

“The impact of mentoring and life skills training on secondary school progression and child labor among girls: A randomized controlled trial in Rajasthan.”

Report on Baseline Survey
July 2016

A. Project overview

1) Context

Throughout the developing world, there are substantial gender differences in school attendance. Moreover, these differences generally widen as cohorts progress through school, as the gap between male enrollment and female enrollment increases. Female students are accordingly less likely than their male peers both to enter and to graduate from secondary school. School dropout places children at higher risk for participation in child labor and forced labor.

Some households may choose to withdraw their female children from school specifically to enable them to enter the labor market or to provide services in their home. Alternatively, there may be other, unrelated barriers to female schooling that lead to girls’ discontinuation of schooling and their subsequent entry into paid or unpaid work. While the correlation between dropout and increased risk of child labor is clear, observational evidence does not allow for the identification of a causal relationship. Nor is there substantial evidence about what strategies are effective in increasing secondary school retention for girls and reducing entry into child labor.

This evaluation seeks to answer the question of whether life skills training and mentoring by older female role models, denoted “social mobilizers”, can increase the probability that girls progress through and complete secondary school, lower their rates of participation in child labor, and enhance their non-cognitive skills. The project is a randomized controlled trial implemented by Williams College in partnership with the Abdul Latif Jameel Poverty Action Lab and the non-governmental organization Room to Read, evaluating Room to Read’s Girls’ Education Program.

2) Intervention and theory of change

The goal of Room to Read’s Girls’ Education Program (GEP) is to increase secondary school completion and build life skills among disadvantaged adolescent girls. GEP was first introduced in 2004 in India, and this evaluation comes at a time when Room to Read is both refining the program and anticipating a scaling up of the program to other areas in India.

GEP provides mentors, known as “social mobilizers”, to lower and upper secondary schools. Mobilizers provide mentoring and life skills training to girls as well as targeted psychosocial support for girls at risk of dropout. While early versions of GEP targeted a subset of girls within the school, the program now targets full cohorts of girls. As of 2015, Room to Read has implemented a refined curriculum of life skills training.

The primary objective of moving to a cohort-based model was to increase the participation of school teachers and administrators, community members, and family members in the program, and to stimulate changes in the school environment that make it easier for girls to attain their academic goals. Specifically, social mobilizers are engaged to consult with school staff and parents, hold school-level events, and regularly visit both the school and parents’ homes. They also work directly with the female students by

conducting weekly or fortnightly life skills sessions, and by providing mentoring or intervening as needed with girls who are identified as being at high risk of dropout.

Social mobilizers themselves are secondary school graduates recruited from the community they serve. The objective is for these mentors to act both as role models for the female secondary school students and credible interlocutors in the broader community around questions of girls' education. Room to Read recruits the social mobilizers and provides them with initial and ongoing training, supervision, and support.

The program timeline in a particular school entails the phase-in of new cohorts who are entering lower secondary school; these cohorts then receive services through the remainder of their secondary school career (six years). The number of hours of life skills, club activities and meetings/workshops increases gradually year by year, and the social mobilizers receive refresher training each year. The ultimate objective is to transition program leadership away from Room to Read, into the hands of local parent committees, life skills clubs, and designated teacher resource personnel.

Room to Read's theory of change is based on the mutually reinforcing relationships between life skills mentoring and engagement activities with family, school and community – all primarily provided by social mobilizers who serve as agents of change in these communities. The short-term objective of these programs is to ensure that girls develop life skills that allow them to negotiate key life decisions, with a particular focus on prioritizing education and allocating time so as to maximize the probability of advancement in school. In addition, the program activities are targeted to increase individual and community support for girls' education.

The intermediate outcome targeted by the program is increased school progression and decreased dropout by girls, a measure that should be highly correlated with reduced child labor. In the long term, the program is designed to enhance life skills that will facilitate better decision-making, increase secondary school completion and reduce the risk of child labor. The theory of change is outlined schematically in the logic model on the next page.

3) Key hypotheses and outcomes

We will examine the impact of the treatment on four primary sets of outcomes.¹ These hypotheses were laid out in the preliminary analysis plan shared with the Department of Labor in December 2015. A finalized analysis plan is also attached to this report as Appendix 3.

1) School progression and completion

The key outcome measures include school dropout, progression from one grade to the next, and school attendance. We hypothesize that the Room to Read intervention will reduce dropout, increase the probability of grade progression, and increase attendance rates.

2) Life skills

The key outcome measures include scaled scores for three objective, task-based measures included in the survey, as well as a number of survey-based measures designed to capture life skills. The three objective measures are: a choice experiment designed to characterize future discounting, a mirror drawing task

¹ To deal with multiple inference concerns, we will employ the Benjamini-Hochberg correction method within each of these four categories to determine statistical significance of findings.

intended to measure perseverance/grit, and a scavenger hunt designed to measure self-agency as well as perseverance. Key survey-based measures used to evaluate program impacts will include: girl's marital status, an index characterizing socio-emotional support, an index characterizing freedom of movement, an index characterizing girl's empowerment, an index characterizing girl's self-esteem/self-efficacy, an index characterizing girl's future planning, an index characterizing girl's marriage expectations, an index characterizing girl's employment expectations, girl's perceptions of gender norms, response to Cantrill's ladder, enumerator assessment of girl's behavior during interview, parental perceptions of girl's strengths, parental perceptions of girl's self-efficacy, parental perceptions of girl's freedom of movement, parent-daughter communication, parental perceptions of gender norms, parental attitudes towards girl's schooling, and parental attitudes towards girl's marriage timing.

We hypothesize that the Room to Read intervention will increase girl's patience based on measured future discounting, improve performance on mirror drawing and scavenger hunt tasks, and result in increases in the values of the previously described indices.

3) Child labor

The key outcome measures include participation in hazardous child labor, economic activity both inside and outside the home, and detailed information on time allocation. Data will be collected to serve as proxies for bonded labor and human trafficking, but we do not expect prevalence rates that would permit further analysis of bonded labor or human trafficking.

We hypothesize that the Room to Read intervention will reduce time spent working and incidence of forced labor.

4) Cognitive skills and academic achievement

The key outcome measures include a continuous measure of student grade point average collected from administrative data, time spent studying, and performance on a cognitive test administered by the research team at endline (subject to available funding).

We hypothesize that the Room to Read intervention will increase time spent studying.

B. Evaluation setting

1) Evaluation participants

The principal investigators for this project are Eric Edmonds, Professor of Economics at Dartmouth College, Benjamin Feigenberg, Assistant Professor of Economics at the University of Chicago – Illinois, and Jessica Leight, Assistant Professor of Economics at Williams College. Professor Edmonds is an expert on child labor who has conducted extensive research on child labor, forced labor, human trafficking, youth migration, and human capital in poor countries. Professor Feigenberg focuses on understanding educational choices made by households and the structure of educational markets in developing countries. Professor Leight is conducting a number of randomized controlled trials in both sub-Saharan Africa and South Asia aimed at understanding households' decisions around human capital investments, particularly for women and girls.

The evaluation will be implemented with the Abdul Jameel Poverty Action Lab in South Asia (J-PAL SA), the implementing partner for the field survey work, and Room to Read, the implementing partner for the intervention.

The Abdul Jameel Poverty Action Lab, J-PAL SA's parent organization, is a global network of 101 researchers who use randomized controlled trials in more than 524 completed or ongoing evaluations to test and improve the effectiveness of programs aimed at reducing poverty. This organization has been active in India for over a decade in areas of health, education, environment, and political behaviour across several states in the country – an involvement which led to the formation of the South Asia branch in early 2007. J-PAL SA at IFMR currently has a portfolio of over 35 ongoing evaluations and about 27 completed evaluations. In addition to research projects, J-PAL SA works to encourage the use of randomized trials and build capacity for local development actors to generate and use evidence from such rigorous evaluations. Headquartered in Chennai, J-PAL SA also has a regional office in New Delhi and a local research office in Jaipur, Rajasthan, which will be the locus for this project.

Room to Read is a non-governmental organization that seeks to transform the lives of children in developing countries by focusing on literacy and gender equality in education. Room to Read works with local communities, partner organizations and governments to develop literacy skills and a habit of reading among primary school children, and support girls to complete secondary school with the relevant life skills to succeed.

Room to Read was established in India in 2003, its fourth country of operation. Programming provided in India includes the establishment of libraries, book publishing, school construction, and the Girls' Evaluation Program, which is the target of this evaluation. To date, Room to Read has established 6,446 libraries in India, published 148 books, and served 5,912 girls in the Girls' Education Program.

This evaluation also relies on two key consultants who bring expertise that complements that of the investigators. Professor Stephanie Jones at the Harvard Graduate School of Education is an expert on the assessment of life skills using survey instruments, and she will assist the investigators in designing survey instruments that are informative about the accumulation of new life skills. Professor Joan DeJaeghere of the College of Education and Human Development at the University of Minnesota will bring expertise and experience in the use of qualitative methods to understand gender, class, and ethnic inequalities in education.

2) Study design

Given that Room to Read's programs are targeted to a particular school, an individual-level randomization would clearly not be appropriate; the evaluation entails randomization at the level of the school. The evaluation includes 119 schools, of which 59 have been randomly assigned to the control arm. All schools are located in Ajmer district in Rajasthan.

The evaluation design includes the following survey activities. The baseline survey, which has been completed *prior* to the initiation of any programmatic activities by Room to Read in the schools of interest; rollout of programmatic activities in the first schools beginning in August 2016, the commencement of the 2016–17 school year.

Following the baseline survey, each one of the 2,459 girls in the study sample will be revisited for a tracking survey every six months until endline (commencing in December 2016, June 2017, and December 2017). Tracking surveys will be targeted only at the girl, and will collect information about her school enrollment, attendance, marital status, time allocation, and recent changes in household composition. If the girl herself is not available or cannot be surveyed at school, she will be visited at her current place of residence if it is within Ajmer. If she cannot be surveyed, the same set of questions will be posed to an adult household member. This will be followed by an endline survey conducted between March and June 2018.

In addition, qualitative data collection is being conducted at baseline, midline and endline. This involves research activities in six schools served by Room to Read and in the associated communities. Three schools were selected in which school quality is above average, and two in which it is below average; a sixth school was selected because it is an all girls' school. In each school/community, qualitative data collectors have conducted ten in-depth interviews with girls included in Room to Read programming, as well as eight in-depth interviews with parents (on average). Social mobilizers and fifth grade teachers will be interviewed at a later date as the social mobilizers were not yet selected at the time of qualitative data collection.

The objective of the qualitative data collection is to understand better the channels through which the Girls' Education Program changes attitudes, perceptions and decision-making processes for girls, teachers, parents and other stakeholders. Qualitative data is being collected by staff members trained in in-depth interview techniques and collection will include the transcription, translation and coding of the resulting data.

3) Power calculations

Power calculations for the evaluation were constructed in the study design phase using data on school achievement and child labor in Rajasthan as a whole. The power calculations described herein have been updated using recently-collected baseline data.

Given an estimated enrollment rate of girls between ages 12 and 14 (the estimated age of the sampled cohort at follow-up) of 90%, the planned evaluation size (60 treatment schools and 59 control schools) will allow us to detect an increase in this enrollment rate to 95%, a proportional increase of 6%. Given an estimated participation rate of girls in in work for pay of 82%, the planned evaluation will allow us to detect a decline in this participation rate to 73%, a proportional decrease of 11%. Given that 28% of surveyed secondary school-aged girls are married, the planned evaluation would allow us to detect a decline in this marriage rate to 18%, a proportional decrease of 36%.

4) Pilot and questionnaire development

Prior to conducting the baseline survey, the evaluation team engaged in an extensive period of piloting and questionnaire development. This work focused particularly, though not exclusively, on the development of instruments tailored to measure the life skills that Room to Read seeks to enhance through its programming.

The questionnaire development work had three phases: first, a pilot was conducted with 100 households in Phalodi, a district in which Room to Read was already operating, employing a life skills questionnaire developed under the guidance of Professor Stephanie Jones at the Harvard School of Education. The objective was to explore the relevance and comprehension of life skills questions for girls who had previously been exposed to Room to Read programming.

Second, an intensive period of questionnaire development and continuous piloting was undertaken in Ajmer district under the supervision of Eva Roca, a consultant with extensive experience in measurement of life skills and empowerment among adolescent girls. The objective was to experiment with various questions as well as objective measures of life skills working directly with girls in the sample districts. The key points explored were comprehension, variability, and internal consistency: that is, questions included in the survey should be easily understood by respondents; should generate varied responses; and should be designed such that responses to closely related questions are internally consistent.

Third, the complete child and household questionnaires were piloted with 30 respondents in Ajmer district. In this final phase, the objective was to identify any challenges that had not been addressed and ensure that the questionnaire was of manageable length and flowed smoothly for respondents. Following the completion of this pilot period, the questionnaire was scripted for electronic data collection using tablets.

5) School selection

The selection of schools eligible for inclusion in this evaluation was undertaken between August and November 2015. J-PAL staff visited all schools in Ajmer district that include girls enrolled in the relevant classes (six through eight) and collected some basic information about school facilities and enrollment. This information was also linked to administrative records about school facilities and enrollment provided by state educational authorities.

The evaluation team and Room to Read then jointly identified criteria that would determine whether or not a school was eligible for inclusion in the evaluation. These criteria included the requirements that the schools enrolled girls in classes six through eight, did not have any other NGOs providing life skills curricula to students, and had a classroom in acceptable condition in which a life skills class could take place. The evaluation team then identified the narrowest possible range of enrollments that would yield a sample of schools enrolling 2500 girls in total; the objective was to have a relatively homogeneous sample of schools in terms of size.

Ultimately, the sample includes 119 schools that are located in Ajmer District in Rajasthan, India; this is all schools in Ajmer meeting the previously specified eligibility criteria that had between 16 and 32 girls enrolled in class five as of Fall 2015. Relative to the original evaluation design, the number of schools increased from 100 to 119 as the average number of girls enrolled in class five in each school, and thus eligible for Room to Read programming in class six in the subsequent year, was lower than anticipated. 60 schools are assigned to the treatment arm, and 59 schools to the control arm.

The final sample of schools included in the evaluation vary in terms of their structure: 58 of the schools include classes 1 through 12; 25 schools include classes 1 through 10; and 36 schools include classes 1 through 8.

6) Child selection

Following the selection of the sample schools, J-PAL engaged a small team of enumerators to visit each school between December 2015 and January 2016 to obtain a roster of all girls enrolled in class five in these schools. The target sample for our baseline survey included **all** female students who were currently enrolled in class five in these schools as of January 2016 (2,543 female students in total). There was no further selection of girls within schools.

7) Comparing our sample to the broader population

Table 1 provides some simple summary statistics comparing variables measured in our survey for our sample population to identical variables measured in the 2005-06 District Level Health and Facility Survey. It is evident that our population is characterized by significantly higher rates of school enrollment for both boys and girls of varying ages than Rajasthan or India as a whole, though it should be noted that the ten year lag between the DLHS and our baseline survey may have coincided with rapid increases in enrollment in the state. In addition, households selected for our sample by definition had a female child enrolled in class five at the point at which school rosters were sampled. Households that are particularly unlikely to enroll their female children may thus be excluded if their daughters had

already dropped out by that point, or had failed to enroll entirely.

In addition, the households in our sample are relatively large in size, are land-poor, and are more likely to be Muslim or a member of the Other Backward Castes (OBC).

Table 1: Sample compared to Rajasthan and India				
Variable		Sample mean	Rajasthan mean	India mean
Enrollment: girls 10-12		97.5	70.46	85.22
Enrollment: boys 10-12		97.7	89.76	89.21
Enrollment: girls 12-14		91.98	60.69	79.5
Enrollment: boys 12-14		92.37	82.87	83.71
Child works: girls 10-12		85.6	90.15	74.03
Land owned (hectare)		1.04	1.55	2.24
Household size		6.76	5.41	4.9
Percent Muslim		21.42	9.85	12.25
Percent Schedule Caste/ Scheduled Tribe		25	32	31.32
Percent OBC		68	45	32.72

C. Baseline data collection

1) Survey design and administration

The baseline survey was launched in February 2016 and began with a two-week training of enumerators, field supervisors, and back checkers. In total 26 staff were trained, of which 20 were recruited as enumerators, four as field supervisors and two as back checkers. All the enumerators were female; the majority were recruited locally in Ajmer district following an advertisement and interview process, and were aged between approximately 25 and 40. The local enumerators were supplemented by 3 more experienced enumerators and one field supervisor who had been engaged in previous J-PAL projects in Bihar state, and who were resident in Ajmer for the duration of the survey. The full team was further supplemented by two field monitors and managed by a field manager and our research assistant, Mohar Dey.

The training process focused on developing enumerator skills. Key points included strategies to locate respondents within the community; the importance of informed consent and how to correctly structure the consent process; establishing a rapport with respondents as well as with other stakeholders in the community; maintaining fidelity to the questionnaire; full comprehension of the questionnaires themselves; and correct use of the tablets. (All data collection was implemented using ODK software on handheld tablets.)

The survey teams then deployed to the field using household rosters that were constructed based on the lists of enrolled girls obtained from sampled schools. The information provided by the schools typically included the name of the head of household and the child herself, as well as some identifying information about the location of the household. In general, however, it was also necessary for enumerators and field

supervisors to work with community members to locate each household. Field supervisors and field managers would also make courtesy visits to community stakeholders (including the sarpanch or village leader, school headmaster, and teachers) when they first arrived in the community in order to introduce the team and outline the survey's objectives.

Each survey included a minimum of two visits to the household, as the survey administered to the girl herself was divided into two parts. This choice was made in order to maximize attention and avoid fatigue; in addition, the first visit was used to introduce a scavenger hunt task to the girl, so that she could engage in the scavenger hunt prior to the second visit. However, many households required more than two visits total to complete the data collection process, particularly as the household survey included multiple modules to be answered by different individuals. (For example, introductory modules including household rosters were administered to the head of household or the individual most knowledgeable about the household. Modules collecting information about perception of the child's life skills were administered to the individual primarily responsible for the child's care.)

The survey encountered two primary challenges. The first was retaining enumerators. Given that the survey team encompassed primarily younger women, there was a high degree of turnover as enumerators pursued other educational or professional opportunities. Retention challenges also increased in the latter part of the survey period, due to the intensifying heat. Of the 20 enumerators and 4 field supervisors recruited at the start of baseline, only 8 enumerators and 2 supervisors continued until the completion of baseline surveying. Despite this challenge, however, we were able to maintain a survey team at the target size (around 20 enumerators and 4 supervisors) by recruiting and training new enumerators in waves.²

The second challenge encountered was community perceptions of the survey, particularly the surveys administered to girls and the use of the scavenger hunt. While household surveys are not unusual in this area, many households expressed surprise or discomfort when enumerators sought to survey their female children. In some cases, even administering surveys to adult females in the household seemed controversial. At times, other households in the community also reacted negatively to the presence of the survey team, and were suspicious of girls engaging in the scavenger hunt; in one community, there were rumors that the scavenger hunt was linked to black magic. Our field team also observed that these suspicions were sometimes heightened by differences in caste and socioeconomic background between the enumerators and the households they were visiting.

We addressed these challenges in a number of ways. First and most importantly, we benefited from an excellent team of field supervisors and managers, the majority of which had experience conducting surveys in this area. They were able to train the enumerators in liaising effectively with households, reiterating the objectives of the survey and addressing any doubts or suspicions. Second, we maintained active relationships with community stakeholders. We regularly visited village leaders, school principals and head teachers, and would also engage them in jointly speaking to households in which suspicions were expressed. Our objective always was to clarify that while households or children were free to decline to participate, the goal of the survey was only to collect information that would be kept confidential and that the risk for respondents was minimal.

Our objective was to conduct a household survey and a child survey for every child in the sample. There were some cases (3% of the full sample) in which multiple sampled girls lived in the same household (80 households in total); these are typically cases in which the girls are cousins living in a large extended

² In the first wave of supplementary hiring, six enumerators were hired, and four continued until the end of the survey. In the second wave of supplementary hiring, four additional enumerators were hired, all of whom continued to work until the conclusion of the survey. In the third wave of supplementary hiring, again four enumerators were hired and all continued to work until the conclusion of the survey.

family. In these households, the modules focusing on household rosters, household socioeconomic status, etc. are collected only once; however, a separate module focusing on the parent's perception of the child's life skills was administered for each child, directed to the parent or primary caretaker of that child.

2400 girls in our sample had both household and child surveys conducted.

2) Girl surveys missing

For 43 girls included in the sample lists provided by the schools, we were ultimately able to conduct a household survey (including a survey of the child's parent or primary guardian) but did not collect a child survey. These 43 girls live in 42 separate households. Household surveys were collected without corresponding child surveys when the parent or child declined consent for the child's participation, particularly due to suspicions about the scavenger hunt (21 girls) ; and/or the child was residing in another community (2 girls) or away from home for a long period of time during the summer vacation (20 girls).

Table 2 below reports the months in which household surveys were completed with missing child surveys.

Table 2: Missing child surveys by month	
February	9
March	11
April	10
May	7
June	2
July	4

3) Household surveys missing

For 16 girls included in the sample lists, living in 15 separate households, we were ultimately able only to conduct a survey of the child and did not complete a household survey. In 5 of these cases, the household head and other responsible adults were not available (i.e., working at another location, or working extremely long hours). In 10 of these cases, consent for the child survey was provided by an individual other than the household head; this was the primary caretaker of the child, either the mother or the grandmother. Subsequently, when the household head learned about the scavenger hunt, he/she declined to participate in the survey. In the remainder, the parent declined to consent to be surveyed.

Table 3 below reports the months in which child surveys were completed with missing household surveys.

Table 3: Missing household surveys by month	
February	6
March	3
April	3
May	3
June	0

July	1
------	---

4) Households dropped from the sample

Ultimately, some girls listed as enrolled in our sample schools could not be reached. The rosters that were collected from the sample schools included 2,543 girls. We will consider a girl to be part of our sample if either the household or child survey or both is available at baseline; our final baseline sample thus includes 2,459 girls, living in 2,385 households. This is 97% of the girls represented in the sampled school rosters, and 98% of our original target sample of 2,500.

78 households, including 84 children in the sample rosters, were thus excluded from our sample. Of these households, 41% had permanently migrated to a different community prior to the date on which the survey team visited the community— a fact reported by neighbors or other community informants – or simply could not be located. 39% did not provide consent. The reasons for non-inclusion for the remaining households varied, but included illness or death of the child (4%); parents who were uniformly unavailable during survey hours and thus could not be surveyed or provide consent for the child to be surveyed (3%); and cases where the child was away from home, particularly during school vacation, and parents declined to participate in her absence (12%).³

5) Key outcomes at baseline

The baseline questionnaires are provided as an appendix to this report (Appendices 2 and 3). In analyzing the baseline data, we have focused on measuring the same child outcomes that were mapped out as outcomes of interest for the evaluation. In addition, we will report some summary statistics for household socioeconomic characteristics that will not be evaluation outcomes but are informative in characterizing the sample. 2,370 separate households are observed in the household surveys.

First, it is useful to characterize the sample demographics. 25% of the sampled households are members of a scheduled caste or scheduled tribe; 67% are members of a caste group denoted as OBC, or other backward caste, and the remainder are members of general caste households. 20% of households are Muslim, and 80% Hindu. 21% of households report primary dependence on self-employment in agriculture, and 8% on self-employment outside of agriculture. 50% report dependence on a regular wage, and 15% on casual labor outside of agriculture.

Additional summary statistics at the household level are provided in Table 4 below. The average household reports ownership of around six bighas of land, or approximately one hectare. 75% have an NREGA card, which reflects participation in the national guaranteed employment program. Households include around seven members, and on average four children, of whom two are girls. Total consumption in the last month averages around 26,000 rupees or \$400.

We also report a series of measures for children at upper primary age (between 10 and 13) and secondary age (between 14 and 18). Enrollment for primary school-aged children is near universal, while school enrollment for secondary-aged children is 51% for girls and 66% for boys. The marriage rate is high even at young ages: 11% for younger girls, and nearly 30% for secondary age girls; however, these marriages do not yet entail cohabitation. Attendance rate is measured as the number of school days in the past week that a child attended divided by the number of days the child's school was open; if the school was not open in the last week, attendance is coded at zero. Average attendance rate for secondary school-aged children ranges from 33% for girls to 41% for boys.

³ Percentages do not add up to 100 due to rounding.

It should also be noted that these summary statistics are restricted to information reported in the household survey, excluding the child survey.

Table 4: Summary statistics for sampled households			
	Mean	Standard deviation	Observations
Land owned (bighas)	6.397	16.149	1887 ⁴
Land cultivated (bighas)	2.328	12.666	1596 ⁵
Household holds NREGA card	0.757	0.429	2370
Number of household members	6.816	2.808	2370
Number of boys in household (under 18)	1.381	1.023	2370
Number of girls in household (under 18)	2.402	1.348	2370
Non-food expenditures in Rupees (last 30 days)	9979.438	40795.48	2370
Food expenditures in Rupees (last 30 days)	16193.16	207009.9	2370
Durables expenditures in Rupees (last year)	123783.3	970680.6	2370
Enrollment rate at upper primary age: boys	0.960	0.195	666
Enrollment rate at upper primary age: girls	0.952	0.208	2081
Average attendance rate at upper primary: boys	0.712	0.419	666
Average attendance rate at upper primary: girls	0.691	0.416	2081
Marriage rate at upper primary age: boys	0.064	0.239	666
Marriage rate at upper primary age: girls	0.106	0.303	2081
Enrollment rate at secondary age: boys	0.657	0.474	727
Enrollment rate at secondary age: girls	0.511	0.495	926
Average attendance rate at secondary age: boys	0.412	0.459	727
Average attendance rate at secondary age: girls	0.325	0.451	926
Marriage rate at secondary age: boys	0.178	0.375	727
Marriage rate at secondary age: girls	0.280	0.439	927

Average summary statistics for the 36 child outcomes mapped out in the analysis plan are provided in Table 5. Table 5 is subdivided into two panels, reporting first those indicators that are reported in the child and the household survey, and second those indicators that are reported in the child survey. Variable definitions are presented in the Analysis Plan included as Appendix 3. For those variable definitions that reference specific question numbers, please refer to the Household and Child surveys included as Appendices 1-2 for additional details.

In sum, 3% of the sampled children have already dropped out of school. Attendance is relatively high, at around 70% in the past week. However, a large number of children have not attained the appropriate grade for their age.

We define grade progression as a dummy variable equal to one if a child is at the appropriate grade for age, and zero otherwise (i.e., if her progression through school is delayed, or if she has already dropped out). Since all sampled girls in the baseline who are still attending school are enrolled in class five, those girls for whom grade progression equals zero are older than the target age for class five (10-11), or have

⁴ 7% of households, or 175 households, report that they own no land individually but access collectively owned land. 308 households, or 13%, cannot estimate the amount of land owned.

⁵ Again, 175 households do not report land cultivated because it is cultivated collectively, and in this case an additional 599 households (or 24%) cannot estimate the amount of land cultivated.

dropped out. Approximately a third of the sampled girls are delayed in their school progression. 17% of the sampled girls are married.

We also report the summary statistics for a number of constructed indices of non-cognitive skills. These summary statistics are not directly interpretable, but will be employed in the balance tests and to assess shifts in life skills over time.

Table 5: Summary statistics for sampled children			
	Mean	Standard deviation	Observations
School Dropout ⁶	0.0265	0.161	2457
School Attendance Rate (Past Week) ⁷	0.693	0.175	2456
Any School Attendance (Past Week)	0.758	0.739	2456
Grade Progression ⁸	0.680	0.217	2435
Girl's Marital Status (1=Married)	0.166	0.139	2459
# Completed Mirror Drawings (0-4)	2.415	1.237	2416
Time on Mirror Drawings (seconds)	68.29	70.06	2416
Scavenger Hunt Index	-0.0184	0.962	2416
Socio-emotional Support Index	0.0178	0.465	2416
Freedom of Movement Index	-0.0263	0.469	2416
Empowerment Index	-0.00338	0.415	2416
Self-Esteem/Self-Efficacy Index	0.0127	0.485	2416
Marriage Expectations Index	-0.656	1.853	2416
Future Plans Index	-0.102	0.623	2416
Employment Expectations Index	-0.0225	0.836	2416
Gender Norms Index	-0.00148	0.509	2416
Enumerator Assessment Index	-0.0275	0.892	2416
Child Works	0.856	0.351	2416
Child Works for Pay	0.816	0.387	2416
Child Works outside of Family-Based Activity	0.673	0.469	2416
Child Labor	0.887	0.317	2416
Hazardous Child Labor	0.641	0.48	2416
Other Worst Forms of Child Labor	0.258	0.438	2416
Hours Worked	0.988	1.611	2416
Hours Unpaid Household Services	1.38	1.405	2416
Total Hours Active (Paid + Unpaid)	2.368	2.21	2416
Total Hours Active Outside Home	0.55	1.349	2416
Hours Spent Studying	0.698	0.953	2416
Hours Spent on School	6.06	2.831	2416
Parental Perceptions of Girl's Strengths Index	-0.474	1.195	2416
Parental Perceptions of Girl's Self-Efficacy Index	-0.209	0.195	2416

⁶ In two cases, the adult responding to the household survey had no knowledge of the child's enrollment, and the child survey was not administered.

⁷ Note that attendance in the past week is coded as zero if the school is not reported open in the last week. Three observations are missing; in two cases, the adult responding to the household survey was not aware of the child's attendance, and the child survey was not administered; in one case, neither the adult nor the child reported attendance.

⁸ Grade progression can only be calculated if the child's age is reported. In the 17 cases in which a child survey was administered without the household survey, the child's age is unknown; in an additional seven cases, the adult responding to the household survey could not report the child's age.

Parental Perceptions of Girl's Freedom of Movement Index	-0.371	0.251	2416
Parent-Daughter Communication Index	-0.472	0.314	2416
Parental Gender Norms Index	0.0187	0.379	2416
Parental Attitudes towards Girl's Schooling Index	0.253	0.685	2416
Parental Attitudes towards Girl's Marriage Timing Index	-0.124	0.263	2416

D. Randomization

1) Randomization method and stratification

We conducted a stratified randomization that assigned 60 of the 119 sample schools to the Treatment group. Randomization was stratified based on whether schools were above or below median quality, where quality was defined based on a normalized index that included measures of teacher experience, teachers' educational attainment, and classroom and school infrastructure quality.

Following the initiation of data collection, it was discovered that three of the schools selected to be in the sample in fact did not enroll girls past class five; for the upper-level classes, these were single-sex schools including only boys. During the sample selection process, these schools were incorrectly designated as including higher-class girls as well. These three schools (two treatment and one control school) were dropped, and an additional three schools were selected to replace them.⁹ These replacement schools will constitute an additional third strata.

2) Balance tests: school characteristics

We conducted balance tests employing school characteristics as reported in the data collected by the research team during the school selection process. The balance tests were restricted to a small set of clearly defined indicators: the school type (whether it enrolled classes 1-8, 1-10, or 1-12); the school quality characteristics employed to construct the quality measure on which schools were stratified; and enrollment by gender in each class observed. (For schools that do not enroll all classes, enrollment is coded as missing for the classes that are not represented in the school.)

The table on page 15 reports the results of simple regressions in which the school characteristic of interest is regressed on a treatment indicator and strata dummies. We present the coefficient on the treatment indicator variable from each regression along with heteroskedasticity-robust standard errors. In general, school characteristics appear balanced across treatment groups. Since it is possible that a joint hypothesis test across equations may reject the null hypothesis that the true value of the treatment coefficient is zero even when the treatment coefficient is not statistically significant in any individual equation, we also present a test of joint significance. To construct this test, we employ a seemingly unrelated regression specification that allows us to test the joint significance of the treatment coefficient across equations while accounting for any cross-equation error correlation. The p-value on this joint test of significance of the treatment coefficient is .186, implying that we fail to reject the null hypothesis that the treatment coefficient is equal to zero (and hence fail to reject that school characteristics do not differ systematically based on treatment status).

⁹ The replacement process for these schools entailed identifying 12 schools that met the eligibility criteria if the enrollment window was slightly lowered to 15. Three schools were randomly chosen to join the sample among the 12, and of these, 2 were randomly assigned to the treatment group.

Table 6: Balance tests for school characteristics											
	School type	Fraction teachers with bachelor's degree	Normalized classroom quality	Dummy variable for walls in good condition	Dummy variable for ventilation	Girls enrolled in class 5	Boys enrolled in class 5	Girls enrolled in class 6	Boys enrolled in class 6	Girls enrolled in class 7	Boys enrolled in class 7
Treatment Coefficient	-0.242	0.271	-0.188	0.04	0.197	-0.978	-0.629	0.129	-0.809	-1.899	0.000
Standard Error	(0.267)	(0.170)	(0.165)	(0.155)	(0.173)	(0.853)	(1.784)	(2.042)	(2.507)	(2.174)	(2.408)
<i>N</i>	119	119	119	119	119	119	119	119	119	119	119
* $p < 0.05$; ** $p < 0.01$											
	Girls enrolled in class 8	Boys enrolled in class 8	Girls enrolled in class 9	Boys enrolled in class 9	Girls enrolled in class 10	Boys enrolled in class 10	Girls enrolled in class 11	Boys enrolled in class 11	Girls enrolled in class 12	Boys enrolled in class 12	
Treatment Coefficient	-4.028	-2.242	-10.283	3.036	-8.31	-3.409	-17.914	-8.289	-19.954	-12.748	
Standard Error	(2.457)	(2.405)	(5.959)	(5.352)	(4.658)	(4.225)	(12.737)	(6.203)	(12.567)	(7.524)	
<i>N</i>	119	119	83	83	83	83	58	58	58	58	

3) Balance tests post-baseline characteristics

Following the completion of the baseline, we also conducted balance tests to compare characteristics of the households in the treatment and control arms. The results are reported in Tables 7 and 8.

Table 7 reports the results of simple regressions in which the household characteristic of interest is regressed on a treatment indicator and strata dummies. We present the coefficient on the treatment indicator variable from each regression. We also present standard errors that are clustered at the school level, which is appropriate since this is the level of the randomization. Estimates indicate that households in the treatment arm report significantly higher rates of marriage for primary school-aged girls and are more likely to be from other backward castes. As described in the previous discussion of the school characteristics balance test, we also present results from a seemingly unrelated regression specification that tests the joint null hypothesis that the treatment coefficient is equal to zero. Here, the p-value on this joint test of significance is .116, implying that we fail to reject the null hypothesis that the treatment coefficient is equal to zero at standard significance levels.

Table 8 reports similarly-constructed balance tests for child characteristics. Here, the evidence suggests that girls in the treatment arm are characterized by somewhat worse outcomes. They have lower scores on several non-cognitive indices, complete fewer drawings in the mirror task, are more likely to work outside the home, and work longer hours. Notably, girls in the treatment arm do have significantly higher school attendance rates. The p-value on a joint test of significance of the treatment coefficient across all equations, constructed as described above, is 0.0099, implying that we reject with a high degree of certainty that child characteristics do not differ systematically based on treatment status.

Table 7: Balance tests for household characteristics

Table 7: Balance tests for household characteristics												
	Other backward castes household	Primary household source of employment=wage / salary earning	Land owned	Land cultivated	Household holds NREGA card	Number of household members	Number of boys in household (under 18)	Number of girls in household (under 18)	Non-food expend. in Rupees (last 30 days)	Food expend. in Rupees (last 30 days)	Durables expend. in Rupees (last year)	
Treatment Coefficient	0.0921*	-0.0197	1.372	0.440	-0.0902	-0.107	0.0459	-0.044	-903.2	-11,791	31,990	
Standard Error	(0.0381)	(0.0313)	(1.121)	(0.761)	(0.0624)	(0.140)	(0.0508)	(0.0604)	(1,731)	(8,025)	(40,792)	
N	2,370	2,332	1,887	1,596	2,370	2,370	2,370	2,370	2,370	2,370	2,370	
* $p<0.05$; ** $p<0.01$												
	Enroll-ment rate at upper primary age: boys	Enrollment rate at upper primary age: girls	Enrollment rate at secondary age: boys	Enrollmen t rate at secondary age: girls	Marriage rate at upper primary age: boys	Marriage rate at upper primary age: girls	Marriage rate at secondary age: boys	Marriage rate at secondary age: girls	Average attendance rate at upper primary age: boys	Average attendance rate at upper primary age: girls	Average attendance rate at secondary age: boys	Average attendance rate at secondary age: girls
Treatment Coefficient	0.00514	-0.00079	0.0358	-0.0476	0.0347	0.0457*	0.0603	0.0469	0.0624	0.0279	0.0355	0.00910
Standard Error	(0.0170)	(0.0119)	(0.0407)	(0.0369)	(0.0196)	(0.0216)	(0.0336)	(0.0380)	(0.0460)	(0.0357)	(0.0415)	(0.0394)
N	666	2,081	727	926	666	2,081	727	927	666	2,081	727	926

Table 8: Balance tests for child characteristics

	School Dropout	School Attendance Rate	Any School Attendance (Past Week)	Grade Progression	Girl's Marital Status (1=Married)	# Completed Mirror Drawings (0-4)	Time on Mirror Drawings (seconds)	Scavenger Hunt Index	Socio-emotional Support Index	Freedom of Movement Index	Empowerment Index
Treatment Coefficient	0.00120	0.0578**	0.0562**	-0.0227	0.0530**	-0.141**	-3.297	-0.0349	0.0356	-0.053**	-0.00547
Standard Error	(0.00647)	(0.0167)	(0.0176)	(0.0189)	(0.0150)	(0.0501)	(2.850)	(0.0391)	(0.0189)	(0.0191)	(0.0169)
<i>N</i>	2,457	2,456	2,456	2,435	2,459	2,416	2,416	2,416	2,416	2,416	2,416
* <i>p</i> <0.05; ** <i>p</i> <0.01											
	Self-Esteem/Self-Efficacy Index	Marriage Expectations Index	Future Plans Index	Employment Expectations Index	Gender Norms Index	Enumerator Assessment Index	Child Works	Child Works for Pay	Child Works outside of Family-Based Activity	Child Labor	Hazardous Child Labor
Treatment Coefficient	0.0334	-0.249**	-0.0762**	-0.0416	-0.00276	-0.0549	0.0677**	0.0484**	0.0498**	0.0183	0.0418*
Standard Error	(0.0197)	(0.0753)	(0.0253)	(0.0340)	(0.0207)	(0.0363)	(0.0141)	(0.0157)	(0.0191)	(0.0129)	(0.0194)
<i>N</i>	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416
	Other Worst Forms of Child Labor	Hours Worked	Hours Unpaid Household Services	Total Hours Active (Paid + Unpaid)	Total Hours Active Outside Home	Hours Spent Studying	Hours Spent on School				
Treatment Coefficient	-0.00208	0.183**	0.0787	0.262**	0.0692	-0.0197	0.174				
Standard Error	(0.0178)	(0.0653)	(0.0572)	(0.0895)	(0.0548)	(0.0387)	(0.115)				
<i>N</i>	2,416	2,416	2,416	2,416	2,416	2,416	2,416				

E. Qualitative data collection

1) Overview

The qualitative interview protocol was based on the domains identified in the quantitative child survey, but offers the opportunity to elicit a broader set of responses and clarify further through probing questions.

Girls enrolled in six schools assigned to receive Room to Read programming were selected for open-ended interviews. The villages/schools were selected based on a set of variables capturing school quality reported in the school selection data compiled by the quantitative research team. These criteria included the student sex ratio, the number of teachers, qualification of teachers, and school resources (the latter three criteria were also used for the selection of schools for the quantitative data collection). We then chose three schools above the mean of this index of variables, and two below. A sixth school was selected because it was an all girls' school (and thus the variable of girl/boy ratio was not relevant).

Geographic variation was also ensured by selecting two urban schools and four rural schools: The sample communities ultimately included Kayampura, Nareli, Naka Madar, Buharu, Arwad and Nasirabad. (Nasirabad had initially been identified as a community eligible for the quantitative data collection but was subsequently dropped, as the school in this community only continues through class five.)

Ten girls from each village were randomly selected for a total of 60 girls (50 after the deletion of one school); and 40 parents from these five villages. Social mobilizers and fifth grade teachers will be interviewed at a later date as the social mobilizers were not yet selected. The sample of interviewed girls includes 15 from households that identify as other backward castes (OBC), 4 from Scheduled Tribe households, 6 from Scheduled Caste households, and 11 from Muslim households. Interviews were transcribed and translated (from Marwadi to Hindi) and then analyzed. Selected quotes were then translated to English.

2) Key findings

Key findings of the qualitative data collection process can be summarized as follows.

a) *School Progression and Completion*

- None of the girls had siblings that studied beyond grade 12, and only 11 had siblings who had studied beyond grade 9.
- Discipline and a lack of good teaching may be key inhibitors to girls staying in and learning in school. While girls generally like their schools, they also reported being disciplined for not learning well. Many girls also had challenges in learning math and English.

“Is there anything that you don’t like in your school?”
Girl: being hit” (Girl interview)
- Attending and completing schooling was related to costs. Seven girls had previously changed from private to government schools. Ten girls had brothers studying in private schools.
- Five girls are (or had been) married or engaged, though this did not inhibit their current participation in school.

b) *Life skills*

- Girls had developed situated life skills that allowed them to express their interests at least to a limited extent; accomplish goals, particularly those related to their home environment; negotiate decisions with their family, though less so in terms of marriage, and to a small extent, articulate unequal gender norms that affected their daily lives.
- Decisions about marriage were challenging for girls to negotiate. However, the legal age of 18 years for marriage plays a role in parents delaying sending their daughters to in-laws' households, and therefore making room for attending school until grade 12. Early marriage is a kind of insurance that secures their daughter's future after her education is completed.

"I say I don't want to but she says she will make me do it (marry) nevertheless.

Interviewer: Mummy says she will make you do it.

Girl: yes

Interviewer: So how do you feel?

Girl: I feel very bad but mummy says "I'll make you do it, what will you do." (Girl interview)

- More than half of the girls we talked to who had goals felt they could achieve them.

"I wanted to learn cycling and learned it too, but don't have one" (but she managed to borrow one from a neighbor). (Girl interview)

- However, 14 of 30 who expressed goals they wanted to accomplish did not feel they had support or could achieve them. 17 girls did not express any short-term goals, suggesting they either had not thought about them or were not comfortable stating them.
- Most girls were not aware of specific challenges they face, such as safety in commuting outside of their village, attaining education, or in their future work or married life. However, parents expressed these concerns for girls.

Interviewer: "So, if they (girls go to study) go to Sarwad or Ajmer, do they face any problems in commuting?

Girl: No

Interviewer: No problems. Okay. So for boys, do they face any problems here like in studying?

Girl: No

c) *Work, Marriage and Girls' Futures*

- Girls did considerable house (and some farm) work but they did not regard this as disruptive to their studying. Most girls regarded this as important out-of-school learning for their future lives.
- Many girls were not able to articulate their future aspirations nor were they aware of the challenges they face, naturalizing the pathways to their future of getting married and working in the house/on the farm.

"Among Gurjars, it's like this, if you have a job it's good. Now the bypass has also been built and they are studying too. But is anyone giving jobs? Nobody is giving jobs. They've studied to 10th and 12th and are sitting at home". (Parent interview).

- Girls' aspirations for their future were mostly defined by opportunities to go to school and work within their villages. Most imagine a future farming or doing housework, and being married. A few have goals for further education and work (outside of the home).

d) Cognitive Skills and Achievements

- Some girls' home environments were not conducive to progressing through school. In a few cases, parents worked away from home and girls lived with relatives in order to be educated. These girls may face precarious futures in continuing their education, as they may return to their home villages (for work or marriage). Some parents, and girls themselves, also did not always regard girls as "having the brain" to study, suggesting they probably could not learn in school.
- Girls found math and English to be challenging for them to learn. Only 5 mentioned liking English or Math whereas 20 girls mentioned liking Hindi, suggesting that Hindi may be easier for them to learn/use.

"Hindi everyone gets, but not English and Math" (Girl Interview).

F. Next steps

1) Monitoring system

Following the completion of the baseline data collection, Room to Read is currently engaged in rolling out the intervention in the treatment schools as the new school year is initiated. The evaluation team is also cooperating with Room to Read to generate a plan for monitoring the intervention on an ongoing basis. The monitoring plan will include both compilation of routine administrative data by the team managing the Girls' Education Program in Rajasthan, and supplementary data collection by the evaluation team. (This may include spot checks of both treatment and control schools to observe whether the intervention is implemented as planned.) More details about the monitoring plan will be provided in the next Technical Progress Report.

2) Follow-up surveys

Follow-up data collection will include three tracking surveys, conducted every six months, and an endline survey conducted in spring 2018. The first tracking survey is expected to go into the field in December 2016; as schools are out of session in January, we anticipate January will be a fruitful period in which to conduct the survey.

Tracking surveys will be targeted only at the girl, and will collect information about her school enrollment, attendance, marital status, time allocation, and recent changes in household composition. If the girl herself is not available or cannot be surveyed, she will be visited at her current place of residence if it is within Ajmer. If she cannot be surveyed, the same set of questions will be posed to an adult household member.

The objective is for the tracking survey to be considerably briefer than the baseline survey, but allow us to observe any major changes experienced by the sampled girls and their households over time.

The endline survey will be considerably more comprehensive, and will include the full set of modules included at baseline as well as a test of cognitive skills and school achievement.

3) Lessons learned from baseline

The key points learned from the baseline survey include the following. First, maintaining a rapid pace of survey completion is challenging in the spring and summer, and also particularly challenging since we engage only female enumerators. We anticipate fewer challenges in retaining enumerators and maintaining a consistent pace of survey completion during other seasons.

Second, we continue to note that close engagement with community and educational leaders is essential to the successful completion of this evaluation. We anticipate that repeated surveying will reduce the barriers to surveys in households that have been skeptical previously, but will work with village leaders and principals to ensure that our survey team is well-received when we return to the sampled communities.

Third, while we found that school and household characteristics do not differ significantly based on treatment status, we also learned that child characteristics, and measures of child labor in particular, do differ significantly based on treatment status. Since we can verify that the randomization was carried out properly, these imbalances do not indicate that the experiment itself is any way invalidated. However, such evidence of significant differences in certain child characteristics based on treatment status does reinforce the need for each regression that examines program impacts on a particular endline outcome to control for the lagged (baseline) value of that outcome measure, as outlined previously in our analysis plan. The inclusion of this additional control variable in each regression will only negligibly reduce statistical power given the large number of observations included in each regression.

G. Appendices

- 1) Appendix 1: Household survey
- 2) Appendix 2: Child survey
- 3) Appendix 3: Analysis plan