Supplemental Appendix for

"Ten Years of Relational Power: The Long-Run Effects of Teaching Negotiation Skills to Adolescent Girls"

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Appendix A. Additional Tables and Figures

Table A.1. Effects on Employment Status and Income by Survey Wave

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2018 Tracking	2020–2021 Tracking		2023 Ten-Year Follow-Up			
	Any Work	In Paid Work	Self-Employed	In Paid Work	Self-Employed	Any Income	Total Income (wins.)
Negotiation	-0.030*	-0.020	-0.028	0.018	0.014	0.006	41.381
	(0.016)	(0.024)	(0.017)	(0.028)	(0.027)	(0.029)	(98.841)
	[0.059]	[0.397]	[0.110]	[0.523]	[0.601]	[0.840]	[0.676]
Safe Space (SS)	0.014	0.000	-0.035**	-0.019	-0.031	-0.045	-100.288
	(0.018)	(0.024)	(0.016)	(0.032)	(0.025)	(0.033)	(103.825)
	[0.418]	[0.990]	[0.029]	[0.556]	[0.221]	[0.167]	[0.336]
Observations	2,152	1,962	1,953	1,229	1,229	1,229	1,229
Adjusted R^2	0.002	0.007	0.011	0.002	-0.002	0.005	0.005
Mean of Dep. Var.	0.118	0.296	0.095	0.307	0.204	0.657	1192.945
Negotiation = SS	0.008	0.385	0.627	0.184	0.111	0.110	0.162
Classroom FEs	✓	✓	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation intervention on participants' employment status and income in two tracking surveys and the ten-year follow-up survey. All surveys, including tracking surveys, were phone surveys. In the 2018 tracking survey, we asked participants: "Are you currently working?" The dependent variable in Column 1 indicates whether a participant was working then. In the 2020–2021 tracking survey, conducted during the Covid-19 pandemic, we asked two questions related to employment status before the pandemic and current employment status during the pandemic. The answer options include paid employment, self-employment, and other (e.g., not working or studying). We combine the two questions to measure whether a participant was in paid work or self-employed at all during the whole period (before or during the pandemic); the results are similar when separately examining the status before the pandemic and at the time of the survey. In the 2023 follow-up survey, the main survey examined in this paper, we asked participants to report their current working status with detailed answer options that capture different forms of paid employment (e.g., as a salaried employee, in casual or piece work, and as a paid intern), self-employment (i.e., having own business with or without employees), unemployment, and studying. The dependent variables in Columns 2–5 indicate whether a participant was in any paid employment or was self-employed. In the 2023 survey, participants also reported their approximate monthly income in money and in-kind. The dependent variables in Columns 6–7 are: an indicator for whether a participant earns any positive amount of income and the total amount of income (in ZMW) winsorized at the 99th percentile. Each column is estimated with one linear probability model or OLS regression. All models control for the information treatment, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.2. Survey Response by Treatment and Baseline Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable: Follow-up Survey Response						
Negotiation	-0.004	0.099	-0.021	-0.029	-0.012	-0.005	0.139
	(0.026)	(0.238)	(0.047)	(0.035)	(0.052)	(0.027)	(0.266)
	[0.888]	[0.679]	[0.660]	[0.399]	[0.810]	[0.846]	[0.604]
Safe Space (SS)	0.010	-0.001	-0.001	-0.001	-0.000	-0.000	0.001
	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
	[0.699]	[0.974]	[0.962]	[0.974]	[0.985]	[0.989]	[0.976]
Information	0.022	0.025	0.024	0.026	0.025	0.025	0.025
	(0.020)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
	[0.292]	[0.233]	[0.255]	[0.220]	[0.240]	[0.235]	[0.232]
Negotiation × Age		-0.007					-0.010
		(0.016)					(0.017)
		[0.659]					[0.563]
Negotiation × Both parents are alive			0.018				-0.016
			(0.051)				(0.064)
			[0.723]				[0.801]
Negotiation × Live with parents				0.047			0.057
				(0.044)			(0.055)
				[0.296]			[0.301]
Negotiation × Parents pay fees					0.010		-0.017
					(0.055)		(0.063)
					[0.858]		[0.794]
Negotiation × Ability						-0.016	-0.019
						(0.024)	(0.025)
						[0.504]	[0.431]
Age		-0.013					-0.009
		(0.010)					(0.011)
		[0.177]					[0.371]
Both parents are alive			-0.045				-0.075*
			(0.033)				(0.040)
			[0.170]				[0.059]
Live with parents				0.002			0.030
				(0.027)			(0.034)
				[0.932]			[0.374]
Parents pay fees					0.012		0.014
					(0.028)		(0.031)
					[0.666]		[0.657]
Ability						0.028*	0.026*
						(0.016)	(0.016)
						[0.075]	[0.094]
Observations	2,366	2,254	2,254	2,254	2,249	2,254	2,249
Adjusted R^2	0.015	0.013	0.012	0.012	0.011	0.013	0.014
Mean of Dep. Var.	0.544	0.545	0.545	0.545	0.545	0.545	0.545
Negotiation = SS (p-value)	0.622	0.674	0.660	0.420	0.810	0.863	0.600
All Interactions = 0 (p-value)							0.844
Classroom Fixed Effects	✓	✓	✓	✓	✓	✓	✓

Notes: The dependent variable is a binary indicator for completing the 10-year follow-up survey. Each column is derived from one linear probability model. All models control for classroom fixed effects and cluster standard errors at the classroom level. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. The p-values of the coefficients are shown in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.3. Balance of Baseline Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
			Negotiation vs Control		Negotiation vs Safe Space	
	Mean	Std. dev.	Coeff.	Std. err.	Coeff.	Std. err.
Both parents are alive	0.727	0.446	-0.033	(0.032)	0.004	(0.033)
Lives with biological father	0.563	0.496	-0.013	(0.035)	0.048	(0.036)
Lives with biological mother	0.723	0.448	-0.004	(0.032)	0.031	(0.037)
Living with both mom and dad	0.509	0.500	-0.033	(0.033)	0.026	(0.036)
Parents pay fees	0.775	0.418	0.012	(0.032)	0.045	(0.033)
Reads Nyanja excellently	0.417	0.493	-0.067*	(0.038)	-0.081**	(0.034)
Speaks Nyanja excellently	0.477	0.500	-0.067*	(0.039)	-0.018	(0.036)
Reads English excellently	0.724	0.447	0.003	(0.035)	-0.021	(0.036)
Speak English excellently	0.421	0.494	-0.066*	(0.039)	0.023	(0.035)
Reads Nyanja above average	0.647	0.478	-0.062*	(0.035)	-0.023	(0.039)
Speaks Nyanja above average	0.875	0.331	0.011	(0.027)	-0.003	(0.026)
Reads English above average	0.910	0.287	-0.017	(0.022)	-0.008	(0.025)
Speaks English above average	0.801	0.400	-0.021	(0.035)	-0.013	(0.031)
Age	14.335	1.475	0.053	(0.114)	-0.004	(0.109)
p-value (joint test)			0.325		0.642	

Notes: Columns 1–2 show the mean and standard deviation of each baseline characteristic among the 10-year follow-up sample. Columns 3–4 show the estimated differences between the negotiation group and control group (excluding the safe space group) in baseline characteristics. Columns 5–6 show the estimated differences between the negotiation group and safe space group (excluding the control group) in baseline characteristics. Each estimate (including the coefficient and standard errors) is derived from one linear probability model or OLS regression where the dependent variable is a baseline characteristic, and the independent variable is an indicator for the negotiation treatment. All specifications control for the information treatment indicator and classroom fixed effects. Standard errors in parentheses are clustered at the classroom level. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.4. Impact of Negotiation Treatment on Educational Attainment Without Classroom Fixed Effects

	(1) Ever Enroll in Grade 12	(2) Pass HS Exam	(3) Enroll in Any College	(4) Graduate College: Any Program	(5) Graduate College: 3-year Diploma	(6) Graduate College: ≥4-year Degree	(7) Total Years of Education
Negotiation	0.044**	0.028	0.015	0.061**	0.055**	0.000	0.273***
	(0.017)	(0.023)	(0.031)	(0.027)	(0.026)	(0.014)	(0.097)
	[0.014]	[0.231]	[0.628]	[0.025]	[0.036]	[0.972]	[0.005]
Safe Space (SS)	0.043***	0.045**	0.028	0.029	0.006	0.017	0.222*
	(0.016)	(0.021)	(0.033)	(0.030)	(0.023)	(0.018)	(0.113)
	[0.008]	[0.037]	[0.402]	[0.331]	[0.792]	[0.344]	[0.052]
Observations	1,225	1,229	1,225	1,225	1,229	1,229	1,225
Adjusted R^2	0.074	0.115	0.139	0.070	0.044	0.025	0.097
Mean of Dep. Var.	0.939	0.852	0.431	0.213	0.161	0.054	12.704
Negotiation = SS (p-value)	0.986	0.453	0.730	0.282	0.060	0.313	0.653
Lasso Controls	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on educational attainment. The dependent variables are: ever enrolling in the twelfth grade, successfully graduating from high school (measured as taking and passing the 12th grade national exam), enrolling in any college program, graduating from any college program, graduating from a three-year college program, graduating from a degree program that takes four years or more, and the total years of schooling. Each column is derived from one linear probability model or one Ordinary Least Squares (OLS) regression. All models control for the information treatment indicator. In addition, we use double lasso to select other controls from the full set of baseline characteristics listed in Appendix Table A.3. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.5. Impact on Sexual Behavior, Marriage, Childbirth, and Adverse Health Without Classroom Fixed Effects

	(1) Had Sex < 19	(2) Got Married < 23	(3) Child birth < 21	(4) Spouse ≥5 Older	(5) Likely HIV Infection	(6) Health Not Very Good	(7) Anxiety & Depression Score	(8) Average Treatment Effect
Negotiation	-0.066**	-0.045**	0.019	-0.045**	-0.029**	-0.065*	-0.060	-0.094***
	(0.031)	(0.019)	(0.022)	(0.021)	(0.014)	(0.035)	(0.232)	(0.033)
	[0.036]	[0.018]	[0.399]	[0.033]	[0.037]	[0.066]	[0.795]	[0.004]
Safe Space (SS)	-0.008	-0.022	0.012	-0.012	-0.009	-0.020	-0.218	-0.031
	(0.035)	(0.024)	(0.024)	(0.023)	(0.015)	(0.033)	(0.237)	(0.033)
	[0.826]	[0.355]	[0.607]	[0.615]	[0.562]	[0.546]	[0.358]	[0.354]
Observations	1,095	1,222	1,225	1,222	1,144	1,229	1,225	1,229
Adjusted R^2	0.004	0.013	0.006	0.022	0.006	0.002	0.015	–
Mean of Dep. Var.	0.364	0.099	0.136	0.117	0.037	0.660	4.411	–
Negotiation = SS	0.082	0.246	0.779	0.100	0.134	0.233	0.507	0.055
Lasso Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on the following outcomes: starting sexual activity below the median age (19), getting married below the median age (23), giving birth to a child below the median age (21), being married to a spouse older than the respondent by at least five years (the median age gap), reporting being likely to be infected with HIV, assessing one's overall health status as not very good, and a total score for anxiety and depression (ranging from 0 to 12). Each column is derived from one linear probability model or one OLS regression. Column 8 shows the estimated average standardized treatment effect following Kling, Liebman and Katz (2007). All models control for the information treatment indicator and a set of baseline characteristics selected by double lasso. Standard errors in parentheses are clustered at the classroom level. "Negotiation = SS" shows the p-value for the test of difference between the Negotiation and the Safe Space (SS) coefficients in each column. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.6. Effects on HIV Infection Likelihood with Different Ways of Coding Missing Values

	(1)	(2)	(3)	(4)	(5)
If "No-Consent" =	Missing	Likely	Unlikely	Unlikely	Likely
If "Unknown" =	Missing	Likely	Unlikely	Likely	Unlikely
Negotiation	-0.019	-0.032	-0.016	-0.030	-0.018
	(0.015)	(0.025)	(0.014)	(0.024)	(0.014)
	[0.199]	[0.201]	[0.249]	[0.227]	[0.203]
Safe Space (SS)	-0.007	-0.033	-0.003	-0.037	0.000
	(0.016)	(0.025)	(0.015)	(0.024)	(0.016)
	[0.668]	[0.186]	[0.838]	[0.133]	[0.976]
Observations	1,144	1,229	1,229	1,229	1,229
Adjusted R^2	0.015	0.001	0.013	-0.003	0.028
Mean of Dep. Var.	0.037	0.103	0.035	0.100	0.037
Negotiation = SS (p-value)	0.383	0.955	0.340	0.758	0.231
Classroom Fixed Effects	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on the likelihood of HIV infection when coding missing values of the outcome in different ways. Besides reporting likely or unlikely to be infected with HIV, participants can also refuse to answer the question (i.e., "No-consent", $N = 3$) or report "Unknown" ($N = 84$). Column 1 shows the results (shown in main text) when keeping these 87 observations as missing values. Columns 2–5 show the results when replacing these two types of missing values with either 0 (Unlikely) or 1 (Likely). Each column is estimated with one linear probability model. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.7. Robustness of Effects on Aggregate Traditional Gender Attitudes to Different Codings of Sub-Components

	(1)	(2)	(3)	(4)
	Average Standardized Treatment Effect (ATE)			
(i) "Wife's obligation to have sex"	≠ Str. Disagree	Agree	≠ Str. Disagree	Agree
(ii) "Woman can choose own friends"	≠ Str. Agree	≠ Str. Agree	Disagree	Disagree
Negotiation	-0.111***	-0.096***	-0.098***	-0.082**
	(0.034)	(0.033)	(0.035)	(0.036)
	[0.001]	[0.004]	[0.005]	[0.023]
Safe Space (SS)	-0.020	-0.021	-0.003	-0.002
	(0.038)	(0.038)	(0.040)	(0.039)
	[0.594]	[0.581]	[0.935]	[0.961]
Negotiation = SS (p-value)	0.016	0.041	0.016	0.038
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table reports the average treatment effects of negotiation and safe space on traditional gender role attitudes, depending on the definitions of two sub-items of traditional attitudes. Participants report whether they strongly or somewhat agree or disagree with two statements: (i) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (ii) "A woman should be able to choose her own friends even if her husband disapproves." Column 1 uses the same cut-offs as in the paper: not strongly disagreeing with (i) and not strongly agreeing with (ii). Columns 2–4 show the estimation results when using alternative cut-offs for creating indicator variable measures of each sub-component. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.8. Impact on Traditional Gender Role Attitudes Without Classroom Fixed Effects

	(1) Wife to obey her husband (Agree)	(2) Man to show he is boss (Agree)	(3) Wife's obligation to have sex (≠Str. disagree)	(4) Woman no own friends (≠Str. agree)	(5) All traditional attitudes (ATE)
Negotiation	-0.034	-0.076**	-0.050*	-0.034	-0.096***
	(0.032)	(0.033)	(0.029)	(0.034)	(0.033)
	[0.281]	[0.024]	[0.091]	[0.330]	[0.004]
Safe Space (SS)	0.012	-0.017	-0.014	-0.010	-0.010
	(0.033)	(0.038)	(0.032)	(0.032)	(0.038)
	[0.717]	[0.663]	[0.658]	[0.753]	[0.788]
Observations	1,229	1,225	1,225	1,229	1,222
Adjusted R^2	0.016	0.027	0.016	0.001	–
Mean of Dep. Var.	0.507	0.315	0.398	0.723	–
Negotiation = SS	0.197	0.073	0.306	0.459	0.021
Lasso Controls	✓	✓	✓	✓	✓

Notes: Respondents report whether they strongly or somewhat agree or disagree with four statements regarding gender roles within the family: (1) "A good wife obeys her husband even if she disagrees"; (2) "It is important for a man to show his wife/partner who is the boss"; (3) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (4) "A woman should be able to choose her own friends even if her husband disapproves." The table shows estimated effects of the negotiation and safe space treatments on the following outcomes: agreeing with statement 1, agreeing with statement 2, not strongly disagreeing with statement 3, and not strongly agreeing with statement 4. The cutoff points roughly correspond to the median answer for each statement. Column 5 shows the average standardized treatment effect (ATE) of the negotiation treatment on all outcomes in Columns 1–4. Appendix Table A.7 shows that the overall impact remains robust when using different cutoffs to define traditional attitudes for statements 3 and 4. All models control for the information treatment and a set of baseline characteristics selected by double lasso. "Negotiation = SS" shows the p-value for the test of the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.9. Main Results Accounting for Attrition with Inverse Probability Weighting

	(1) Total Years of Education	(2) Adverse Sex Marriage & Health (ATE)	(3) Traditional Attitudes (ATE)	(4) All Outcomes in Positive Direction (ATE)
Negotiation	0.275**	-0.096***	-0.097***	0.104***
	(0.113)	(0.037)	(0.036)	(0.026)
	[0.017]	[0.009]	[0.008]	[<0.001]
Safe Space (SS)	0.183	-0.031	-0.028	0.039
	(0.124)	(0.036)	(0.041)	(0.027)
	[0.143]	[0.395]	[0.492]	[0.149]
Negotiation = SS (p-value)	0.479	0.085	0.092	0.030
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table shows the estimated treatment effects on different outcomes with inverse probability weighting for survey response. Specifically, we derive the predicted propensity (pr) of completing the follow-up survey based on all baseline characteristics and classroom fixed effects. We then use $1/pr$ as the weight when estimating the effects of different treatments on the main outcomes of this paper. Columns 1 represents an OLS regression, while Columns 2–4 show the estimated average treatment effects on adverse marriage or health outcomes, traditional gender attitudes, and all combined outcomes in a positive direction—corresponding to the results in the final columns of Tables 2, 3, and 4. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.10. Lee Bounds on Effects of Negotiation vs. Control on Aggregate Outcomes

(1)	(2)	(3)	(4)
		Lee Bounds	
Outcome Variable	Original Estimate (Clustered SE)	Lower Bound (Clu. Boot. SE)	Upper Bound (Clu. Boot. SE)
Years of Education	0.245***	0.242*	0.250**
	(0.093)	(0.125)	(0.120)
	[0.009]	[0.053]	[0.037]
Adverse Sex, Marriage & Health (ATE)	-0.092***	-0.097*	-0.090
	(0.032)	(0.056)	(0.062)
	[0.004]	[0.083]	[0.147]
Traditional Gender Attitudes (ATE)	-0.089***	-0.089**	-0.088*
	(0.033)	(0.044)	(0.048)
	[0.008]	[0.044]	[0.066]
All Outcomes in Positive Direction (ATE)	0.096***	0.095***	0.099***
	(0.023)	(0.036)	(0.033)
	[<0.001]	[0.009]	[0.002]

Notes: The table compares participants in the negotiation and control arms (excluding the safe space arm) to estimate the original treatment effects of negotiation on different outcomes and the Lee (2009) bounds of the effects. We cannot control for the safe space indicator to tighten the Lee bounds because they are independent treatment arms (i.e., there is no variation in the safe space treatment for the negotiation or control arm). Column 2 shows the original estimates of how the negotiation treatment affects different outcomes, estimated with the follow-up participants initially assigned to the negotiation and control arms. Columns 3–4 show the calculated lower and upper Lee bounds, using the full sample of participants with and without completing the follow-up survey. For the Lee bounds, we derive clustered bootstrap standard errors ("Clu. Boot. SE") by resampling participants from classroom clusters and estimate the corresponding bounds 1,000 times. For the combined ATE estimates, we first estimate the bounds and save the 1,000 resampling results for each outcome. We then calculate the average standardized estimates of the upper/lower bounds and use the saved resampling results to derive the overall bootstrap standard errors. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.11. Aggregate Effects of Negotiation vs. Control Under Different Assumptions about Missing Data

	(1)	(2)	(3)	(4)	(5)
	Attenuated Effect		Original Effect	Strengthened Effect	
Outcome Variable	±0.1 SD	±0.05 SD		±0.05 SD	±0.1 SD
Years of Education	0.102**	0.174***	0.245***	0.317***	0.389***
	(0.050)	(0.050)	(0.093)	(0.050)	(0.051)
	[0.042]	[0.001]	[0.009]	[<0.001]	[<0.001]
Adverse Sex, Marriage & Health Outcomes (ATE)	-0.003	-0.047***	-0.092***	-0.137***	-0.181***
	(0.017)	(0.017)	(0.032)	(0.017)	(0.018)
	[0.877]	[0.005]	[0.004]	[<0.001]	[<0.001]
Traditional Gender Attitudes (ATE)	0.003	-0.043**	-0.089***	-0.135***	-0.180***
	(0.019)	(0.018)	(0.033)	(0.018)	(0.018)
	[0.866]	[0.019]	[0.008]	[<0.001]	[<0.001]
All Outcomes in Positive Direction (ATE)	0.021*	0.059***	0.096***	0.134***	0.171***
	(0.012)	(0.012)	(0.023)	(0.013)	(0.013)
	[0.092]	[<0.001]	[<0.001]	[<0.001]	[<0.001]

Notes: The table shows the aggregate effects of the negotiation treatment under different assumptions about the outcomes of non-tracked participants. As in Table A.10, we focus on the comparison between the control and negotiation arms (excluding the safe space arm), and Column 3 shows the original effects. Columns 1–2 and 4–5 show the estimated effects when assuming non-tracked participants' outcomes to be equal to the mean plus or minus 0.05 or 0.1 SD of the outcome. For years of education, Columns 1–2 assume missing outcomes of the control arm to take different values above the mean and the treatment arm to take values below the mean, so that the estimated effects under these assumptions are attenuated compared to the original effect. By contrast, Columns 4–5 assume the opposite: the treatment (control) arm takes values above (below) the mean, so that the calculated effects are further strengthened. For health and attitudes outcomes in a negative direction, we reverse the assumption for treatment and control arms to calculate the attenuated and strengthened effects. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.12. Tests for Within-Class Spillover Effects

	(1) Total Years of Education	(2) Adverse Sex, Marriage & Health (ATE)	(3) Traditional Gender Attitudes (ATE)	(4) All Outcomes in Positive Direction (ATE)
Negotiation	0.293***	-0.096***	-0.101***	0.103***
	(0.098)	(0.032)	(0.033)	(0.023)
	[0.003]	[0.003]	[0.002]	[<0.001]
Num. Negotiation Girls	-0.042	-0.008	0.009	-0.002
	(0.068)	(0.033)	(0.037)	(0.029)
	[0.538]	[0.816]	[0.810]	[0.951]
Num. Girls in Study	✓	✓	✓	✓
Treatment Controls	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table shows the estimated effects of receiving the negotiation treatment and the number of girls in the classroom that received the negotiation treatment. All models control for the total number of girls in the classroom that participated in the study (and were assigned to the control, negotiation, or safe space arm), indicators for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. Column 1 is derived from one OLS regression, while Columns 2–4 represent average standardized treatment effects (ATE). Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.13. Average Treatment Effects on All Outcomes in the Follow-Up Survey

	(1)	(2)	(3)	(4)
	All Survey Outcomes in Positive Direction (ATE)			
Negotiation	0.048**	0.054***	0.043**	0.051**
	(0.020)	(0.020)	(0.021)	(0.021)
	[0.019]	[0.006]	[0.039]	[0.014]
Safe Space (SS)	-0.011	0.000	-0.015	-0.002
	(0.019)	(0.019)	(0.019)	(0.019)
	[0.588]	[0.984]	[0.425]	[0.925]
Information	0.027	0.031*	0.019	0.024
	(0.017)	(0.016)	(0.016)	(0.015)
	[0.107]	[0.054]	[0.220]	[0.120]
Negotiation = SS	0.004	0.006	0.004	0.007
Classroom FEs	✓	–	✓	–
Lasso Controls	✓	✓	–	–

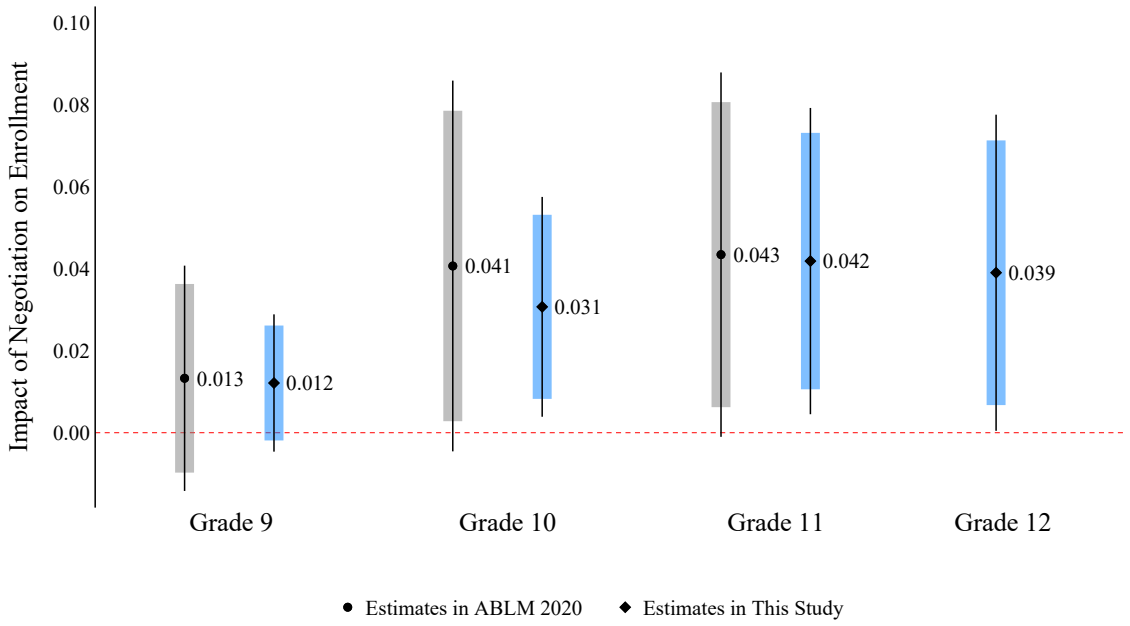
Notes: The table shows the estimated average treatment effects (ATE) on all outcomes measured in the follow-up survey. In addition to the total years of education, all sex, marriage, and health outcomes in Columns 1–7 of Table 2, all gender attitudes outcomes Columns 1–4 in Table 3, labor market outcomes in Columns 4–7 in Table A.1, we also include the following outcomes: number of days with enough food, difficulty in covering expenses (reversed), two measures of household assets and individual assets (constructed using PCA), satisfaction with partner (available for 94% of the sample with a spouse or any romantic partner), whether it is easy to bring up issues with partner, frequencies of physical abuse and sexual violence in the past year (reversed), and feelings of control over household purchasing decisions, where to go, and what happens in the future—see Appendix C for the detailed wording and answer options of these additional outcomes. The survey also includes a small number of questions used to determine survey branching (e.g., household composition), questions unlikely to be affected by the treatments (e.g., parental death and the desired number of children), and questions applicable only to a subsample of respondents who already have children or are already married (e.g., having enough food for children, spouse's income and education). The aggregate ATE estimate in Column 1 is based on models including both classroom fixed effects and lasso controls; Column 2 excludes classroom fixed effects; Column 3 excludes lasso controls; Column 4 excludes both. "Negotiation = SS" shows the p-value for the difference between the Negotiation and the Safe Space (SS) treatments. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.14. Effects on Non-Educational Aggregate Outcomes by College Enrollment

	(1)	(2)	(3)	(4)
	Adverse Sex, Health & Marriage Outcomes (ATE)		Traditional Gender Attitudes (ATE)	
Ever Enrolled in College:	Yes	No	Yes	No
Negotiation	0.022	-0.137***	-0.128**	-0.112**
	(0.050)	(0.045)	(0.060)	(0.052)
	[0.665]	[0.002]	[0.032]	[0.030]
Safe Space (SS)	0.029	-0.027	-0.035	-0.028
	(0.047)	(0.043)	(0.059)	(0.054)
	[0.539]	[0.531]	[0.559]	[0.605]
Observations	528	697	528	697
Negotiation = SS (p-value)	0.880	0.024	0.144	0.126
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

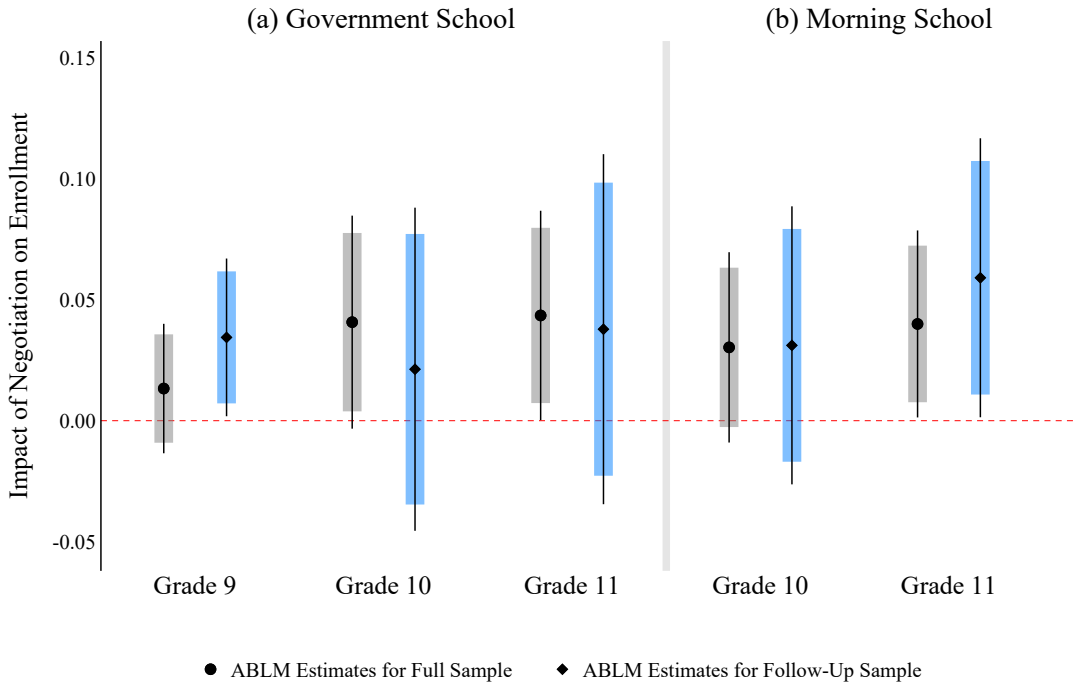
Notes: The table shows the aggregate effects of the negotiation treatment on non-educational outcomes, separately for participants who ever enrolled in college (43%) and participants who never enrolled (57%). Each column represents the average standardized treatment effect estimated for the corresponding sample. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. When using an interacted model to directly test the difference in the negotiation effect by college enrollment, the interaction term between negotiation and college enrollment is statistically significant at the 5% level (p-value = 0.036) for adverse sex, health, and marriage outcomes but insignificant for overall gender attitudes. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Figure A.1. Impact on School Enrollment by Grade



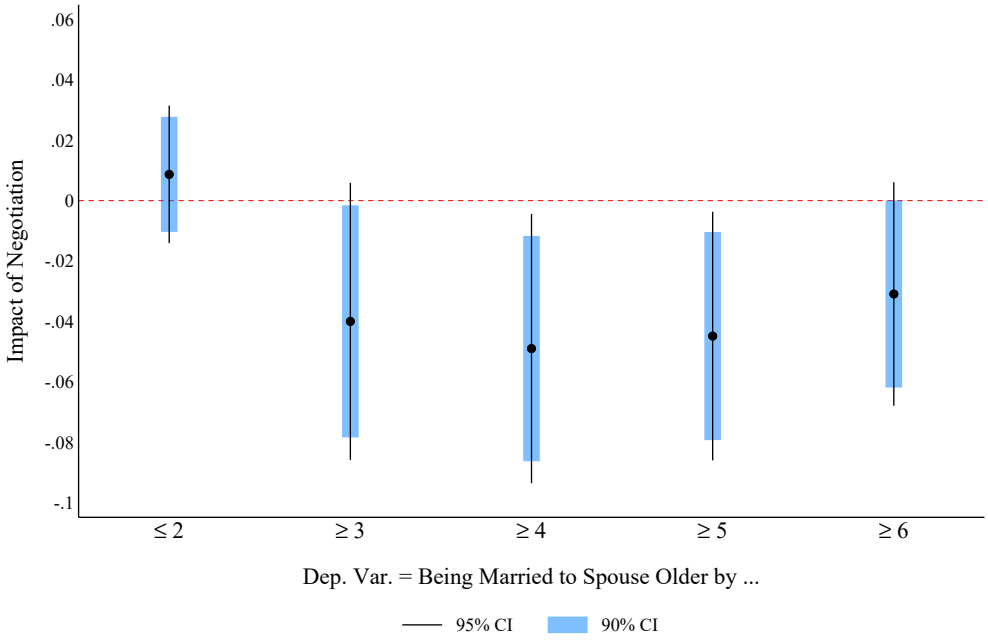
Notes: The figure shows the estimated impact of the negotiation treatment on enrollment in different grades. Each estimate is derived from one linear probability model, in which the dependent variable is a binary indicator for being enrolled in a grade. The circles (ABLM) indicate original results from Ashraf et al. (2020), which uses administrative data to estimate the impact on on-track government school enrollment. The diamonds represent results estimated with the long-term follow-up survey in this study: these estimates capture whether participants are *ever* enrolled in different grades within 10 years after the original treatment. Each estimate is derived from a specification that controls for the safe space and information treatments, classroom fixed effects, as well as a subset of baseline characteristics selected by double lasso. Standard errors are clustered at the classroom level. Error bars indicate 95% and 90% confidence intervals.

Figure A.2. Impact on School Enrollment in the Administrative Data From ABLM for the Full vs. Follow-Up Sample



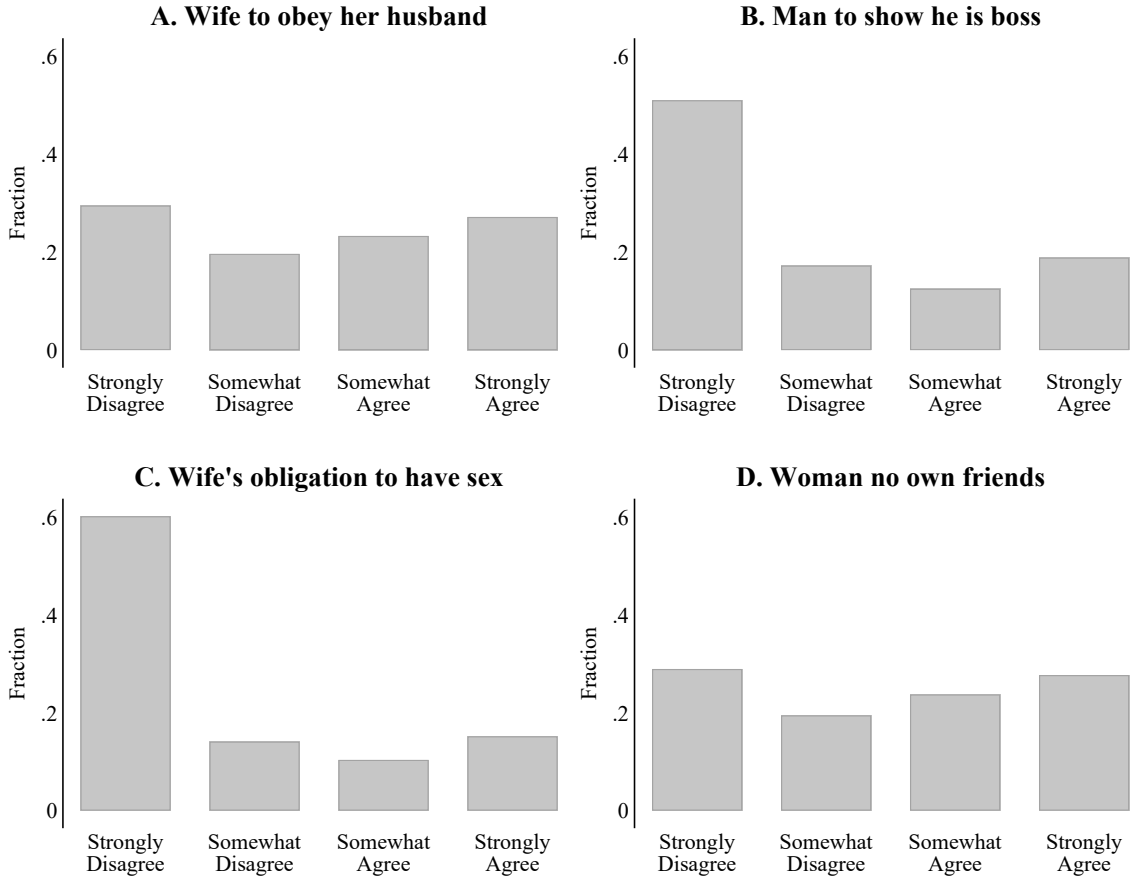
Notes: The figure shows the estimated impact of the negotiation treatment on school enrollment using the original data from Ashraf et al. (2020), separately for the original full sample (circles) and the follow-up sample (diamonds). Each estimate is derived from one linear probability model, in which the dependent variable is a binary indicator for being enrolled in a grade at a government school (Panel a) or government morning school (Panel b). The specification controls for the safe space and information treatments, classroom fixed effects, as well as a subset of baseline characteristics selected by double lasso. Standard errors are clustered at the classroom level. Error bars indicate 95% and 90% confidence intervals.

Figure A.3. Impact on Being Married to a Spouse by Age Gap



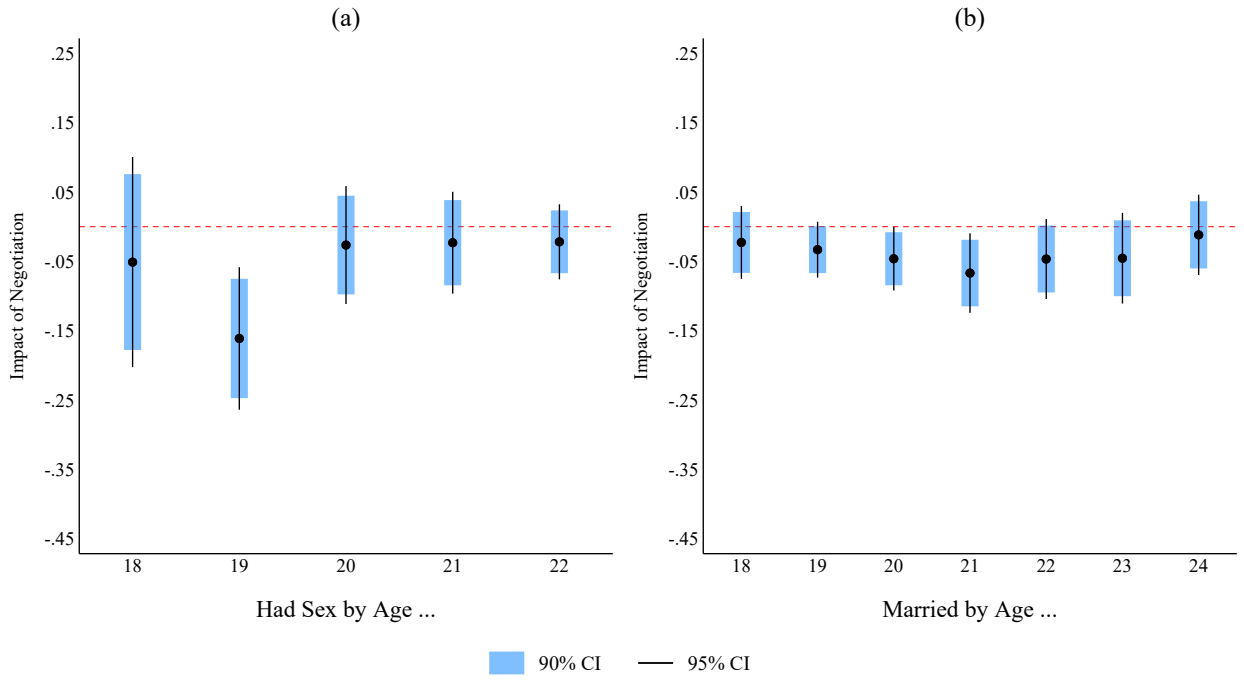
Notes: The figure shows the estimated impact of the negotiation treatment on the likelihood of being married to a spouse who is older than the participant by at most 2 years or at least 3, 4, 5, or 6 years. Each estimate is derived from one linear probability model that controls for the safe space treatment, information treatment, classroom fixed effects, and baseline characteristics selected by double lasso. Error bars indicate 95% or 90% confidence intervals.

Figure A.4. Distribution of Gender Role Attitudes



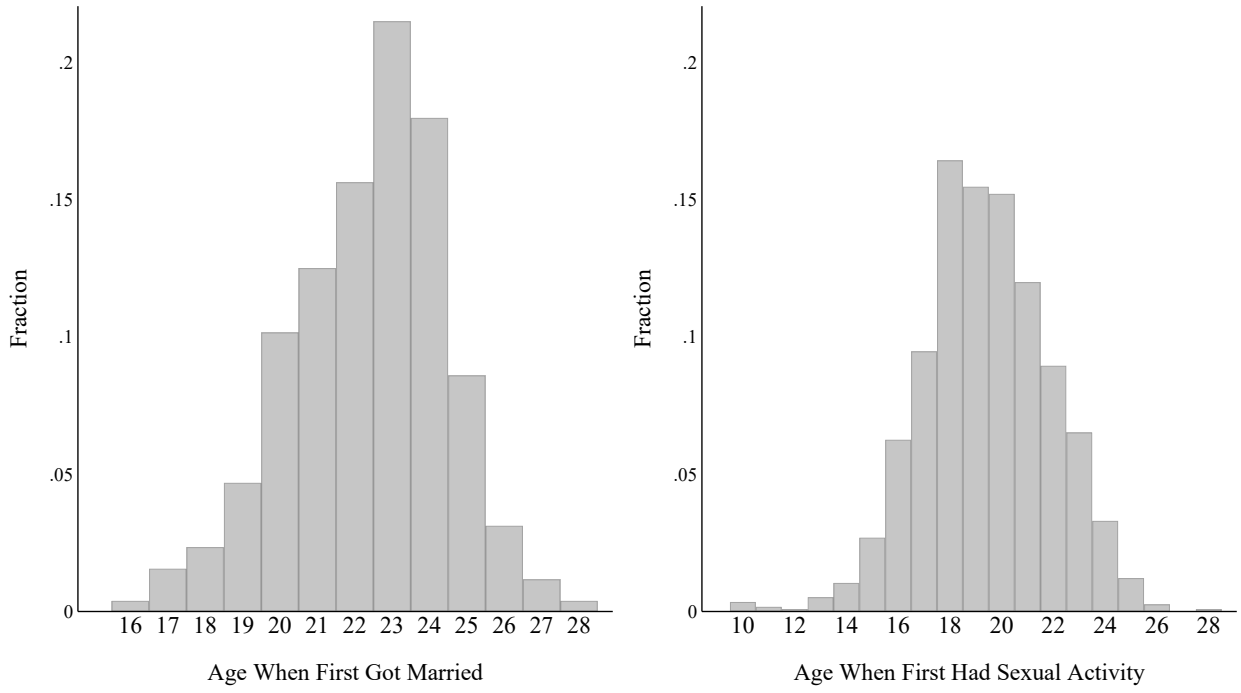
Notes: The figure shows the distribution of answers to four questions: (A) "A good wife obeys her husband even if she disagrees"; (B) "It is important for a man to show his wife/partner who is the boss"; (C) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (D) "A woman should be able to choose her own friends even if her husband disapproves (reversed)."

Figure A.5. Impact on Age of First Sexual Activity and Age of Marriage for Non-Enrolled



Notes: The figure shows the estimated impact of the negotiation treatment on the likelihood of starting sexual activity or being married by different ages for the sample of participants who are not enrolled in school at each age. For Panel (a), we do not show the estimates for ages below 18 because very few participants are not enrolled in school at younger ages according to their self-reports. Each estimate is derived from one linear probability model that uses the same specification as Column 1 of Table 2. Error bars indicate 95% or 90% confidence intervals.

Figure A.6. Distribution of Age When Married and First Had Sex



Notes: The figure shows the distribution of the age when girls first got married—conditional on being ever married—and the age when first had sexual activity.

Appendix B. Cost-Benefit Analysis

To assess the cost-effectiveness of the negotiation intervention, we calculate (1) the marginal value of public funds (MVPF) and (2) the benefit-cost ratio. Next, we break down the costs and benefits associated with the main effect of the intervention: the increased educational attainment.

B.1 Costs

Broadly, the intervention generates three types of costs:

1. Costs of the intervention itself, denoted by C^I;
2. Direct costs of increased education, denoted by C^{ED}, which are borne either by households (C^{ED}_{pri}) or by the government (C^{ED}_{pub});
3. The opportunity costs of increased education, denoted by C^{EO};

We use our own survey data and statistics from the "Education Public Expenditure Review in Zambia" (Saeki et al., 2015) to calculate each cost component as follows.

Intervention costs (C^I): As estimated in Ashraf et al. (2020), the original intervention in 2013 cost approximately 60 USD per participant.[1] This includes the costs of training and paying facilitators, copies and supplies, lunch on school days, and management and transportation.

Direct educational costs (C^{ED}): To estimate the educational costs generated by the intervention, we directly calculate the total costs of education for each participant based on their reported school enrollment information and then estimate the impact of the negotiation training on the total costs. Specifically, based on the reported enrollment status and details about the enrolled program in each year, we can calculate the approximate expenses borne by households and the government, using estimated costs of different school programs from Saeki et al. (2015). For example, if a participant is enrolled in a public high school (i.e., Grade 10 to 12) in a certain year, the estimated annual costs include 95 USD in household expenses and 420 USD in public funds. The costs vary by the educational level—from primary school to higher education—and by whether the educational institution is publicly funded. After deriving the costs for each participant i in each year $t \in \{2014, 2015, ..., 2023\}$, we calculate the total discounted costs for participant i as:

$$C^{ED}_i = \sum_{t=2014}^{2023} \frac{C^{ED}_{it}}{(1+0.05)^{t-2013}},$$

where $\frac{1}{1+0.05}$ denotes the annual discount factor.

[1] We normalize all costs and benefits using the USD value in 2013.

We then use these individual-level costs to estimate the impact of the negotiation intervention on educational costs.[2] The estimated coefficient of the treatment variable provides the final estimate of C^{ED}, which is equal to 52.5 USD. This total cost is composed of 12.8 USD in private costs (C^{ED}_{pri}) and 39.7 USD in public funds (C^{ED}_{pub}).

Opportunity costs of education (C^{EO}): To estimate the opportunity cost of education, we need to examine whether the intervention influenced participants' employment status and income. Since the negotiation treatment increased educational attainment, it could have crowded out employment and wages. As Table A.1 shows, based on the 2023 follow-up survey, we find no significant impact of the intervention on the likelihood of being gainfully employed or the reported monthly income. If anything, the employment rate and income appear higher in the treatment group. Using data from brief tracking surveys conducted in 2018 and in 2020/21, we find directionally negative but noisily estimated effects of the treatment on employment. The directionally opposite effects in earlier years and in 2023 could be due to the treated participants being more likely to be in school at younger ages but having a higher chance of finding jobs after graduation in later years. Overall, given the lack of significant effects, we conclude that the intervention does not generate additional opportunity costs, i.e., C^{EO} = 0 USD. This is consistent with Duflo, Dupas and Kremer (2023) who document that the labor market effect of increased education only emerges after their participants reach an average age of 29. In our setting, participants are aged 24 on average in 2023.

B.2 Benefits

There are three categories of benefits associated with negotiation's effects on education:

1. Labor market returns due to increased education years, denoted by B^{LM};
2. Child survival benefits due to the education effect, denoted by B^{CS};
3. Child cognitive development benefits due to the education effect, denoted by B^{CD};

We explain each of these components and how we estimate them below. Since we do not have data on very long-run labor market and intergenerational effects, we follow the surrogate approach described by Athey et al. (2019). We adopt estimates of the stream of benefits of education from Duflo et al. (2024), who collect very long-run follow-up data and conduct sophisticated cost-effectiveness analyses of an intervention that provided secondary school scholarships to students in Ghana. Their intervention increases the total years of education by 1.33 years. Given the similarity in the setting between Duflo, Dupas and Kremer (2023) and our study, we assume that the benefits

[2] We use the same specification as in Table 1 except that we omit classroom fixed effects. Since treatments were randomly assigned within classrooms, excluding the strata fixed effects does not bias our estimate. Given the high attrition rate, the number of respondents in each classroom is small (with a median of 10), and adding classroom fixed effects makes the estimate noisier. With classroom fixed effects, the estimated educational costs are smaller, and the program looks even more cost-effective: under the medium VSL, the MVPF and BCR rise to 43.14 and 16.31, compared with 10.46 and 7.56 in Figure B.1.

of our intervention are proportional to their documented benefits, with the proportionality given by the ratio of the two interventions' impact on schooling years (i.e., $0.23/1.33 \approx 1/6$). We describe our calculations in more detail below and closely follow the assumptions and methods in the cost effectiveness analysis of Duflo et al. (2024). We note that, given the positive effects on the other health and well-being measures, our intervention likely had benefits beyond the educational effects, but these effects are difficult to quantify and are not included in our calculations.

Labor market returns (B^{LM}): This benefit captures the effect of the intervention on participants' lifetime labor market income. Since our participants are relatively young, we do not observe their income during typical working ages—from age 30 to 60. We calculate the labor market benefits following the approach of Duflo et al. (2024), who find that increased female education leads to increased employment in the public sector and significantly higher earnings among female participants (Duflo, Dupas and Kremer, 2023). Extrapolating to the Zambia context, expected increases in earnings are due to the increased likelihood (= 6.7 ppt) of being employed in the public sector, which generates higher incomes than the private sector. We assume that the starting annual wage at age 30 (in 2029) is 1,535 USD in the public sector and 422 USD in the private sector (in USD 2013).[3] We then project earnings from age 31 to 60 by assuming a 5% annual growth rate, which is the GDP growth rate in Zambia in recent years. Additionally, we assume a 15% tax rate for public sector wages and no tax for private sector wages, following Duflo et al. (2024). Given these assumptions, the total discounted labor market benefit of our intervention is equal to:

$$B^{LM} = \underbrace{\frac{0.23 \cdot \beta_{public}}{1.33}}_{\substack{\text{weighted} \\ \text{treatment} \\ \text{effect}}} \underbrace{\sum_{t=2029}^{2059} \frac{[1535(1-\tau) - 422] \times (1+0.05)^{t-2029}}{(1+0.05)^{t-2013}}}_{\substack{\text{increased wage income} \\ \text{in public sector from age 30 to 60}}}$$

where $\beta_{public} = 0.067$ is the increased likelihood of being employed in the public sector, and $\tau = 0.15$ denotes the overall income tax rate. For our participants whose average baseline age in 2013 is 14, the working period ranges from 2029 (at age 30) to 2059 (at age 60).

Child survival benefits (B^{CS}): Duflo et al. (2024) document that their intervention, which increases schooling years, reduces under-3 child mortality among female participants by 2 ppt. We similarly assume that our intervention leads to reduced child mortality by 0.35 ppt (scaling their treatment effect by the relative effect of our treatment on education). To calculate the survival benefits of the second-generation, we estimate the Value of a Statistical Life (VSL). As recommended by Robinson, Hammitt and O'Keeffe (2019), we consider three levels of the VSL:

[3] We derive these wage rates based on Duflo et al. (2024), where the starting monthly wage is \$91 and \$25 (in USD 2020) for female participants in public and private sectors, respectively. We adjust these rates by taking into account the difference in GNI per capita between Ghana and Zambia and converting USD 2020 into USD 2013, which gives monthly wages of \$82.5 and \$22.7. Since these wages are measured in 2020 and our participants reach age 30 in 2029, we further project them to 2029 using a 5% annual growth rate, which gives monthly wages of \$128 and \$35 (i.e., annual wages of \$1,535 and \$422) at age 30.

1. Low VSL = 36,425 USD, which is extrapolated from a U.S. estimate to Zambia using an income elasticity of 1.5;
2. Medium VSL = 140,742 USD, which is equal to 100 * GNI per capita in Zambia;
3. High VSL = 225,187 USD, which is equivalent to 160 * GNI per capita in Zambia.

We follow Duflo et al. (2024) and calculate the child survival benefits as:

$$B^{CS} = VSL \times \underbrace{\frac{0.23 \cdot \beta_{survival}}{1.33}}_{\substack{\text{weighted} \\ \text{treatment effect}}} \left[\frac{N^1_{child}}{(1+0.05)^{10}} + \frac{N^2_{child}}{(1+0.05)^{15}} + \frac{N^3_{child}}{(1+0.05)^{19}} \right]$$

where $\beta_{survival} = 0.02$ is the treatment effect on the child survival rate; N^1_{child} is the number of children born in the first 10 years; N^2_{child} is the number of children born in the next 5 years; and N^3_{child} is the additional number of children born to reach replacement fertility of 2.1. Finally, Duflo et al. (2024) adjust the VSL upward with a weight of 1.33 to account for the fact that the lives saved are those of young children. To be conservative, our default calculation does not apply an age weight; using this weight would increase the estimated MVPF and BCR.

Child cognitive development benefits (B^{CD}): Using the same methods as above, based on Duflo et al. (2024), we assume that our intervention improves the cognitive ability of participants' children by 0.041 standard deviations, approximately one sixth of the treatment effect in Duflo et al. (2024). Following Duflo et al. (2024), this effect is predicted to raise each child's future earnings from age 18 to 58 by 0.041×33%. We assume that the baseline annual wage is equivalent to the GNI per capita in Zambia. Altogether, the total discounted child cognitive benefit is:

$$B^{CD} = \underbrace{\frac{0.23 \cdot \beta_{cognitive}}{1.33}}_{\substack{\text{weighted} \\ \text{treatment effect}}} \times 0.33 \left[\sum_{t=2043}^{2083} \frac{\text{No.Children} \times \text{GNI pc}}{(1+0.05)^{t-2013}} \right]$$

where $\beta_{cognitive} = 0.238$ is the treatment effect on a child's cognitive ability, and No.Children = 1.9 is the average number of children that participants have. The child earnings benefit starts from 2043—assuming that our participants give birth to a child in 2025 and the child starts earning income at 18, in 2043.

B.3 Cost-Effectiveness

To assess the cost-effectiveness of our intervention, we calculate two measures: the marginal value of public funds (MVPF) and the benefit-cost ratio (BCR).

MVPF: The marginal value of public funds is defined as the ratio of the participant's willingness to pay (WTP) for the intervention to the net costs borne by the government. When including all components of benefits and costs associated with the education effect of the program, the MVPF is equal to:

$$\text{MVPF} = \frac{\text{WTP}}{\text{Net Government Costs}} = \frac{B^{LM} + B^{CS} + B^{CD} - C^{ED}_{pri} - C^{EO}}{C^{I} + C^{ED}_{pub} - \tau \cdot B^{LM}}$$

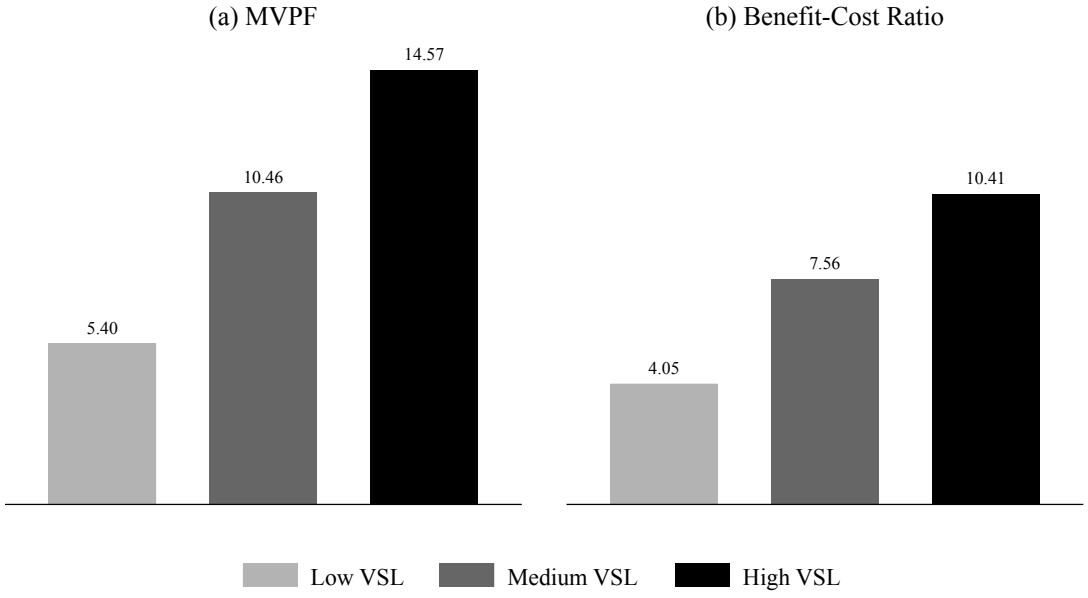
where τ represents the tax rate, which we assume to be equal to 15%.

BCR: The benefit-cost ratio is defined as the ratio of the total social benefits (for participants and the government) to the total costs borne by private and public entities. This ratio is equal to:

$$BCR = \frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{B^{LM} + B^{CS} + B^{CD} + \tau \cdot B^{LM}}{C^{I} + C^{ED}_{pri} + C^{ED}_{pub} + C^{EO}}$$

Results: Figure B.1 below presents the computed MVPF and benefit-cost ratio by the Value of a Statistical Life (VSL). When assuming a medium level of the VSL (i.e., 100 times GNI per capita), our program has an MVPF of 10.46 and a benefit-cost ratio of 7.56.

Figure B.1. Cost-Effectiveness of the Negotiation Intervention by the VSL



Notes: Panel (a) plots the marginal value of public funds (MVPF); Panel (b) plots the calculated benefit-cost ratio. We show the results when using three levels of the value of a statistical life (VSL): Low VSL = 36,425 USD; Medium VSL = 140,742 USD (100 × GNI *pc*); High VSL = 225,187 USD (160 × GNI *pc*).

Appendix C. The Follow-Up Questionnaire

note_consent
"Now, as part of IPA's ethical protocols, I am going to read you a consent text. My name is [enum_name] calling you from Innovations for Poverty Action (IPA). IPA is a non-profit organization that discovers and promotes effective solutions to global poverty problems. We are inviting you to participate in a follow-up study of the Girls Arise project that you participated in 2013. If you consent to participating in this study, we will ask you some questions which will require approximately 30 minutes of your time. Participating in this study is voluntary and does not present any direct risks. All personal information will be kept confidential and will only be used in an anonymous manner for research purposes. No names will be stored with survey responses, no names will be published from the study, and only research staff will have access to identifiable information. Since participation in the study is voluntary, declining or refusal to participate in this study will not affect your status to the program or lead to penalty or loss of any benefits to which you are entitled. You are allowed to end the survey at any time for any reason or refuse to answer any questions. If you have any questions or concerns, feel free to contact XXX with the number XXX or contact the University of Zambia Biomedical Research Ethics Committee with the number: XXX."
Do you agree to participate in this survey?
1 = Yes 0 = No

I will start by asking you questions about yourself, and your household.

province_id*
Which province do you currently reside in? {dropdown list}

district_id*
Which district do you currently reside in? {dropdown list}

ward_id*
Which ward do you currently reside in? {dropdown list}

reside_with*
Who do you currently live with in your household?

1 = Spouse/Partner	2 = Biological Son/Daughter
3 = Step Child	4 = Brother/Sister
5 = Brother/Sister in-law	6 = Nephew/Niece
7 = Cousin	8 = Biological Parent
9 = Non-Biological Parent	10 = Father/Mother in-law
11 = Uncle/Aunt	12 = Grand Parent
13 = Alone	-666 = Other relative, please specify: {text input}

hh_head*
Who is your household head?

1 = Spouse/partner
2 = Brother/Sister
3 = Brother/Sister in-law
4 = Cousin
5 = Biological Parent
6 = Non-Biological Parent
7 = Father/Mother in-law
8 = Uncle/Aunt
9 = Grand Parent
10 = Myself
-666 = Other, please specify: {text input}

hh_head_income*
What is the approximate monthly income of the household head paid in money or cash?{numeric input, -999 = Don't know; -888 = Refused}

hh_head_inkind*
What is his/her monthly income paid in kind? Please provide an estimated monetary value of the in-kind payments. {numeric input, -999 = Don't know; -888 = Refused}

marital_status*
Are you currently married or co-residing with someone?
1 = Married 2 = Co-habiting 3 = Not married or co-habiting with anyone

year_married* [If marital_status = 1]
What year did you get married to your current husband (or start co-habiting with your current partner)? {numeric input, -999 = Don't know; -888 = Refused}

ever_married* [If marital_status = 2 or marital_status = 3]
Have you ever been married?
1 = Yes 0 = No

married_previously* [If marital_status = 1]
Were you married to someone else before your current husband?
1 = Yes 0 = No

year_of_first_marriage* [If married_previously = 1]
What year did you first get married? {numeric input, -999 = Don't know; -888 = Refused}

partner_information
"I'm now going to ask you some questions about whoever your current boyfriend or partner is. If you're married, answer for your husband, but if you're not married, you can answer for whoever you are dating or dated most recently."

husband_age* [If marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1]
What age is your current / most recent partner? {numeric input, -999 = Don't know; -888 = Refused}

spouse_education* [If marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1]
What is his highest level of education that your current / most recent partner completed?

1 = Never attended school
2 = Lower Primary (grades 1–4)
3 = Upper primary (grades 5–7)
4 = Junior Secondary (grades 8–9)
5 = Senior Secondary (grades 10–11)
6 = Tertiary (University, trade schools/college)
7 = I'm not married or dating anyone

spouse_income* [If (marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1) and hh_head = 1]
What is the approximate monthly income of your husband/partner paid in money or cash? {numeric input, -999 = Don't know; -888 = Refused}

spouse_income_inkind* [If (marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1) and hh_head = 1]
What is his approximate monthly income paid in kind (such as free housing and food)? {numeric input, -999 = Don't know; -888 = Refused}

happiness_partner*
How happy would you say you are with your current relationship (including if it's just a casual partner)? (Read all options)
1 = Not happy at all
2 = Not very happy
3 = A little happy
4 = Pretty happy
5 = Completely happy
6 = I'm not married or in any relationship

partner_listen*
How comfortable do you feel bringing up issues in your current relationship, and feeling like you will be listened to and understood? (Read all options)
1 = Not comfortable at all
2 = Not very comfortable
3 = A little bit comfortable
4 = Pretty comfortable
5 = Completely comfortable
6 = I'm not married or in any relationship

children_everborn*
How many children have you ever given birth to? {numeric input, -999 = Don't know; -888 = Refused}

note_children_everborn* [If children_everborn > 10]
"Please confirm that the total number of children ([children_everborn]) is correct."

year_firstbirth* [If children_everborn > 0]
What year did you first give birth? {numeric input, -999 = Don't know; -888 = Refused}

parents_information
"I will ask you questions about your parents. Sorry if any of these questions will remind you of bad moments."

father_alive*
Is your biological father still alive?
1 = Yes
0 = No
-888 = I don't know/remember
-999 = Refuse to answer

age_fatherpassing* [If father_alive = 0]

How old were you when he passed away? {numeric input, -999 = Don't know; -888 = Refused}

mother_alive*
Is your biological mother still alive?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

age_motherpassing* [If mother_alive = 0]
How old were you when she passed away? {numeric input, -999 = Don't know; -888 = Refused}

total_number_kids*
If it is totally up to you, how many children do you want to have in total? {numeric input}

tot_boys* [If total_number_kids > 0]
How many boys? {numeric input}

tot_girls* [If total_number_kids > 0]
How many girls? {numeric input}

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education_history_10yrs
"Now I will ask you some questions about your education journey for the past 10 years."

{Loop through the following questions from year 2013 to 2023. The Table below shows the overall structure of the questions in this module, using an example. }

Structure of Questions in the Education Module: An Example

Enrolled in school or training in year 20XX?		[If Yes]					[If No]		
		School program					Reasons for not enrolled	Returned to school?	
			[If school] Grade	[If postsec] Postsecondary program	[If college] College name	[If certificate] Certificate program name			[If Yes] Return year
2014	Yes	Morning school	Grade 9	-	-	-	-	-	-
2015	Yes	Morning school	Grade 10	-	-	-	-	-	-
2016	No	-	-	-	-	-	Pregnancy	Yes	2018
2017	-	-	-	-	-	-	-	-	-
2018	Yes	Afternoon school	Grade 11	-	-	-	-	-	-
2019	Yes	Afternoon school	Grade 12	-	-	-	-	-	-
2020	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2021	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2022	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2023	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-

Notes: For respondents not enrolled in school in a specific year (X), we ask whether they return to school later. If they report to return in a later year (Y), we will jump to year Y and restart the loop.

enrolled_X*
In year 20XX were you enrolled in school or some form of training?
1 = Yes 0 = No

school_program_type_X* [If enrolled_X = 1]
What type of school/program was it?
1 = Government Morning School
2 = Government Afternoon School
3 = Private School
4 = Community School
5 = Post Secondary Program or Vocational
6 = Boarding School
7 = GCE tuitions
-666 = Other, please specify: {text input}

grade_X* [If school_program_type_X ≠ 5]
What grade were you in?
8 = Grade 8 9 = Grade 9
10 = Grade 10 11 = Grade 11
12 = Grade 12

post_sec_progrm_X* [If school_program_type_X = 5]
What kind of post-secondary program?
1 = 4-Year College 2 = 3-Year College 3 = Certificate program

college_name_X* [If post_sec_progrm_X = 1 or post_sec_progrm_X = 2]
What's the name of the college?
1 = University of Zambia
2 = Chalimbana University
3 = Copperbelt University
4 = Kwame Nkrumah University
5 = Levy Mwanawasa Medical University
6 = Mukuba University
7 = Mulungushi University
8 = Chreso University
9 = Cavendish University
11 = Rockview University
12 = Lusaka Vocational
13 = Apex University
14 = Eden University
15 = University of Lusaka
16 = Lusangu University
17 = African Research University
-666 = Other, please specify: {text input}

crt_name_X* [If post_sec_progrm_X = 3]
What's the name of the certificate program?
1 = Certificate in Basic Computer Skills (BCS)
2 = Certificate in Business Management (CBM)
3 = Certificate in Domestic Electrical Installation and Appliances (DEIA)
4 = Certificate in Law
5 = Certificate in Marketing
6 = Certificate in Accounts (CIA)
7 = Certificate in Food Production
8 = Certificate in Monitoring and Evaluation
9 = Certificate in Social Work
-666 = Other, please specify: {text input}

crt_college_name_X* [If post_sec_progrm_X = 3]
What's the name of the college?

1 = University of Zambia
2 = Chalimbana University
3 = Copperbelt University
4 = Kwame Nkrumah University
5 = Levy Mwanawasa Medical University
6 = Mukuba University
7 = Mulungushi University
8 = Chreso University
9 = Cavendish University
11 = Rockview University
12 = Lusaka Vocational
13 = Apex University
14 = Eden University
15 = University of Lusaka
16 = Lusangu University
17 = African Research University
-666 = Other, please specify: {text input}

reasons_not_enrol_X* [If enrolled_X = 0]
Why did you not attend this year?
1 = Disability, illness, or injury
2 = Illness, injury or death of parents
3 = Financial reasons / can't afford school cost
4 = Family responsibilities
5 = Not interested in school / poor in studies
6 = School not considered valuable by family
7 = Completed as much school as I wanted
8 = Pregnancy / got married
9 = Started work for pay or family business or farm
10 = Family does not support / allow schooling
11 = School environment not conducive / not safe
12 = Waiting for G12 results to apply for college
-666 = Other, please specify: {text input}

return_school_X* [If enrolled_X = 0]
Did you return to school?
1 = Yes 0 = No

school_return_year_X* [If return_school_X = 1]
What year did you return to school? {numeric input}

g12_exam_X* [If grade_X = 12]
Did you take the grade 12 government exam?
1 = Yes 0 = No

pass_rate_X* [If g12_exam_X = 1]
How did you do in the exam?
1 = High pass 2 = Low pass
3 = Fair pass 4 = Fail

graduation_X* [If school_program_type_X = 5]
Did you graduate your post-secondary program?
1 = Yes 2 = No, dropped out 3 = No, hoping to return

---

current_occupation*
What is your current working status?

1 = I have my own business, with no employees
2 = I have my own business, with employees who work for me
3 = I work as a salaried employee in the private sector
4 = I work as a salaried employee for the government
5 = I do casual or piece work without a fixed employer or job
6 = I work as a salaried employee in the private sector but the work is unstable and paid hourly
7 = I work in domestic labor (cleaning, cooking, child minding)
8 = I work in a family business, and am paid
9 = I work in a family business, and am not paid (may be given things in kind)
10 = I help my family around the house or farm (may be given in kind things like rent or food)
11 = I'm a paid intern / apprentice
12 = I'm an unpaid intern / apprentice
13 = I'm not working but currently looking for work (housewife)
14 = I'm not working and not looking for work
15 = I'm studying
-666 = Other, please specify: {text input}

respondent_income* [If hh_head = 10]
What is your approximate monthly income paid in money or cash? {numeric input, -999 = Don't know; -888 = Refused}

respondent_income_inkind* [If hh_head = 10]
What is your approximate monthly income paid in kind (such as free housing and food)? Please provide an estimated monetary value. {numeric input, -999 = Don't know; -888 = Refused}

days_you_ate*
In the past 7 days, how many days did you not have enough to eat? {numeric input}

days_kids_ate*
In the past 7 days, how many days did your children not have enough to eat? {numeric input}

"For each of the following, please tell me how much control you feel like you have over the decisions or what happens. The options are no control, very little control, a little control, a lot of control, or full control."
hh_purchase*
Decisions about what to purchase for the household
where_go*
Where you go, such as visiting relatives, and seeking medical care for yourself
future_control*
What happens to you in the future, such as whether you are able to meet your career and family goals
1 = No control 2 = Very little control 3 = A little control
4 = A lot of control 5 = Full control

how_difficult*
How difficult is it for you to cover your basic monthly expenses (e.g., food, rent, electricity)?
1 = Not difficult at all 2 = Sometimes a little difficult
3 = Usually difficult 4 = Very difficult

own_hh_assets*

Does your household have/own the following household asset?

Item:	Response
a) Electricity	1 = Yes 0 = No
b) A television	1 = Yes 0 = No
c) A refrigerator	1 = Yes 0 = No
d) Car	1 = Yes 0 = No
e) A motorbike	1 = Yes 0 = No
f) Air condition	1 = Yes 0 = No

own_hh_assets*

Do you yourself own any of the following personal asset?

Item:	Response
a) Simple mobile phone	1 = Yes 0 = No
b) Smartphone	1 = Yes 0 = No
c) Laptop/computer	1 = Yes 0 = No
d) Bicycle	1 = Yes 0 = No
e) Car	1 = Yes 0 = No

toilet_facility*

What kind of toilet facility do members of your household usually use?

1 = Private flush toilet to household
2 = Shared flush toilet
3 = Private latrine
4 = Shared latrine
5 = Bucket toilet
6 = No facility / bush / field
-666 = Other, please specify: {text input}

separate_room*

Do you have a separate room which is used as a kitchen?

1 = Yes 0 = No

school_benefits*

Can you tell me what the benefits of schooling are to girls, if any?

Select all that apply

1 = Getting a good job (increased salary)
2 = Being a good mother (lower child mortality)
3 = Improved health (better nutrition)
4 = Taking care of family (sending money back to parents)
5 = There aren't many benefits of schooling for girls
-666 = Other, please specify: {text input}

general_health*

In general, would you say your health is very good, good, moderate, bad, or very bad?

1 = Very good 2 = Good
3 = Moderate 4 = Bad
5 = Very bad

status_health

"Next, we will ask you some questions about your HIV status. We understand that this can

be sensitive, but please rest assured that the information is strictly confidential. If you feel uncomfortable answering the questions, you can also skip them. If your phone is on speaker now, you may consider turning it off or go somewhere private."

consent_health_status*
Can I proceed?
1 = Yes 0 = No

hiv_likelihood* [If consent_health_status = 1]
Do you think it's likely, unlikely or unclear that you are infected with HIV?
1 = Likely 2 = Unlikely
-999 = Unclear / I don't know -888 = Refuse to answer

hiv_test* [If consent_health_status = 1]
Have you ever taken an HIV test?
1 = Yes 0 = No
-999 = I don't know/remember -888 = Refuse to answer

hiv_result* [If hiv_test = 1]
Was the result positive or negative?
1 = Positive 2 = Negative
-999 = I don't know/remember -888 = Refuse to answer

sex_first_time* [If consent_health_status = 1]
At what age did you have sex for the first time? {numeric input, -999 = Don't know; -888 = Refused; -777 = Don't remember}

"Over the last two weeks, how often have you been bothered by the following problems?"
nervous*
(a) Feeling nervous, anxious or on edge
worrying*
(b) Not being able to stop or control worrying
depressed*
(c) Feeling down, depressed, or hopeless
little_interest*
(d) Little interest or pleasure in doing things
0 = Not at all 1 = Several days
2 = More than half the days 3 = Nearly every day

"In this community and elsewhere, people have different ideas about families and what is acceptable behaviour for men and women in the home. I am going to read you a list of statements, and I would like you to tell me whether you strongly or somewhat agree or disagree with the statement. There are no right or wrong answers. If you say "I don't know/I don't have an opinion" I will ask whether you lean more towards agree or disagree."

family_setup1*
(a) A good wife obeys her husband even if she disagrees
family_setup2*
(b) It is important for a man to show his wife/partner who is the boss

family_setup3*
(c) A woman should be able to choose her own friends even if her husband disapproves
family_setup4*
(d) It's a wife's obligation to have sex with her husband even if she doesn't feel like it
1 = Strongly disagree 2 = Somewhat disagree
3 = Somewhat agree 4 = Strongly agree

generated_note
"Now I would like to ask you questions about some other important aspects of a woman's life. I know that some of these questions are very personal. However, your answers are crucial for helping to understand the condition of women in Zambia. Let me assure you that your answers are completely confidential and will not be told to anyone and no one else will know that you were asked these questions."

violence_anytime*
At any time in your life, as a child or an adult, has anyone ever hit, slapped, kicked, or done anything else to hurt you physically (in a way that went beyond typical childhood discipline)?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

violence* [If violence_anytime = 1]
From the time you were 14 years old, has anyone ever hit, slapped, kicked, or done anything else to hurt you physically?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

domestic_abuser* [If violence = 1]
Who has hurt you in this way? Anyone else?
Select all that apply
1 = Current Husband 2 = Former Husband
3 = Current/Former Boyfriend 4 = Father
5 = Step father 6 = Other relative
7 = In-law 8 = Own Friend/Acquaintance
9 = Family Friend 10 = Teacher
11 = Employer/someone at work 12 = Police/Soldier
13 = Priest/Religious Leader 14 = Stranger
-666 = Other, please specify: {text input}

num_abused_times* [If violence_anytime = 1 or violence = 1]
In the last 12 months, how often have you been hit, slapped, kicked, or physically hurt by this/these person(s)?
1 = Never 2 = 1–2 times
3 = Sometimes (3–5 times) 4 = Often (more than 6 times)
5 = Constantly (on a weekly basis)

sexual_abuse_anytime*
At any time in your life, as a child or as an adult, has anyone ever forced you in any way to have sexual intercourse or perform any other sexual acts?

1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

sexual_abuse* [If sexual_abuse_anytime = 1]
From the time you were 14 years old, has anyone ever forced you in any way to have sexual intercourse or perform any other sexual acts?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

abuser* [If sexual_abuse = 1]
Who was the person forcing you in this way? Anyone else?
Select all that apply
1 = Current Husband 2 = Former Husband
3 = Current/Former Boyfriend 4 = Father
5 = Step father 6 = Other relative
7 = In-law 8 = Own Friend/Acquaintance
9 = Family Friend 10 = Teacher
11 = Employer/someone at work 12 = Police/Soldier
13 = Priest/Religious Leader 14 = Stranger
-666 = Other, please specify: {text input}

sexual_abuse_lastyr* [If sexual_abuse = 1 or sexual_abuse_anytime = 1]
In the last 12 months, how often have you been forced to have sexual intercourse or perform any other sexual acts against your will?
1 = Never 2 = 1–2 times
3 = Sometimes (3–5 times) 4 = Often (more than 6 times)
5 = Constantly (on a weekly basis)

Appendix D. Qualitative Evidence on Mechanisms From Pilot Interviews

Examples of Negotiation / Relationships with Parental Figures

- "When talking to [my parents about school fees] I have to kneel down and ask and respect for them as well. They would pay for me because they have seen change in me, in terms of obedience and respect."

- "What has changed is my parents liking me more now because I do wear a wrapper (Chitenge) when am doing my house chores. Before, I used to refuse because I thought it made me look like an old lady."

- "Before I would disobey some rules, but now I obey and I do not answer back... They look at me as an obedient child. They would choose to pay for my school because they have seen that am now hardworking."

- "Before training I used to refuse doing house chores but now I don't... Grandmother perceives me as a good girl because I used to refuse to do house chores before the training but now I don't."

- "Before my aunt used to beat me a lot and I always said bad words back to her. The other day when I broke a plate, I waited for her to return so I could explain what happened so that she understands. So after I talked to her that it was an accident, surprisingly she was okay with it. But before I could have hidden the broken plate and she could have beaten me."

- "Before the training I used to refuse when my parents asked me to cook and liked running away, but these days I don't because I have now known how to respect them."

- "There has been an improvement with the way we are now communicating with my parents especially when it comes to house chores am able to reason even when I know I wouldn't do it at least I try at all means to do what my parents tell me to do... My parents tell me that am now a good person because of the change they seen in me following the training and they have said they wish it continues."

- "[My relationship with my mother has changed.] I now talk to her like my mother. Before I would talk to her like my friend, but the training has helped me a lot."

Examples of Negotiation / Relationships with Siblings

- "When I ask for something from my sister and she does not want to give me, I will just "step to her side," that's by telling her good things, and then she changes her mind and gives it to me. That has changed my relationship with her."[4]

- Like my older brother, the other day he did not want me to use his R.E book. I used what we learnt by asking him open ended questions where is able to explain and not just say no and that was a way of finding out his interest and he told me he wanted to give it to the other friend to use it.

[4] "Step to her side" references one of the program's lessons, which encourages perspective-taking to understand the interests of the other party.

Examples of Negotiation / Relationships with Boyfriends

- "I have started avoiding boys because I just realized how they can take advantage of me if I allow them to be very close to me in terms of going beyond friendship."
- "Before the training, I would spend a lot of time the boys, but now I do not. I would rather be home with the family."
- "I have changed tremendously... before I would accommodate boys to an extent of having an intimate relationship but after the training I have realized that it is bad so I do not do that anymore. I think there is a lot of progress where school issues are concerned especially class work because now I have more time to deal with books than before, where I would decide my time between school and boys."
- "It is very important to know someone's interests before reacting to or concluding to any situation. E.g if you see your boyfriend with another girl, better to understand instead of just concluding. What if she is the sister or relative and you're just shouting? So it's better to find out the truth other than having assumptions."

Examples of Negotiation / Relationships with Others

- "I know I will pass my grade 9 exams though am worried about school fees since am not very sure whether my mum will manage or not so I don't know and that is my main worry for now. How I will overcome this challenge is to mobilize funds through negotiating with people in my neighborhood and at church to see how best they can help me."
- "It is just today here at school that I approached this girl who likes wearing make-up and having boyfriends. I was advising her about the consequences she might find herself in considering her behavior. She became very angry with me until we sat down and I explained nicely how doing such things could destroy her future if she wasn't careful."
- "When I talk to people, am always polite and this has helped me a lot in getting people to see my view point."
- "We have stopped fighting with my friends, if one of us does something wrong, we will tell each other and not back bite about each other."

Examples of Negotiation Skills & Emotional Regulation

- "I did convince my friend to stop getting upset by 'Taking five,' that's controlling yourself."[5]
- "If I am upset with someone, it helps to soften my voice so that the other person can cool down and see my viewpoint."
- "I avoid arguing with people unnecessarily."
- "My Aunt stopped me from getting some of the sandwiches that my sister had prepared. I felt bad but I never answered back, I just kept quiet, so as to be polite which made her not to continue scolding me."

[5]This references the "taking 5" messaging in the program, which teaches participants to take a break to regain calm if they are having difficulty managing their emotions.

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