

ONLINE APPENDIX

Reshaping Adolescents' Gender Attitudes: Evidence from a School-Based Experiment in India

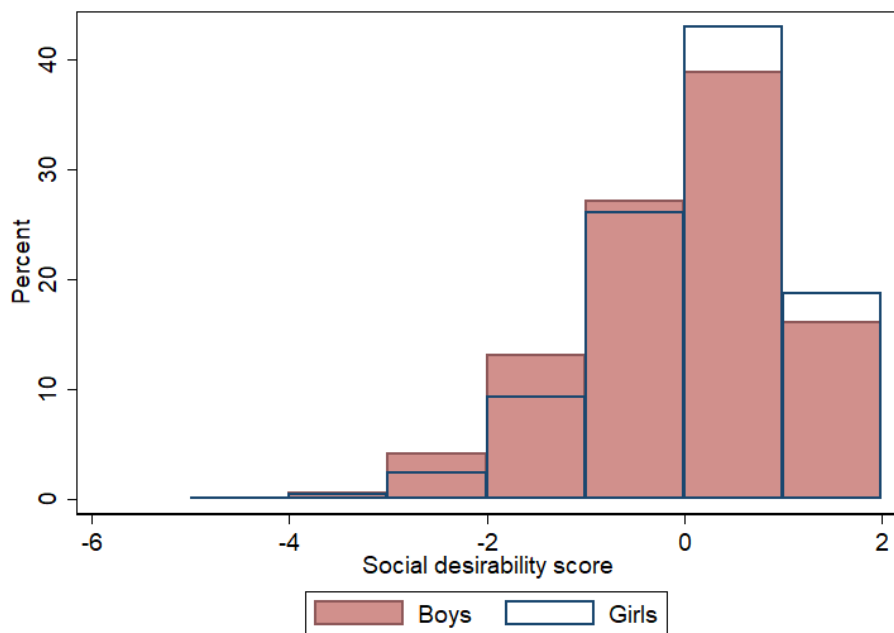
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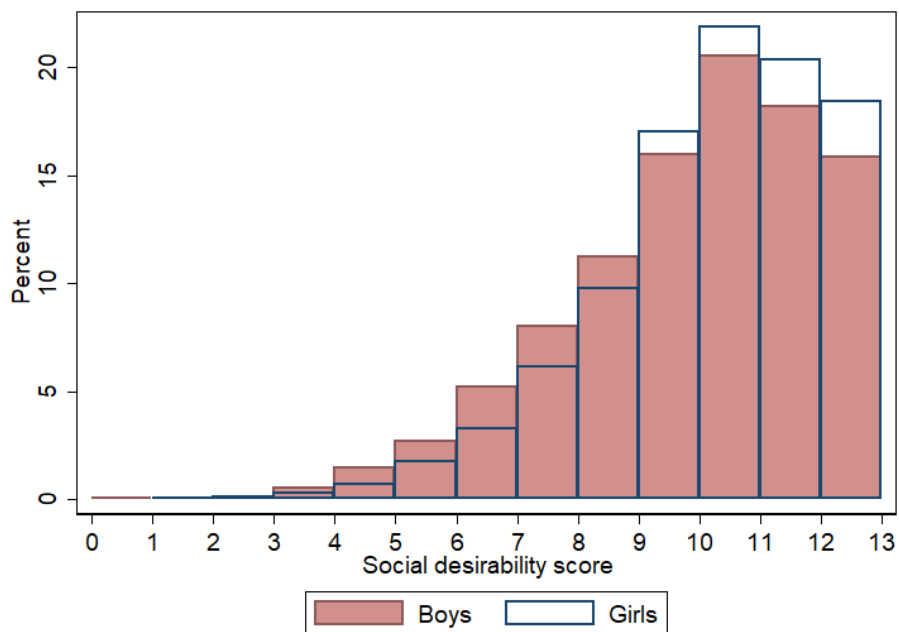
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Appendix Figure 1: Distribution of social desirability score

Panel (a): Normalized score



Panel (b): Raw score



Appendix Table 1: Baseline characteristics and balance by gender

Variable	Girls			Boys		
	Treat	Control	Standardized diff	Treat	Control	Standardized diff
Number of students	3990	4222		3061	3536	
Student's age	11.712 [1.246]	11.756 [1.225]	-0.036	11.991 [1.261]	11.972 [1.271]	0.015
Hindu	0.943 [0.231]	0.955 [0.207]	-0.055	0.948 [0.222]	0.951 [0.216]	-0.014
Enrolled in grade 6	0.552 [0.497]	0.547 [0.498]	0.010	0.493 [0.500]	0.489 [0.500]	0.008
Scheduled caste	0.258 [0.437]	0.270 [0.444]	-0.027	0.281 [0.450]	0.303 [0.460]	-0.048
Mother's age	35.542 [6.535]	35.477 [6.588]	0.010	35.354 [6.094]	35.689 [6.420]	-0.053
Father's age	40.380 [6.964]	40.439 [7.245]	-0.008	40.655 [6.802]	40.821 [6.986]	-0.024
Mother is illiterate	0.365 [0.482]	0.356 [0.479]	0.019	0.376 [0.485]	0.397 [0.489]	-0.043
Mother works full-time	0.289 [0.453]	0.294 [0.456]	-0.011	0.295 [0.456]	0.290 [0.454]	0.011
Dwelling has flush toilet	0.175 [0.380]	0.151 [0.358]	0.065	0.129 [0.335]	0.106 [0.308]	0.072
Gender attitudes index	0.293 [0.902]	0.257 [0.902]	0.040	-0.308 [1.037]	-0.307 [1.025]	-0.001
Girls' aspirations index	0.039 [1.001]	0.000 [1.000]	0.039			
Self-reported behavior index	-0.604 [0.698]	-0.634 [0.680]	0.044	0.759 [0.766]	0.757 [0.767]	0.003
Social desirability score	0.051 [0.971]	0.077 [0.960]	-0.027	-0.124 [1.068]	-0.092 [1.038]	-0.030
High social desirability score	0.396 [0.489]	0.397 [0.489]	-0.002	0.345 [0.475]	0.348 [0.476]	-0.006

Appendix Table 2: Testing for differential attrition and endline survey location

Panel A: Girls

	Endline 1			Endline 2	
	Attrited (1)	Surveyed in school (2)	Surveyed student in-person (3)	Attrited (4)	Surveyed student in-person (5)
Treated	0.010 [0.009]	-0.005 [0.018]	-0.000 [0.001]	0.010 [0.011]	-0.006 [0.005]
Treated × Gender attitudes index	-0.006 [0.006]	-0.016 [0.011]	0.001 [0.001]	-0.002 [0.007]	0.001 [0.004]
Treated × Girls' aspirations index	0.003 [0.005]	0.018* [0.009]	0.001 [0.001]	0.011 [0.007]	-0.002 [0.004]
Treated × Self-reported behavior index	0.011 [0.007]	-0.025* [0.014]	0.002 [0.001]	0.005 [0.009]	-0.006 [0.005]
Gender attitudes index	0.002 [0.004]	0.025*** [0.008]	-0.000 [0.001]	-0.005 [0.005]	0.000 [0.003]
Girls' aspirations index	-0.011*** [0.004]	0.005 [0.006]	-0.000 [0.000]	-0.016*** [0.004]	0.004* [0.003]
Self-reported behavior index	-0.008 [0.005]	0.024*** [0.009]	-0.001 [0.001]	-0.005 [0.006]	0.006* [0.003]
Control group mean	0.055	0.797	0.999	0.080	0.972
Treatment group mean	0.055	0.803	0.998	0.087	0.970
p-value: Treatment = Control	0.886	0.610	0.355	0.479	0.682
Basic controls	Yes	Yes	Yes	Yes	Yes
Number of students	8,212	7,802	7,802	8,212	7,566

Panel B: Boys

	Endline 1			Endline 2	
	Attrited (1)	Surveyed in school (2)	Surveyed student in-person (3)	Attrited (4)	Surveyed student in-person (5)
Treated	0.004 [0.011]	-0.040* [0.021]	0.000 [0.001]	0.010 [0.011]	-0.005 [0.005]
Treated × Gender attitudes index	-0.005 [0.006]	-0.014 [0.012]	0.001 [0.000]	-0.001 [0.006]	0.001 [0.004]
Treated × Self-reported behavior index	0.011 [0.008]	0.012 [0.015]	-0.000 [0.001]	0.006 [0.009]	0.002 [0.005]
Gender attitudes index	-0.005 [0.004]	0.015* [0.008]	-0.001 [0.000]	-0.003 [0.004]	0.001 [0.003]
Self-reported behavior index	-0.011** [0.005]	0.002 [0.010]	0.000 [0.001]	-0.005 [0.006]	-0.000 [0.003]
Control group mean	0.056	0.709	0.999	0.066	0.975
Treatment group mean	0.070	0.683	0.999	0.080	0.972
p-value: Treatment = Control	0.112	0.132	0.779	0.093	0.329
Basic controls	Yes	Yes	Yes	Yes	Yes
Number of students	6,597	6,185	6,185	6,597	6,119

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All columns control for grade and district fixed effects. Standard errors are clustered by school. The sample for columns 1 and 4 is the baseline sample, and the sample for columns 2, 3, and 5 are those who were successfully surveyed in the relevant endline round.

Appendix Table 3: Reasons for attrition from the sample

Panel A: Endline 1

	Girls	Boys	Total
Tracked and surveyed			
In school	6,241	4,312	10,553
At home	1,547	1,868	3,415
Over the phone	14	5	19
Tracked but could not be surveyed			
Student deceased or unwell	24	26	50
Student or parent refused assent	42	39	81
Not tracked			
Address not trackable	150	113	263
Student not found at home	15	31	46
Family in village but student moved	48	12	60
Family and student moved	113	102	215
Other	62	89	151

Panel B: Endline 2

	Girls	Boys	Total
Tracked and surveyed			
In-person	7,347	5,956	13,303
On phone	219	163	382
Parent survey*	182	116	298
Tracked but could not be surveyed			
Student deceased or unwell	43	22	65
Student or parent refused assent	189	134	323
Not tracked			
	276	206	484

Notes: The sample analyzed in this table are the 14,853 potential endline respondents (baseline respondents plus 44 students enrolled in the school with missing baseline data). * For Endline 2, we collected some data about students from their parents if the student was unavailable; these observations are considered to be in the “attrited” sample, as the main outcome variables are missing for these respondents.

Appendix Table 4: Descriptive statistics on school enrollment at endline

	Endline 1		Endline 2	
	Girls	Boys	Girls	Boys
Same school as at baseline	0.859 [0.348]	0.762 [0.426]	0.521 [0.500]	0.448 [0.497]
Private school in same village/town as at baseline	0.024 [0.152]	0.051 [0.221]	0.041 [0.199]	0.068 [0.252]
Govt school in different village/town than at baseline	0.033 [0.179]	0.039 [0.195]	0.086 [0.280]	0.100 [0.300]
Private school in different village/town than at baseline	0.021 [0.143]	0.045 [0.207]	0.047 [0.211]	0.076 [0.265]
Currently in formal schooling/college	0.936 [0.244]	0.898 [0.303]	0.745 [0.436]	0.682 [0.466]
Dropped out of school and not pursuing any other course	0.063 [0.243]	0.100 [0.300]	0.221 [0.415]	0.261 [0.439]
Aware of program (treatment group only)	0.851 [0.356]	0.876 [0.330]		
Number of observations	7,802	6,185	7,566	6,119

Notes: Table reports variable means and standard deviations.

Appendix Table 5: Baseline attitudes and aspirations by gender

Variable	Girls	Boys
Gender attitudes index	0.274 [0.902]	-0.307 [1.030]
Disagree: A woman's most important role is being a good homemaker	0.403 [0.490]	0.201 [0.401]
Disagree: A man should have the final word about decisions in his home	0.496 [0.500]	0.334 [0.472]
Disagree: A woman should tolerate violence to keep her family together	0.665 [0.472]	0.606 [0.489]
Disagree: Wives should be less educated than their husbands	0.748 [0.434]	0.562 [0.496]
Disagree: Boys should get more opportunities/resources for education than girls	0.421 [0.494]	0.177 [0.381]
Agree: Men and women should get equal opportunities in all spheres of life	0.918 [0.274]	0.901 [0.299]
Agree: Girls should be allowed to study as far as they want	0.959 [0.199]	0.869 [0.337]
Agree: Daughters should have a similar right to inherited property as sons	0.874 [0.331]	0.823 [0.381]
Agree: It would be a good idea to elect a woman as the village Sarpanch	0.814 [0.389]	0.685 [0.465]
Self-reported behavior index	-0.620 [0.689]	0.758 [0.767]
Boys cook/clean and Girls don't	0.018 [0.133]	0.880 [0.325]
Comfortable talking to students of opp. gender	0.405 [0.491]	0.497 [0.500]
Boys take care of younger siblings and Girls don't	0.034 [0.181]	0.917 [0.275]
Aspirations index	-0.081 [1.057]	0.117 [0.931]
Student has discussed education goals with parent or adult relative	0.794 [0.405]	0.840 [0.367]
Student's highest desired level of education is above sample median	0.465 [0.499]	0.535 [0.499]
Student expects white collar job when he/she is 25 years old	0.717 [0.450]	0.772 [0.420]
Number of students	8,212	6,597

Notes: Table reports variable means and standard deviations.

Appendix Table 6: Double-LASSO-selected control variables

Extended control variable	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Applied to scholarship (girls)	Supported petition
Student's grade at baseline					
Rural location					
Scheduled caste	X				
Scheduled tribe					
Muslim	X		X		X
Mother has completed 8th grade	BX				
House is pukka		G			
Dwelling has electricity		G			
Dwelling has flush toilet					
House has a no-flush toilet					
Family owns the house					
Household owns radio or tape recorder					
Household owns TV					
Household owns refrigerator	X				
Household gets newspaper daily	X				B
Household gets tap water					
Household owns water pump					
Self-efficacy index					
Social desirability score	BX				
Parent's baseline gender attitudes index	X		X		
Number of guest teachers in the school	G	G	G	G	G
Number of full-time teachers in the school	BGX	G	BGX	G	BGX
Fraction of female teachers	BGX			G	BX
Availability of counsellor in the school	GX	G	GX	G	GX
Number of PTA meetings held in the last year	BX		BX		BX
School has a functional library	GX	G	GX	G	GX
School has functional toilets					B
School has electricity	BGX	G	BGX	G	BGX
School has access to computers	BGX	G	BGX	G	BGX
School has access to internet	GX	G	GX	G	GX
School has sports field	BX		BX	G	BGX
School has mid-day meals	BGX	G	BGX	G	BGX
School has auditorium	BGX	G	BGX	G	BGX
School has EduSat	BX		BX		BX
Bal Sabha sessions: number of times in a week	X		X		
Library sessions: number of times in a week	GX	G	GX	G	GX
School is co-educational				G	
Village-level adult female literacy rate	BGX	G	GX	G	GX
Village-level adult male literacy rate	BX		BX		BX
Village-level female labor force participation	X		X	G	GX
district-gender== 1.0000	X		X		BX
district-gender== 2.0000	X		X	G	GX
district-gender== 3.0000	X		X		X
district-gender== 4.0000			X		X
district-gender== 5.0000	X		B		X
district-gender== 6.0000	GX	G	GX	G	GX
district-gender== 7.0000	X		X		B
district-gender== 8.0000	X		X		GX
Gender attitudes index	BGX	G	GX	G	X
Girls' aspirations index	G	G	G	G	G
Self-reported behavior index	X		G		X
B-Pgender-flag					
B-Scaste-sc-flag					
B-Smuslim-flag	X		X		X
B-m-secondary-flag					
B-Shouse-pukka-y-flag					
B-Shouse-elec-flag					
B-Sflush-toilet-flag					
B-Sown-house-flag					
B-Phh-durables-1-flag					
B-Snewspaper-house-flag					B
B-Stap-water-flag					
B-q10-guest-teacher-flag	G	G	G	G	G
B-fulltime-teacher-flag	GX	G	GX	G	GX
B-pct-female-teacher-flag					
B-q13-counselor-flag	GX	G	GX	G	GX
B-q18-pta-meet-flag					B
B-q22-library-flag	GX	G	GX	G	GX
B-q22-electricity-flag	BGX	G	BGX	G	BGX
B-q22-avail-computers-flag	BGX	G	BGX	G	BGX
B-q22-avail-internet-flag	GX	G	GX	G	GX
B-q22-sports-field-flag	B		B		B
B-q22-mid-meal-flag	BGX	G	BGX	G	BGX
B-q22-auditorium-flag					
B-q22-avail-edusat-flag	BX		BX		BX
B-q21-week1-flag					
B-q21-week6-flag					

Notes: X denotes variables selected for regressions that include both genders, while G and B are those selected for the girls-only and boys-only regressions. Variable names ending in 'flag' are flags for a potential control variable having a missing value. Flags for missing components of the outcome index (when the outcome is an index) are also included in the set of potential control variables and sometimes selected but excluded from this table due to space.

Appendix Table 7: Correlates of primary outcomes in Endline 1 control group

	Gender attitudes index	
	(1)	(2)
Female	0.498*** [0.026]	
Baseline parent gender attitudes index		0.054*** [0.018]
Control group mean	0.000	0.000
Basic controls	Yes	Yes
Number of students	7,326	3,003

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. Sample consists of Endline 1 respondents in the control group. Column 1 controls for grade and district fixed effects, and column 2 controls for grade-gender and district-gender fixed effects. Both columns control for missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 8: Treatment effects on gender attitudes sub-indices (EL1)

	Education attitudes (1)	Employment attitudes (2)	Other equal rights for women (3)	Fertility attitudes (4)
<i>Panel A: Girls</i>				
Treated	0.104*** [0.026]	0.125*** [0.023]	0.166*** [0.026]	0.021*** [0.007]
Control group mean	0.228	0.276	0.197	0.906
Number of students	7801	7802	7802	7472
<i>Panel B: Boys</i>				
Treated	0.160*** [0.030]	0.280*** [0.030]	0.226*** [0.032]	0.009 [0.010]
Control group mean	-0.273	-0.329	-0.236	0.846
Number of students	6182	6182	6182	6036

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All regressions control for grade and district fixed effects and missing flags for each variable used to construct the outcome index. All columns except column 4 also include the baseline analogue of the outcome. The outcome in column 4 is not an index but a single variable that ranges from 0 to 1. Standard errors are clustered by school.

Appendix Table 9: Treatment effects on individual gender attitudes (with Bonferroni correction)

	Endline 1		Endline 2	
	Girls	Boys	Girls	Boys
Disagree: Wives should be less educated than their husbands	0.033*	0.049***	0.020	0.071***
Disagree: Boys should get more opportunities/resources for education	0.014	0.038*	0.017	0.043
If HH head, would send both children or girl for education	0.050***	0.083***	0.022	0.068***
Disagree: Woman's most important role is caring for home and children	0.100***	0.117***	0.050***	0.096***
Disagree: Men are better suited than women to work outside the house	0.081***	0.079***	0.054***	0.125***
Disagree: Marriage is more important for Pooja than her job	0.004	0.040	0.029	0.059**
Disagree: Being a teacher would be a more suitable job for Pooja	0.058**	-0.005	0.018	0.028
Agree: Women should be allowed to work outside home	0.078***	0.189***	0.013	0.119***
Agree: Daughters should have a similar right to inherited property as sons	0.022***	0.024***	0.003	0.015
Agree: It would be a good idea to elect a woman as the Sarpanch of your village	0.008	0.034***	0.007	0.024*
Disagree: A man should have the final word about decisions in his home	0.095***	0.104***	0.055***	0.110***
Disagree: A woman should tolerate violence in order to keep her family together	0.051***	0.074***	0.030***	0.047***
Disagree: Parents should maintain stricter control over daughters than sons	0.051***	0.068***	0.027	0.079***
Has gender equal views on getting higher education for better marriage prospects	-0.021	-0.011	0.018	0.019
Sister/female cousins/friends should be married after age 19	0.049***	0.083***	0.024	0.051***
Difference between boys and girls age to marry is less than control median	0.071***	0.025	0.037	0.046**
Disagree: Keep having children if no sons yet but not if no daughters	0.021**	0.009	0.015*	0.026**

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$, using Bonferroni-adjusted p-values, i.e., the raw p-value is multiplied by 17. All regressions control for grade and district fixed effects and the baseline gender attitudes index. Standard errors are clustered by school.

Appendix Table 10: Treatment effects on primary outcomes with double-LASSO controls (EL1)

	Both genders		Girls			Boys	
	Gender attitudes index (1)	Self-reported behavior index (2)	Gender attitudes index (3)	Girls' aspirations index (4)	Self-reported behavior index (5)	Gender attitudes index (6)	Self-reported behavior index (7)
Treated	0.170*** [0.019]	0.194*** [0.021]	0.155*** [0.026]	0.022 [0.026]	0.125*** [0.026]	0.197*** [0.030]	0.263*** [0.029]
Control group mean	0.000	0.000	0.237	0.000	-0.086	-0.283	0.102
Number of students	13987	13974	7802	7767	7794	6185	6180

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. The regressions control for the double-LASSO-selected variables marked in Appendix Table 6. Standard errors are clustered by school.

Appendix Table 11: Lee bounds on treatment effects for primary outcomes

	Endline 1			Endline 2				
	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Applied to scholarship (girls)	Signed petition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.180*** [0.020]	0.031 [0.024]	0.197*** [0.021]	0.160*** [0.020]	-0.024 [0.019]	0.227*** [0.025]	0.031* [0.017]	0.012 [0.009]
Treated (Lower bound)	0.163*** [0.019]	0.030 [0.024]	0.183*** [0.021]	0.127*** [0.019]	-0.039** [0.019]	0.193*** [0.024]	0.028 [0.017]	0.010 [0.009]
Treated (Upper bound)	0.190*** [0.019]	0.032 [0.024]	0.207*** [0.021]	0.176*** [0.019]	-0.008 [0.019]	0.256*** [0.024]	0.037** [0.017]	0.024*** [0.008]
Observations	13,987	7,767	13,974	13,679	7,560	13,677	7,347	13,303
Observations (Lee bounds)	13,944	7,765	13,928	13,599	7,527	13,597	7,313	13,208

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. All columns control for the baseline analogue of the outcome variable and grade-gender and district-gender fixed effects. All regressions also control for missing flags for each variable used to construct the outcome index. Standard errors are clustered by school. The Lee bound estimates are calculated by trimming observations from either the treatment or control group, whichever has a lower rate of missing data, in order to equalize the missing rate across groups.

Appendix Table 12: Treatment effects on behavior sub-indices (EL1)

	Interaction with the opposite sex (1)	Participation in HH chores (2)	Supporting female relatives' ambitions (3)	Girls' decision-making (4)	Girls' mobility (5)
<i>Panel A: Girls</i>					
Treated	0.304*** [0.037]	0.003 [0.022]	0.019 [0.021]	0.017 [0.028]	0.026*** [0.008]
Control group mean	-0.014	-0.247	0.287	0.000	0.908
Number of students	7485	7790	7766	7791	7510
<i>Panel B: Boys</i>					
Treated	0.213*** [0.040]	0.070** [0.035]	0.276*** [0.032]	n/a n/a	n/a n/a
Control group mean	0.017	0.295	-0.343	n/a	n/a
Number of students	6019	6179	6161	n/a	n/a

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All regressions control for grade and district fixed effects and missing flags for each variable used to construct the outcome index. All columns except column 3 also include the baseline analogue of the outcome. Standard errors are clustered by school.

Appendix Table 13: Treatment effects on components of girls' aspirations index, with Bonferroni correction (EL1)

	Girls
Expected 10th marks > control-gender median	0.014
Highest level of education you would like to complete > control-gender median	0.009
Have you discussed your education goals with your parents or adult relatives?	0.010
Child expects white collar job when he/she is 25 years old	0.006
Suppose you were to get married right after school, would you want to continue ?	0.004

Notes: Each row corresponds to a different regression of the individual variables on treatment. All regressions control for grade and district fixed effects and the baseline girls' aspirations index. Asterisks denote significance using Bonferroni correction (divides by number of variables in index – 5 – for the critical p-values).

Appendix Table 14: Treatment effects on components of self-reported behavior index, with Bonferroni correction (EL1)

	Boys	Girls
Are you comfortable talking to students of the opposite gender who are not relatives?	0.109***	0.112***
Do you sit next to students of opposite sex in the classroom?	0.080**	0.157***
How often: Cook/Clean/Wash Clothes?	0.047***	-0.002
Student has not missed school due to household responsibilities	-0.002	0.004
Disagree: Do you discourage your sister from studying in college if it is far away?	0.111***	-0.006
Disagree: Do you discourage your sister/cousin sister to work outside home?	0.110***	0.023
Student does not help with shopping for hh provisions	-0.054***	
Student does not take care of young sibling/old people	0.031**	
Student is able to talk to parents about what work she would do in the future	-0.002	
Student takes Decision: Whether or not you will continue in school past 10th grade	0.011	
Student takes Decision: If you will work after you finish your studies	0.013	
Student takes Decision: What type of work you will do after you finish your studies	0.012	
Student takes Decision: What types of chores you do at home (cooking, cleaning etc...)	0.007	
Are you allowed to go to the school alone or with friends?	0.026***	
During last week student was not absent from school	-0.007	

Notes: Each cell corresponds to a different regression of the individual variables on treatment. All regressions control for grade and district fixed effects and the baseline self-reported behavior index. Asterisks denote significance using Bonferroni correction (divides by number of variables in index for the critical p-values, i.e. 6 for common variables, 9 for girls-only variables).

Appendix Table 15: Robustness check for social desirability bias using continuous measure

	Endline 1			Endline 2				
	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Applied to scholarship (girls)	Signed petition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.182*** [0.020]	0.034 [0.028]	0.197*** [0.021]	0.162*** [0.019]	-0.025 [0.019]	0.228*** [0.024]	0.031* [0.017]	0.012 [0.009]
Social desirability score	0.057*** [0.011]	0.029 [0.018]	0.038*** [0.010]	0.049*** [0.012]	0.014 [0.011]	0.034*** [0.012]	0.008 [0.009]	0.005 [0.004]
Treated × Social desirability score	-0.009 [0.016]	0.018 [0.025]	-0.010 [0.015]	0.014 [0.016]	0.021 [0.017]	-0.001 [0.017]	0.003 [0.013]	-0.007 [0.006]
Control group mean	0.000	0.000	0.000	0.333	0.000	0.000	0.408	0.150
Number of students	13987	7767	13974	13679	7560	13677	7347	13303

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. Social desirability score is a baseline measure of the student's propensity to give socially desirable answers. All columns control for the baseline analogue of the outcome variable where appropriate, grade-gender and district-gender fixed effects, and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 16: Heterogeneity by gender, controlling for heterogeneity by BL attitudes

Panel A: Without interaction of treatment and baseline outcome

	Endline 1		Endline 2	
	Gender attitudes index (1)	Self-reported behavior index (2)	Gender attitudes index (3)	Self-reported behavior index (4)
Treated	0.204*** [0.029]	0.260*** [0.029]	0.225*** [0.028]	0.316*** [0.042]
Treated × Female	-0.042 [0.038]	-0.118*** [0.036]	-0.121*** [0.036]	-0.156*** [0.044]
Control group mean	0.000	0.000	0.333	0.000
Basic controls	Yes	Yes	Yes	Yes
Number of students	13,987	13,974	13,208	13,207

Panel B: With interaction of treatment and baseline outcome

	Endline 1		Endline 2	
	Gender attitudes index (1)	Self-reported behavior index (2)	Gender attitudes index (3)	Self-reported behavior index (4)
Treated	0.209*** [0.029]	0.270*** [0.032]	0.225*** [0.029]	0.299*** [0.045]
Treated × Female	-0.053 [0.040]	-0.137*** [0.042]	-0.120*** [0.039]	-0.125** [0.054]
Treated × Baseline outcome	0.018 [0.017]	-0.014 [0.019]	-0.002 [0.017]	0.022 [0.022]
Control group mean	0.000	0.000	0.333	0.000
Basic controls	Yes	Yes	Yes	Yes
Number of students	13,987	13,974	13,208	13,207

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All regressions control for grade-gender and district-gender fixed effects, the baseline analogue of the outcome and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 17: Heterogeneity by gender, controlling for heterogeneity by wealth proxies

	Endline 1		Endline 2	
	Gender attitudes index (1)	Self-reported behavior index (2)	Gender attitudes index (3)	Self-reported behavior index (4)
Treated	0.174*** [0.052]	0.274*** [0.051]	0.139*** [0.050]	0.298*** [0.062]
Treated × Female	-0.039 [0.039]	-0.122*** [0.036]	-0.119*** [0.037]	-0.145*** [0.042]
Treated × Father works full-time	0.018 [0.045]	-0.035 [0.037]	0.101** [0.043]	0.073 [0.046]
Treated × House is pukka	0.014 [0.037]	-0.004 [0.032]	-0.017 [0.038]	-0.002 [0.038]
Treated × Dwelling has flush toilet	-0.040 [0.043]	0.027 [0.041]	-0.020 [0.045]	-0.001 [0.051]
Treated × Household gets newspaper daily	0.061 [0.050]	-0.028 [0.041]	0.041 [0.046]	0.013 [0.055]
Treated × Household owns some land	-0.003 [0.056]	0.074 [0.047]	0.053 [0.056]	-0.221*** [0.057]
Father works full-time	0.036 [0.040]	0.012 [0.036]	0.011 [0.034]	-0.033 [0.042]
House is pukka	0.025 [0.032]	-0.062* [0.033]	-0.001 [0.037]	-0.072* [0.039]
Dwelling has flush toilet	0.132*** [0.038]	0.027 [0.042]	0.059 [0.046]	0.076 [0.052]
Household gets newspaper daily	0.078 [0.052]	0.088* [0.045]	0.123** [0.052]	0.073 [0.059]
Household owns some land	0.116** [0.058]	-0.008 [0.052]	0.028 [0.054]	-0.141** [0.065]
Control group mean	0.000	0.000	0.333	0.000
Treatment group mean	0.204	0.216	0.521	0.223
Basic controls	Yes	Yes	Yes	Yes
Number of students	13987	13974	13679	13677

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All regressions control for grade-gender and district-gender fixed effects, the baseline analogue of the outcome and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 18: Lee bounds on treatment effects, by gender

Panel A: Girls

	Endline 1			Endline 2				
	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Applied to scholarship (girls)	Signed petition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.162*** [0.026]	0.031 [0.024]	0.142*** [0.026]	0.111*** [0.025]	-0.024 [0.019]	0.158*** [0.025]	0.031* [0.017]	0.019 [0.013]
Treated (Lower bound)	0.162*** [0.026]	0.030 [0.024]	0.142*** [0.026]	0.089*** [0.025]	-0.039** [0.019]	0.139*** [0.025]	0.028 [0.017]	0.018 [0.013]
Treated (Upper bound)	0.163*** [0.026]	0.032 [0.024]	0.143*** [0.026]	0.120*** [0.025]	-0.008 [0.018]	0.175*** [0.024]	0.037** [0.017]	0.027** [0.013]
Observations	7,802	7,767	7,794	7,562	7,560	7,563	7,347	7,347
Observations (Lee bounds)	7,800	7,765	7,793	7,536	7,527	7,536	7,313	7,313

Panel B: Boys

	Endline 1		Endline 2		
	Gender attitudes index	Self-reported behavior index	Gender attitudes index	Self-reported behavior index	Signed petition
	(1)	(2)	(3)	(4)	(5)
Treated	0.204*** [0.029]	0.260*** [0.029]	0.218*** [0.028]	0.311*** [0.040]	0.003 [0.010]
Treated (Lower bound)	0.163*** [0.029]	0.232*** [0.029]	0.173*** [0.027]	0.261*** [0.039]	0.001 [0.010]
Treated (Upper bound)	0.231*** [0.029]	0.287*** [0.029]	0.245*** [0.027]	0.353*** [0.040]	0.020** [0.009]
Observations	6,185	6,180	6,117	6,114	5,956
Observations (Lee bounds)	6,138	6,131	6,065	6,063	5,897

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. All columns control for the baseline analogue of the outcome variable, grade, and district fixed effects. All regressions also control for missing flags for each variable used to construct the outcome index. Standard errors are clustered by school. The Lee bound estimates are calculated by trimming observations from either the treatment or control group, whichever has a lower rate of missing data, in order to equalize the missing rate across groups.

Appendix Table 19: Robustness check for social desirability bias, by gender (EL1)

Panel A: Girls

	Gender attitudes index (1)	Girls' aspirations index (2)	Self-reported behavior index (3)
Treated	0.172*** [0.032]	0.018 [0.029]	0.138*** [0.028]
High social desirability score	0.074*** [0.027]	0.062** [0.030]	0.065** [0.025]
Treated × High social desirability score	-0.025 [0.040]	0.032 [0.043]	0.013 [0.035]
p-val: Treated + Treated × High SD = 0	0.000	0.171	0.000
Control group mean	0.237	0.000	-0.086
Basic controls	Yes	Yes	Yes
Number of students	7,802	7,767	7,794

Panel B: Boys

	Gender attitudes index (1)	Self-reported behavior index (2)
Treated	0.211*** [0.034]	0.259*** [0.034]
High social desirability score	0.145*** [0.034]	0.043 [0.029]
Treated × High social desirability score	-0.017 [0.051]	0.003 [0.044]
p-val: Treated + Treated × High SD = 0	0.000	0.000
Control group mean	-0.283	0.102
Basic controls	Yes	Yes
Number of students	6,185	6,180

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. Social desirability (SD) score is a baseline measure of the student's propensity to give socially desirable answers. High SD score refers to having a score that is above median for the sample. All regressions control for the baseline analogue of the outcome, grade and district fixed effects and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 20: Heterogeneity by binary measure of baseline parent attitudes (EL1)

	Gender attitudes index (1)	Girls' aspirations index (2)	Self-reported behavior index (3)
Treated	0.199*** [0.038]	0.037 [0.047]	0.201*** [0.035]
Treated \times Above median baseline parent attitudes	-0.049 [0.051]	0.030 [0.056]	-0.043 [0.041]
p-val: Treated + Treated \times Above median attitudes = 0	0.000	0.092	0.000
Control group mean	0.237	0.000	-0.086
Basic controls	Yes	Yes	Yes
Number of students	5,718	3,231	5,717

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. All columns control for the baseline analogue of the outcome variable and grade-gender and district-gender fixed effects, and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 21: Treatment effects on school performance (EL1)

Panel A: SCERT school data (2014-16)

	<i>Proportion scoring >50 in...</i>					
	Hindi	English	Math	Science	Social Science	All subjects
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.013 [0.018]	-0.007 [0.019]	0.012 [0.018]	-0.020 [0.019]	-0.012 [0.018]	-0.002 [0.008]
Control group mean	0.547	0.429	0.348	0.506	0.458	0.320
Control SD	0.137	0.148	0.148	0.151	0.145	0.061
Number of schools	234	230	229	228	228	237

Panel B: 10th board exam data (2017)

	<i>Proportion passing in...</i>					
	Hindi	English	Math	Science	Social Science	All subjects
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.001 [0.010]	-0.005 [0.023]	-0.010 [0.027]	-0.011 [0.026]	-0.021 [0.022]	-0.013 [0.027]
Control group mean	0.924	0.667	0.751	0.735	0.733	0.552
Control SD	0.092	0.223	0.253	0.260	0.198	0.263
Number of schools	307	307	307	307	307	307

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. Each observation is a school. We were able to match 237 and 307 sample schools with the SCERT and board exam datasets, respectively. The first panel uses data for both cohorts in our sample, from when each was in Grade 8. The second panel uses only the older cohort because the outcome is an exam taken in Grade 10 and the younger cohort was in Grade 9 at the time of these data. Some schools have missing observations in the SCERT dataset for certain subjects, so the sample size varies across columns within the first panel. All columns control for district fixed effects. Standard errors are heteroskedasticity-robust.

Appendix Table 22: Association between stated and revealed preferences, by social desirability score (control group only)

	Applied to scholarship		Signed petition	
	(1)	(2)	(3)	(4)
High social desirability score	-0.026 [0.039]	0.000 [0.017]	0.009 [0.017]	0.009 [0.008]
Plans to go to college	0.236*** [0.029]			
Plans college \times High SDS	0.045 [0.042]			
EL2 aspirations index		0.059*** [0.012]		
EL2 aspirations index \times High SDS		-0.008 [0.014]		
Against dowry			0.036*** [0.014]	
Against dowry \times High SDS			0.005 [0.021]	
EL2 gender attitudes index				0.016*** [0.005]
EL2 gender attitudes index \times High SDS				0.009 [0.008]
Dep var mean	0.407	0.408	0.150	0.150
Basic controls	Yes	Yes	Yes	Yes
Number of students	3,692	3,774	6,988	6,994

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. Sample includes control group only. All columns control for grade and district fixed effects. Standard errors are clustered by school.

Appendix Table 23: Treatment effects on primary outcomes with double-LASSO controls (EL2)

	Both genders			Girls					Boys		
	Gender attitudes index	Self-reported behavior index	Signed petition	Gender attitudes index	Girls' aspirations index	Self-reported behavior index	Applied to scholarship	Signed petition	Gender attitudes index	Self-reported behavior index	Signed petition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Treated	0.153*** [0.020]	0.225*** [0.025]	0.015* [0.008]	0.099*** [0.027]	-0.021 [0.026]	0.161*** [0.025]	0.026 [0.017]	0.021 [0.013]	0.212*** [0.030]	0.297*** [0.042]	0.007 [0.009]
Control group mean	0.333	0.000	0.150	0.562	0.000	-0.067	0.408	0.189	0.063	0.079	0.104
Number of students	13679	13677	13303	7562	7329	7563	7347	7347	6117	6114	5956

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. The regressions control for the double-LASSO-selected variables marked in Appendix Table 6. For outcomes used in Endline 1 also (Gender attitudes index, Girls' aspirations index, and Self-reported behavior index), for consistency, we use the control variables selected by double LASSO with the Endline 1 data rather than selecting new control variables for Endline 2. Standard errors are clustered by school.

Appendix Table 24: Robustness check for social desirability bias, by gender (EL2)

Panel A: Girls

	Gender attitudes index (1)	Girls' aspirations index (2)	Self-reported behavior index (3)	Applied to scholarship (4)	Signed petition (5)
Treated	0.098*** [0.032]	-0.034 [0.024]	0.159*** [0.030]	0.034* [0.019]	0.028* [0.015]
High social desirability score	0.074** [0.030]	0.029 [0.025]	0.054** [0.025]	0.017 [0.017]	0.018 [0.012]
Treated × High social desirability score	0.036 [0.041]	0.024 [0.034]	-0.002 [0.037]	-0.006 [0.025]	-0.022 [0.018]
p-val: Treated + Treated × High SD = 0	0.000	0.728	0.000	0.230	0.700
Control group mean	0.562	0.000	-0.067	0.406	0.189
Basic controls	Yes	Yes	Yes	Yes	Yes
Number of students	7,562	7,560	7,563	7,347	7,347

Panel B: Boys

	Gender attitudes index (1)	Self-reported behavior index (2)	Signed petition (3)
Treated	0.211*** [0.033]	0.321*** [0.044]	0.011 [0.011]
High social desirability score	0.066* [0.035]	0.052 [0.041]	0.010 [0.011]
Treated × High social desirability score	0.022 [0.049]	-0.028 [0.060]	-0.022 [0.017]
p-val: Treated + Treated × High SD = 0	0.000	0.000	0.476
Control group mean	0.063	0.079	0.104
Basic controls	Yes	Yes	Yes
Number of students	6,117	6,114	5,956

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. Social desirability (SD) score is a baseline measure of the student's propensity to give socially desirable answers. High SD score refers to having a score that is above median for the sample. All regressions control for the baseline analogue of the outcome where appropriate, and grade and district fixed effects, and missing flags for each variable used to construct the outcome index if applicable. Standard errors are clustered by school.

Appendix Table 25: Treatment effects on gender attitudes sub-indices (EL2)

	Education attitudes (1)	Employment attitudes (2)	Other equal rights for women (3)	Fertility attitudes (4)
<i>Panel A: Girls</i>				
Treated	0.071*** [0.026]	0.121*** [0.026]	0.123*** [0.027]	0.017*** [0.005]
Control group mean	0.249	0.289	0.210	0.942
Number of students	7561	7560	7560	7145
<i>Panel B: Boys</i>				
Treated	0.193*** [0.034]	0.300*** [0.032]	0.226*** [0.031]	0.026*** [0.008]
Control group mean	-0.292	-0.308	-0.221	0.878
Number of students	6113	6117	6114	6006

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All columns control for the baseline analogue of the outcome variable (except for column 4), and grade and district fixed effects, and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 26: Treatment effects on self-reported behavior sub-indices (EL1)

	Interaction with the opposite sex (1)	Participation in HH chores (2)	Supporting female relatives' ambitions (3)	Girls' decision-making (4)	Girls' mobility (5)
<i>Panel A: Girls</i>					
Treated	0.282*** [0.036]	-0.006 [0.021]	0.055*** [0.014]	-0.006 [0.030]	0.137*** [0.032]
Control group mean	0.065	-0.338	0.294	0.000	-0.000
Number of students	7331	7325	7449	7544	7544
<i>Panel B: Boys</i>					
Treated	0.261*** [0.041]	0.040 [0.029]	0.260*** [0.036]	n/a n/a	n/a n/a
Control group mean	-0.076	0.397	-0.345	n/a	n/a
Number of students	6114	6113	6031	n/a	n/a

Notes: Asterisks denote significance: $*p < .10$, $**p < .05$, $***p < .01$. All columns control for the baseline analogue of the outcome variable (except for column 3), and grade and district fixed effects, and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

Appendix Table 27: Treatment effects on components of girls' aspirations index, with Bonferroni correction (EL2)

	Girls
Expected 12th marks > control-gender median	-0.036*
Have you ever discussed your education goals with your parents or adult relatives?	0.005
Suppose you were to get married right after school, would you want to continue ?	-0.004
Highest level of education you would like to complete > control-gender median	0.004
Reported desired occupation at age 25	-0.006
Do you plan to go to college/pursue a vocational course/pursue a professional career?	0.005
Mentioned a course she would like to pursue in higher studies	-0.013
Mentioned that she would like to pursue a STEM course in higher studies	0.010
Agree: I would like to have a job outside the home that I continue to pursue when I am married and have children	0.009
Expected or actual age of marriage	0.146
At what age would you like to have your first child?	0.077

Notes: Each row corresponds to a different regression of the individual variables on treatment. All regressions control for grade and district fixed effects and the baseline girls' aspirations index. Asterisks denote significance using Bonferroni correction (divides by number of variables in index, which is 11, for the critical p-values).

Appendix Table 28: Treatment effects on components of self-reported behavior index, with Bonferroni correction (EL2)

	Boys	Girls
Child is comfortable talking to students of the opposite sex	0.086***	0.093***
Sits next to student of opposite gender in classroom	0.062***	0.027
At least one friend of the opposite gender	0.043***	0.051***
Plays with the opposite gender	0.073***	0.084***
Talked with a child of opposite gender in past week	0.047**	0.106***
In the past one week, boy/girl did/did not cook/clean/wash dishes	0.016	-0.006
In the past month, boy/girl did/did not miss school due to household based responsibilities	0.003	0.000
Disagree: Do you discourage your sister from studying in college if it is far away?	0.046***	0.008
Disagree: Do you discourage your sister from working outside home?	0.105***	0.023***
I can talk to my parents about what work I would like to do in the future	0.002	
Child decides if studying past grade 12/vocational course	0.004	
Child decides if will work after studies	-0.006	
Child decides type of work after studies	-0.006	
Attended school every day last week	-0.016	
Are you allowed to go to the school alone or with friends?	0.015	
Have you ever gone to the market within your village to buy personal items alone?	0.061***	
Attended community events alone or with friends, no guardian	0.071***	
In the past one week, have you gone out of your house alone for any kind of purchase?	0.044*	
In past week, went to school/college alone or with friends	0.022	

Notes: Each cell corresponds to a different regression of the individual variables on treatment. All regressions control for grade and district fixed effects and the baseline self-reported behavior index. Asterisks denote significance using Bonferroni correction (divides by number of variables in index for the critical p-values, i.e. is 9 for common variables, 10 for girls-only variables).

Appendix Table 29: Heterogeneity of effects by baseline parent attitudes (EL2)

	Gender attitudes index (1)	Girls' aspirations index (2)	Self- reported behavior index (3)	Applied to scholarship (4)	Signed petition (5)
Treated	0.179*** [0.025]	-0.028 [0.028]	0.201*** [0.032]	0.026 [0.023]	0.008 [0.012]
Treated \times Baseline parent attitudes	-0.005 [0.022]	0.018 [0.028]	-0.020 [0.029]	-0.000 [0.018]	0.010 [0.010]
Control group mean	0.333	0.000	0.000	0.408	0.150
Basic controls	Yes	Yes	Yes	Yes	Yes
Number of students	5429	3059	5429	2991	5309

Notes: Asterisks denote significance: * $p < .10$, ** $p < .05$, *** $p < .01$. All regressions control for the baseline analogue of the outcome where applicable (columns 1-3), grade-gender and district-gender fixed effects and missing flags for each variable used to construct the outcome index. Standard errors are clustered by school.

A Data Appendix

1. Sample selection and tracking

From the universe of 607 government secondary schools in the study districts, we focused on 346 schools with enrollment of at least 40 students in grades 6 and 7 combined based on DISE (2011) data.²⁶ If a boys' and a girls' school shared a building or were adjacent to each other, we considered them a single school. We conducted pilot activities in 6 of the schools. We removed 26 schools from the list for the following reasons (a) if there were multiple schools on the list in a village, we randomly selected one (b) based on initial visits, actual attendance was much lower than 40 students or (c) school officials did not agree to let us conduct surveys, despite our letter of approval from the Government of Haryana. The remaining 314 schools constitute the sample.

We distributed consent forms to 30,685 students, 84% of whom returned the form signed by their parent or guardian. Most students who did not have the signed consent form when the enumerators visited said they lost it or forgot their signed form at home. Providing consent is uncorrelated with student gender, which is suggestive that it was not driven by parental gender attitudes. The school-level consent rate is uncorrelated with village-level measures of gender equality. Our sample of students for each school was randomly selected from those returning the consent form who were present on the baseline survey day in their school and assented to participate.

For the baseline parent survey, if after multiple visits and follow-up phone calls, we could not interview the selected parent, we randomly chose a replacement household. We collected data for 2,546 fathers and 3,476 mothers. The completion rate was higher for mothers than for fathers because fathers were more often unavailable during daytime hours due to work. We did not survey parents at endline.

To reduce sample attrition, we conducted two tracking surveys to verify respondents' contact information between baseline and the first endline, in January to March 2015 (98.5% tracking rate) and February to June 2016 (93.8%). We also conducted a tracking survey between the first and second endlines, in February to July 2018 (96.4%). They were conducted through a combination of in-person visits and phone calls and verified the respondent's and parents' contact information and asked about intentions to move.

2. Primary outcomes

2.1 Procedure for index construction

Most of the outcomes variables are constructed by aggregating the responses to several individual questions into an index. The index is the weighted average value of the individual variables, with weights constructed by normalizing the variables to have the same standard deviation and then recovering the weights from the inverse covariance matrix, following the procedure of Anderson (2008). The steps involved in producing the final indices are as follows:

²⁶Because it excludes schools with low enrollment, our sample has, on average, larger villages than the universe of villages with government secondary schools. In addition to government schools, there are 731 private unaided secondary schools in the four districts, which are disproportionately in urban areas.

1. The individual variables are first converted to dummy variables. For questions that used a 5-point Likert scale, the binary variable was coded as 1 if the respondent answered “Strongly Agree” or “Agree” with a gender-progressive statement (or “Strongly Disagree” or “Disagree” with a gender-regressive statement), and 0 otherwise.
2. For the purpose of constructing the weights (but not for the final outcome variable), we impute missing values with gender-district-treatment averages. This is done to enable us to invert the covariance matrix to calculate the weights.
3. Each individual variable is normalized by subtracting the overall sample mean and dividing by the control group standard deviation.
4. Weights are generated from the inverted covariance matrix of all the normalized and imputed variables in the respective index. For some index P consisting of variables a , b , c , and d , let the weights thus produced be wt_a , wt_b , wt_c , and wt_d .
5. If an observation has missing variables (which occurs, for example, because we asked some questions to only a random subset of respondents), we construct the index using only non-missing items. We weight the non-missing variables by their respective weights and normalize by the appropriate sum of weights. For example, if a , b , and c are non-missing, the sum $S = a \times wt_a + b \times wt_b + c \times wt_c$. Let W be the sum of weights for each variable, whether missing or not. So, $W = wt_a + wt_b + wt_c + wt_d$. Let N be the sum of weights of the non-missing variables. So, $N = wt_a + wt_b + wt_c$. Then the index is calculated as $S \times (W/N)$.
6. This weighted index is then re-scaled such that the control group mean is 0 and the standard deviation is 1.
7. In our regression specifications, we control for flags for each variable in the index, indicating whether it is missing.
8. For the gender attitudes index at endline 2 (and its sub-indices), we deviate from steps 3 to 6 above. The questions in the index were identical at endline 1 and endline 2, so to make these two outcome variables identical, the component variables are adjusted by the scale factors and combined into an index using the weights that were generated with the endline 1 data. The final index is re-scaled by subtracting the endline 1 control group mean and dividing by the endline 1 control group standard deviation.

2.2 Gender attitudes index

The baseline attitude index aggregates the following 9 survey questions.

- B1. A woman’s most important role is being a good homemaker
- B2. A man should have the final word about decisions in his home
- B3. A woman should tolerate violence to keep her family together
- B4. Wives should be less educated than their husbands
- B5. Boys should get more opportunities/resources for education
- B6. Men and women should get equal opportunities in all spheres of life

- B7. Girls should be allowed to study as far as they want
- B8. Daughters should have a similar right to inherited property as sons
- B9. It would be a good idea to elect a woman as the village Sarpanch

The endline index aggregates 17 variables created from responses to 18 questions. Both the endlines use the questions listed here. We also divide the attitude questions into four mutually exclusive sub-indices for auxiliary analysis: gender equality in education, gender equality in employment, women's roles, and fertility preferences.

Education attitudes

- E1. Wives should be less educated than their husbands
- E2. Boys should be allowed to get more opportunities and resources for education than girls
- E3. Education Vignette: If you were the head of the family, who would you have sent to the town for further studies?²⁷

Employment attitudes

- E4. A woman's most important role is to take care of her home, feeding kids and cook for her family
- E5. Men are better suited than women to work outside of the house
- E6. Work Vignette: Marriage is more important for Pooja than her job²⁸
- E7. Work Vignette: Being a teacher would be a more suitable job for Pooja
- E8. Do you think women should be allowed to work outside home?

Attitudes about other equal rights for women

- E9. Daughters should have a similar right to inherited property as sons
- E10. It would be a good idea to elect a woman as the village Sarpanch
- E11. A man should have the final word about decisions in his home
- E12. A woman should tolerate violence in order to keep her family together
- E13. Parents should maintain stricter control over their daughters than their sons
- E14. Girls [boys] should attain higher education so that they find better husbands [wives]²⁹
- E15. At what age would you like your sister/female cousins/friends to get married *minus* At what age would you like your brother/male cousins/friends to get married?³⁰

²⁷This question was based on a vignette about a family deciding whether to send a son or daughter to further schooling. The variable was coded as 1 if the respondent said the daughter or both children, and 0 if they answered the son.

²⁸Based on a vignette about a young woman named Pooja who wants to delay marriage to pursue a job as a police officer.

²⁹The variable is coded as gender progressive if the respondent gave the same responses to the question about boys and the question about girls.

³⁰We code two dummies from this, the first for saying that the age for girls should be > 19 and the other for stating a gap in the appropriate age between boys and girls that was larger than the control group median response.

Fertility attitudes

- E16. Suppose the first two children born to a husband and wife are both girls. Which of the following should they do? *minus* Suppose the first two children born to a husband and wife are both boys. Which of the following should they do?³¹

2.3 Aspirations index

We construct a gender aspirations index that measures educational and occupational aspirations for girls only. The questions used for the baseline aspirations index were as follows.

- B1. Have you ever discussed your education goals with your parent or adult relative?
- B2. What is the highest level of education you would like to complete if finances and opportunity of the school/college are available?
- B3. What occupation do you expect to have when you are 25 years old?

The questions used for the aspirations index in the first endline were as follows.

- E1. How many marks, according to you, will you score in the SSE 10th board examinations?
- E2. Have you ever discussed your education goals with your parents or adult relatives?
- E3. Suppose you were to get married right after school, would you want to continue your education after marriage?
- E4. What is the highest level of education you would like to complete if finances and opportunity of the school/college are available?
- E5. What occupation do you expect to have when you are 25 years old?³²

The endline aspirations index is missing for a few observations because the respondent stopped the survey midway or refused to answer that module.

The questions used for the aspirations index in the second endline were as follows.

- E2.1. How many marks, according to you, will you score in the SSE 12th board examinations?³³
- E2.2. Have you ever discussed your education goals with your parents or adult relatives?
- E2.3. Suppose you were to get married right after school, would you want to continue your education after marriage?
- E2.4. What is the highest level of education you would like to complete if finances and opportunity of the school/college are available? ³⁴

³¹Coded as gender regressive if the respondent said “have no more children” after having two boys but not after having two girls, and gender progressive otherwise.

³²White collar occupations are coded as more progressive.

³³Coded as 1 if the listed marks were greater than the gender-control group median and 0 otherwise. Question was only asked to students currently enrolled in grades 11 and 12.

³⁴Coded as 1 if the level of education is greater than the gender-control group median and 0 otherwise.

- E2.5. What occupation do you expect to have when you are 25 years old?³⁵
- E2.6. Do you plan to go to college/pursue a vocational course/professional course/join civil services or army?
- E2.7. What course would you like to pursue for higher studies?³⁶
- E2.8. I would like to have a job outside the home that I continue to pursue when I am married and have children.

2.4 Gender behavior index

We construct a gender behavior index that measures gender equitable behavior. Questions marked with # are coded with opposite signs for boys and girls. The questions used for the baseline behavior index were as follows.

- B1. Are you comfortable talking to children of the opposite gender who are not related to you inside or outside school?
- B2. In the past week, did you help with cooking/cleaning/washing clothes?#

The endline 1 behavior index was constructed using the following questions. Questions marked with # are coded with opposite signs for boys and girls. Questions marked with * were also asked in the second endline.

Interaction with the opposite sex

- E1. Are you comfortable talking to children of the opposite gender who are not related to you inside and outside school?*
- E2. Do you sit next to students of the opposite gender in class?#³⁷

Participation in household chores

- E3. In the past week, did you cook/clean/wash dishes?#*
- E4. In the past month, have you missed school due to household based responsibilities?#*

Supporting female relatives' ambitions

- E5. Do you discourage your sister/female cousin from working outside home?*
- E6. Do you discourage your sister/female cousin from studying in college if it is far away?*

The following questions only pertain to girls and are not included in the main behavior index. These questions are included in the construction of behavior sub-indices.

Girls' decision-making

- E7. I am able to talk to my parents about what work I would like to do in the future.*

³⁵Coded as 1 if the respondent is able to report her expectations about having a job irrespective of the nature/type and 0 otherwise.

³⁶Coded as 1 if the respondent is able to report any course irrespective of the nature/type and 0 otherwise.

³⁷This question was not asked in single-sex schools.

The next 3 questions, E8 to E10, ask about decision-making using the following structure: “Who mostly makes decisions about the following, or if this is in the future for you, who do you expect will make this decision? Will you make the decision, make the decision jointly with parents or will parents make the decision for you?”³⁸

E8. Whether or not you will continue in school past grade 10 (grade 12 in the second endline)*

E9. If you will work after you finish your studies*

E10. What type of work you will do after you finish your studies*

E11. How many days were you absent from school last week?³⁹

Girls’ mobility

E12. Are you allowed to travel to school alone or with friends?*

At endline 2, we excluded some behavior questions used at endline 1 (those not marked with * above) and added the following new questions to the index:

Interaction with the opposite sex

E2.1 Is friends with the opposite gender/has friends from the opposite gender.

E2.2 Plays with the opposite gender (who are not related to him/her) inside or outside of school.

E2.3 In the past one week, spoke with children (not related to him/her) of the opposite gender inside or outside of school.

The following new questions at endline 2 only pertain to girls and are not included in the behavior index. The questions are included in the ‘girls’ mobility’ sub-index for the second endline.

Girls’ mobility

E2.4. Has gone to the market within his/her village to buy personal items alone.

E2.5. Has attended community events without guardians present (either alone or with friends).

E2.6. In the past one week, has gone out of his/her house alone for any kind of purpose.

The endline behavior index is missing for a few observations because the respondent stopped the survey midway or refused to answer that module.

³⁸Coded as 1 if the respondent alone makes the decision and 0 otherwise.

³⁹Coded as 1 if the respondent was not absent to school in the previous week and 0 otherwise.

2.5 Revealed preferences measures - Endline 2 only

In the second endline, we included two revealed-preference measures. First, we offered girls an opportunity to apply for a financial scholarship to go toward college education or other post-secondary training. Second, we gave both girls and boys the opportunity to pledge support for a public petition to abolish the dowry system.

We set up a scholarship program that offered a Rs. 10,000 (150 USD) scholarship to each of 20 winners. At the end of the in-person endline survey, we informed girls about the scholarship and gave them the application form. To apply, they had to fill it out and mail it in by the stated deadline. The forms had a unique student ID, so we used the mailed-in applications to measure whether respondents applied. We randomly varied the degree of parental endorsement required on the application. Half of girls received a basic application on which they had to fill out basic information about themselves and the school and course they would like to pursue. The form also required a parental signature that stated that they understand the terms and conditions of the scholarship. In the second version of the form, there was an additional section that had to be filled by the parent or in consultation with the parent and had a weightier parental declaration that stated that they support their daughter's decision to attend college and apply for the scholarship. As pre-specified, we pool them in our analysis. (We do not see a difference in response rates between the two versions, in the control or treatment group.)

For the petition, at the end of the endline 2 survey, the enumerators informed respondents about a petition against dowry. We told respondent that names and villages of signatories would be printed in their local newspaper (and we then ran newspapers advertisements to do so). They were asked to call a toll-free number to register their support. We left a flyer with information on the petition text and the number to call. Due to a technical problem with the toll-free vendor, we lost 6 days' worth of data on potential calls from one phone carrier. Thus, we called those missed calls back to inquire if the respondents wanted to record their support.

3. Secondary outcomes

3.1 Social norms

The following questions were asked during both the endlines. Students were randomized to receive either Set 1 questions or Set 2 questions.

Set 1

- E1. Do you think that women should be allowed to work outside home?
- E2. Do you think that people in your village/community think that women should be allowed to work outside home?
- E3. Do you think the community will oppose you since [if] you disagree with them (regarding women being allowed to work)?

Set 2

- E1. Do you think that girls should be allowed to study in college even if it is far away?

- E2. Do you think that people in your village/community think that girls should be allowed to study in college even if it is far away?
- E3. Do you think the community will oppose you since [if] you disagree with them (regarding women being allowed to study in college)?

3.2 School performance - Endline 1 only

We examined academic outcomes to test if the intervention crowded out other academic instruction. We used overall pass rates and subject-wise test scores from two data sources:

- State Council of Educational Research and Training (SCERT): We were able to match 237 sample schools with the SCERT data. We have data for both cohorts in our sample, from when each was in Grade 8.
- Haryana Board of School Education: We were able to match 307 sample schools with the board exam dataset. We have data for only the older cohort of our sample because the outcome is 10th grade exam, and the younger cohort had not taken the exam at the time of this data collection.

3.3 Girls' self-esteem index

- E1. On the whole, I am satisfied with myself
- E2. I feel that I have a number of good qualities
- E3. I am able to do things as well as most other people

3.4 Gender discrimination awareness index - Endline 1 only

- E1. Do you know about female feticide and infanticide?
- E2. Are female feticide and infanticide practiced in Haryana?
- E3. According to you, what is the main reason for female feticide and infanticide?⁴⁰
- E4. In Haryana, are the number of girls less than the number of boys?

3.5 Implicit association tests - Endline 1 only

We use two gender-related implicit association tests as secondary outcomes. A random 50% of all student respondents took an IAT associating good-bad behavior characteristics to boys and girls during baseline. During endline, the same students were administered either the baseline IAT or a second IAT which asked them to associate gender stereotypical activities like factory work and ironing clothes to men and women. We use as outcomes the implicit association of girls with positive words for the first IAT, and of women with market work.

The IATs were created using Millisecond Software and administered on laptops. We aimed to collect each IAT for 25% of the sample but the usable sample size is smaller because, following guidelines for processing IAT data, we exclude observations that were completed very quickly or slowly (faster than 300 milliseconds or slower than 10 seconds on >10% of trials).

⁴⁰Coded as 1 if any reason(s) given, 0 if respondent says “don’t know” or doesn’t answer.

3.6 Observed classroom behavior - post-Endline 1 only

After analysis of our Endline 1 data was complete and we had presented our results to some audiences, based on feedback, we decided to collect objectively measured gender-related behaviors in 2017. We developed and conducted three activities in the co-ed schools in our sample. The three activities aimed to measure (1) girls' participation in classroom discussions (2) students' views about girls' knowledge, and (3) interaction with opposite-gender peers in the classroom. In activity (1), a surveyor facilitated a class discussion about "What changes do you want to see in your society?" Another surveyor took note of how many girls and boys made comments in the discussion. In activity (2), students were told about an inter-school competition based on a general knowledge quiz. The winning classroom in each district would get school bags for every student in the class. Students were asked to vote for three students in their class to represent them. The outcome is how many girls are elected for the quiz competition. For activity (3), students were asked to form groups of five for a poster-making activity about "Swachh Bharat Abhiyan" (India's Cleanliness Drive). The surveyor recorded how many of the groups were mixed-gender.

There were some major limitations of this exercise. First, our pilot activities were too limited to reveal to us that there is no gender gap in class participation in the status quo (i.e., in the control group), and students do not perceive girls' knowledge as lower than boys', making the first two activities ill-suited for testing for changes in gender roles and stereotypes. Second, we have low power to detect changes in the outcomes, partly because we only received permission from principals to conduct the exercises in 197 schools. Also, for our third outcome (co-ed poster-making teams), only 5% of self-formed groups in the control group were mixed-gender, so we only have power to detect a very large proportional increase in this outcome. With those caveats, we find no significant effect on these outcomes. Results available upon request.

3.7 Girls' education index - Endline 2 only

E2.1. Which school are you enrolled in?⁴¹

E2.2. What stream are you currently following?⁴²

E2.3. In the past one year, have you enrolled for an English speaking, computer training, or vocational class?

E2.4. Do you take after-school/college tuitions?

3.8 Marriage and fertility aspirations - Endline 2 only

E2.1. At what age do you want to marry?⁴³

E2.2. At what age do you want to have your first child?⁴⁴

⁴¹Coded as 1 if respondent is in any school or college, including open school, and 0 if dropped out or in vocational training.

⁴²Coded as 1 if pursuing a science, commerce with math, or arts with math stream.

⁴³Coded as 1 if the age is greater than the gender-control group median and 0 otherwise.

⁴⁴Coded as 1 if the age is greater than the gender-control group median and 0 otherwise.

- E2.3. How many children do you want to have? How many of these children would you like to be boys, how many would you like to be girls?⁴⁵
- E2.4. Suppose your spouse and you are going to have N children, how many of them would you want to be boys?⁴⁶
- E2.5. If instead of X boys and $N - X$ girls, you could either have $X - 1$ boys and $N - X + 1$ girls OR $X + 1$ boys and $N - X - 1$ girls, which would you prefer?⁴⁷

3.9 Girls' experience of sexual harassment/assault - Endline 2 only

The index is coded so that a higher value corresponds to more instances of harassment.

- E2.1. In the past one year, have you ever been slapped, hit, or otherwise physically hurt by a boy in a way you did not want?

The following questions are coded as 1 if the incidence ever occurred, and 0 otherwise.

- E2.2. How frequently have you been teased, whistled at, or called names by boys in school in a way you did not want?
- E2.3. ...teased, whistled at, or called names by boys outside of school in your village/town in a way you did not want?
- E2.4. ...touched or groped by boys in school in a way you did not want?
- E2.5. ...touched or groped by boys in your village/town in a way you did not want?

3.10 Boys' engagement in sexual harassment/assault - Endline 2 only

We asked the boys in our sample about sexual harassment/assault, using list randomization. Half the boys in the sample, stratified by treatment, were given a list of 5 questions including the sensitive question. The other half were given a list of the 4 non-sensitive questions. They were asked how many of the statements were true without having to list which statements were true. We calculate the school-grade level differences between the mean true statements in the two sets as a measure of the proportion of boys who engage in harassment/assault. This outcome is analyzed at the school-grade level. Single-sex girls schools are thus excluded when we analyze this outcome.

The statements given to the respondents are as follows, with the sensitive item italicized:

- E2.1. In the past year, I have made new friends.

⁴⁵Coded as 1 if the number of girls desired is greater than or equal to the number of boys and 0 otherwise.

⁴⁶The N was randomly generated integer between 1 and 5, inclusive. Question coded as 1 if the number of girls desired is greater than or equal to the number of boys and 0 otherwise.

⁴⁷ X is the number of boys that the respondents said they desire to have out of the randomly generated N number of children. The response options of the questions are as follows: (a) Prefer $X - 1$ boys, and $N - X + 1$ girl or (b) Prefer $X + 1$ boys, and $N - X - 1$ girls. The question was coded as gender progressive if the respondent chooses response option 1 and 0 otherwise.

E2.2. *In the past year, I have passed dirty comments about a girl; made dirty gestures in a girl's presence or inappropriately touched or groped a girl.*

E2.3. In the past year, I have gone on a vacation with my parents (to a relative's place etc.)

E2.4. In the past year, I have scolded my friend/cousin.

E2.5. In the past year, I have watched a program (sports, cultural etc.) on television.

4. Social desirability score

We use a 13-question short form of the Crowne and Marlowe (1960) module developed by Reynolds (1982). The following questions were asked at baseline with two answer choices: agree or disagree. The social desirability score sums how many of the responses are the socially desirable one. A low score means a lower tendency to give answers that have social desirability bias.

B1. It is sometimes hard for me to go on with my work if I am not encouraged

B2. I sometimes feel resentful when I don't get my way

B3. On a few occasions, I have given up doing something because I thought too little of my ability

B4. There have been times when I felt like rebelling against people in authority even though I knew they were right

B5. No matter who I'm talking to, I'm always a good listener

B6. There have been occasions when I took advantage of someone

B7. I'm always willing to admit it when I make a mistake

B8. I sometimes try to get even rather than forgive and forget

B9. I am always courteous, even to people who are disagreeable

B10. I have never been irked when people expressed ideas very different from my own

B11. There have times when I was quite jealous of the good fortune of others

B12. I am sometimes irritated by people who ask favors of me

B13. I have deliberately said something that hurt someone's feelings

5. Parent's gender attitude index

To understand how parental attitudes influence program impacts, one parent of a random 40% subsample of the surveyed students participated in a survey during baseline. The following questions were used to construct our parent's gender attitudes index at baseline.

B1. A woman's most important role is being a good homemaker

B2. A man should have the final word about decisions in his home

B3. A woman should tolerate violence to keep her family together

- B4. Wives should be less educated than their husbands
- B5. Boys should get more opportunities/resources for education
- B6. Men and women should get equal opportunities in all spheres of life
- B7. Girls should be allowed to study as far as they want
- B8. Daughters should have a similar right to inherited property as sons
- B9. It would be a good idea to elect a woman as the village Sarpanch

The heterogeneity analysis with the parent index is restricted to students whose parents were surveyed. We also use the parent attitude index as a possible control variable in our double LASSO procedure. We impute missing values at the mean value for those students whose parent was not surveyed.

B Examples of intervention topics and activities

Below is a list of some of the activities and discussion topics that were part of the curriculum developed and implemented by Breakthrough.

- Students play a mixed gender team building exercise of “10 pass”. Each mixed team tried to pass the ball 10 times between members without being caught by other team, to help establish trust and build confidence and comfort in working and interacting with the opposite gender.
- Students play “Antakshari” (an Indian singing game in which players sing snippets of popular songs) and discuss how song lyrics represent or characterize men and women differently, and analyze the influence of gendered roles on film songs.
- Students make posters in the classroom on how to achieve and create gender equality. The posters are displayed on the walls, and students walk through to discuss the ideas and content of the posters, and to vote on the best poster.
- Students read a book of stories, folk tales or fairy tales and identify gendered roles and stereotypes and gender-based discrimination within the book.
- Students read a comic story about a young girl who becomes a policewoman and addresses various stereotypes. Students reflect and discuss her story within groups, and share stories of addressing gender-based discrimination.
- Students divide themselves into two teams, and perform role play and act out situations related to gender-based discrimination (for example, a girl being subjected to speaking out against sexual harassment), which helps recognize gender stereotypes and roles and how to break them.

- Students divide into two teams and debate for and against important gender equality topics (e.g. Is higher education equally important for girls or boys? Why?) to recognize how norms and perceptions influence the gender roles they play in family and schools and the need to question where these values come from.
- Students learn to identify gender-based discrimination by playing the “Yes or No” game, where groups run to a “No” or “Yes” corner of the room in response to a question posed on gender-based discrimination such as “Should girls and women be allowed to wear what they want?” followed by a discussion on the rationale of their responses. Students are also asked to analyze the short-term and long-term impact of gender-based discrimination on boys and girls.
- Students role play exercises to practice being assertive, saying ‘yes’ or ‘no’ clearly and negotiating with peers to resist bullying and sexual harassment, and to intervene and stop peers from bullying or harassing others.
- Students build an action plan with suggestions and strategies for creating a safe environment for boys and girls in school, which is free of sexual harassment and gender-based violence. This is accompanied with an interactive exercise led by students on writing a petition to the school principal to create a safe environment for all genders, after which they present the student-led action plan to the school administration. Students then co-create a press release on action taken by the school to build a safe environment for all genders.
- Students conduct puppet shows to share positive stories of female role models and icons who have fought against gender-based discrimination and broken through glass ceilings (e.g. Kalpana Chawla, an astronaut).