ONLINE APPENDIX TO:

The Long-Term Impacts of Low-Achieving Childhood Peers: Evidence from Project STAR

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A. Data appendix

The Tennessee State Department of Education entrusted a consortium of researchers from four Tennessee universities and various state institutions with the planning and implementation of Project STAR. After the experiment ended, some researchers continued to collect data on outcomes of participating students. Finn et al. (2007) provide a detailed account of these data collection efforts. The Project STAR public use file, on which the empirical analysis in this paper is based, combines these data such that students can be followed throughout their scholastic careers until the end of high school. Additional data on test scores in grades 5-8 were generously provided to me by Diane Schanzenbach. In what follows, I discuss in detail how I constructed the outcome variables used in the empirical analysis.

Test scores. At the end of each school year from kindergarten through third grade, students in Project STAR were administered the grade-specific version of the Stanford Achievement Test. From fifth grade through eighth grade, students who were still residing in Tennessee took the Comprehensive Test of Basic Skills (CTBS) as part of a statewide testing program.[1] Both tests are standardized multiple-choice assessments with components in mathematics and reading and are graded centrally.

The public use file contains Stanford Achievement Test scores for all students who took these tests. However, it contains CTBS scores only for students who were on grade level, i.e. students who attended grade 5/6/7/8 in 1991/1992/1993/1994, respectively. This implies that test scores are not observed for a number of students who had been retained in grade by those years.[2] In contrast, the data supplied by Diane Schanzenbach contain CTBS scores for students who attended grades 5-8 in Tennessee in any year between 1990 and 1997. Test scores are provided as scale scores, which are comparable across grade levels (Finn et al., 2007). In order to increase sample size, I define test scores for a given grade level as scores obtained in the school year in which participating students were supposed to be in that grade (e.g., eighth-grade scores are defined as scores

[1] An unrepresentative subsample of students took the CTBS also in fourth grade, see Finn et al. (2007). Due to the selective nature of this subsample, I chose not to use fourth-grade test scores in the empirical analysis.

[2] Note that students who were retained in grade at any point between kindergarten and third grade dropped out of the STAR cohort and therefore did not write the subsequent Stanford Achievement Tests. However, these students did write the CTBS in later grades as long as they stayed in Tennessee.

obtained in 1994, even though some students were attending seventh grade in that year). Results are however robust to using only the test scores available in the public use file. I standardize all test scores to have mean 0 and standard deviation 1 across non-repeating kindergarten students in the estimation sample.

Non-cognitive skills. I obtain fourth-grade non-cognitive skill measures from a questionnaire administered to teachers of a random sample of participating students in November 1989. The questionnaire asked teachers to rate how often each student had engaged in 31 different behaviors over the last two to three months. Ratings were recorded on a scale from 1 ("never") to 5 ("always"), and ratings of 28 of these behaviors were consolidated into four indices. The effort index includes items such as whether a student is persistent when confronted with difficult problems, whether she completes her homework, and whether she gets discouraged easily when encountering an obstacle in schoolwork. The initiative index is based on such items as whether a student participates actively in classroom discussions, whether she does more than just the assigned work, and whether she often asks questions. The value index measures how much a student appreciates the school learning environment. Finally, the discipline index captures such characteristics as whether a student often acts restless, whether she needs reprimanding, and whether she interferes with peers' work.[3]

During the 1993-94 school year, eighth-grade math and English teachers of a different random subset of participants were asked about student behaviors on a similar though shorter questionnaire. Thirteen of these behaviors were again consolidated into four indices measuring each student's effort, initiative, value, and discipline. I first average these indices across math and English for each student, and then normalize each of the eight fourth- and eighth-grade indices by subtracting its mean and dividing by its standard deviation (computed across non-repeating students in the estimation sample). Finally, I construct the summary index of non-cognitive skills by averaging the available normalized indices for each student and normalizing the resulting composite.

High school grade point average and graduation. Most students in Project STAR graduated from high school in 1998, and transcripts were gathered from selected high schools in 1999 and 2000. High schools were chosen for data collection

[3]Note that what the paper refers to as the "discipline index" is the inverse of the "index of non-participatory behavior" in the original data. See Finn et al. (2007) for a complete listing of the behaviors included in each of the indices.

based on the likelihood that STAR participants would attend them given the locations of students' last known middle schools. Course grades from transcripts were transferred to a scale from 0-100 if necessary, and separate GPAs for math, science, and foreign languages were computed and are available in the data. The empirical analysis in this paper uses overall GPA, defined as the average of the these three subject-specific GPAs, as an outcome variable.

Information on high school graduation was also derived from transcripts and cross-checked with data from the Tennessee State Department of Education in ambiguous cases. Nevertheless, graduation status could not be determined with certainty for all students. In these cases, which comprise 7% of the non-repeating students in the estimation sample, the data collectors made a best guess whether a student "probably graduated" or "probably dropped out" based on the available course grades, information on attendance, and additional information from the Tennessee State Department of Education. The variable used in the empirical analysis codes 2,378 students who graduated, 98 students who probably graduated, and 82 students who received a General Educational Development certificate as graduates, and 296 students who dropped out and 101 students who probably dropped out as dropouts.

College-test taking and summary index of long-term educational attainment. ACT/SAT test taking was recorded by Krueger and Whitmore (2001), who matched all students in STAR to the administrative records of the two companies responsible for these tests in 1998. The outcome variable used in the empirical analysis is an indicator that takes value 1 if a student took either of these college entrance exams in 1998 and 0 otherwise. The summary index of long-term educational attainment combines information on high school GPA and graduation and college-test taking by first standardizing each of these variables to have mean 0 and standard deviation 1 across non-repeating students in the estimation sample. The average of these standardized variables is then normalized by subtracting its mean and dividing by its standard deviation.

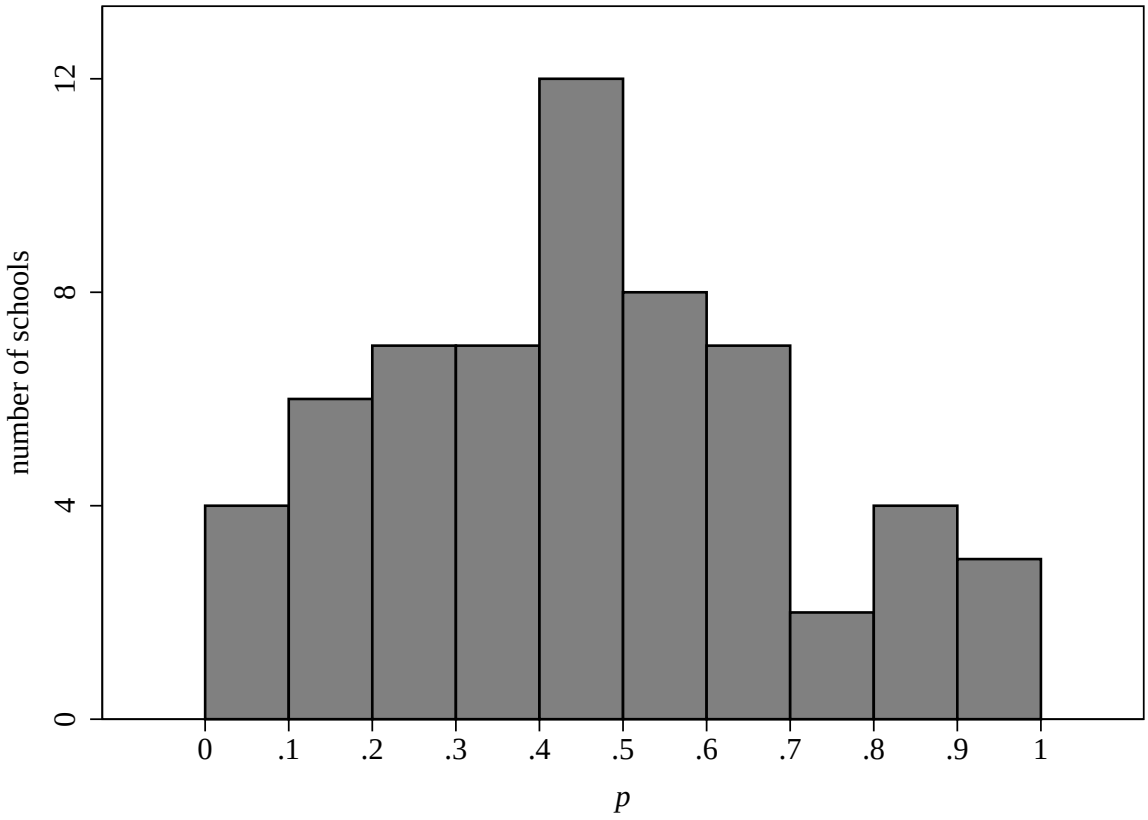
References

Finn, J.D., J. Boyd-Zaharias, R.M. Fish, and S.B. Gerber. 2007. "Project STAR and Beyond: Database User's Guide." Report, HEROS Incorporated.

Krueger, A.B., and D.M. Whitmore. 2001. "The Effect of Attending a Small Class in the Early Grades on College-Test Taking and Middle School Test Results: Evidence from Project STAR." *The Economic Journal* 111:1–28.

B. Figures and Tables

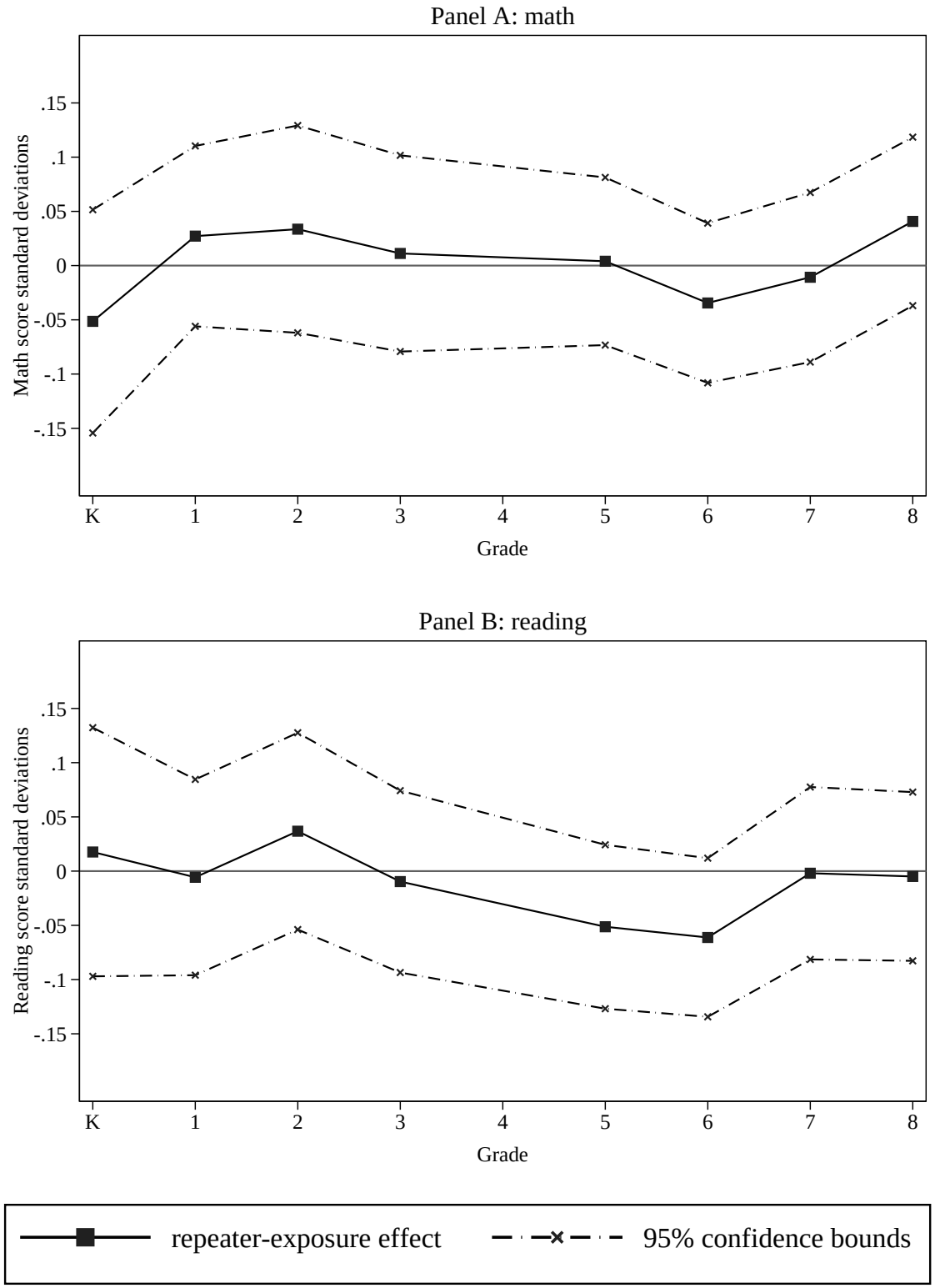
Online Appendix Figure B.1
Distribution of p-values from F-tests for joint significance of class dummies in school-by-school regressions of repeater status



Notes: This figure is based on 60 school-by-school regressions of repeater status on kindergarten class dummies (19 schools without repeaters are ignored compared to the main estimation sample). After each regression, an F-test for joint significance of the class dummies was conducted. The figure shows a histogram of the p-values from these 60 tests. The mean p-value is 0.46.

Online Appendix Figure B.2

Test score impacts for the subsample of students observed with non-cognitive skills



Notes: This figure replicates Figure 3 from the main text for the subsample of students observed with non-cognitive skills in fourth grade, eighth grade, or both of these grades (N=2,589 non-repeating students). For further details, see the notes to that Figure.

Online Appendix Table B.1
Results for school stayers

	Kindergarten math score (1)	8th-grade math score (2)	Non-cog. index (3)	Long-term index (4)
Repeater exposure	–0.101**	0.080**	0.155***	0.098**
	(0.051)	(0.039)	(0.044)	(0.043)
Observations	2,625	2,350	2,076	2,776

Notes: The table reports estimates from regressions for a sample of students who stayed in the same school for the entire duration of Project STAR (i.e. from kindergarten through third grade; N=2,776 non-repeating students). Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. See text for a description of the outcome variables. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.2
Repeater exposure and classroom composition in later grades

	Peer characteristics					Teacher characteristics		
	% male	% black	% free lunch	Average age	% old for grade	Black	Experience	Master's degree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: first grade							
Repeater exposure	–0.001	0.002	–0.001	0.001	0.000	0.012	0.473	0.040
	(0.008)	(0.004)	(0.008)	(0.008)	(0.007)	(0.019)	(0.648)	(0.034)
Observations	4,313	4,313	4,279	4,313	4,313	4,301	4,301	4,301
	Panel B: second grade							
Repeater exposure	0.008	0.002	0.012	0.019*	0.011	–0.083***	–0.212	0.016
	(0.006)	(0.004)	(0.008)	(0.010)	(0.008)	(0.019)	(0.611)	(0.033)
Observations	3,508	3,508	3,382	3,508	3,508	3,479	3,468	3,479
	Panel C: third grade							
Repeater exposure	0.008	–0.001	0.002	0.016	0.008	0.009	–1.029**	0.000
	(0.007)	(0.003)	(0.009)	(0.012)	(0.010)	(0.017)	(0.475)	(0.032)
Observations	3,103	3,103	3,019	3,103	3,103	3,086	3,086	3,074

Notes: The table shows estimates from regressions that relate characteristics of class peers and teachers in grades 1 (panel A), 2 (panel B), and 3 (panel C) to repeater exposure in kindergarten. The number of non-repeating students who participated in the experiment in both kindergarten and in grade 1/2/3 is 4,313/3,508/3,103. The sample size is lower than this figure in some specifications due to missing information on classmates' or teachers' characteristics. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.3

Effect on kindergarten math scores for the different subsamples of students observed with later test scores

	Subsample of students observed with test scores in...						
	grade 1	grade 2	grade 3	grade 5	grade 6	grade 7	grade 8
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Repeater exposure	–0.105**	–0.075	–0.066	–0.097**	–0.096**	–0.088**	–0.088**
	(0.044)	(0.048)	(0.050)	(0.043)	(0.044)	(0.045)	(0.044)
Observations	3,987	3,143	2,801	4,216	4,150	3,990	4,105

Notes: The table shows estimates from regressions of the end-of-kindergarten math score on repeater exposure in kindergarten. In each column, the sample is restricted to students observed with test scores in the grade indicated in the column head. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.4

Effects on special education/instruction status

	Kindergarten		First grade	
	Special education (1)	Special instruction (2)	Special education (3)	Special instruction (4)
Repeater exposure	–0.002	–0.003	–0.002	–0.020
	(0.005)	(0.007)	(0.003)	(0.014)
Observations	6,038	6,038	4,311	4,311

Notes: The table reports estimates of the effect of exposure to repeaters in kindergarten on indicators for being classified as a special education or special instruction student in kindergarten and first grade. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.5

Results for a sample excluding special education/instruction repeaters

	Kindergarten math score (1)	8th-grade math score (2)	Non-cog. index (3)	Long-term index (4)
Repeater exposure	–0.109**	0.065*	0.121**	0.064**
	(0.048)	(0.038)	(0.048)	(0.032)
Observations	5,012	3,871	2,266	5,402

Notes: The table reports estimates from regressions for a sample that excludes classes with repeaters classified as special education students or pulled out for special instruction. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. See text for a description of the outcome variables. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.6

Controlling for average demographic characteristics of classmates

	Kindergarten math score (1)	8th-grade math score (2)	Non-cog. index (3)	Long-term index (4)
	Panel A: controlling for the share of male classmates			
Repeater exposure	–0.092**	0.061*	0.116***	0.073**
	(0.042)	(0.034)	(0.041)	(0.028)
	Panel B: controlling for the share of black classmates			
Repeater exposure	–0.090**	0.061*	0.117***	0.074***
	(0.041)	(0.033)	(0.041)	(0.028)
	Panel C: controlling for the share of classmates on free lunch			
Repeater exposure	–0.090**	0.060*	0.118***	0.074***
	(0.041)	(0.033)	(0.041)	(0.028)
	Panel D: controlling for the average age of classmates			
Repeater exposure	–0.092**	0.059*	0.117***	0.073**
	(0.041)	(0.033)	(0.041)	(0.028)
	Panel E: controlling for the share of old-for-grade classmates			
Repeater exposure	–0.090**	0.060*	0.115***	0.073***
	(0.041)	(0.033)	(0.041)	(0.028)
	Panel F: controlling for all the above characteristics jointly			
Repeater exposure	–0.095**	0.060*	0.113***	0.072**
	(0.041)	(0.033)	(0.041)	(0.028)
Obs. (all panels)	5,614	4,353	2,589	6,039

Notes: The table reports estimates from regressions that probe the robustness of results to controlling for average demographic characteristics (indicated in the heading of each panel) of students' kindergarten classmates. Average demographic characteristics are computed as leave-me-out means for each student, i.e. as the average across all of her kindergarten classmates (including repeaters) but excluding herself. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. See text for details on the construction of the outcome variables. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.7

Robustness to relative measurement of non-cognitive skills

	Effort (1)	Initiative (2)	Value (3)	Discipline (4)
	Panel A: 4th grade, no repeaters in class			
Repeater exposure	0.072	–0.006	0.031	0.081
	(0.070)	(0.074)	(0.071)	(0.068)
Observations	1,037	1,037	1,037	1,037
	Panel B: 8th grade, no repeaters in school			
Repeater exposure	0.161*	0.074	0.170**	0.227***
	(0.082)	(0.086)	(0.071)	(0.084)
Observations	866	866	866	866

Notes: The table reports estimates from regressions that probe for measurement of non-cognitive skills relative to repeaters. In panel A (panel B), the sample is restricted to students whose fourth-grade class (eighth-grade school) did not contain any of the 193 original kindergarten repeaters. Repeater exposure is measured as an indicator taking value 1 if the student's kindergarten class contains at least one repeater and 0 otherwise. See the notes to Table 3 for descriptions of the outcome variables. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Online Appendix Table B.8
Results for individual items of non-cognitive skill indices

	coefficient	std. error
4th-grade effort index		
(+) pays attention in class	0.087	(0.058)
(+) completes homework	0.096*	(0.057)
(+) works well with other children	0.150***	(0.055)
(+) completes assigned seatwork	0.126**	(0.055)
(+) is persistent when facing difficult problems	0.067	(0.058)
(+) makes sincere effort	0.065	(0.053)
(+) tries to finish even difficult assignments	0.050	(0.049)
(–) loses or misplaces materials	–0.071	(0.059)
(–) comes late to class	–0.093**	(0.046)
(–) doesn't seem to know what's going on in class	–0.086	(0.056)
(–) no independent initiative, needs constant help	–0.107**	(0.053)
(–) prefers easy problems	–0.002	(0.052)
(–) is easily discouraged, gives up easily	–0.072	(0.052)
4th-grade initiative index		
(+) tries to do work thoroughly and well	0.114*	(0.061)
(+) participates actively in discussions	–0.011	(0.057)
(+) does more than just the assigned work	0.057	(0.056)
(+) asks questions	–0.004	(0.058)
(+) raises hand to answer a question	0.011	(0.054)
(+) seeks reference material on her/his own	0.043	(0.051)
(+) discusses subject with teacher outside of class	–0.020	(0.057)
(–) is withdrawn	0.028	(0.060)
4th-grade value index		
(+) thinks school is important	0.144**	(0.058)
(–) is critical of peers who do well in school	–0.061	(0.053)
(–) criticizes the subject matter	–0.082	(0.055)
4th-grade discipline index		
(–) acts restless, unable to sit still	–0.145***	(0.049)
(–) needs reprimanding	–0.097*	(0.056)
(–) annoys or interferes with peers' work	–0.139***	(0.053)
(–) talks with classmates too much	–0.131**	(0.057)
8th-grade effort index		
(+) pays attention in class	0.133**	(0.055)
(+) completes assigned seatwork	0.103*	(0.054)
(+) is persistent when facing difficult problems	0.117**	(0.048)
(–) loses or misplaces materials	–0.219***	(0.057)
(–) comes late to class	–0.110**	(0.055)

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	coefficient	std. error
8th-grade initiative index		
(+) participates actively in discussions	0.064	(0.054)
(+) does more than just the assigned work	0.122**	(0.057)
(+) discusses subject with teacher outside of class	0.075	(0.054)
8th-grade value index		
(–) is critical of peers who do well in school	–0.103*	(0.053)
(–) criticizes the subject matter	–0.180***	(0.050)
8th-grade discipline index		
(–) needs reprimanding	–0.184***	(0.053)
(–) annoys or interferes with peers' work	–0.187***	(0.052)
(–) is verbally or physically abusive to teacher	–0.116**	(0.053)

Notes: The table reports estimates of the effects of exposure to repeaters in kindergarten on the individual items which make up the non-cognitive skill indices that are used as outcomes in Table 3. Items in the left column that are marked (+) enter the respective index positively, while items marked (–) enter it negatively. All items are standardized to have mean 0 and standard deviation 1 across non-repeating students in the estimation sample. The middle and rightmost columns report the coefficient estimates and standard errors for the repeater-exposure dummy, respectively. Regressions include the 1,628 (1,731) students observed with non-cognitive skills in 4th (8th) grade. All regressions control for students' demographic background, an indicator for small class in kindergarten, and kindergarten school fixed effects. Standard errors in parentheses allow for clustering at the kindergarten class level. * p<0.10, ** p<0.05, *** p<0.01.

Online Appendix Table B.9
Results for disaggregated non-cognitive skills and long-term educational outcomes

	4th-grade non-cognitive skills				8th-grade non-cognitive skills				Long-term educational attainment		
	Effort	Initiative	Value	Discipline	Effort	Initiative	Value	Discipline	HS GPA	HS graduation	Took ACT/SAT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: main effects (for comparison, from Tables 3 and 4)											
Repeater exposure	0.104*	0.025	0.124**	0.142***	0.169***	0.105*	0.160***	0.194***	0.552*	0.021*	0.033**
	(0.054)	(0.056)	(0.053)	(0.054)	(0.054)	(0.056)	(0.051)	(0.052)	(0.308)	(0.013)	(0.015)
Observations	1,628	1,628	1,628	1,628	1,731	1,731	1,731	1,731	2,438	2,955	6,039
Panel B: heterogeneity by predicted academic ability (like Table 5, panel B)											
Repeater exposure	0.139**	0.041	0.149**	0.165***	0.158**	0.122*	0.126**	0.168**	0.562	0.024	0.027*
	(0.058)	(0.061)	(0.060)	(0.060)	(0.064)	(0.064)	(0.059)	(0.065)	(0.351)	(0.015)	(0.015)
× predicted ability	–0.075	–0.036	–0.046	–0.048	0.011	–0.044	0.058	0.037	0.117	–0.007	0.035***
	(0.055)	(0.060)	(0.054)	(0.057)	(0.055)	(0.054)	(0.052)	(0.059)	(0.365)	(0.017)	(0.014)
Observations	1,628	1,628	1,628	1,628	1,731	1,731	1,731	1,731	2,438	2,955	6,039
Panel C: heterogeneity by class size in kindergarten (like Table 5, panel C)											
Repeater exposure	0.097	0.014	0.098	0.147**	0.162***	0.153**	0.156***	0.189***	0.691**	0.006	0.031*
	(0.064)	(0.068)	(0.061)	(0.065)	(0.060)	(0.061)	(0.060)	(0.062)	(0.347)	(0.014)	(0.016)
× small class	0.021	0.032	0.077	–0.015	0.023	–0.163	0.014	0.016	–0.458	0.054**	0.005
	(0.104)	(0.110)	(0.097)	(0.112)	(0.104)	(0.115)	(0.092)	(0.097)	(0.615)	(0.025)	(0.028)
Observations	1,628	1,628	1,628	1,628	1,731	1,731	1,731	1,731	2,438	2,955	6,039
Panel D: controlling for the non-cognitive skills index (like Table 6)											
Repeater exposure									–0.651*	0.005	0.011
									(0.338)	(0.014)	(0.019)
Observations									1,581	1,821	2,589
Panel E: sample restricted to school stayers (like Online Appendix Table B.1)											
Repeater exposure	0.125**	0.022	0.131**	0.165***	0.221***	0.175***	0.234***	0.231***	0.153	0.031**	0.042*
	(0.053)	(0.057)	(0.055)	(0.056)	(0.063)	(0.058)	(0.058)	(0.054)	(0.374)	(0.014)	(0.023)
Observations	1,557	1,557	1,557	1,557	1,248	1,248	1,248	1,248	1,573	1,808	2,776
Panel F: sample restricted to classes without special education and special instruction repeaters (like Online Appendix Table B.4)											
Repeater exposure	0.111*	0.029	0.128**	0.151***	0.150**	0.064	0.165***	0.202***	0.549	0.018	0.028*
	(0.059)	(0.062)	(0.056)	(0.058)	(0.062)	(0.063)	(0.059)	(0.060)	(0.362)	(0.014)	(0.016)
Observations	1,491	1,491	1,491	1,491	1,580	1,580	1,580	1,580	2,114	2,606	5,403

Online Appendix Table B.9
(continued)

	4th-grade non-cognitive skills				8th-grade non-cognitive skills				Long-term educational attainment		
	Effort	Initiative	Value	Discipline	Effort	Initiative	Value	Discipline	HS GPA	HS graduation	Took ACT/SAT
	Panel G: heterogeneity by the number of repeaters in class (like Appendix Table 2)										
1 repeater in class	0.100	0.021	0.144**	0.167***	0.179***	0.111*	0.175***	0.211***	0.472	0.019	0.032**
	(0.061)	(0.064)	(0.065)	(0.063)	(0.058)	(0.062)	(0.054)	(0.056)	(0.336)	(0.014)	(0.016)
2 repeaters in class	0.135*	0.036	0.095	0.094	0.190**	0.114	0.148*	0.189**	0.682	0.036*	0.033
	(0.077)	(0.087)	(0.064)	(0.079)	(0.080)	(0.079)	(0.078)	(0.075)	(0.448)	(0.019)	(0.020)
3-5 repeaters in class	0.037	0.032	0.034	0.067	–0.073	–0.013	0.018	–0.011	1.093**	0.006	0.042
	(0.130)	(0.155)	(0.137)	(0.123)	(0.102)	(0.098)	(0.099)	(0.077)	(0.504)	(0.024)	(0.035)
Observations	1,628	1,628	1,628	1,628	1,731	1,731	1,731	1,731	2,438	2,955	6,039
	Panel H: controlling for classmates' demographic characteristics (like Online Appendix Table B.5, panel F)										
Repeater exposure	0.100*	0.028	0.126**	0.148***	0.162***	0.096*	0.155***	0.188***	0.526*	0.021*	0.032**
	(0.053)	(0.057)	(0.055)	(0.054)	(0.053)	(0.056)	(0.050)	(0.051)	(0.297)	(0.012)	(0.014)
Observations	1,628	1,628	1,628	1,628	1,731	1,731	1,731	1,731	2,438	2,955	6,039

Notes: The table reports results from regressions which replicate some of the analyses for non-cognitive skills and long-term educational outcomes from previous tables, with the difference that these are measured using disaggregated outcomes rather than the respective summary indices. The exact specification which is replicated is stated in parentheses in each panel heading. See the notes to the tables presenting the respective main results for further details about controls and definitions of variables. * p<0.10, ** p<0.05, *** p<0.01.