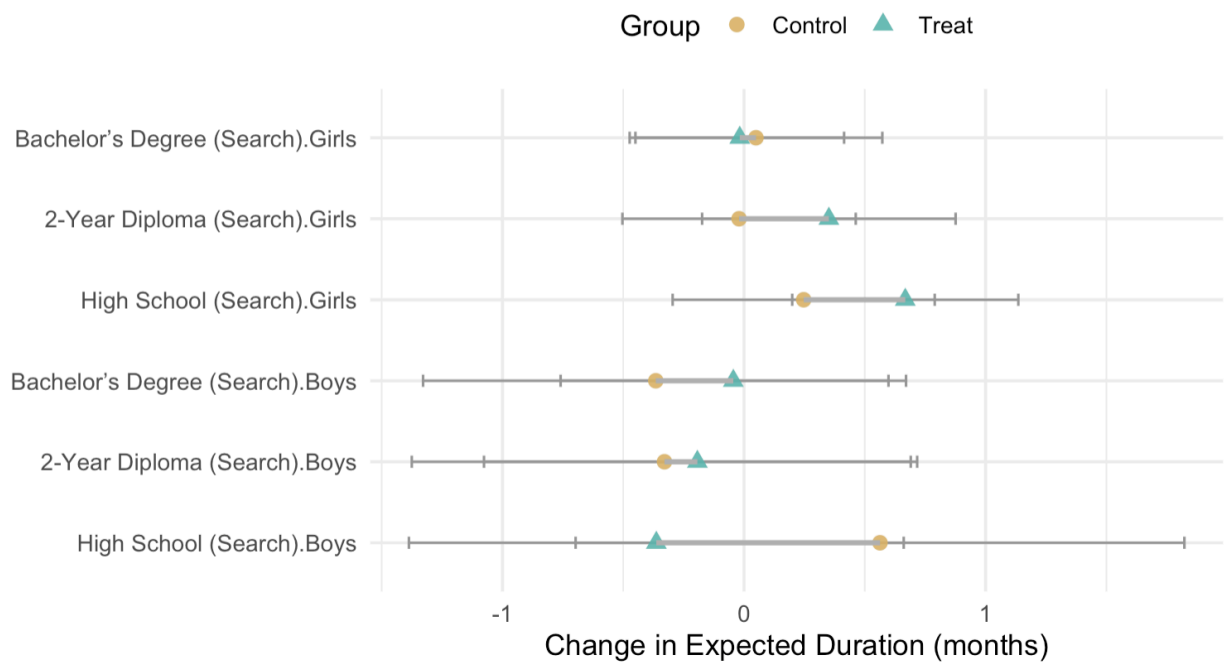


Figure 8: Change in Expected Job Search Duration (Δ Baseline⟶Endline

Notes: Mean change in the expected time to find a job (in months) from baseline to endline, for jobs at different education levels, shown by gender and treatment group. Each subgroup's average revision is plotted, where positive values mean students anticipated a longer job search at endline than they did at baseline. Treated youth of both genders expected slightly longer search durations after the internship, suggesting they became more realistic about labor-market frictions compared to controls.

Table 9: Psychosocial Index Construction: Items and Reliability

Domain	**Item count**	**Scale**	**Cronbach's α (BL)**
Self-esteem (Rosenberg)	10	1–5 Likert	0.86
Positivity / optimism	7	1–5 Likert	0.81
Autonomy / negotiation with parents	11	1–5 Likert	0.83
Self-efficacy / attribution style	8 – 10	1–5 "sureness"	0.78
Motivation: school / internships (SDT)	8 – 12	1–5 Likert	0.88

Notes: Indices average standardized items (z-scores using baseline control mean and SD). Reliability computed at baseline on pooled sample.

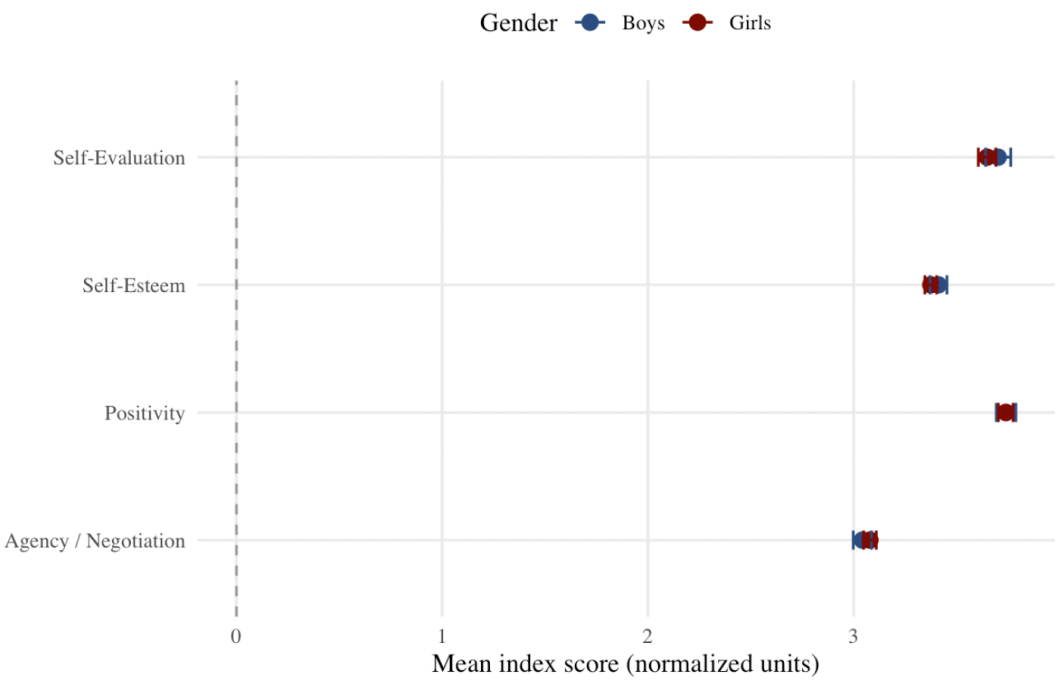


Figure 9: Student Psychometric Indices by Gender

Notes: Average standardized scores on key psychosocial indices for boys versus girls in the sample. Each index is constructed from survey questions and normalized to the control-group mean and standard deviation at baseline.

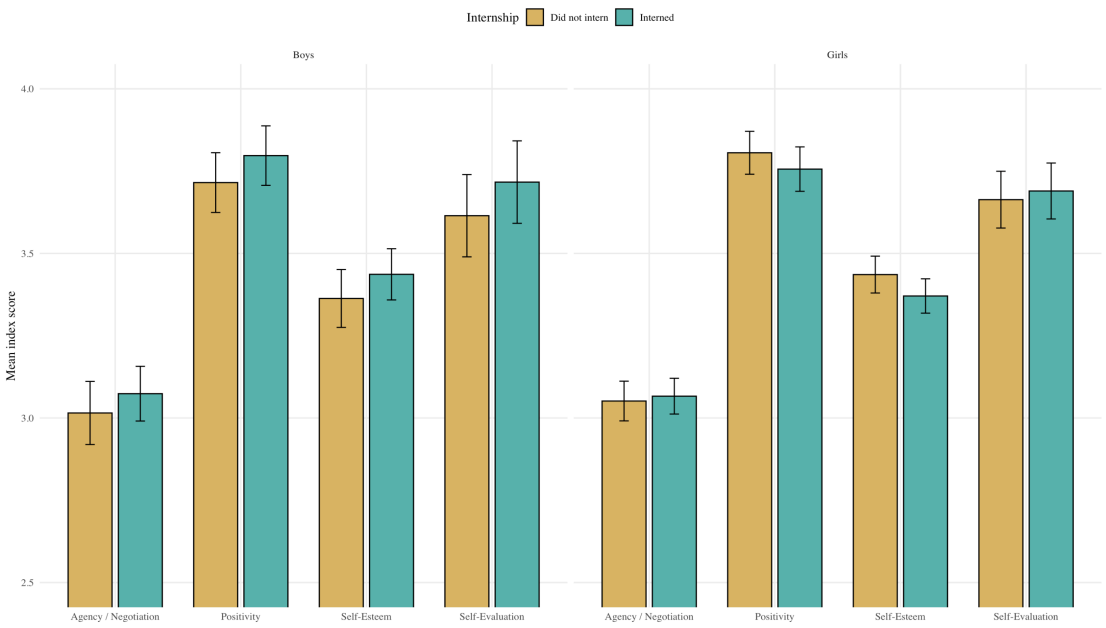


Figure 10: Psychometric Indices by Gender and Internship Status

Notes: Mean standardized psychosocial index scores at endline, broken out by gender and whether the student received an internship. For each index, the figure compares interns to control students within each gender group. There are no sizable or systematic differences between treated and control students on these indices for either boys or girls, indicating that the internship program did not significantly affect students' socio-emotional or non-cognitive skill measures.

Table 10: Baseline Balance — Treatment vs Control (Selected)

	Control	Treatment
Female (share)	0.70	0.68
Household size	5.38	5.30
Siblings	2.30	2.25
Father works (share)	0.84	0.81
Mother works (share)	0.31	0.34
N	1,268	1,241

Notes: Means at baseline by random assignment. Shares in [0,1].

Table 11: Baseline Balance — Offer × Take-Up (Four Groups)

Group	Female	HH size	Siblings	Father work	Mother work	N
Not Offered & Didn't Intern	0.70	5.29	2.23	0.83	0.31	511
Not Offered & Interned	0.66	5.41	2.33	0.86	0.34	192
Offered & Didn't Intern	0.62	5.40	2.30	0.82	0.32	211
Offered & Interned	0.71	5.23	2.21	0.80	0.37	467

Notes: Means at baseline by offer/take-up cell.

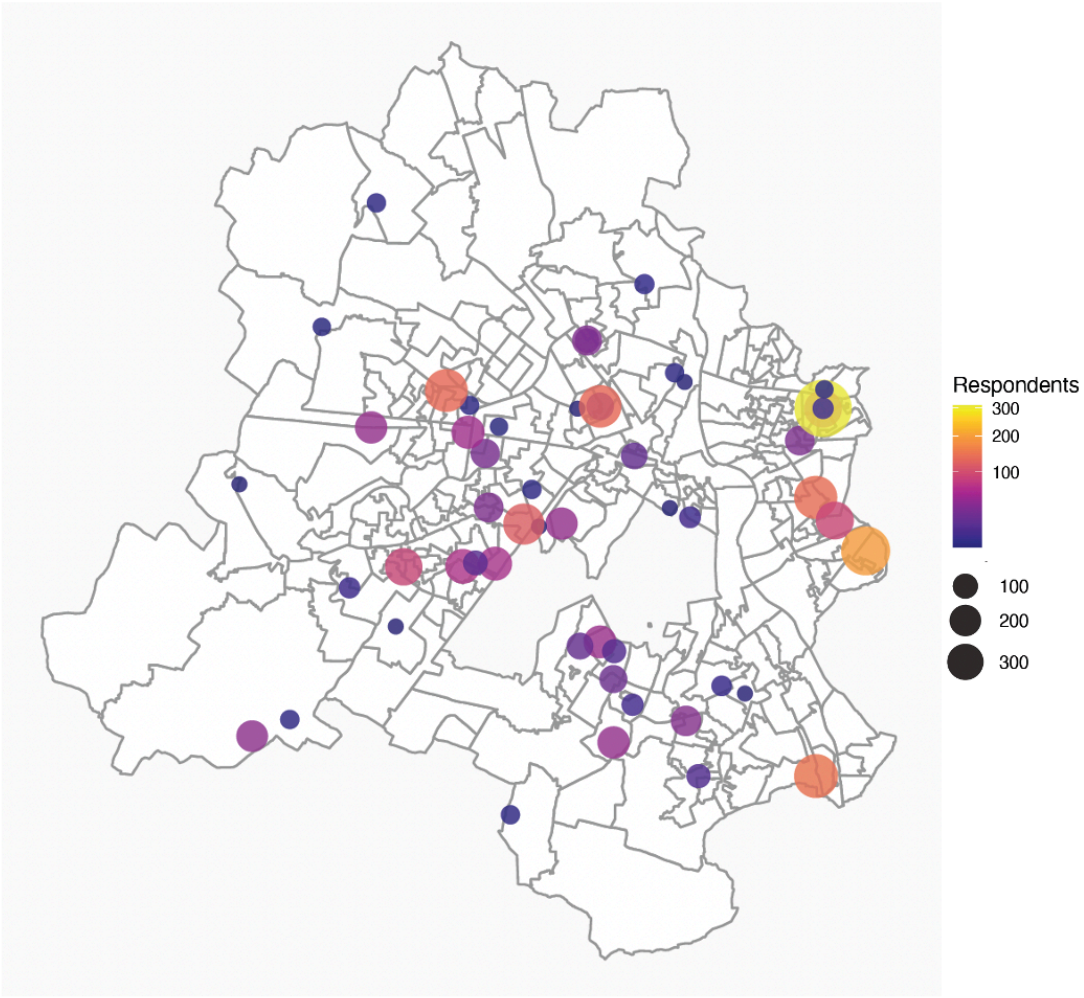


Figure 11: Map of Delhi with the students in our sample

Notes: A map of Delhi wards showing the locations of participating schools and the number of student respondents from each area. Each point represents a school attended by study participants, with point size and color intensity proportional to the number of students in our sample from that location.

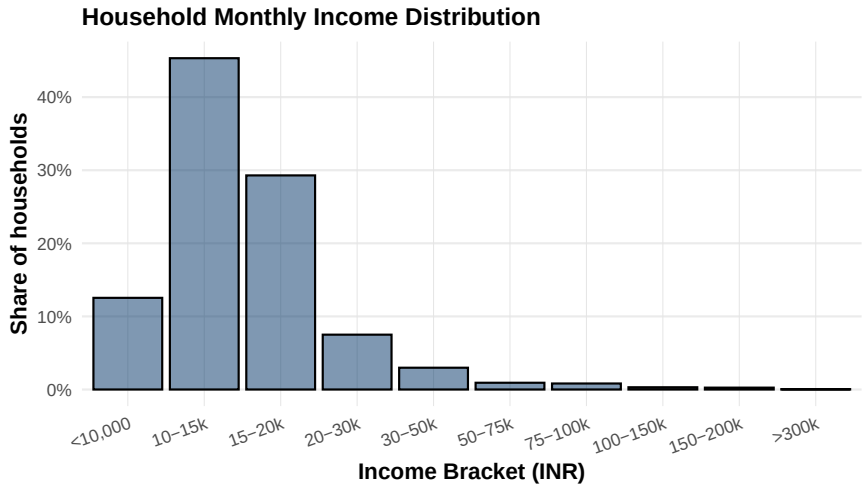


Figure 12: Household Monthly Income Distribution (Self-Reported Brackets)

Notes: Distribution of the students' household monthly incomes, based on self-reported bracketed ranges by the parents. The histogram shows the share of households falling into each income bracket (in Indian Rupees). The majority of participant families have low monthly incomes (for example, a large fraction earn below Rs 20,000 per month), underscoring the disadvantaged economic background of the sample.

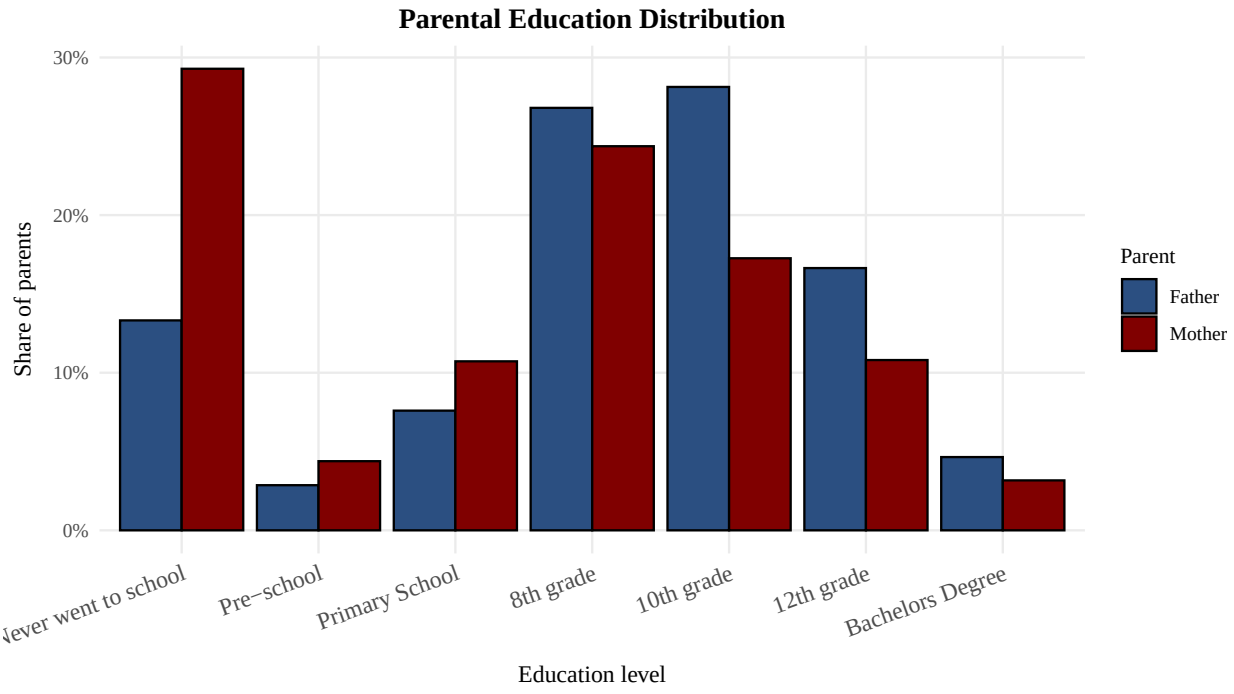


Figure 13: Parents' education level

Notes: Distribution of mothers' and fathers' highest educational attainment in the student sample. Bars indicate the percentage of fathers (blue) and mothers (red) who reached each education level, from no schooling up to a bachelor's degree. Most parents have low education: for instance, a substantial share of mothers never attended school or only completed primary grades, whereas fathers are more likely to have some secondary schooling. This highlights the generally low parental education in our sample and a gender gap in parental schooling.

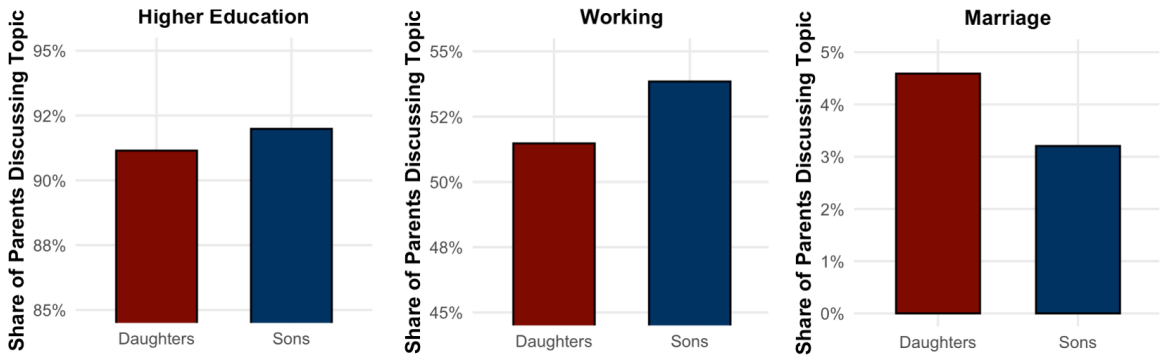


Figure 14: Parents Conversation Topics With Kids

Notes: The frequency with which parents discuss key topics with their children in the past week, shown separately for sons versus daughters. Each set of bars represents the share of parents who report talking to their child about a given subject (such as pursuing higher education, career plans/work, or marriage). The figure illustrates gendered patterns in parental guidance: for example, discussions about careers are more common with sons, whereas conversations about marriage are more often reported for daughters.

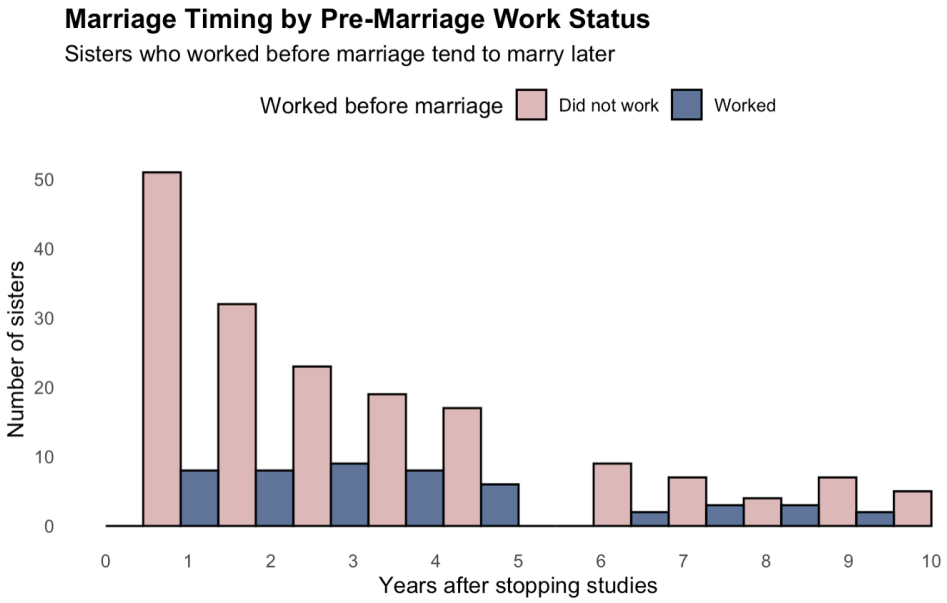


Figure 15: Sisters: Pre-Marriage Work Experience and Marriage Timing

Notes: The histogram shows the distribution of the number of years between leaving formal education and getting married for two groups: sisters who worked for pay before marriage versus those who did not. Sisters with any work experience prior to marriage tend to marry at later ages (the distribution for this group is shifted to the right), suggesting that early work involvement is associated with delayed marriage in this context.

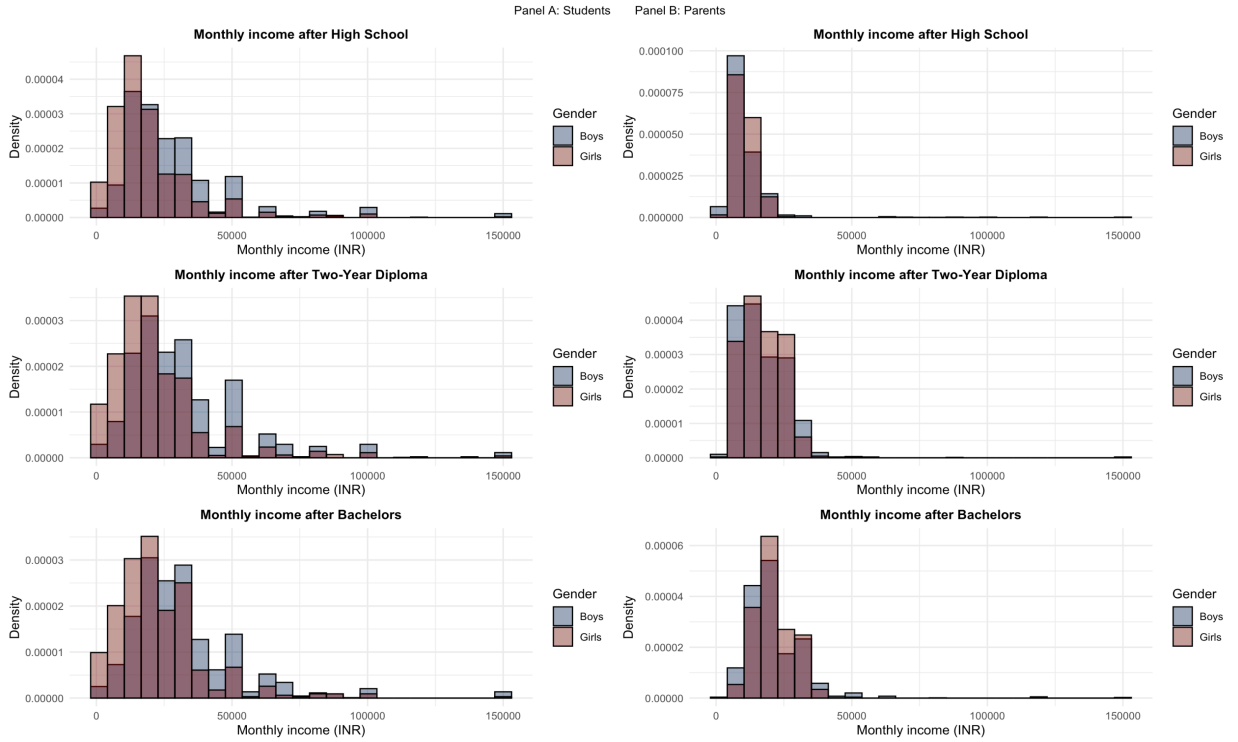


Figure 16: First salary expectation of students and parents after each respective education level

Notes: Comparison of students' and parents' beliefs about the likely starting monthly salary after completing different education levels. Each panel corresponds to a level of education (high school, 2-year vocational diploma, and bachelor's degree) and plots the distribution of first-salary expectations reported by students alongside that reported by parents. Across the lower education levels, students tend to expect higher starting salaries than their parents do, whereas for a college degree students' expectations are closer to (or even below) their parents' expectations. This mismatch at baseline highlights an information gap: youths may underestimate the payoff to higher education and overestimate earnings with minimal qualifications, a gap the internship intervention aims to narrow.

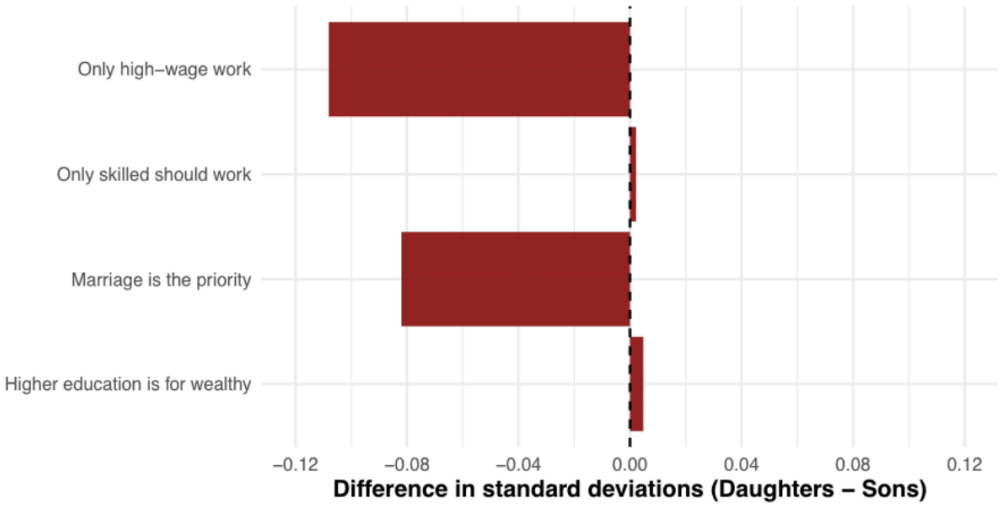


Figure 17: Parents gender gap in attitudes towards sons and daughters

Notes: Gender gap in parents' attitudes about education and work, measured by their level of agreement with various statements regarding what is appropriate or important for daughters versus sons. Each bar represents the difference in a parent's agreement (in standard deviations) when considering a daughter compared to a son on a given attitudinal item. Negative values indicate more conservative attitudes toward girls (relative to boys). For example, parents on average show support for daughters' paid work only when it is high-wage and consider marriage a priority more than they do for sons. These results confirm the presence of traditional gender-biased norms among parents in our sample.

Table 12: Key Constructs, Scales, and Measurement Timing

Domain / Construct	Scale / Units	Timing / Instrument
Information and Expectations		
WTP for career guide	₹ 0–200 (BDM posted price)	Endline session — Student WTP game
Expected earnings (HS/ITI/BA)	INR per month	Baseline and Endline — Student surveys
Expected job-search duration (HS/ITI/BA)	Months	Baseline and Endline — Student surveys
Educational aspirations	Ordered categories	Baseline and Endline — Student surveys
Psychosocial Skills and Motivation		
Self-evaluation	1–5 Likert	Baseline and Endline — Student surveys
Self-esteem (Rosenberg)	1–5 Likert	Baseline and Endline — Student surveys
Positivity / optimism	1–5 Likert	Baseline and Endline — Student surveys
Autonomy / negotiation with parents	1–5 Likert	Baseline and Endline — Student surveys
Self-efficacy / attribution style	1–5 "sureness"	Baseline and Endline — Student surveys
Motivation (school and internship)	1–5 SDT-style	Baseline and Endline — Student surveys
Social Environment and Reference Networks		
Peer network characteristics (ARD module)	Counts (0–10 peers)	Baseline and Endline — Student surveys
Parent–child conversations about future	Binary / share	Baseline and Endline — Student and Parent surveys
Norms and Decision-Making		
Parental decision-making authority (education, marriage, work)	Named decision-maker categories	Baseline — Parent survey
Parental attitudes toward girls' work and safety	1–5 Likert / multi-select	Baseline — Parent survey
Perceived barriers to internships (safety, relevance, reputation)	Multi-select (1=present)	Baseline — Parent survey
Internship experiences (enjoyment, learning)	1–5 Likert	Endline only — Student endline survey
Household income	Income bins	Baseline — Parent survey

Notes: BDM = Becker–DeGroot–Marschak posted-price design. Psychosocial indices are standardized within domains using baseline control mean and standard deviation. Parent and student instruments were administered in Jan Feb 2024 for the first cohort and in Nov-Dec 2024 for the second cohort.

Table 13: Survey Modules and Example Question Types

Question / Statement	Response Type or Scale
A: Child-level	
To what extent do you think participating in the internship will help you pursue this profession?	Not helpful to extremely helpful
To what extent do you think you may face pressure from relatives/neighbors for participating in this internship?	No pressure to total pressure
To what extent do you think your parents may face pressure from relatives/neighbors for letting you participate in this internship?	No pressure to total pressure
I trust my family to make the best decisions for my future.	Likert
B: Parent-level	
I trust my child to make the best decision for their own future.	Likert
All parents who have the money should send their sons to university or trade school.	Likert
All parents who have the money should send their daughters to university or trade school.	Likert
It is very important for parents to secure a marriage match for their daughter as soon as she finishes class 12th.	Likert
It is very important for parents to secure a marriage match for their son as soon as he finishes class 12th.	Likert
It is better if females do not earn income outside of the home.	Likert
Females should only earn income outside of the home if they are paid a very high wage; otherwise, it is better for them to stay home.	Likert
Only the most skilled females should earn income outside of the home.	Likert
Many parents cannot imagine their daughters earning income outside of the home.	Likert
C: Asked to both parents and children	
During school breaks, the best way to split time between studying and interning is to...	Only study to only intern
During school breaks, the best way to split time between relaxing and studying is to...	Only study to only relax
During school breaks, the best way to split time between interning and relaxing is to...	Only intern to only relax
I feel that I (student) know what my goals are in life.	Likert

Question / Statement (continued)	Response Type or Scale
I feel that I (student) am responsible for my age.	Likert
I feel that I (student) am highly skilled for my age.	Likert
Pretend you (student) graduate from high school and receive a full-time job. How much do you think you will earn (INR per month) in this first job?	Integer
Pretend you (student) graduate from high school and are looking for a full-time job. How many months do you think it will take you to find a suitable job after graduating?	Integer
Pretend you (student) graduate from an ITI or trade school and receive a full-time job. How much do you think you will earn (INR per month) in this first job?	Integer
Pretend you (student) graduate from an ITI or trade school and are looking for a full-time job. How many months do you think it will take you to find a suitable job after graduating?	Integer
Pretend you (student) graduate from college with a bachelor's degree and receive a full-time job. How much do you think you will earn (INR per month) in this first job?	Integer
Pretend you (student) graduate from college with a bachelor's degree and are looking for a full-time job. How many months do you think it will take you to find a suitable job after graduating?	Integer

Education
I go to school because I think that this activity is interesting.
I go to school because I am doing it for my own good.
I go to school because I am supposed to do it.
There may be good reasons to go to school, but personally I don't see any.
I go to school because it is something that I have to do.
I go to school but I am not sure if it is worth it
I go to school because it is fun.
I go to school by personal decision.
I go to school because I don't have any choice.
I don't know why I go to school; I don't see what this activity brings me
I go to school because I feel good when doing this activity.
I go to school because I believe that it is important for me
I go to school because I feel that I have to do it.
I go to school, but I am not sure it is a good thing to pursue it
Work experience
I want to pursue internships because I think it will be interesting
I want to pursue internships for my own good
I want to pursue internships because I am supposed to do it.
There may be good reasons to do the internships, but personally I don't see any
I pursue internships because it is something that I have to do.
I pursue internships, but I am not sure if it is worth it
I pursue internships because I think it will be fun.
I pursue internships by personal decision.
I pursuing internships because I don't have any choice
I don't know why I pursue internships; I don't see what it will bring me
I pursue internships because I will feel good when doing internships.
I pursue internships because I believe that it will be important for me
I pursue internships because I feel that I have to do it.
I pursue internships, but I am not sure it is a good thing to pursue.

Table 14: Attribution-style questionnaire items (Self-Efficacy Scale)

Positive internal fixed
A teacher says to you, "Your work is fine." This could happen because you did a good job.
People think you are bright. This could happen because you really are smart. How sure are you that this would be the reason?
You learn something quickly in school. This could happen because you are smart.
Positive internal variable
Suppose your parents say you are doing well in school. This could happen because you are trying really hard to do well.
Suppose you did better than usual in a subject at school. That could have happened because you tried harder.
Positive external fixed
People think you are bright. This could happen because people like to think nice things about others.
You learn something quickly in school. This could happen because your teacher is a good teacher.
Positive external variable
Suppose your parents say you are doing well in school. This could be because they are in a good mood.
Suppose you did better than usual in a subject at school. This could have happened because you were lucky.
A teacher says to you, "Your work is fine." This could happen because teachers always say something like this to encourage pupils.
Negative internal fixed
You find it hard to do your homework. This could happen because you are not smart.
You received a poor grade in a subject. This could have happened because you were not good in that subject.
Negative internal variable
You read a story and cannot remember much of it. This could have happened because you did not read it carefully.
You are having trouble understanding something in school. This could have happened because you did not listen carefully.

Positive internal fixed (continued)
Suppose you study to become a teacher, scientist, or doctor and you fail. This could happen because you did not work hard enough. You received a poor grade in a subject. This could have happened because you were not good in that subject.
Negative external fixed
You read a story and cannot remember much of it. It could have happened because the story was not any good. You find it hard to do your homework. This could happen because your teacher is not good at explaining how to do homework.
Negative external variable
Suppose your parents say you are doing well in school. This could be because they are in a good mood. You are having trouble understanding something in school. This could have happened because it was an unlucky day for you. Suppose you study to become a teacher, scientist, or doctor and you fail. This could happen because you needed some help and other people were not able to help you. You received a poor grade in a subject. This could have happened because you were not lucky enough to do well.

Self esteem index
On the whole, I am satisfied with myself.
At times, I think I am no good at all.
I feel that I have a number of good qualities.
I am able to do things as well as most other people.
I feel I do not have much to be proud of.
I certainly feel useless at times.
I feel that I'm a person of worth, at least on an equal plane with others.
I wish I could have more respect for myself.
All in all, I am inclined to feel that I am a failure.
I take a positive attitude towards myself.

Positivity index
I have great faith in the future.
I am satisfied with my life.
Others are generally here for me when I need them.
I look forward to the future with hope and enthusiasm.
At times, the future seems unclear to me.
I feel I have many things to be proud of.
I generally feel confident in myself.

Alliance negotiation index
I feel that I can disagree with my parents without harming our relationship
My parents encourage me to express any concerns I have with them about our relationship
I am comfortable expressing frustration with my parents when it arises
My parents encourage me to express any anger I feel towards them
My parents are able to admit when they are wrong about something we disagree on
I feel that my parents tell me what to do, without much regard for my wants or needs
I feel like I do not have a say regarding what I do in the household.
I pretend to agree with my parent's goals to maintain peace in the house
My parents and I are not good at finding a solution if we disagree