**Online Appendix to**
**"Misinterpretation as an Information Friction?**
**Activating School-Based Agricultural Education in**
**Liberia with Parental Engagement"**

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*Job Market Paper*

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This Online Appendix accompanies "Misinterpretation as an Information Friction? Activating School-Based Agricultural Education in Liberia with Parental Engagement." Section A collects additional tables and Section B additional figures; Section C describes the promotional videos; Section D defines all outcome variables; Tables and figures are numbered with the prefix OA. Section, equation, and footnote references are to the main text, whose Appendix A reports attrition and Appendix B the cost-benefit and cost-effectiveness analyses.

# A. Additional Tables

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TABLE OA1—EXTERNAL VALIDITY OF SAMPLED SCHOOLS AND STUDENTS

*Panel A: Sampled schools vs. other schools in targeted counties*

| | Sampled schools | Eligible schools | Targeted schools | Targeted counties |
|---|---|---|---|---|
| # students | 444.47 | 419.17 | 423.33 | 279.72 |
| | (244.96) | (228.14) | (258.93) | (208.56) |
| # elementary students | 182.48 | 174.76 | 170.46 | 126.43 |
| | (118.07) | (112.08) | (120.34) | (115.91) |
| # junior high students | 91.93 | 78.26 | 86.55 | 25.66 |
| | (107.25) | (94.65) | (109.64) | (71.14) |
| # teachers | 14.52 | 13.78 | 15.53 | 8.75 |
| | (6.33) | (6.60) | (9.38) | (7.29) |
| Student-teacher ratio | 31.83 | 32.48 | 29.34 | 39.29 |
| | (13.02) | (15.29) | (14.14) | (25.00) |
| Functional PTA according to WASH (0/1) | 0.84 | 0.78 | 0.74 | |
| | (0.37) | (0.41) | (0.44) | |
| Water source according to WASH (0/1) | 0.61 | 0.53 | 0.51 | |
| | (0.49) | (0.50) | (0.50) | |
| # schools | 197 | 304 | 447 | 1794 |

*Panel B: Sampled vs. all students in targeted grades*

| | Sampled students | All targeted students |
|---|---|---|
| % farming | 100.00 (0.00) | 98.65 (6.32) |
| % farming before 2021 | 99.38 (1.82) | 94.96 (11.08) |
| % joined cooperative farming groups (kuu) | 93.91 (18.39) | 83.71 (18.89) |
| % joined kuu before 2021 | 82.12 (17.09) | 77.14 (22.32) |
| % students sampled in each school | 30.33 (17.33) | |

*Notes:* This table compares the average characteristics of sampled schools and students to population-level statistics in Liberia. Panel A compares the characteristics of sampled schools to eligible schools (after screening by 4-H Liberia), targeted schools using the WASH database, and all schools listed in the EMIS database 2015-16 and in targeted counties. Panel B uses responses to the grade-level screening survey to compare the average characteristics of sampled students and all students in targeted grades. Standard errors are in parentheses.

TABLE OA2—BALANCE IN BASELINE CHARACTERISTICS ACROSS TREATMENT ARMS

| Baseline variable | Overall mean | Control mean | $SBAE_p$ | $SBAE_p \times Video_s$ | $SBAE_p \times FFD_s$ |
|---|---|---|---|---|---|
| *Panel A: School characteristics* | | | | | |
| # students | 299.42 | 300.23 | 3.570 | 17.393 | -17.880 |
| | (221.95) | (234.26) | (57.129) | (54.413) | (51.472) |
| # elementary students | 124.67 | 122.65 | -5.869 | 16.165 | 8.301 |
| | (85.85) | (73.75) | (23.489) | (25.653) | (26.038) |
| # junior high students | 67.32 | 68.75 | 4.266 | -5.607 | -3.687 |
| | (84.96) | (96.75) | (18.731) | (18.080) | (17.843) |
| # teachers | 13.75 | 13.65 | 1.164 | -1.796 | -0.623 |
| | (5.87) | (5.74) | (1.634) | (1.753) | (1.311) |
| Student-teacher ratio | 23.54 | 23.37 | 0.257 | 3.074 | -2.051 |
| | (14.25) | (13.51) | (2.826) | (3.047) | (3.066) |
| # classrooms | 9.94 | 9.75 | 0.773 | -0.471 | -0.717 |
| | (3.00) | (3.11) | (0.821) | (0.790) | (0.728) |
| Water source (0/1) | 0.73 | 0.77 | -0.144 | 0.143 | 0.003 |
| | (0.44) | (0.42) | (0.126) | (0.155) | (0.127) |
| Provides breakfast (0/1) | 0.10 | 0.11 | 0.031 | -0.045 | -0.016 |
| | (0.30) | (0.31) | (0.058) | (0.093) | (0.066) |
| Provides lunch (0/1) | 0.24 | 0.23 | 0.100 | -0.068 | -0.126 |
| | (0.43) | (0.42) | (0.088) | (0.104) | (0.089) |
| # district education officer visits | 3.14 | 3.10 | -0.211 | -0.049 | 0.559 |
| | (1.37) | (1.39) | (0.321) | (0.345) | (0.340) |
| Kept enrollment list (0/1) | 0.68 | 0.68 | -0.089 | 0.197 | -0.046 |
| | (0.47) | (0.47) | (0.116) | (0.122) | (0.113) |
| # parent-teacher association meetings | 1.95 | 1.97 | -0.215 | 0.289 | -0.013 |
| | (0.89) | (0.94) | (0.234) | (0.225) | (0.255) |
| # school management committee meetings | 1.01 | 1.18 | -0.313 | -0.202 | -0.020 |
| | (1.17) | (1.24) | (0.297) | (0.371) | (0.309) |
| Public school (0/1) | 0.72 | 0.75 | -0.029 | 0.062 | -0.037 |
| | (0.45) | (0.43) | (0.098) | (0.114) | (0.119) |
| Private or faith-based school (0/1) | 0.22 | 0.20 | 0.010 | -0.004 | -0.029 |
| | (0.42) | (0.40) | (0.096) | (0.103) | (0.096) |
| # students sampled | 19.14 | 18.68 | 0.943 | 0.464 | -0.717 |
| | (3.64) | (3.74) | (1.277) | (1.277) | (1.109) |
| | F-test p-values | | 0.382 | 0.865 | 0.646 |

*Notes:* This table shows a test of balance for the baseline characteristics of schools (Panel A), students (Panel B), and parents (Panel C) in the randomized experiment. Column 1 provides covariate means and standard deviations in the entire sample. Column 2 provides covariate means and standard deviations in control schools. Column 3 shows the marginal effects of SBAE schools over control schools. Column 4 shows the marginal effects of promotional videos over SBAE only schools. Column 5 shows the marginal effects of the annual farmer field day over SBAE only schools. P-values from Wald tests of joint significance of treatment effects over all covariates are presented at the bottom of each panel.

TABLE OA2—BALANCE IN BASELINE CHARACTERISTICS (CONTINUED)

| Baseline variable | Overall mean | Control mean | $SBAE_p$ | $SBAE_p \times Video_s$ | $SBAE_p \times FFD_s$ |
|---|---|---|---|---|---|
| *Panel B: Student characteristics* | | | | | |
| Age | 15.70 | 15.74 | 0.065 | -0.143 | -0.110 |
| | (1.97) | (1.86) | (0.154) | (0.174) | (0.202) |
| Grade | 5.69 | 5.69 | 0.046 | -0.230 | 0.146 |
| | (1.47) | (1.43) | (0.128) | (0.142) | (0.124) |
| Male (0/1) | 0.52 | 0.52 | 0.013 | -0.013 | -0.016 |
| | (0.50) | (0.50) | (0.016) | (0.017) | (0.017) |
| Years of farming | 7.85 | 7.84 | 0.028 | -0.035 | 0.024 |
| | (3.32) | (3.36) | (0.196) | (0.229) | (0.226) |
| | F-test p-values | | 0.924 | 0.447 | 0.561 |
| *Panel C: Parent characteristics* | | | | | |
| Age | 43.15 | 43.14 | -0.183 | 0.004 | 0.453 |
| | (6.95) | (3.33) | (0.161) | (0.174) | (0.274) |
| Male (0/1) | 0.47 | 0.48 | 0.015 | -0.034 | -0.018 |
| | (0.50) | (0.50) | (0.024) | (0.027) | (0.030) |
| Parent or not (0/1) | 0.74 | 0.75 | -0.040 | 0.002 | -0.010 |
| | (0.44) | (0.43) | (0.033) | (0.043) | (0.036) |
| Household head (0/1) | 0.63 | 0.61 | 0.001 | -0.034 | 0.058 |
| | (0.48) | (0.49) | (0.033) | (0.040) | (0.039) |
| Invited to surveys (0/1) | 0.98 | 0.99 | 0.009 | -0.016 | -0.012 |
| | (0.13) | (0.12) | (0.007) | (0.011) | (0.011) |
| Farmer (0/1) | 1.00 | 1.00 | 0.001 | -0.005* | -0.000 |
| | (0.03) | (0.00) | (0.002) | (0.002) | (0.002) |
| Read and write English (0/1) | 0.59 | 0.59 | 0.016 | 0.009 | 0.006 |
| | (0.49) | (0.49) | (0.041) | (0.042) | (0.048) |
| Finished elementary school (0/1) | 0.54 | 0.55 | 0.001 | -0.017 | 0.035 |
| | (0.50) | (0.50) | (0.040) | (0.042) | (0.045) |
| Finished junior high school (0/1) | 0.39 | 0.38 | -0.008 | -0.013 | 0.046 |
| | (0.49) | (0.49) | (0.042) | (0.040) | (0.050) |
| | F-test p-values | | 0.400 | 0.445 | 0.205 |

*Notes:* This table shows a test of balance for the baseline characteristics of schools (Panel A), students (Panel B), and parents (Panel C) in the randomized experiment. Column 1 provides covariate means and standard deviations in the entire sample. Column 2 provides covariate means and standard deviations in control schools. Column 3 shows the marginal effects of SBAE schools over control schools. Column 4 shows the marginal effects of promotional videos over SBAE only schools. Column 5 shows the marginal effects of the annual farmer field day over SBAE only schools. P-values from Wald tests of joint significance of treatment effects over all covariates are presented at the bottom of each panel.

TABLE OA3—SELECTION OF STUDENTS AND PARENTS INTO THE ENDLINE SAMPLE

| Baseline variable | Change in attrition probability in percentages (%) | E(Attritors) - E(Non-attritors) in standard deviations | F-test p-value: Differential selection by treatment arms |
|---|---|---|---|
| *Panel A: Student characteristics* | | | |
| Age | 2.623*** | 0.214*** | 0.572 |
| | (0.394) | (0.032) | |
| Grade | 1.962*** | 0.119*** | 0.786 |
| | (0.605) | (0.037) | |
| Male (0/1) | -1.403 | -0.030 | 0.598 |
| | (1.737) | (0.037) | |
| Years of farming | 0.371 | 0.054 | 0.684 |
| | (0.261) | (0.038) | |
| *Panel B: Parent characteristics* | | | |
| Age | -0.231* | -0.174* | 0.725 |
| | (0.117) | (0.091) | |
| Male (0/1) | 2.798 | 0.127 | 0.066 |
| | (1.912) | (0.086) | |
| Parent or not (0/1) | -4.268** | -0.183** | 0.791 |
| | (2.000) | (0.085) | |
| Household head (0/1) | 1.702 | 0.075 | 0.117 |
| | (1.696) | (0.075) | |
| Invited to surveys (0/1) | -8.560 | -0.113 | 0.108 |
| | (5.870) | (0.077) | |
| Read and write English (0/1) | 0.719 | 0.030 | 0.954 |
| | (1.776) | (0.075) | |
| Finished elementary school (0/1) | 1.468 | 0.062 | 0.967 |
| | (1.918) | (0.080) | |
| Finished junior high school (0/1) | -1.439 | -0.063 | 0.785 |
| | (2.112) | (0.092) | |

*Notes:* This table summarizes how the endline samples of students (Panel A) and parents (Panel B) differ from the original samples. Column 1 regresses a binary indicator on each subject characteristic, controlling for treatment status. Column 2 regresses each subject characteristic on a binary indicator of attrition, controlling for treatment status. The marginal effects of attrition are then divided by the control group standard deviations. Column 3 regresses a binary indicator of attrition on all treatments, fully interacted with each subject characteristic. P-values from Wald test of joint significance of all treatment interactions are reported. All regressions include pair-of-clusters-of-schools fixed effects and a binary indicator of faith-based schools. Standard errors are clustered at the cluster-of-schools level.

## TABLE OA4—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON AGRICULTURAL TECHNOLOGY ADOPTION

| *Panel A: Student parcel* | Midline | | Midline | | Endline | | Endline | |
|---|---|---|---|---|---|---|---|---|
| | Bed preparation (0/1) | | # techniques | | Bed preparation (0/1) | | # techniques | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| $SBAE_p$ | 0.066* | -0.013 | 0.143* | -0.100 | 0.107*** | 0.011 | 0.255*** | 0.086 |
| | (0.034) | (0.050) | (0.080) | (0.141) | (0.030) | (0.046) | (0.054) | (0.083) |
| $SBAE_p \times FFD_s$ | | 0.055 | | 0.205* | | 0.066 | | 0.128 |
| | | (0.046) | | (0.119) | | (0.048) | | (0.085) |
| $SBAE_p \times Video_s$ | | 0.108** | | 0.280* | | 0.104** | | 0.175** |
| | | (0.042) | | (0.143) | | (0.044) | | (0.082) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.02 | | 0.04 | | 0.01 | | 0.01 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | 0.066* | -0.013 | 0.143* | -0.100 | 0.107*** | 0.011 | 0.255*** | 0.086 |
| | (0.034) | (0.050) | (0.080) | (0.141) | (0.030) | (0.046) | (0.054) | (0.083) |
| Lee bounds | [0.057*, 0.076**] | [-0.025, -0.001] | [0.097, 0.172**] | [-0.146, -0.043] | [0.107***, 0.108***] | [0.002, 0.028] | [0.254***, 0.257***] | [0.071, 0.139*] |
| | (0.034, 0.034) | (0.050, 0.949) | (0.080, 0.080) | (0.140, 0.759) | (0.030, 0.030) | (0.047, 0.046) | (0.054, 0.054) | (0.083, 0.079) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.042 | | 0.105 | | 0.077** | | 0.214*** |
| | | (0.043) | | (0.093) | | (0.037) | | (0.069) |
| Lee bounds | | [0.028, 0.057] | | [0.016, 0.150] | | [0.066*, 0.100**] | | [0.186**, 0.288***] |
| | | (0.043, 0.043) | | (0.098, 0.095) | | (0.038, 0.037) | | (0.069, 0.062) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.095** | | 0.180* | | 0.115** | | 0.261*** |
| | | (0.041) | | (0.104) | | (0.044) | | (0.082) |
| Lee bounds | | [0.082*, 0.109**] | | [0.117, 0.216**] | | [0.109**, 0.119**] | | [0.240***, 0.271***] |
| | | (0.042, 0.042) | | (0.101, 0.104) | | (0.045, 0.045) | | (0.082, 0.081) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.150*** | | 0.386*** | | 0.182*** | | 0.388*** |
| | | (0.045) | | (0.135) | | (0.037) | | (0.068) |
| Lee bounds | | [0.131***, 0.170***] | | [0.304**, 0.450***] | | [0.159***, 0.199***] | | [0.300***, 0.430***] |
| | | (0.046, 0.045) | | (0.139, 0.134) | | (0.038, 0.038) | | (0.071, 0.069) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean | 0.45 | 0.45 | 1.43 | 1.43 | 0.29 | 0.29 | 0.73 | 0.73 |
| Control SD | 0.50 | 0.50 | 1.23 | 1.23 | 0.45 | 0.45 | 0.85 | 0.85 |
| Observations | 1384 | 1384 | 1384 | 1384 | 1488 | 1488 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports treatment effects on the adoption of the promoted techniques on the designated student parcel (midline and endline; Panel A) and the designated parent parcel (endline; Panel B). In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA4—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON AGRICULTURAL TECHNOLOGY ADOPTION (CONTINUED)

| *Panel B: Parent parcel* | | | | |
|---|---|---|---|---|
| | Endline | | Endline | |
| | Bed preparation (0/1) | | # techniques | |
| | (9) | (10) | (11) | (12) |
| $SBAE_p$ | 0.058** | 0.001 | 0.294*** | 0.200** |
| | (0.024) | (0.037) | (0.060) | (0.095) |
| $SBAE_p \times FFD_s$ | | 0.020 | | -0.080 |
| | | (0.037) | | (0.096) |
| $SBAE_p \times Video_s$ | | 0.088** | | 0.242** |
| | | (0.037) | | (0.097) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.07 | | 0.30 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | |
| SBAE only ($\beta_1$) | 0.058** | 0.001 | 0.294*** | 0.200** |
| | (0.024) | (0.037) | (0.060) | (0.095) |
| Lee bounds | [0.056**, 0.067**] | [-0.001, 0.001] | [0.274***, 0.315***] | [0.193**, 0.207**] |
| | (0.024, 0.024) | (0.037, 0.038) | (0.060, 0.060) | (0.095, 0.095) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.021 | | 0.120 |
| | | (0.034) | | (0.084) |
| Lee bounds | | [0.006, 0.024] | | [0.102, 0.180**] |
| | | (0.034, 0.034) | | (0.084, 0.082) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.089*** | | 0.442*** |
| | | (0.031) | | (0.078) |
| Lee bounds | | [0.087**, 0.100***] | | [0.416***, 0.465***] |
| | | (0.031, 0.031) | | (0.077, 0.076) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.109*** | | 0.362*** |
| | | (0.038) | | (0.101) |
| Lee bounds | | [0.104**, 0.127***] | | [0.319***, 0.408***] |
| | | (0.038, 0.039) | | (0.099, 0.106) |
| *Summary Statistics for Control Schools* | | | | |
| Control Mean | 0.74 | 0.74 | 1.38 | 1.38 |
| Control SD | 0.44 | 0.44 | 0.96 | 0.96 |
| Observations | 1363 | 1363 | 1363 | 1363 |
| Number of clusters | 155 | 155 | 155 | 155 |

*Notes:* This table reports treatment effects on the adoption of the promoted techniques on the designated student parcel (midline and endline; Panel A) and the designated parent parcel (endline; Panel B). In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA5—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON JOINT ADOPTION OF BED PREPARATION WITH OTHER TECHNIQUES

| *Dependent variables* | Midline | | Midline | | Endline | | Endline | |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Student parcel* | Other promoted techniques (0/1) | | Deviation from traditional (0/1) | | Other promoted techniques (0/1) | | Deviation from traditional (0/1) | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| $SBAE_p$ | 0.110*** | -0.000 | 0.059* | -0.017 | 0.129*** | 0.088** | 0.102*** | 0.002 |
| Standard errors | (0.031) | (0.053) | (0.034) | (0.052) | (0.024) | (0.037) | (0.031) | (0.048) |
| $SBAE_p \times Video_s$ | | 0.132*** | | 0.101** | | 0.043 | | 0.121** |
| Standard errors | | (0.046) | | (0.041) | | (0.033) | | (0.049) |
| $SBAE_p \times FFD_s$ | | 0.090* | | 0.055 | | 0.027 | | 0.056 |
| Standard errors | | (0.047) | | (0.050) | | (0.036) | | (0.049) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.01 | | 0.04 | | 0.17 | | 0.01 |
| *Linear Combinations of Estimates* | | | | | | | | |
| SBAE only ($\beta_1$) | 0.110*** | -0.000 | 0.059* | -0.017 | 0.129*** | 0.088** | 0.102*** | 0.002 |
| Standard errors | (0.031) | (0.053) | (0.034) | (0.052) | (0.024) | (0.037) | (0.031) | (0.048) |
| Lee bounds | [0.109***, 0.129***] | [0.008, 0.033] | [0.048, 0.067**] | [-0.019, 0.007] | [0.129***, 0.130***] | [0.083**, 0.114***] | [0.102***, 0.103***] | [-0.004, 0.023] |
| | (0.031, 0.030) | (0.057, 0.555) | (0.033, 0.033) | (0.053, 0.889) | (0.024, 0.023) | (0.038, 0.035) | (0.031, 0.031) | (0.049, 0.048) |
| SBAE + Video ($\beta_1 + \beta_2$) | | 0.132*** | | 0.084** | | 0.131*** | | 0.124** |
| Standard errors | | (0.037) | | (0.042) | | (0.036) | | (0.049) |
| Lee bounds | | [0.117***, 0.145***] | | [0.069, 0.096**] | | [0.126***, 0.134***] | | [0.118**, 0.127**] |
| | | (0.038, 0.038) | | (0.043, 0.042) | | (0.036, 0.036) | | (0.048, 0.049) |
| SBAE + FFD ($\beta_1 + \beta_3$) | | 0.089*** | | 0.038 | | 0.114*** | | 0.058 |
| Standard errors | | (0.034) | | (0.043) | | (0.027) | | (0.037) |
| Lee bounds | | [0.095**, 0.124***] | | [0.021, 0.051] | | [0.108***, 0.146***] | | [0.049, 0.085**] |
| | | (0.036, 0.035) | | (0.042, 0.042) | | (0.027, 0.025) | | (0.038, 0.036) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.222*** | | 0.139*** | | 0.157*** | | 0.180*** |
| Standard errors | | (0.047) | | (0.047) | | (0.028) | | (0.038) |
| Lee bounds | | [0.202***, 0.243***] | | [0.106**, 0.141***] | | [0.131***, 0.170***] | | [0.153***, 0.196***] |
| | | (0.054, 0.053) | | (0.047, 0.046) | | (0.028, 0.028) | | (0.038, 0.039) |
| Control Mean | 0.32 | 0.32 | 0.43 | 0.43 | 0.17 | 0.17 | 0.25 | 0.25 |
| Control SD | 0.47 | 0.47 | 0.50 | 0.50 | 0.38 | 0.38 | 0.44 | 0.44 |
| Observations | 1384 | 1384 | 1384 | 1384 | 1488 | 1488 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on the joint adoption of bed preparation with other techniques on the student parcel (Panel A) and the parent parcel (Panel B) in the midline and endline surveys. Columns (1), (2), (5), (6), (9), and (10) refer to a binary indicator of whether bed preparation is used along with other promoted techniques, including composting, regular spacing, or row planting. Columns (3), (4), (7), (8), (11), and (12) refer to a binary indicator of whether bed preparation is used along with at least one deviation from traditional cultivation practices, including fallowing, rice cultivation, and mixedcropping of roots or vegetables with rice. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

TABLE OA5—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON JOINT ADOPTION OF BED PREPARATION WITH OTHER TECHNIQUES (CONTINUED)

*Panel B: Parent parcel*

| | Endline | | Endline | |
|---|---|---|---|---|
| | Other promoted techniques (0/1) | | Deviation from traditional (0/1) | |
| | (9) | (10) | (11) | (12) |
| $SBAE_p$ | 0.109*** | 0.076* | 0.025 | -0.023 |
| Standard errors | (0.026) | (0.045) | (0.030) | (0.045) |
| $SBAE_p \times Video_s$ | | 0.072* | | 0.098* |
| Standard errors | | (0.042) | | (0.051) |
| $SBAE_p \times FFD_s$ | | -0.012 | | -0.011 |
| Standard errors | | (0.042) | | (0.037) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.40 | | 0.23 |
| *Linear Combinations of Estimates* | | | | |
| SBAE only ($\beta_1$) | 0.109*** | 0.076* | 0.025 | -0.023 |
| Standard errors | (0.026) | (0.045) | (0.030) | (0.045) |
| Lee bounds | [0.104***, 0.114***] | [0.075, 0.077*] | [0.021, 0.030] | [-0.025, -0.021] |
| | (0.026, 0.026) | (0.045, 0.045) | (0.030, 0.030) | (0.045, 0.045) |
| SBAE + Video ($\beta_1 + \beta_2$) | | 0.148*** | | 0.075* |
| Standard errors | | (0.034) | | (0.039) |
| Lee bounds | | [0.142***, 0.154***] | | [0.070*, 0.082**] |
| | | (0.034, 0.034) | | (0.039, 0.039) |
| SBAE + FFD ($\beta_1 + \beta_3$) | | 0.064** | | -0.035 |
| Standard errors | | (0.032) | | (0.040) |
| Lee bounds | | [0.058*, 0.072**] | | [-0.043, -0.026] |
| | | (0.032, 0.032) | | (0.040, 0.040) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.136*** | | 0.063 |
| Standard errors | | (0.042) | | (0.048) |
| Lee bounds | | [0.124***, 0.147***] | | [0.053, 0.076] |
| | | (0.042, 0.043) | | (0.048, 0.049) |
| Control Mean | 0.34 | 0.34 | 0.52 | 0.52 |
| Control SD | 0.48 | 0.48 | 0.50 | 0.50 |
| Observations | 1363 | 1363 | 1363 | 1363 |
| Number of clusters | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on the joint adoption of bed preparation with other techniques on the student parcel (Panel A) and the parent parcel (Panel B) in the midline and endline surveys. Columns (1), (2), (5), (6), (9), and (10) refer to a binary indicator of whether bed preparation is used along with other promoted techniques, including composting, regular spacing, or row planting. Columns (3), (4), (7), (8), (11), and (12) refer to a binary indicator of whether bed preparation is used along with at least one deviation from traditional cultivation practices, including fallowing, rice cultivation, and mixedcropping of roots or vegetables with rice. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

## TABLE OA6—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON SCHOOL ATTENDANCE

| | Midline | | Midline | | Endline | | Endline | | Imputed Total days in attendance | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Enrolled in school (0/1) | | Days absent (0-5) | | Enrolled in school (0/1) | | Days absent (0-5) | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| $SBAE_p$ | 0.023* | 0.008 | 0.014 | 0.181* | 0.018 | -0.001 | -0.004 | 0.203** | 6.734 | -3.572 |
| | (0.014) | (0.023) | (0.060) | (0.092) | (0.014) | (0.028) | (0.050) | (0.081) | (4.499) | (7.964) |
| $SBAE_p \times FFD_s$ | | -0.007 | | -0.162 | | -0.011 | | -0.275** | | 1.957 |
| | | (0.023) | | (0.099) | | (0.031) | | (0.107) | | (9.505) |
| $SBAE_p \times Video_s$ | | 0.037 | | -0.143 | | 0.050* | | -0.109 | | 19.198** |
| | | (0.025) | | (0.103) | | (0.028) | | (0.121) | | (9.075) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.46 | | 0.06 | | 0.41 | | 0.01 | | 0.14 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | | | |
| SBAE only ($\beta_1$) | 0.023* | 0.008 | 0.014 | 0.181* | 0.018 | -0.001 | -0.004 | 0.203** | 6.734 | -3.572 |
| | (0.014) | (0.023) | (0.060) | (0.092) | (0.014) | (0.028) | (0.050) | (0.081) | (4.499) | (7.964) |
| Lee bounds | [0.018, 0.040***] | [-0.010, 0.013] | [-0.089, 0.024] | [0.159*, 0.222***] | [0.018, 0.018] | [-0.019, 0.008] | [-0.005, 0.000] | [0.191**, 0.280***] | [6.602, 6.820] | [-8.998, 0.732] |
| | (0.014, 0.013) | (0.023, 0.023) | (0.054, 0.061) | (0.091, 0.073) | (0.014, 0.014) | (0.027, 0.028) | (0.050, 0.050) | (0.082, 0.078) | (4.503, 4.496) | (7.951, 7.876) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.001 | | 0.018 | | -0.011 | | -0.072 | | -1.615 |
| | | (0.019) | | (0.100) | | (0.020) | | (0.116) | | (7.296) |
| Lee bounds | | [-0.005, 0.025] | | [-0.105, 0.040] | | [-0.036*, -0.000] | | [-0.095, -0.053] | | [-9.725, 5.458] |
| | | (0.020, 0.019) | | (0.078, 0.102) | | (0.021, 0.021) | | (0.118, 0.116) | | (7.273, 7.505) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.045** | | 0.038 | | 0.050** | | 0.094 | | 15.626** |
| | | (0.019) | | (0.073) | | (0.024) | | (0.089) | | (7.571) |
| Lee bounds | | [0.040**, 0.065***] | | [-0.054, 0.047] | | [0.047*, 0.055**] | | [0.060, 0.100] | | [14.306*, 17.217**] |
| | | (0.019, 0.019) | | (0.066, 0.076) | | (0.024, 0.024) | | (0.083, 0.091) | | (7.562, 7.575) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.038 | | -0.124 | | 0.039 | | -0.181** | | 17.583** |
| | | (0.026) | | (0.109) | | (0.028) | | (0.088) | | (8.776) |
| Lee bounds | | [0.032, 0.067***] | | [-0.221**, -0.103] | | [0.027, 0.068**] | | [-0.344***, -0.159*] | | [11.694, 26.611***] |
| | | (0.026, 0.025) | | (0.106, 0.108) | | (0.028, 0.028) | | (0.074, 0.090) | | (8.731, 8.768) |
| *Summary Statistics for Control Schools* | | | | | | | | | | |
| Control Mean | 0.78 | 0.78 | 0.69 | 0.69 | 0.67 | 0.67 | 0.65 | 0.65 | 229.09 | 229.09 |
| Control SD | 0.42 | 0.42 | 1.13 | 1.13 | 0.47 | 0.47 | 1.25 | 1.25 | 144.02 | 144.02 |
| Observations | 3728 | 3728 | 2418 | 2418 | 3115 | 3115 | 1970 | 1970 | 3728 | 3728 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports treatment effects on students' school attendance in the midline and endline surveys. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA7—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON TIME USE

| | Midline | | Midline | | Endline | | Endline | |
|---|---|---|---|---|---|---|---|---|
| | Hours studying (weekly) | | Hours farming (weekly) | | Hours studying (weekly) | | Hours farming (weekly) | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| $SBAE_p$ | -0.060 | -0.602** | 0.395 | 0.555 | 0.117 | -1.070*** | 0.155 | 0.407 |
| | (0.166) | (0.262) | (0.311) | (0.609) | (0.218) | (0.373) | (0.488) | (0.772) |
| $SBAE_p \times FFD_s$ | | 0.306 | | -0.827 | | 1.119*** | | -0.823 |
| | | (0.301) | | (0.644) | | (0.367) | | (0.707) |
| $SBAE_p \times Video_s$ | | 0.706*** | | 0.658 | | 1.117** | | 0.455 |
| | | (0.260) | | (0.567) | | (0.432) | | (0.674) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.01 | | 0.86 | | 0.00 | | 0.72 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | -0.060 | -0.602** | 0.395 | 0.555 | 0.117 | -1.070*** | 0.155 | 0.407 |
| | (0.166) | (0.262) | (0.311) | (0.609) | (0.218) | (0.373) | (0.488) | (0.772) |
| Lee bounds | [-0.393**, 0.067] | [-0.757***, -0.226] | [-0.120, 0.565*] | [0.356, 0.821] | [0.112, 0.148] | [-1.194***, -0.758**] | [0.145, 0.240] | [0.252, 0.765] |
| | (0.163, 0.165) | (0.258, 0.228) | (0.300, 0.310) | (0.607, 0.617) | (0.217, 0.218) | (0.368, 0.353) | (0.488, 0.488) | (0.767, 0.768) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | -0.296 | | -0.273 | | 0.050 | | -0.417 |
| | | (0.229) | | (0.505) | | (0.423) | | (0.731) |
| Lee bounds | | [-0.666***, -0.121] | | [-0.868*, -0.048] | | [-0.136, 0.222] | | [-0.700, -0.223] |
| | | (0.218, 0.236) | | (0.470, 0.521) | | (0.414, 0.427) | | (0.728, 0.737) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.103 | | 1.212*** | | 0.047 | | 0.862 |
| | | (0.273) | | (0.439) | | (0.310) | | (0.602) |
| Lee bounds | | [-0.299, 0.245] | | [0.626, 1.439***] | | [-0.108, 0.098] | | [0.637, 0.956] |
| | | (0.243, 0.276) | | (0.406, 0.436) | | (0.295, 0.306) | | (0.600, 0.604) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.409 | | 0.385 | | 1.167*** | | 0.038 |
| | | (0.255) | | (0.523) | | (0.319) | | (0.638) |
| Lee bounds | | [-0.042, 0.650**] | | [-0.332, 0.747] | | [0.603**, 1.414***] | | [-0.777, 0.379] |
| | | (0.265, 0.250) | | (0.551, 0.509) | | (0.265, 0.318) | | (0.600, 0.642) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean | 5.69 | 5.69 | 9.46 | 9.46 | 5.39 | 5.39 | 9.94 | 9.94 |
| Control SD | 4.33 | 4.33 | 7.26 | 7.26 | 4.15 | 4.15 | 8.12 | 8.12 |
| Observations | 2425 | 2425 | 2425 | 2425 | 1843 | 1843 | 1646 | 1646 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' time use in the midline and endline surveys. Odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. Again, these effects are computed using linear combinations of estimates. The reference regression specifications include pair-of-clusters fixed effects and standard errors are clustered at the cluster-of-schools level. The main regression specification includes school-grade section-gender fixed effects and robust standard errors are presented. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA8—ENDLINE EFFECTS ON STUDENTS' INCOME AND SAVINGS

| | Y=Farm sales (Liberian dollars) | | | | | |
|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $SBAE_p$ | 0.060*** | 0.039 | 0.027 | -0.009 | 0.106* | 0.092 |
| | (0.021) | (0.043) | (0.048) | (0.084) | (0.061) | (0.113) |
| $SBAE_p \times FFD_s$ | | -0.027 | | 0.054 | | -0.000 |
| | | (0.056) | | (0.100) | | (0.133) |
| $SBAE_p \times Video_s$ | | 0.084* | | 0.034 | | 0.040 |
| | | (0.043) | | (0.109) | | (0.124) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.45 | | 0.56 | | 0.82 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.060*** | 0.039 | 0.027 | -0.009 | 0.106* | 0.092 |
| | (0.021) | (0.043) | (0.048) | (0.084) | (0.061) | (0.113) |
| Lee bounds | [0.052**, 0.053**] | [0.011, 0.037] | [0.021, 0.029] | [-0.089, 0.014] | [0.104*, 0.111*] | [0.067, 0.203*] |
| | (0.020, 0.020) | (0.043, 0.044) | (0.049, 0.048) | (0.086, 0.084) | (0.061, 0.061) | (0.110, 0.124) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.012 | | 0.045 | | 0.091 |
| | | (0.039) | | (0.091) | | (0.120) |
| Lee bounds | | [-0.018, 0.035] | | [-0.075, 0.123] | | [0.049, 0.124] |
| | | (0.041, 0.041) | | (0.093, 0.089) | | (0.115, 0.123) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.124*** | | 0.025 | | 0.135 |
| | | (0.039) | | (0.081) | | (0.115) |
| Lee bounds | | [0.098***, 0.107***] | | [0.015, 0.039] | | [0.102, 0.147] |
| | | (0.034, 0.033) | | (0.081, 0.082) | | (0.108, 0.116) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.096** | | 0.079 | | 0.135 |
| | | (0.044) | | (0.094) | | (0.117) |
| Lee bounds | | [0.073*, 0.116***] | | [0.009, 0.163*] | | [-0.044, 0.186*] |
| | | (0.044, 0.041) | | (0.090, 0.088) | | (0.094, 0.119) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean (without logs) | 0.702 | 0.702 | 4692 | 4692 | 3407 | 3407 |
| Control SD (without logs) | 0.458 | 0.458 | 4664 | 4664 | 4491 | 4491 |
| Observations | 1488 | 1488 | 1118 | 1118 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 152 | 152 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' income and savings in 2022, retrospectively reported in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA8—ENDLINE EFFECTS ON STUDENTS' INCOME AND SAVINGS (CONTINUED)

| | Y=Non-farm income (Liberian dollars) | | | | | |
|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | |
| | (7) | (8) | (9) | (10) | (11) | (12) |
| $SBAE_p$ | -0.052** | -0.061* | -0.016 | -0.067 | -0.087 | -0.101 |
| | (0.024) | (0.036) | (0.087) | (0.155) | (0.074) | (0.139) |
| $SBAE_p \times FFD_s$ | | 0.067 | | 0.262 | | 0.299 |
| | | (0.049) | | (0.159) | | (0.238) |
| $SBAE_p \times Video_s$ | | -0.051 | | -0.118 | | -0.185 |
| | | (0.040) | | (0.150) | | (0.104) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.82 | | 0.59 | | 0.82 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | -0.052** | -0.061* | -0.016 | -0.067 | -0.087 | -0.101 |
| | (0.024) | (0.036) | (0.087) | (0.155) | (0.074) | (0.139) |
| Lee bounds | [-0.053**, -0.052**] | [-0.074*, -0.044] | [-0.031, -0.011] | [-0.064, -0.006] | [-0.089, -0.079] | [-0.115, 0.078] |
| | (0.025, 0.025) | (0.038, 0.037) | (0.088, 0.087) | (0.156, 0.150) | (0.074, 0.075) | (0.136, 0.163) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.006 | | 0.195** | | 0.168 |
| | | (0.038) | | (0.096) | | (0.139) |
| Lee bounds | | [-0.010, 0.020] | | [0.105, 0.263**] | | [0.131, 0.204] |
| | | (0.041, 0.041) | | (0.098, 0.104) | | (0.135, 0.144) |
| SBAE + Video ($\beta_1 + \beta_3$) | | -0.112*** | | -0.185 | | -0.267** |
| | | (0.034) | | (0.128) | | (0.091) |
| Lee bounds | | [-0.119***, -0.109***] | | [-0.200, -0.100] | | [-0.326***, -0.259**] |
| | | (0.035, 0.035) | | (0.127, 0.104) | | (0.081, 0.092) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | -0.045 | | 0.077 | | -0.048 |
| | | (0.045) | | (0.159) | | (0.135) |
| Lee bounds | | [-0.072, -0.030] | | [0.002, 0.152] | | [-0.300***, -0.008] |
| | | (0.047, 0.046) | | (0.156, 0.151) | | (0.097, 0.140) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean (without logs) | 0.465 | 0.465 | 4009 | 4009 | 1860 | 1860 |
| Control SD (without logs) | 0.499 | 0.499 | 3818 | 3818 | 3272 | 3272 |
| Observations | 1488 | 1488 | 638 | 638 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 137 | 137 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' income and savings in 2022, retrospectively reported in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA8—ENDLINE EFFECTS ON STUDENTS' INCOME AND SAVINGS (CONTINUED)

| | Y=Total income (Liberian dollars) | | | | | |
|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | |
| | (13) | (14) | (15) | (16) | (17) | (18) |
| $SBAE_p$ | 0.020 | 0.032 | -0.052 | -0.102 | 0.032 | 0.014 |
| | (0.017) | (0.038) | (0.049) | (0.091) | (0.054) | (0.110) |
| $SBAE_p \times FFD_s$ | | -0.018 | | 0.105 | | 0.096 |
| | | (0.052) | | (0.115) | | (0.157) |
| $SBAE_p \times Video_s$ | | -0.000 | | 0.019 | | -0.039 |
| | | (0.037) | | (0.093) | | (0.097) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.79 | | 0.43 | | 0.78 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.020 | 0.032 | -0.052 | -0.102 | 0.032 | 0.014 |
| | (0.017) | (0.038) | (0.049) | (0.091) | (0.054) | (0.110) |
| Lee bounds | [0.016, 0.017] | [0.004, 0.031] | [-0.057, -0.049] | [-0.191**, -0.067] | [0.030, 0.035] | [-0.017, 0.110] |
| | (0.015, 0.015) | (0.035, 0.036) | (0.049, 0.049) | (0.093, 0.091) | (0.054, 0.054) | (0.106, 0.120) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.014 | | 0.003 | | 0.111 |
| | | (0.032) | | (0.086) | | (0.112) |
| Lee bounds | | [-0.021, 0.044] | | [-0.111, 0.076] | | [0.063, 0.145] |
| | | (0.033, 0.032) | | (0.085, 0.074) | | (0.105, 0.114) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.032 | | -0.083 | | -0.026 |
| | | (0.034) | | (0.080) | | (0.093) |
| Lee bounds | | [0.023, 0.032] | | [-0.102, -0.063] | | [-0.054, -0.015] |
| | | (0.029, 0.029) | | (0.076, 0.080) | | (0.085, 0.094) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.013 | | 0.022 | | 0.068 |
| | | (0.039) | | (0.091) | | (0.109) |
| Lee bounds | | [0.005, 0.054*] | | [-0.055, 0.136*] | | [-0.077, 0.121] |
| | | (0.038, 0.031) | | (0.087, 0.082) | | (0.094, 0.109) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean (without logs) | 0.832 | 0.832 | 6280 | 6280 | 5367 | 5367 |
| Control SD (without logs) | 0.374 | 0.374 | 6341 | 6341 | 6266 | 6266 |
| Observations | 1488 | 1488 | 1277 | 1277 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 153 | 153 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' income and savings in 2022, retrospectively reported in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA8—ENDLINE EFFECTS ON STUDENTS' INCOME AND SAVINGS (CONTINUED)

| | Y=Total savings (Liberian dollars) | | | | | |
|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | |
| | (19) | (20) | (21) | (22) | (23) | (24) |
| $SBAE_p$ | 0.050** | -0.009 | -0.067 | -0.108 | -0.005 | -0.181 |
| | (0.022) | (0.040) | (0.050) | (0.103) | (0.066) | (0.099) |
| $SBAE_p \times FFD_s$ | | 0.056 | | 0.062 | | 0.226* |
| | | (0.050) | | (0.091) | | (0.139) |
| $SBAE_p \times Video_s$ | | 0.061 | | 0.030 | | 0.203 |
| | | (0.056) | | (0.103) | | (0.148) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.07 | | 0.58 | | 0.04 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.050** | -0.009 | -0.067 | -0.108 | -0.005 | -0.181 |
| | (0.022) | (0.040) | (0.050) | (0.103) | (0.066) | (0.099) |
| Lee bounds | [0.050**, 0.051**] | [-0.022, -0.003] | [-0.072, -0.062] | [-0.208**, -0.069] | [-0.006, 0.004] | [-0.199*, -0.065] |
| | (0.023, 0.023) | (0.042, 0.042) | (0.050, 0.050) | (0.101, 0.103) | (0.066, 0.067) | (0.097, 0.111) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.046 | | -0.045 | | 0.005 |
| | | (0.046) | | (0.073) | | (0.097) |
| Lee bounds | | [0.028, 0.065] | | [-0.140**, 0.041] | | [-0.035, 0.037] |
| | | (0.048, 0.047) | | (0.071, 0.071) | | (0.093, 0.100) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.052 | | -0.078 | | -0.014 |
| | | (0.049) | | (0.070) | | (0.097) |
| Lee bounds | | [0.050, 0.059] | | [-0.090, -0.059] | | [-0.043, -0.004] |
| | | (0.050, 0.050) | | (0.071, 0.070) | | (0.093, 0.097) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.107*** | | -0.016 | | 0.209* |
| | | (0.038) | | (0.091) | | (0.130) |
| Lee bounds | | [0.095**, 0.139***] | | [-0.066, 0.047] | | [0.021, 0.263**] |
| | | (0.041, 0.041) | | (0.089, 0.085) | | (0.107, 0.133) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean (without logs) | 0.552 | 0.552 | 5338 | 5338 | 2952 | 2952 |
| Control SD (without logs) | 0.498 | 0.498 | 4442 | 4442 | 4237 | 4237 |
| Observations | 1488 | 1488 | 833 | 833 | 1488 | 1488 |
| Number of clusters | 155 | 155 | 148 | 148 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' income and savings in 2022, retrospectively reported in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA9—MIDLINE AND ENDLINE EFFECTS ON STUDENTS' SPENDING AND MEALS MISSED

*Panel A: Midline (2021)*

| | Y=Total spending (Liberian dollars) | | | | | | Y=Meals missed (0-14) | |
|---|---|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | | | |
| | | | | | | | OLS | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| $SBAE_p$ | -0.004 | -0.029 | 0.005 | 0.166* | 0.050 | 0.118 | 0.005 | 0.074 |
| | (0.012) | (0.021) | (0.054) | (0.097) | (0.042) | (0.105) | (0.099) | (0.178) |
| $SBAE_p \times FFD_s$ | | 0.048* | | -0.071 | | -0.018 | | 0.004 |
| | | (0.028) | | (0.101) | | (0.103) | | (0.225) |
| $SBAE_p \times Video_s$ | | 0.010 | | -0.207** | | -0.065 | | -0.100 |
| | | (0.021) | | (0.102) | | (0.101) | | (0.186) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.12 | | 0.09 | | 0.60 | | 0.76 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | -0.004 | -0.029 | 0.005 | 0.166* | 0.050 | 0.118 | 0.005 | 0.074 |
| | (0.012) | (0.021) | (0.054) | (0.097) | (0.042) | (0.105) | (0.099) | (0.178) |
| Lee bounds | [-0.007, 0.015] | [-0.047**, -0.022] | [-0.035, 0.121**] | [0.012, 0.199**] | [-0.033, 0.072*] | [0.084, 0.192*] | [-0.173*, 0.059] | [0.014, 0.249] |
| | (0.012, 0.012) | (0.021, 0.022) | (0.053, 0.048) | (0.095, 0.098) | (0.038, 0.043) | (0.102, 0.115) | (0.101, 0.099) | (0.181, 0.167) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.019 | | 0.095 | | 0.098 | | 0.078 |
| | | (0.021) | | (0.077) | | (0.092) | | (0.172) |
| Lee bounds | | [0.014, 0.044**] | | [0.023, 0.194***] | | [-0.044, 0.132] | | [-0.107, 0.164] |
| | | (0.020, 0.019) | | (0.074, 0.074) | | (0.069, 0.094) | | (0.157, 0.173) |
| SBAE + Video ($\beta_1 + \beta_3$) | | -0.019 | | -0.041 | | 0.045 | | -0.026 |
| | | (0.019) | | (0.083) | | (0.079) | | (0.164) |
| Lee bounds | | [-0.024, 0.003] | | [-0.091, 0.077] | | [-0.057, 0.074] | | [-0.238, 0.046] |
| | | (0.019, 0.019) | | (0.082, 0.075) | | (0.066, 0.082) | | (0.154, 0.166) |
| SBAE + FFD + Video ($\beta_1 + \beta_2 + \beta_3$) | | 0.030 | | -0.112 | | 0.026 | | -0.022 |
| | | (0.023) | | (0.093) | | (0.089) | | (0.186) |
| Lee bounds | | [0.023, 0.060***] | | [-0.193**, 0.068] | | [-0.105, 0.068] | | [-0.302, 0.081] |
| | | (0.021, 0.020) | | (0.094, 0.094) | | (0.077, 0.090) | | (0.194, 0.185) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean (without logs) | 0.826 | 0.826 | 3490 | 3490 | 2903 | 2903 | 2.62 | 2.62 |
| Control SD (without logs) | 0.379 | 0.379 | 3182 | 3182 | 3182 | 3182 | 2.93 | 2.93 |
| Observations | 2425 | 2425 | 2011 | 2011 | 2425 | 2425 | 2423 | 2423 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' spending in the last six months and consumption of meals, reported during the midline and endline surveys. Columns (1) and (2) refer to students' log-transformed total spending, which is a sum of spending on agricultural inputs, school fees and supplies, and consumption goods. Columns (3) and (4) refer to the number of meals (specifically, breakfasts and lunches) students miss in the last seven days. All monetary values are expressed in 2022 Liberian dollars and winsorized at the 2.5 and 97.5 percentiles. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

TABLE OA9—MIDLINE AND ENDLINE EFFECTS ON STUDENTS' SPENDING AND MEALS MISSED (CONTINUED)

*Panel B: Endline (2022)*

| | Y=Total spending (Liberian dollars) | | | | | | Y=Meals missed (0-14) | |
|---|---|---|---|---|---|---|---|---|
| | OLS extensive margin: Pr(Y>0) | | OLS intensive margin: Log(Y)\|Y>0 | | Poisson regression: Proportion change in Y | | OLS | |
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| $SBAE_p$ | -0.022 | -0.001 | 0.083 | 0.210 | 0.033 | 0.113 | -0.032 | 0.185 |
| | (0.016) | (0.031) | (0.050) | (0.141) | (0.041) | (0.101) | (0.145) | (0.192) |
| $SBAE_p \times FFD_s$ | | 0.009 | | -0.217 | | -0.067 | | -0.235 |
| | | (0.037) | | (0.146) | | (0.079) | | (0.238) |
| $SBAE_p \times Video_s$ | | -0.053* | | -0.000 | | -0.065 | | -0.210 |
| | | (0.029) | | (0.156) | | (0.094) | | (0.252) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.43 | | 0.39 | | 0.35 | | 0.17 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | -0.022 | -0.001 | 0.083 | 0.210 | 0.033 | 0.113 | -0.032 | 0.185 |
| | (0.016) | (0.031) | (0.050) | (0.141) | (0.041) | (0.101) | (0.145) | (0.192) |
| Lee bounds | [-0.017, ] | [-0.028, 0.000] | [-0.070, ] | [-0.043, 0.223] | [0.031, ] | [0.084, 0.188*] | [-0.034, ] | [0.132, 0.287] |
| | (0.011, ) | (0.024, 0.024) | (0.103, ) | (0.250, 0.247) | (0.041, ) | (0.099, 0.109) | (0.146, ) | (0.192, 0.191) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.008 | | -0.006 | | 0.039 | | -0.049 |
| | | (0.020) | | (0.103) | | (0.077) | | (0.207) |
| Lee bounds | | [-0.037**, 0.039**] | | [-0.307*, 0.320] | | [-0.006, 0.073] | | [-0.116, 0.024] |
| | | (0.015, 0.017) | | (0.182, 0.203) | | (0.073, 0.079) | | (0.205, 0.212) |
| SBAE + Video ($\beta_1 + \beta_3$) | | -0.055** | | 0.210** | | 0.041 | | -0.024 |
| | | (0.028) | | (0.092) | | (0.070) | | (0.258) |
| Lee bounds | | [-0.039*, -0.029] | | [-0.147, -0.053] | | [0.021, 294.471] | | [-0.071, 0.000] |
| | | (0.021, 0.020) | | (0.207, 0.202) | | (0.070, 398.723) | | (0.244, 0.259) |
| SBAE + FFD + Video ($\beta_1 + \beta_2 + \beta_3$) | | -0.046 | | -0.006 | | -0.029 | | -0.259 |
| | | (0.034) | | (0.128) | | (0.074) | | (0.234) |
| Lee bounds | | [-0.033, 0.012] | | [-0.322, 0.080] | | [-0.115*, 0.010] | | [-0.531**, -0.186] |
| | | (0.024, 0.014) | | (0.242, 0.175) | | (0.065, 0.073) | | (0.215, 0.239) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean (without logs) | 0.918 | 0.918 | 5847 | 5847 | 5520 | 5520 | 2.18 | 2.18 |
| Control SD (without logs) | 0.274 | 0.274 | 4686 | 4686 | 4747 | 4747 | 2.56 | 2.56 |
| Observations | 1488 | 1488 | 1390 | 1390 | 1488 | 1488 | 1487 | 1487 |
| Number of clusters | 155 | 155 | 154 | 154 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' spending in the last six months and consumption of meals, reported during the midline and endline surveys. Columns (1) and (2) refer to students' log-transformed total spending, which is a sum of spending on agricultural inputs, school fees and supplies, and consumption goods. Columns (3) and (4) refer to the number of meals (specifically, breakfasts and lunches) students miss in the last seven days. All monetary values are expressed in 2022 Liberian dollars and winsorized at the 2.5 and 97.5 percentiles. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

TABLE OA10—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON STUDENTS' ASPIRATIONS

| | Midline Study agriculture as elective (0/1) | | Midline Name ag jobs as top 3 (0/1) | | Endline Save for university (0/1) | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $SBAE_p$ | 0.101** | 0.013 | 0.089*** | 0.078* | 0.025* | -0.016 |
| | (0.042) | (0.071) | (0.020) | (0.040) | (0.014) | (0.021) |
| $SBAE_p \times FFD_s$ | | 0.055 | | -0.027 | | 0.075** |
| | | (0.058) | | (0.037) | | (0.029) |
| $SBAE_p \times Video_s$ | | 0.117* | | 0.064 | | 0.005 |
| | | (0.065) | | (0.042) | | (0.026) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.07 | | 0.59 | | 0.03 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.101** | 0.013 | 0.089*** | 0.078* | 0.025* | -0.016 |
| | (0.042) | (0.071) | (0.020) | (0.040) | (0.014) | (0.021) |
| Lee bounds | [0.094**, 0.112***] | [0.003, 0.023] | [0.078***, 0.100***] | [0.067*, 0.088**] | [0.025*, 0.026*] | [-0.020, 0.004] |
| | (0.042, 0.041) | (0.071, 0.071) | (0.020, 0.020) | (0.040, 0.040) | (0.014, 0.014) | (0.022, 0.021) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.067 | | 0.051* | | 0.059** |
| | | (0.064) | | (0.028) | | (0.025) |
| Lee bounds | | [0.057, 0.081] | | [0.036, 0.067**] | | [0.054**, 0.066***] |
| | | (0.064, 0.063) | | (0.028, 0.029) | | (0.025, 0.025) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.129** | | 0.142*** | | -0.011 |
| | | (0.054) | | (0.026) | | (0.025) |
| Lee bounds | | [0.121**, 0.141***] | | [0.130***, 0.157***] | | [-0.017, -0.010] |
| | | (0.054, 0.053) | | (0.027, 0.026) | | (0.024, 0.025) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.184*** | | 0.115*** | | 0.064*** |
| | | (0.055) | | (0.038) | | (0.024) |
| Lee bounds | | [0.173***, 0.203***] | | [0.099**, 0.134***] | | [0.033, 0.074***] |
| | | (0.055, 0.055) | | (0.039, 0.038) | | (0.024, 0.024) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean | 0.50 | 0.50 | 0.43 | 0.43 | 0.17 | 0.17 |
| Control SD | 0.50 | 0.50 | 0.50 | 0.50 | 0.38 | 0.38 |
| Observations | 2343 | 2343 | 2425 | 2425 | 1970 | 1970 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' aspirations in the midline and endline surveys. Odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. Again, these effects are computed using linear combinations of estimates. The reference regression specifications include pair-of-clusters fixed effects and standard errors are clustered at the cluster-of-schools level. The main regression specification includes school-grade section-gender fixed effects and robust standard errors are presented. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA11—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON TEACHERS

| *Dependent variables* | Midline | | Endline | | Endline | |
|---|---|---|---|---|---|---|
| | Score: test on techniques (0-10) | Beliefs: students' tubers from 4 cassava plants | Score: test on techniques (0-12) | Beliefs: students' tubers from 4 cassava plants | Pedagogy: used agricultural projects or field visits (0/1) | Pedagogy: number of science concepts demonstrated (0-6) |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $SBAE_p$ | 0.729*** | 4.940*** | 0.671*** | 4.536*** | 0.126*** | 0.395*** |
| Standard errors | (0.122) | (0.917) | (0.142) | (1.244) | (0.024) | (0.070) |
| Control Mean | 6.02 | 20.93 | 4.85 | 22.40 | 0.35 | 1.57 |
| Control SD | 1.81 | 9.30 | 1.53 | 10.84 | 0.48 | 1.73 |
| Observations | 450 | 452 | 445 | 445 | 1970 | 1970 |
| Clusters | 150 | 150 | 149 | 149 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects of the SBAE treatment on agriculture and science teachers in the midline and endline surveys. Columns (1) and (3) refer to teachers' scores on a test of promoted agricultural techniques. Columns (2) and (4) refer to teachers' beliefs about the number of tubers that students can harvest (in 9-10 months) from 4 cassava plants. Column (5) refers to whether teachers have used agricultural projects or field visits in science instruction in the past five days, according to student reports. Column (6)refers to the number of scientific concepts that teachers have demonstrated using farm work, according to student reports. All regressions include pair-of-clusters-of-schools fixed effects. Standard errors are clustered at the cluster-of-schools level.

TABLE OA12—INTENT-TO-TREAT EFFECTS ON STUDENTS IN THE FIRST FOLLOW-UP SURVEY

| *Dependent variables* | Ever used: beds (0/1) | Ever used: compost (0/1) | Score: site selection (0–2) | Beliefs: tubers from 4 cassava plants | | Intend to look after farms (0/1) | Hours studying (weekly) | Hours farming (weekly) |
|---|---|---|---|---|---|---|---|---|
| | | | | (student) | (typical farmer) | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| $SBAE_p$ | 0.042*** | 0.063*** | 0.042** | 0.844** | 0.242 | 0.090*** | -0.366* | 0.316 |
| Standard errors | (0.010) | (0.017) | (0.020) | (0.411) | (0.334) | (0.016) | (0.198) | (0.379) |
| Control Mean | 0.90 | 0.30 | 1.63 | 19.86 | 20.30 | 0.60 | 7.25 | 13.23 |
| Control SD | 0.30 | 0.46 | 0.56 | 9.12 | 8.84 | 0.49 | 4.42 | 7.15 |
| Observations | 2520 | 2520 | 2520 | 2520 | 2520 | 2520 | 2520 | 2520 |
| Clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects of the SBAE treatment on students in the first follow-up survey. Columns (1) and (2) refer to student reports about whether they have ever used bed preparation and composting. Column (3) refers to students' scores on two questions about site selection. Columns (4) and (5) refer to refer to students' beliefs about the number of tubers that can be harvested (in 9-10 months) from 4 cassava plants. Column (4) refers to students' beliefs about their own harvest. Column (5) refers to students' beliefs about the harvest of a typical farmer in their community. Column (6) refers to whether students report an intention to look after farms in that rainy season. Columns (7) and (8) refer to students' reported hours spent on studying and farming in the week preceding the survey. All regressions include pair-of-clusters-of-schools fixed effects. Standard errors are clustered at the cluster-of-schools level.

TABLE OA13—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON STUDENTS' TRAINING OUTCOMES

*Panel A: Midline survey*

| | Joined program (0/1) | | | | Beliefs: more cassava tubers than typical farmer (0/1) | |
|---|---|---|---|---|---|---|
| | | | Score on promoted techniques (0-10) | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $SBAE_p$ | 0.737*** | 0.677*** | 0.379*** | 0.392*** | 0.058*** | 0.092*** |
| | (0.019) | (0.030) | (0.062) | (0.113) | (0.015) | (0.029) |
| $SBAE_p \times FFD_s$ | | -0.012 | | 0.016 | | -0.042 |
| | | (0.035) | | (0.099) | | (0.031) |
| $SBAE_p \times Video_s$ | | 0.132*** | | -0.071 | | -0.025 |
| | | (0.033) | | (0.131) | | (0.036) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.01 | | 0.76 | | 0.20 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.737*** | 0.677*** | 0.379*** | 0.392*** | 0.058*** | 0.092*** |
| | (0.019) | (0.030) | (0.062) | (0.113) | (0.015) | (0.029) |
| Lee bounds | [0.732***, 0.753***] | [0.677***, 0.676***] | [0.307***, 0.465***] | [0.292**, 0.489***] | [0.047***, 0.069***] | [0.081**, 0.106***] |
| | (0.020, 0.019) | (0.030, 0.000) | (0.061, 0.063) | (0.108, 0.000) | (0.015, 0.015) | (0.029, 0.000) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.664*** | | 0.408*** | | 0.050* |
| | | (0.035) | | (0.099) | | (0.027) |
| Lee bounds | | [0.654***, 0.685***] | | [0.318***, 0.497***] | | [0.034, 0.063**] |
| | | (0.036, 0.034) | | (0.097, 0.094) | | (0.028, 0.028) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.808*** | | 0.322*** | | 0.067*** |
| | | (0.026) | | (0.090) | | (0.024) |
| Lee bounds | | [0.803***, 0.829***] | | [0.234**, 0.432***] | | [0.053**, 0.079***] |
| | | (0.026, 0.025) | | (0.091, 0.096) | | (0.024, 0.024) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.796*** | | 0.337*** | | 0.025 |
| | | (0.027) | | (0.108) | | (0.031) |
| Lee bounds | | [0.789***, 0.826***] | | [0.226**, 0.478***] | | [0.004, 0.043] |
| | | (0.028, 0.025) | | (0.105, 0.101) | | (0.031, 0.031) |
| *Summary Statistics for Control Schools* | | | | | | |
| Control Mean | 0.00 | 0.00 | 5.61 | 5.61 | 0.42 | 0.42 |
| Control SD | 0.00 | 0.00 | 1.81 | 1.81 | 0.49 | 0.49 |
| Observations | 2425 | 2425 | 2425 | 2425 | 2425 | 2425 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports treatment effects on parents' visits to schools (Panel A) and channels through which parents report learning promoted techniques (Panel B) in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

TABLE OA13—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON STUDENTS' TRAINING OUTCOMES (CONTINUED)

*Panel B: Endline survey*

| | Joined program (0/1) | | Score on promoted techniques (0-10) | | Beliefs: more cassava tubers than typical farmer (0/1)) | | Parent Reports: student asked to look after farms (0/1)) | |
|---|---|---|---|---|---|---|---|---|
| | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| $SBAE_p$ | 0.843*** | 0.809*** | 0.254*** | 0.151 | 0.079*** | 0.122*** | 0.111*** | 0.122*** |
| | (0.012) | (0.026) | (0.074) | (0.107) | (0.017) | (0.030) | (0.026) | (0.044) |
| $SBAE_p \times FFD_s$ | | 0.021 | | 0.143 | | 0.007 | | -0.049 |
| | | (0.028) | | (0.129) | | (0.036) | | (0.048) |
| $SBAE_p \times Video_s$ | | 0.042 | | 0.047 | | -0.090** | | 0.022 |
| | | (0.031) | | (0.132) | | (0.035) | | (0.041) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.13 | | 0.34 | | 0.11 | | 0.73 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | 0.843*** | 0.809*** | 0.254*** | 0.151 | 0.079*** | 0.122*** | 0.111*** | 0.122*** |
| | (0.012) | (0.026) | (0.074) | (0.107) | (0.017) | (0.030) | (0.026) | (0.044) |
| Lee bounds | [0.843***, 0.843***] | [0.809***, 0.808***] | [0.248***, 0.259***] | [0.077, 0.242**] | [0.079***, 0.080***] | [0.113***, 0.138***] | [0.108***, 0.118***] | [0.121**, 0.125**] |
| | (0.012, 0.012) | (0.026, 0.026) | (0.075, 0.074) | (0.109, 0.106) | (0.017, 0.017) | (0.031, 0.031) | (0.026, 0.026) | (0.044, 0.044) |
| SBAE + FFD ($\beta_1 + \beta_2$) | | 0.829*** | | 0.294*** | | 0.129*** | | 0.074** |
| | | (0.027) | | (0.109) | | (0.027) | | (0.029) |
| Lee bounds | | [0.829***, 0.830***] | | [0.149, 0.446***] | | [0.115***, 0.147***] | | [0.067**, 0.080**] |
| | | (0.027, 0.027) | | (0.110, 0.112) | | (0.028, 0.027) | | (0.030, 0.029) |
| SBAE + Video ($\beta_1 + \beta_3$) | | 0.851*** | | 0.199* | | 0.032 | | 0.144*** |
| | | (0.022) | | (0.115) | | (0.032) | | (0.037) |
| Lee bounds | | [0.849***, 0.856***] | | [0.176, 0.236*] | | [0.028, 0.035] | | [0.140***, 0.152***] |
| | | (0.022, 0.022) | | (0.116, 0.119) | | (0.032, 0.032) | | (0.037, 0.037) |
| SBAE + Video + FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.871*** | | 0.342** | | 0.039 | | 0.095** |
| | | (0.023) | | (0.138) | | (0.031) | | (0.048) |
| Lee bounds | | [0.865***, 0.908***] | | [0.216, 0.475***] | | [0.014, 0.056*] | | [0.087*, 0.109**] |
| | | (0.023, 0.021) | | (0.130, 0.130) | | (0.031, 0.032) | | (0.047, 0.047) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean | 0.00 | 0.00 | 4.43 | 4.43 | 0.39 | 0.39 | 0.50 | 0.50 |
| Control SD | 0.00 | 0.00 | 1.78 | 1.78 | 0.49 | 0.49 | 0.50 | 0.50 |
| Observations | 1970 | 1970 | 1970 | 1970 | 1970 | 1970 | 1543 | 1543 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports treatment effects on parents' visits to schools (Panel A) and channels through which parents report learning promoted techniques (Panel B) in the endline survey. In each panel, odd-numbered columns report the pooled SBAE effect and even-numbered columns report equation (1), which adds the two engagement interactions; the lower portion reports the combined effects of SBAE and the engagement treatments. These effects are computed using linear combinations of estimates. All regression specifications include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level. Significance: *** p<0.01, ** p<0.05, * p<0.10.

## TABLE OA14—ENDLINE INTENT-TO-TREAT EFFECTS ON PARENTS' VISITS TO SCHOOLS AND RELATED OUTCOMES

| *Panel A: Parents' visits to schools* | Visited school farm (0/1) | | # visits: rainy season 2022 | | Observed harvest (0/1) | | Attended parent-teacher meetings (0/1) | | # meetings: 2022/23 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| $SBAE_p$ | 0.220*** | 0.109** | 0.432*** | -0.105 | 0.173*** | 0.059 | 0.014 | -0.102** | 0.008 | -0.352** |
| | (0.028) | (0.047) | (0.108) | (0.131) | (0.030) | (0.045) | (0.026) | (0.045) | (0.093) | (0.146) |
| $SBAE_p \times FFD_s$ | | 0.073 | | 0.474*** | | 0.150*** | | 0.085** | | 0.269*** |
| | | (0.045) | | (0.139) | | (0.043) | | (0.033) | | (0.097) |
| $SBAE_p \times Video_s$ | | 0.141*** | | 0.569*** | | 0.083* | | 0.138*** | | 0.420*** |
| | | (0.052) | | (0.145) | | (0.048) | | (0.047) | | (0.140) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.01 | | 0.00 | | 0.00 | | 0.00 | | 0.00 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | | | |
| SBAE only ($\beta_1$) | 0.220*** | 0.109** | 0.432*** | -0.105 | 0.173*** | 0.059 | 0.014 | -0.102** | 0.008 | -0.352** |
| | (0.028) | (0.047) | (0.108) | (0.131) | (0.030) | (0.045) | (0.026) | (0.045) | (0.093) | (0.146) |
| Lee bounds | [0.216***, 0.226***] | [0.107**, 0.112**] | [0.376***, 0.447***] | [-0.107, -0.083] | [0.008, 0.018] | [-0.102**, -0.099**] | [-0.053, 0.017] | [-0.354**, -0.311**] | [0.168***, 0.178***] | [0.059, 0.062] |
| | (0.028, 0.029) | (0.047, 0.047) | (0.105, 0.108) | (0.131, 0.130) | (0.026, 0.026) | (0.045, 0.045) | (0.090, 0.094) | (0.146, 0.129) | (0.030, 0.030) | (0.045, 0.045) |
| SBAE+FFD ($\beta_1 + \beta_2$) | | 0.182*** | | 0.369*** | | 0.208*** | | -0.016 | | -0.083 |
| | | (0.038) | | (0.113) | | (0.041) | | (0.034) | | (0.125) |
| Lee bounds | | [0.178***, 0.191***] | | [0.358***, 0.403***] | | [-0.020, -0.006] | | [-0.095, -0.015] | | [0.206***, 0.218***] |
| | | (0.038, 0.038) | | (0.113, 0.107) | | (0.035, 0.034) | | (0.126, 0.111) | | (0.041, 0.041) |
| SBAE+Video ($\beta_1 + \beta_3$) | | 0.250*** | | 0.464*** | | 0.142*** | | 0.037 | | 0.068 |
| | | (0.040) | | (0.152) | | (0.039) | | (0.036) | | (0.117) |
| Lee bounds | | [0.245***, 0.257***] | | [0.413**, 0.478***] | | [0.030, 0.042] | | [0.024, 0.080] | | [0.137***, 0.147***] |
| | | (0.040, 0.040) | | (0.156, 0.152) | | (0.036, 0.036) | | (0.117, 0.117) | | (0.039, 0.039) |
| SBAE+Video+FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.323*** | | 0.938*** | | 0.291*** | | 0.122*** | | 0.337*** |
| | | (0.049) | | (0.159) | | (0.048) | | (0.039) | | (0.122) |
| Lee bounds | | [0.315***, 0.339***] | | [0.819***, 0.982***] | | [0.108**, 0.132***] | | [0.221*, 0.360***] | | [0.281***, 0.303***] |
| | | (0.048, 0.048) | | (0.145, 0.160) | | (0.039, 0.039) | | (0.120, 0.122) | | (0.048, 0.049) |
| *Summary Statistics for Control Schools* | | | | | | | | | | |
| Control Mean | 0.33 | 0.33 | 0.89 | 0.89 | 0.32 | 0.32 | 0.36 | 0.36 | 0.91 | 0.91 |
| Control SD | 0.47 | 0.47 | 1.66 | 1.66 | 0.47 | 0.47 | 0.48 | 0.48 | 1.46 | 1.46 |
| Observations | 1543 | 1543 | 1543 | 1543 | 1543 | 1543 | 1543 | 1543 | 1543 | 1543 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on parents' visits to schools (Panel A) and related outcomes (Panel B) reported in the endline survey. Columns (1)-(4) refer to parents' visits to school farms — (1) and (2) a binary indicator of whether parents have visited by endline; (3) and (4) the number of visits in the second rainy season. Columns (5)-(6) refer to a binary indicator of whether parents have observed harvest on school farms. Columns (7)-(10) refer to parents' attendance of parent-teacher meetings — (7)-(8) a binary indicator of whether parents have attended any meetings in 2022/23; (9)-(10) the number of meetings attended. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

TABLE OA14—ENDLINE INTENT-TO-TREAT EFFECTS ON PARENTS' VISITS TO SCHOOLS AND RELATED OUTCOMES (CONTINUED)

| *Panel B: Channels through which parents learn promoted techniques* | Learnt from schools: # techniques | | Learnt from students: # techniques | |
|---|---|---|---|---|
| | (11) | (12) | (13) | (14) |
| $SBAE_p$ | 0.387*** | 0.114* | 0.079*** | 0.081*** |
| | (0.036) | (0.068) | (0.013) | (0.027) |
| $SBAE_p \times FFD_s$ | | 0.261*** | | 0.000 |
| | | (0.065) | | (0.027) |
| $SBAE_p \times Video_s$ | | 0.279*** | | -0.002 |
| | | (0.072) | | (0.030) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.00 | | 0.97 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | |
| SBAE only ($\beta_1$) | 0.387*** | 0.114* | 0.079*** | 0.081*** |
| | (0.036) | (0.068) | (0.013) | (0.027) |
| Lee bounds | [0.366***, 0.393***] | [0.114, 0.121*] | [0.053***, 0.080***] | [0.081***, 0.086***] |
| | (0.034, 0.036) | (0.068, 0.068) | (0.011, 0.013) | (0.027, 0.026) |
| SBAE+FFD ($\beta_1 + \beta_2$) | | 0.375*** | | 0.081*** |
| | | (0.045) | | (0.021) |
| Lee bounds | | [0.375***, 0.400***] | | [0.081***, 0.092***] |
| | | (0.046, 0.046) | | (0.021, 0.022) |
| SBAE+Video ($\beta_1 + \beta_3$) | | 0.393*** | | 0.079*** |
| | | (0.045) | | (0.020) |
| Lee bounds | | [0.366***, 0.399***] | | [0.048**, 0.080***] |
| | | (0.043, 0.046) | | (0.022, 0.020) |
| SBAE+Video+FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.654*** | | 0.079*** |
| | | (0.072) | | (0.027) |
| Lee bounds | | [0.619***, 0.669***] | | [0.027, 0.082***] |
| | | (0.067, 0.073) | | (0.020, 0.027) |
| *Summary Statistics for Control Schools* | | | | |
| Control Mean | 0.06 | 0.06 | 0.02 | 0.02 |
| Control SD | 0.30 | 0.30 | 0.14 | 0.14 |
| Observations | 1543 | 1543 | 1543 | 1543 |
| Number of clusters | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on parents' visits to schools (Panel A) and related outcomes (Panel B) reported in the endline survey. Columns (11)-(14) refer to the number of promoted agricultural techniques parents learn — (11)-(12) from schools; (13)-(14) from specific students. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

## TABLE OA15—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON STUDENTS' MANAGEMENT OF HOUSEHOLD FARMS AND RELATED OUTCOMES

*Panel A: Students' management of household farms*

| | *Midline Student Reports* | | *Endline Student Reports* | | *Endline Parent Reports* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Look after farms (0/1) | | Choose methods: student parcel (0/1) | | Look after farms (0/1) | | Choose methods: student parcel (0/1) | | Student asked to change practices (0/1) | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| $SBAE_p$ | 0.079*** | 0.033 | 0.116*** | 0.059 | 0.087*** | 0.065 | 0.101*** | 0.040 | 0.120*** | 0.043 |
| | (0.021) | (0.042) | (0.023) | (0.058) | (0.025) | (0.043) | (0.021) | (0.044) | (0.023) | (0.034) |
| $SBAE_p \times FFD_s$ | | 0.030 | | 0.040 | | -0.002 | | 0.034 | | 0.071* |
| | | (0.040) | | (0.057) | | (0.053) | | (0.042) | | (0.040) |
| $SBAE_p \times Video_s$ | | 0.073* | | 0.069 | | 0.043 | | 0.079* | | 0.079** |
| | | (0.043) | | (0.055) | | (0.049) | | (0.047) | | (0.033) |
| p-value: $(\beta_2 + \beta_3 = 0)$ | | 0.12 | | 0.29 | | 0.55 | | 0.09 | | 0.01 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | | | |
| SBAE only ($\beta_1$) | 0.079*** | 0.033 | 0.116*** | 0.059 | 0.087*** | 0.065 | 0.101*** | 0.040 | 0.120*** | 0.043 |
| | (0.021) | (0.042) | (0.023) | (0.058) | (0.025) | (0.043) | (0.021) | (0.044) | (0.023) | (0.034) |
| Lee bounds | [0.071***, 0.092***] | [0.020, 0.044] | [0.101***, 0.122***] | [0.053, 0.077] | [0.087***, 0.088***] | [0.052, 0.078*] | [0.101***, 0.102***] | [0.034, 0.058] | [0.115***, 0.125***] | [0.043, 0.045] |
| | (0.021, 0.020) | (0.041, 0.290) | (0.023, 0.023) | (0.059, 0.188) | (0.025, 0.025) | (0.043, 0.043) | (0.021, 0.021) | (0.044, 0.043) | (0.023, 0.023) | (0.034, 0.034) |
| SBAE+FFD ($\beta_1 + \beta_2$) | | 0.063* | | 0.099*** | | 0.063 | | 0.074* | | 0.114*** |
| | | (0.035) | | (0.030) | | (0.044) | | (0.038) | | (0.035) |
| Lee bounds | | [0.050, 0.079**] | | [0.074**, 0.105***] | | [0.047, 0.081*] | | [0.067*, 0.101**] | | [0.110***, 0.124***] |
| | | (0.035, 0.035) | | (0.031, 0.031) | | (0.044, 0.044) | | (0.039, 0.037) | | (0.035, 0.035) |
| SBAE+Video ($\beta_1 + \beta_3$) | | 0.106*** | | 0.128*** | | 0.108** | | 0.119*** | | 0.123*** |
| | | (0.030) | | (0.031) | | (0.046) | | (0.035) | | (0.031) |
| Lee bounds | | [0.096***, 0.122***] | | [0.108***, 0.136***] | | [0.104**, 0.113**] | | [0.112***, 0.123***] | | [0.118***, 0.129***] |
| | | (0.030, 0.029) | | (0.030, 0.031) | | (0.046, 0.046) | | (0.035, 0.035) | | (0.031, 0.031) |
| SBAE+Video+FFD | | | | | | | | | | |
| | | 0.136*** | | 0.168*** | | 0.106** | | 0.154*** | | 0.193*** |
| ($\beta_1 + \beta_2 + \beta_3$) | | | | | | | | | | |
| | | (0.035) | | (0.054) | | (0.042) | | (0.035) | | (0.038) |
| Lee bounds | | [0.125***, 0.160***] | | [0.145**, 0.182***] | | [0.089**, 0.130***] | | [0.128***, 0.169***] | | [0.182***, 0.206***] |
| | | (0.036, 0.036) | | (0.054, 0.055) | | (0.043, 0.041) | | (0.034, 0.036) | | (0.037, 0.038) |
| *Summary Statistics for Control Schools* | | | | | | | | | | |
| Control Mean | 0.53 | 0.53 | 0.18 | 0.18 | 0.48 | 0.48 | 0.23 | 0.23 | 0.37 | 0.37 |
| Control SD | 0.50 | 0.50 | 0.39 | 0.39 | 0.50 | 0.50 | 0.42 | 0.42 | 0.48 | 0.48 |
| Observations | 2425 | 2425 | 1384 | 1384 | 1488 | 1488 | 1488 | 1488 | 1543 | 1543 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' management of household farms (Panel A) and related outcomes (Panel B) reported in the midline and endline surveys. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

TABLE OA15—MIDLINE AND ENDLINE INTENT-TO-TREAT EFFECTS ON STUDENTS' MANAGEMENT OF FARMS AND RELATED OUTCOMES (CONTINUED)

*Panel B: Outcomes related to students' management of household farms*
*Midline Student Reports Endline Parent Reports*

| | Shown parents how to make: # techniques | | Shown parents associated harvests: # techniques | | Advised parents to use on other parcels: # techniques | | Observed: increased size or number of tubers on student parcels (0/1) | |
|---|---|---|---|---|---|---|---|---|
| | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| $SBAE_p$ | 0.125*** | -0.007 | 0.121*** | 0.032 | 0.103*** | 0.051 | 0.113*** | 0.015 |
| | (0.038) | (0.069) | (0.034) | (0.058) | (0.037) | (0.053) | (0.028) | (0.043) |
| $SBAE_p \times FFD_s$ | | 0.067 | | 0.083* | | 0.008 | | 0.043 |
| | | (0.060) | | (0.050) | | (0.043) | | (0.053) |
| $SBAE_p \times Video_s$ | | 0.188** | | 0.088* | | 0.090* | | 0.137*** |
| | | (0.088) | | (0.047) | | (0.047) | | (0.048) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.03 | | 0.03 | | 0.19 | | 0.01 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | | | |
| SBAE only ($\beta_1$) | 0.125*** | -0.007 | 0.121*** | 0.032 | 0.103*** | 0.051 | 0.113*** | 0.015 |
| | (0.038) | (0.069) | (0.034) | (0.058) | (0.037) | (0.053) | (0.028) | (0.043) |
| Lee bounds | [0.075**, 0.132***] | [-0.015, 0.036] | [0.066**, 0.129***] | [0.025, 0.087] | [0.054*, 0.109***] | [0.047, 0.099*] | [0.091***, 0.101***] | [0.019, 0.022] |
| | (0.037, 0.038) | (0.070, 0.597) | (0.030, 0.034) | (0.059, 0.099) | (0.031, 0.038) | (0.054, 0.051) | (0.028, 0.028) | (0.040, 0.041) |
| SBAE+FFD ($\beta_1 + \beta_2$) | | 0.060 | | 0.115*** | | 0.059 | | 0.058 |
| | | (0.062) | | (0.043) | | (0.046) | | (0.046) |
| Lee bounds | | [0.001, 0.069] | | [0.039, 0.127***] | | [-0.020, 0.069] | | [0.028, 0.043] |
| | | (0.062, 0.063) | | (0.047, 0.044) | | (0.044, 0.048) | | (0.044, 0.045) |
| SBAE+Video ($\beta_1 + \beta_3$) | | 0.181*** | | 0.120*** | | 0.141*** | | 0.152*** |
| | | (0.057) | | (0.044) | | (0.041) | | (0.045) |
| Lee bounds | | [0.126**, 0.195***] | | [0.055, 0.130***] | | [0.079*, 0.152***] | | [0.131***, 0.143***] |
| | | (0.051, 0.057) | | (0.037, 0.044) | | (0.041, 0.041) | | (0.043, 0.043) |
| SBAE+Video+FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.248*** | | 0.204*** | | 0.149*** | | 0.195*** |
| | | (0.070) | | (0.042) | | (0.050) | | (0.048) |
| Lee bounds | | [0.189**, 0.264***] | | [0.137***, 0.220***] | | [0.078*, 0.164***] | | [0.145***, 0.173***] |
| | | (0.070, 0.071) | | (0.045, 0.042) | | (0.042, 0.051) | | (0.046, 0.045) |
| *Summary Statistics for Control Schools* | | | | | | | | |
| Control Mean | 0.27 | 0.27 | 0.21 | 0.21 | 0.18 | 0.18 | 0.59 | 0.59 |
| Control SD | 0.59 | 0.59 | 0.51 | 0.51 | 0.45 | 0.45 | 0.49 | 0.49 |
| Observations | 1458 | 1458 | 1458 | 1458 | 1458 | 1458 | 1543 | 1543 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports intent-to-treat effects on students' management of household farms (Panel A) and related outcomes (Panel B) reported in the midline and endline surveys. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

## TABLE OA16—ENDLINE INTENT-TO-TREAT EFFECTS ON DOWNSTREAM OUTCOMES ASSOCIATED WITH PARENTS

| *Parent Reports Student Reports* | Score on: techniques (0-12) | | Beliefs: student more cassava tubers than typical farmer (0/1) | | Student missed school because asked to work (0/1)) | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $SBAE_p$ | 0.253*** | 0.122 | 0.073** | 0.044 | 0.007 | 0.033 |
| | (0.085) | (0.127) | (0.029) | (0.044) | (0.017) | (0.027) |
| $SBAE_p \times FFD_s$ | | -0.000 | | 0.039 | | -0.075** |
| | | (0.121) | | (0.048) | | (0.032) |
| $SBAE_p \times Video_s$ | | 0.229 | | 0.022 | | 0.032 |
| | | (0.152) | | (0.042) | | (0.027) |
| p-value: ($\beta_2 + \beta_3 = 0$) | | 0.25 | | 0.31 | | 0.35 |
| *Summary: Combined effects of SBAE and informational treatments* | | | | | | |
| SBAE only ($\beta_1$) | 0.253*** | 0.122 | 0.073** | 0.044 | 0.007 | 0.033 |
| | (0.085) | (0.127) | (0.029) | (0.044) | (0.017) | (0.027) |
| Lee bounds | [0.220**, 0.303***] | [0.111, 0.113] | [0.067**, 0.077**] | [0.043, 0.047] | [0.007, 0.008] | [0.028, 0.050*] |
| | (0.085, 0.086) | (0.128, 0.127) | (0.029, 0.029) | (0.044, 0.044) | (0.017, 0.017) | (0.028, 0.028) |
| SBAE+FFD ($\beta_1 + \beta_2$) | | 0.122 | | 0.083* | | -0.042 |
| | | (0.131) | | (0.045) | | (0.027) |
| Lee bounds | | [0.084, 0.170] | | [0.078*, 0.093**] | | [-0.050*, -0.015] |
| | | (0.133, 0.132) | | (0.045, 0.045) | | (0.027, 0.026) |
| SBAE+Video ($\beta_1 + \beta_3$) | | 0.352*** | | 0.066 | | 0.065*** |
| | | (0.124) | | (0.043) | | (0.021) |
| Lee bounds | | [0.308**, 0.403***] | | [0.059, 0.072] | | [0.059**, 0.067***] |
| | | (0.127, 0.124) | | (0.043, 0.043) | | (0.021, 0.021) |
| SBAE+Video+FFD ($\beta_1 + \beta_2 + \beta_3$) | | 0.352** | | 0.105*** | | -0.010 |
| | | (0.138) | | (0.038) | | (0.027) |
| Lee bounds | | [0.277*, 0.434***] | | [0.095**, 0.116***] | | [-0.048*, -0.001] |
| | | (0.139, 0.130) | | (0.039, 0.038) | | (0.025, 0.028) |
| Control Mean | 5.23 | 5.23 | 0.35 | 0.35 | 0.24 | 0.24 |
| Control SD | 1.66 | 1.66 | 0.48 | 0.48 | 0.43 | 0.43 |
| Observations | 1543 | 1543 | 1543 | 1543 | 1894 | 1894 |
| Number of clusters | 155 | 155 | 155 | 155 | 155 | 155 |

*Notes:* This table reports endline intent-to-treat effects on downstream effects associated with parents. Columns (1)-(4) refer to parents' knowledge and beliefs — (1)-(2) refer to parents' scores on a test on promoted agricultural techniques; (3)-(4) refer to a binary indicator of whether parents believe that students could harvest more tubers from 4 cassava plants than a typical adult in the community. (5)-(6) refer to a binary indicator of whether students report having missed school in 2022/23 because they were asked to work for households. All regressions include pair-of-clusters-of-schools fixed effects and, where applicable, an indicator for faith-based schools. Standard errors are clustered at the cluster-of-schools level.

# B. Additional Figures

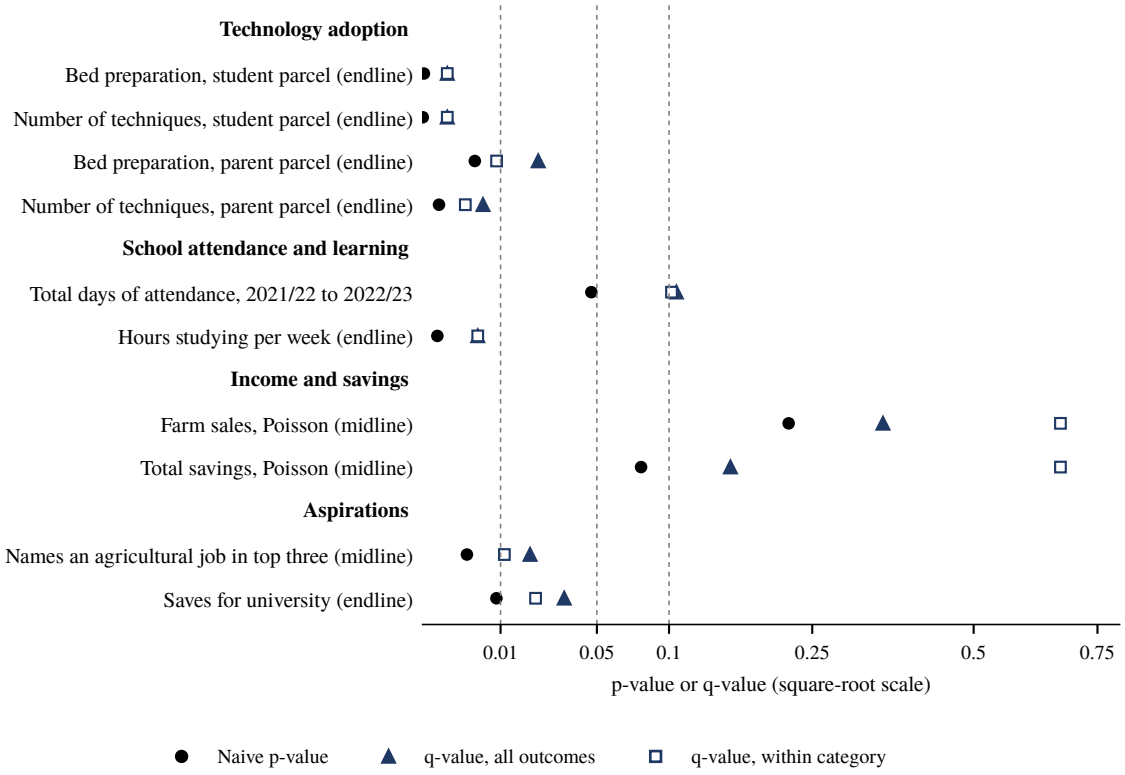



FIGURE OA1. ROBUSTNESS OF AUGMENTED SBAE EFFECTS TO TESTING MULTIPLE TREATMENTS AND OUTCOMES

*Notes:* This figure presents multiple-hypothesis-adjusted p-values for the treatment effects of the augmented SBAE program (i.e. summing the coefficients of the SBAE treatment, the promotional video, and the annual farmer field day treatment). Naive p-values and q-values adjusted for multiple hypothesis correction, using the procedure of Anderson (2008), are presented for 10 main results. I present two types of adjusted q-values: (i) considering all outcomes together (testing 18 outcomes for 4 coefficients, thus 72 tests in total); and (ii) considering only outcomes within a category (testing 6 outcomes for 4 coefficients under "technology adoption"; testing 3 outcomes for 4 coefficients under "school attendance and learning"; testing 2 outcomes for 4 coefficients under "income and savings"; testing 4 outcomes for 4 coefficients under "spending and food security"; and testing 3 outcomes for 4 coefficients under "aspirations"). Markers are offset vertically within each row for legibility. Dashed lines mark the 0.01, 0.05, and 0.10 thresholds; the horizontal axis uses a square-root scale. As in Figure 7 in the main text, farm sales, savings, and spending are estimated by Poisson regression.

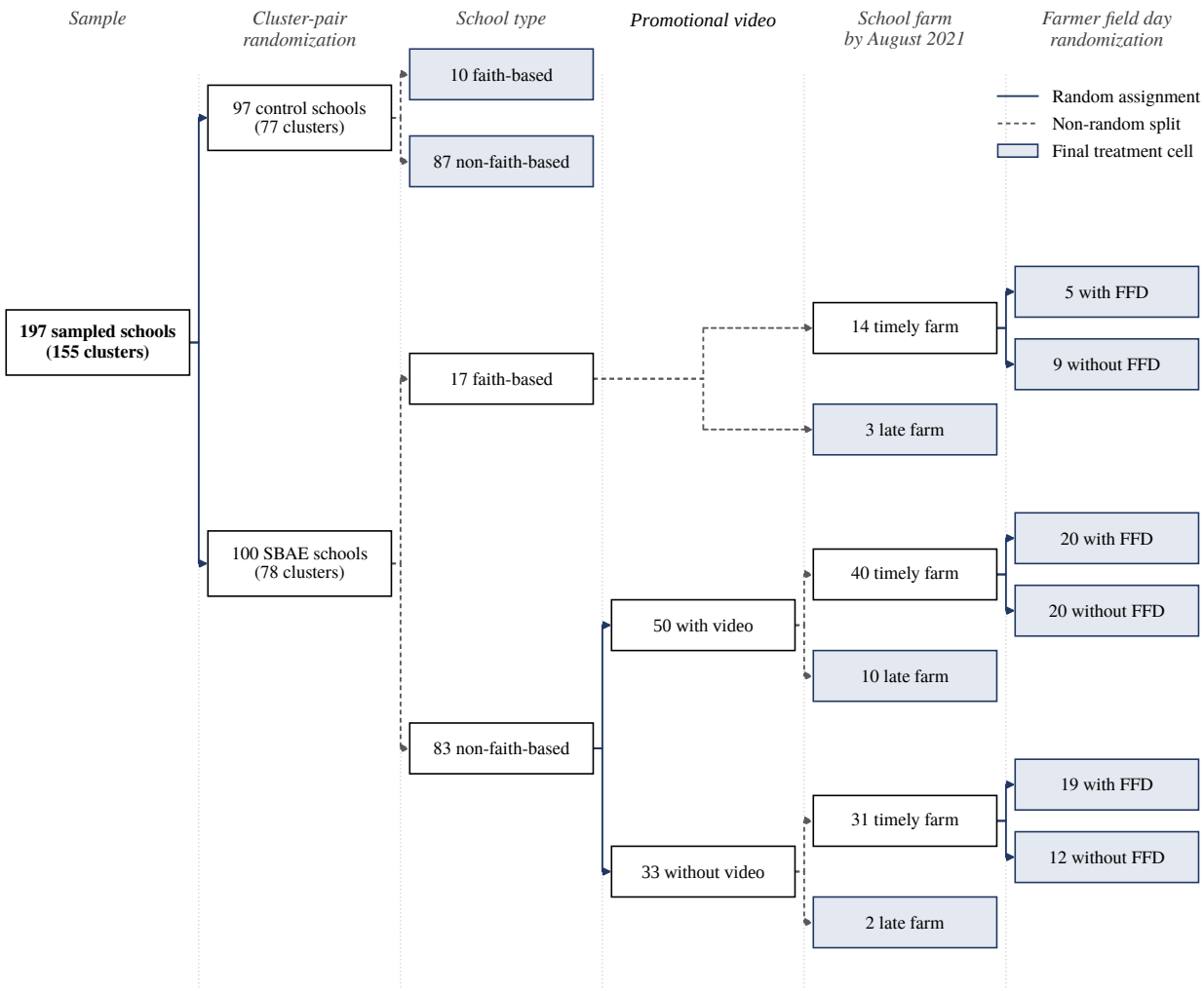



FIGURE OA2. DETAILED EXPERIMENTAL DESIGN OF THE STUDY

*Notes:* This figure presents the full assignment tree behind Figure 1 in the main text. (1) The SBAE treatment: 100 schools (78 clusters) are assigned to the SBAE arm and 97 schools (77 clusters) to the control arm, within pairs of geographical clusters. (2) Among the 83 non-faith-based SBAE schools, 50 are assigned to host promotional videos, and 33 are not. (3) Among the 85 SBAE schools with timely farm establishment by August 2021, 44 are assigned to host a farmer field day (FFD). Solid lines indicate random assignment; dashed lines indicate non-random splits by faith-based status and by the timing of farm establishment. Shaded boxes are the final treatment cells. Faith-based schools cluster geographically, and SBAE received more multi-school clusters than control by chance, which is why their share differs across arms; the imbalance in field-day cells across video arms reflects the lower rate of timely farm establishment in video schools (Section 3.2).

## C. The Promotional Videos

Parents in the sample live, on average, one hour's walk from the school. At endline, only 30 percent of parents in SBAE schools without parental engagement had attended a parent-teacher meeting in 2022/23, and only 44 percent had visited the school farm during the three-year trial. Focus group discussions revealed that many parents could not distinguish SBAE from typical Liberian school gardens, in which students receive no systematic agricultural training and no yield-improving technologies are used.

The promotional videos were held during the first rainy season of 2021, about six months into the program, alongside the first student follow-up survey. In the 50 video schools, one parent per sampled student was invited to a screening hosted by enumerators outside the school. Parents watched the video in groups of four to five and answered incentivized belief questions before and after viewing; screenings lasted 20 to 30 minutes.

Which video a parent watched was randomized at the individual level. The *basic video* describes SBAE as an education model that integrates inquiry-based science instruction, extracurricular activities on school farms, and student home projects to advance technology diffusion, educational outcomes, and youth empowerment. The *persuasive video* contains all of this content and adds testimonials from past participants and locally relevant stakeholders (town chiefs, extension officers, teachers, students, and parents) on how the program empowers students to manage farms, grow more food, and use the proceeds productively ("I paid my own school fees"; "the cassava I got was big, big"). Neither video names a specific promoted technique.

Both videos have immediate effects on parents' beliefs about students' farm management abilities, the key determinant of their openness to delegating farms to students. After viewing, 97 percent of parents predict improvement on at least one of seven belief measures and 89 percent expect higher cassava yields from students; the share expecting students to surpass typical adults in the community rises from 31 to 70 percent. The persuasive version produces significantly stronger anticipated harvest gains. Two of the comparisons reported here are randomized: the contrast between the basic and persuasive versions, which shows that video content affects measured beliefs, and the contrast between video and no video, which shows that assignment affects later beliefs and behavior. The remaining results are associations within the set of parents who watched a video. Conditional on the version viewed, beliefs elicited immediately after viewing predict parents' responses to SBAE one year later. A one standard-deviation increase in parents' beliefs about the difference between students' cassava yields and those of typical adult farmers is associated with a 14 percent increase in visits to school farms, a 22 percent increase in the likelihood of observing school farm harvests, a 31 percent increase in the likelihood of working on school farms, and a 12 percent increase in the likelihood of meeting the responsible teacher at midline. These associations do not merely reflect social desirability bias: the same increase is associated with a 2.7 percentage point increase in parents correctly naming field officers (from a base of 11 percent) and 9 percent higher attendance at parent-teacher meetings. The belief measures remind respondents of their stated expectations (including the comparison of students' and typical adults' harvests) and allow revisions. The companion paper (Lee, 2026a) analyzes the two versions separately and provides a model linking these beliefs to intra-household production decisions.

## D. Variable Definitions

**Primary outcomes.** *Technology adoption:* whether bed preparation is used for root crops or vegetables, and the number of the four promoted soil management techniques in use, on the student parcel (midline, endline) and the parent parcel (endline). *School attendance:* dropout by the time of the survey, from school records and household tracking; days absent in the last five school days; and imputed total attendance days over 2021/22 and 2022/23, based on enrollment status, the absence rate, and 200 school days per year, with dropouts assigned zero days and school switchers the control-school mean. *Studying effort:* hours studying in the

preceding week; hours farming (inside and outside school) and doing chores are supplementary. *Livelihoods:* annual farm and non-farm income and annual savings, reported retrospectively at endline, log-transformed and winsorized at 2.5 percent in each tail; meals missed in the preceding week; and spending in the past six months on agricultural inputs, school fees and supplies, and consumption goods. *Aspirations:* an agricultural career (farmer, agronomist, extension officer) among the top three unprompted job choices (midline); saving for university (endline).

**Secondary outcomes.** *Beliefs and experiences about attainable yields:* the number of cassava tubers per plant the respondent believes attainable, and whether the respondent experienced improved yields or produce quality in the past two years (endline). *Knowledge of promoted techniques:* score on a curriculum-based test of how, when, and why to use the techniques (each round). *Teachers' pedagogy* (student reports unless noted): use of agricultural projects or field visits for instruction in the last five school days; the number of six science concepts ever illustrated with farm work; home visits in the last month and farm visits in the last rainy season; and, as checks on crowding out, use of non-agricultural student-centered instruction and after-school classes. *Parents' visits to school farms* (endline): ever visited; visits in the preceding rainy season; ever worked on or observed a harvest at the school farm. *Students' management of farms:* whether the student alone chooses crops and planting methods on the student parcel (versus choosing with or for parents, or parents or others choosing); whether the student has ever looked after a farm without an older person's guidance; whether the student looks after a farm this season; and the numbers of parcels looked after and assisted on. *Within-household diffusion* (midline): whether the student has demonstrated bed preparation to parents, and the number of promoted techniques demonstrated, in any of four specified ways. *Parents' support for education* (endline): parent-teacher meetings attended; whether the student was ever absent for household work; timely payment of school fees; and spending on the student's inputs, schooling, and non-food consumption. *Joint adoption:* bed preparation combined with at least one other promoted technique, and bed preparation combined with at least one departure from traditional practice (fallowing in the previous rainy season, cultivating on rice fields, intercropping with rice).