Supplemental Online Appendix
Variation in the Relationship between School Spending and Achievement: Progressive Spending Is Efficient
Rauscher and Shen

Table S1: Coefficients Predicting Achievement by Previous Investment: Limited to Counties in Top Achievement Tercile

Panel A: Fixed Effects Models

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	-0.01	-0.05	-0.02	0.12*	0.08*	-0.03
	(0.02)	(0.04)	(0.02)	(0.05)	(0.03)	(0.03)
Difference in Coeffs: |*z*-score|	0.70		2.36*		2.50*	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	0.02	0.10**	0.02	-0.18	0.06*	-0.00
	(0.02)	(0.03)	(0.01)	(0.16)	(0.03)	(0.02)
Difference in Coeffs: |*z*-score|	2.54*		1.21		2.12*	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-grade-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Sample is further limited to counties in the top tercile of achievement across all grades and years. Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county and year fixed effects, and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S2: Coefficients Predicting Property Values by Previous Investment

Panel A: Fixed Effects Models

	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
	Property Values (log)					
Spending/Pupil 2018$ (log)	0.07**	0.02	0.05**	0.06**	0.05**	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Difference in Coeffs: |*z*-score|	2.66**		0.41		2.03*	

Panel B: Difference-in-Differences Models

	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
	Property Values (log) year *t*+1					
Post*Treat	-0.00	-0.04**	-0.04**	-0.01	-0.03**	-0.03**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Difference in Coeffs: |*z*-score|	3.25**		2.59**		0.18	

Source: 2009-2018 Zillow; NCES; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on enrollment by grade, property values, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Examining results for an outcome with no ceiling (e.g., property values) provides further evidence of whether variation when predicting achievement is due to ceiling effects. If ceiling effects explain the variation when predicting achievement, we expect to find no variation when predicting an outcome with no ceiling. We examine whether benefits of spending vary when predicting county property values, measured using the Zillow Home Value Index (smoothed, seasonally adjusted typical value for homes in the 35th to 65th percentile range; Zillow 2020). We find that spending coefficients vary by previous investments when predicting property values. Results are not consistent with a ceiling effects explanation for variation in achievement.

Table S3: Coefficients Predicting Achievement by Previous Investment: Controlling for Previous-Year Spending Per Pupil

Panel A: Fixed Effects Models

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	0.00	0.06**	-0.01	0.05**	0.05**	0.01
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	2.41*		2.78**		1.72+	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.01	0.06**	0.01	0.00	0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Difference in Coeffs: |*z*-score|	3.26**		0.48		0.78	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county and year fixed effects, all time-varying controls included in Tables 1 & 2, and log pupil spending in year prior to outcome (year *t*-1 in Panel A; year *t* in Panel B).

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S4: Coefficients Predicting Achievement by Previous Investment: Including County-Cohort Rather than County Fixed Effects

Panel A: Fixed Effects Models

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	0.01	0.06**	0.03*	0.06**	0.06**	0.03*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Difference in Coeffs: |*z*-score|	2.29*		1.78+		1.72+	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.03	0.05**	-0.00	0.00	-0.01	-0.01
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
Difference in Coeffs: |*z*-score|	3.03**		0.26		0.27	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-cohort-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county-cohort, grade, and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S5: Coefficients Predicting Achievement by Previous Investment: Including County-Grade Rather than County Fixed Effects

Panel A: Fixed Effects Models

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	0.00	0.07**	-0.02	0.05**	0.05**	-0.01
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	3.08**		2.90**		2.69**	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.03	0.04**	0.01	0.01	0.01	-0.01
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Difference in Coeffs: |*z*-score|	3.41**		0.04		1.30	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-grade-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county-grade, cohort, and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S6: Coefficients Predicting Achievement by Previous Investment: Excluding Outlying Values of Spending/Pupil

Panel A: Fixed Effects Models

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	-0.00	0.07**	-0.02	0.05**	0.06**	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	2.93**		2.75**		2.27*	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.01	0.06**	0.01	0.00	0.01	0.00
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Difference in Coeffs: |*z*-score|	3.05**		0.73		0.56	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Sample further excludes observations with outlying of spending per pupil – more than 3 times the interquartile range above the 75th percentile. Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S7: Coefficients Predicting Achievement by Previous Investment: Alternative Specifications of Birth Weight Tercile and Cohort

Panel A: Fixed Effects Models

	Achievement (std dev units)					
Cohort Specification	A. Birth Year Cohort		B. Academic Year Cohort		C. State-Specific Academic Year Cohort	
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Birth Weight		By Birth Weight	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	-0.02	0.06**	-0.01	0.07**	-0.01	0.07**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |z-score|	3.39**		3.28**		3.25**	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)					
	A. Birth Year Cohort		B. Academic Year Cohort		C. State-Specific Academic Year Cohort	
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Birth Weight		By Birth Weight	
Variables	High	Low	Low	High	Low	High
Post*Treat	0.00	0.06**	0.01	0.06**	0.01	0.06**
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Difference in Coeffs: |z-score|	2.39*		2.07*		2.12*	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. County tercile assignment is not constant across time. County infant health data is linked to SEDA data using 3 specifications of birth cohort: **A)** birth year cohort is calculated based on grade and year ($cohort_{jt} = Year_t - (grade_j + 5) - 1$); **B)** academic year cohort is modified to account for the age cutoff required to start kindergarten in most states. Birth quarters 1-3 are assigned Cohort A. Those born in quarter 4 begin school earlier in most states and are therefore assigned to one cohort higher than in Cohort A; **C)** state-specific academic year cohort is assigned based on state age cutoff required to start kindergarten (Education Commission of the States 2011). Cohort B is assigned in most states (with age 5 cutoff dates August 15-November 31 or determined by district). Cohort A is assigned in states with cutoff dates December 1-January 1 (CA, CT, DC, MI, VT). In states with cutoff dates July 1-August 14 (AK, IN, MO), cohort B is assigned but birth quarter 3 is assigned one cohort higher because they start school earlier.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S8: Coefficients Predicting Achievement by Previous Investment: Using Alternative Measures of Infant Health

Panel A: Fixed Effects Models

	Achievement year (std dev units)			
	(1)	(2)	(3)	(4)
	By Preterm Birth Rate		By Rate of Preterm and Low Birth Weight	
Variables	Low	High	Low	High
Spending/Pupil 2018$ (log)	0.03+	0.06**	0.02	0.06**
	(0.02)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	1.24		1.29	

Panel B: Difference-in-Differences Models

	Achievement year *t*+1 (std dev units)			
	(1)	(2)	(3)	(4)
	By Preterm Birth Rate		By Rate of Preterm and Low Birth Weight	
Variables	Low	High	Low	High
Post*Treat	-0.02+	0.05**	-0.00	0.07**
	(0.01)	(0.02)	(0.01)	(0.02)
Difference in Coeffs: |*z*-score|	3.63**		3.32**	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A) or in states with a school finance court case decision since 2009 (Panel B). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding. Low-income students are defined by the state as economically disadvantaged. High-income students are not economically disadvantaged.

High preterm birth rate indicates counties in the top tercile of % preterm birth (gestational length <37 weeks). Low preterm birth rate indicates counties in the bottom tercile of % preterm birth. Low rate of preterm and low birth weight indicates counties in the bottom tercile of the sum of % preterm birth and % low birth weight. High rate of preterm and low birth weight indicates counties in the top tercile of the sum of % preterm birth and % low birth weight.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S9: Coefficients Predicting Achievement by Previous Investment: Including Enrollment Trends

Panel A: Fixed Effects Models with Enrollment Trend

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	-0.02	0.07**	-0.02	0.05**	0.06**	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	3.51**		2.86**		2.61**	

Panel B: Fixed Effects Models with County-Specific Enrollment Trends

	Achievement (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Spending/Pupil 2018$ (log)	-0.01	0.04*	-0.01	0.04*	0.04*	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Difference in Coeffs: |*z*-score|	1.87+		2.14*		2.07*	

Panel C: Difference-in-Differences Models with Enrollment Trend

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.02	0.04**	0.01	0.01	0.01	-0.01
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Difference in Coeffs: |*z*-score|	3.16**		0.66		0.62	

Panel D: Difference-in-Differences Models with County-Specific Enrollment Trends

	Achievement year *t*+1 (std dev units)					
	(1)	(2)	(3)	(4)	(5)	(6)
	By Birth Weight		By Poverty		By Spending	
Variables	High	Low	Low	High	Low	High
Post*Treat	-0.02	0.03	0.00	-0.01	-0.00	0.01
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)
Difference in Coeffs: |*z*-score|	1.29		0.32		0.40	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending (Panel A, B) or in states with a school finance court case decision since 2009 (Panel C, D). Spending in thousands per pupil is adjusted for inflation to 2018 dollars. Post indicates observations after the court decision. Treat indicates court decision favored additional education funding.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. High and low poverty indicates counties in the top and bottom terciles of 2008 % child poverty. High and low spending indicates counties in the top and bottom terciles of 2008 spending per pupil.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S10: Coefficients Predicting Achievement by Previous Investment: Fixed Effects Models with Lags and Leads

	Achievement (std dev units)		
	(1)	(2)	Difference
	By Birth Weight		in Coeffs:
Variables	High	Low	|*z*-score|
Spending/Pupil 2018$ (log) year *t*-2	-0.03	0.01	
	(0.02)	(0.02)	
Spending/Pupil 2018$ (log) year *t*-1	-0.04+	-0.00	
	(0.02)	(0.02)	
Spending/Pupil 2018$ (log) year *t*	0.02	0.04+	
	(0.02)	(0.02)	
Spending/Pupil 2018$ (log) year *t*+1	-0.02	0.02	
	(0.02)	(0.02)	
Spending/Pupil 2018$ (log) year *t*+2	-0.03+	0.03	+
	(0.02)	(0.03)	
Spending/Pupil 2018$ (log) year *t*+3	-0.01	-0.02	
	(0.02)	(0.02)	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and spending. Spending in thousands per pupil is adjusted for inflation to 2018 dollars. All lag and lead coefficients are included in the same model.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight.

All models include county and year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S11: Coefficients Predicting Achievement by Previous Investment: Difference-in-Differences Models by Year from School Finance Court Case Decision

	Achievement (std dev units)		
	(1)	(2)	Difference
	By Birth Weight		in Coeffs:
Limited to Specified Year from Case Decision	High	Low	|z-score|
Treat - Case Year *t*-2	0.06	0.15**	
	(0.04)	(0.05)	
Treat - Case Year *t*-1	0.03	0.06	
	(0.04)	(0.04)	
Treat - Case Year *t*	0.06	0.05	
	(0.05)	(0.05)	
Treat - Case Year *t*+1	-0.02	0.06	
	(0.03)	(0.04)	
Treat - Case Year *t*+2	-0.01	0.17**	**
	(0.03)	(0.06)	
Treat - Case Year *t*+3	0.07	0.22**	+
	(0.05)	(0.07)	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and in states with a school finance court case decision since 2009. Treat indicates court decision favored additional education funding. Sample is limited to observations in the year indicated relative to the school finance court case decision. Case year t-2 indicates observations 2 years before the court case decision.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight.

All models include year fixed effects and all time-varying controls included in Tables 1 & 2.

Robust standard errors adjusted for county-level clustering in parentheses, + p<0.10 * p<0.05 ** p<0.01

Table S12: Coefficients Predicting Achievement by Previous Investment: Doubly Robust Difference-in-Differences Models by Year from School Finance Court Case Decision

	Achievement (std dev units)		
	(1)	(2)	Difference
	By Birth Weight		in Coeffs:
Estimates by Specified Year from Case Decision	High	Low	|z-score|
Treat - Case Year *t*-2	-0.03	-0.02	
	(0.02)	(0.02)	
Treat - Case Year *t*-1	0.01	-0.03	
	(0.01)	(0.02)	
Treat - Case Year *t*	-0.02	0.00	
	(0.01)	(0.03)	
Treat - Case Year *t*+1	-0.08	0.12	**
	(0.01)	(0.05)	
Treat - Case Year *t*+2	-0.11	0.09	**
	(0.04)	(0.04)	
Treat - Case Year *t*+3	-0.19	0.06	**
	(0.02)	(0.03)	

Source: 2009-2018 SEDA; F-33; NVSS; SAIPE. Sample is limited to county-year observations with nonmissing data on achievement, birth weight, control variables, and in states with a school finance court case decision since 2009. Treat indicates court decision favored additional education funding. Sample is limited to observations from 3 years before to 3 years after the school finance court case decision. Case year t-2 indicates observations 2 years before the court case decision.

High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight.

All models estimated using the doubly robust difference-in-differences estimator to address heterogeneity in timing (csdid; Callaway and Sant'Anna 2020; Sant'Anna and Zhao 2020) and include county and year fixed effects and time-varying controls for enrollment and number of schools.

Doubly robust standard errors adjusted for state-level clustering in parentheses, + $p<0.10$ * $p<0.05$ ** $p<0.01$

Figures

Figure S1: Achievement by Raw Spending/Pupil and County Birth Weight Tercile: Grade 7

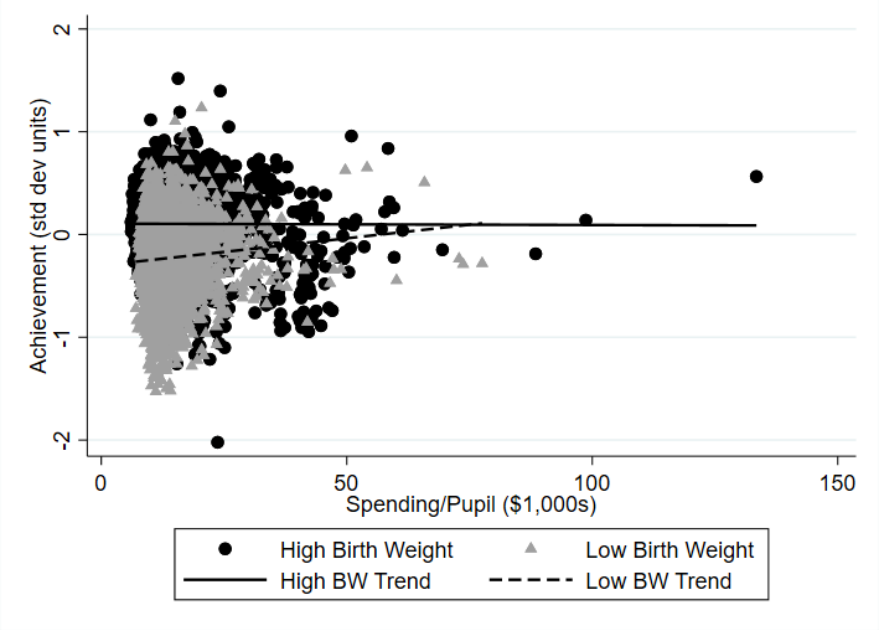
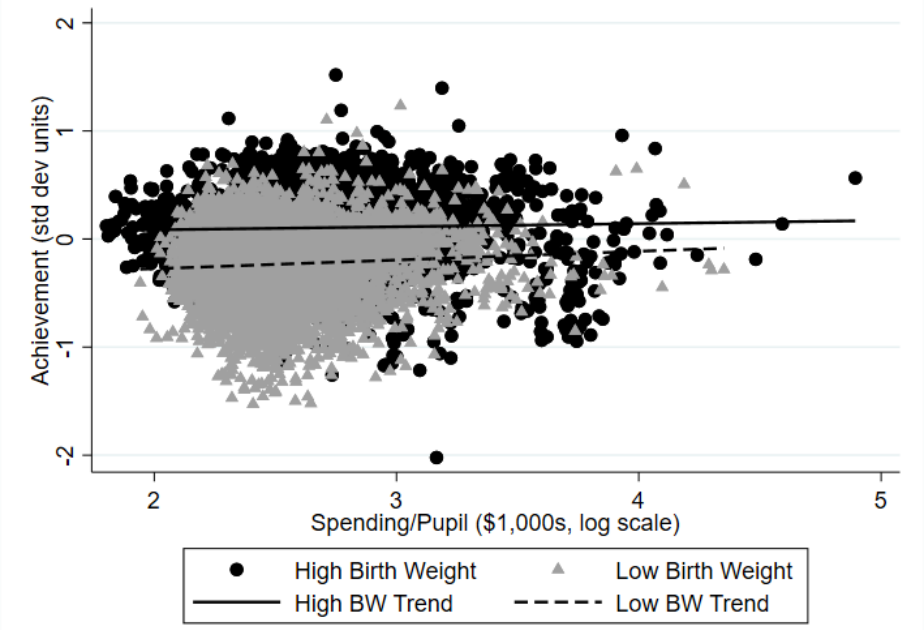


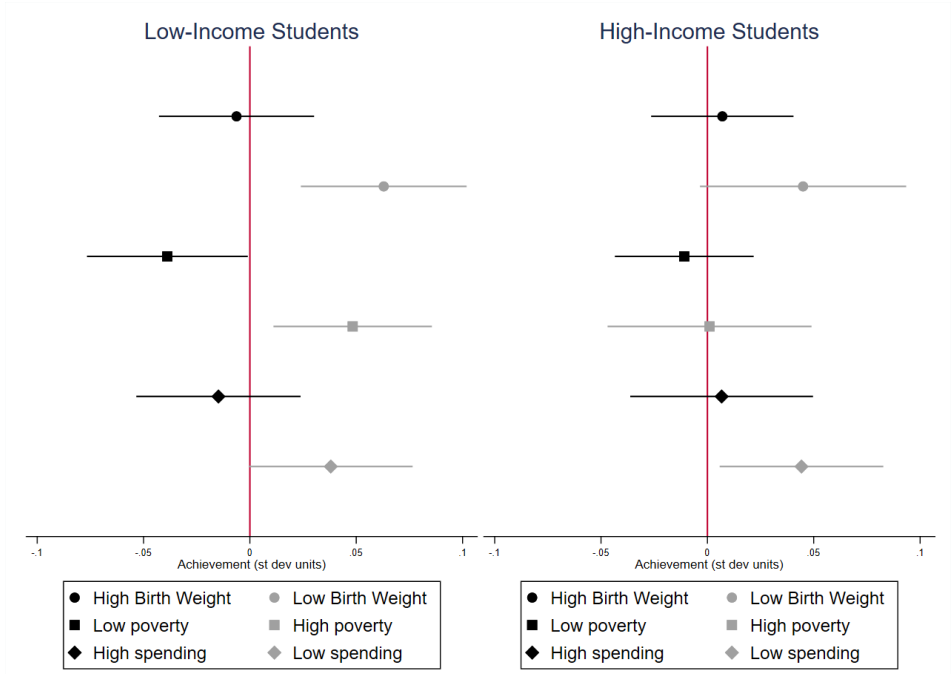
Figure S2: Achievement by Log Spending/Pupil and County Birth Weight Tercile: Grade 7



County-year observations 2009-2018 with achievement, spending, and birth weight information from SEDA, F-33, and NVSS. High birth weight indicates counties in the bottom tercile of % low birth weight. Low birth weight indicates counties in the top tercile of % low birth weight. Spending in thousands per pupil is adjusted for inflation to 2018 dollars.

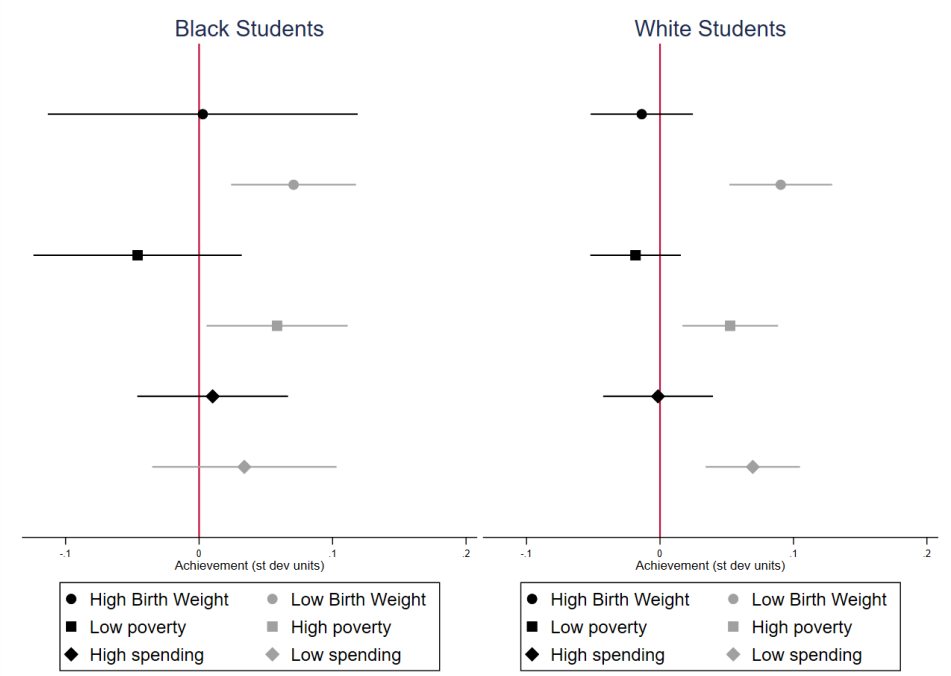
Figure S3: Fixed Effects Coefficients Predicting Achievement by Previous Investment

A: By Income



Estimates from Table 3 Panel A, with 95% confidence intervals.

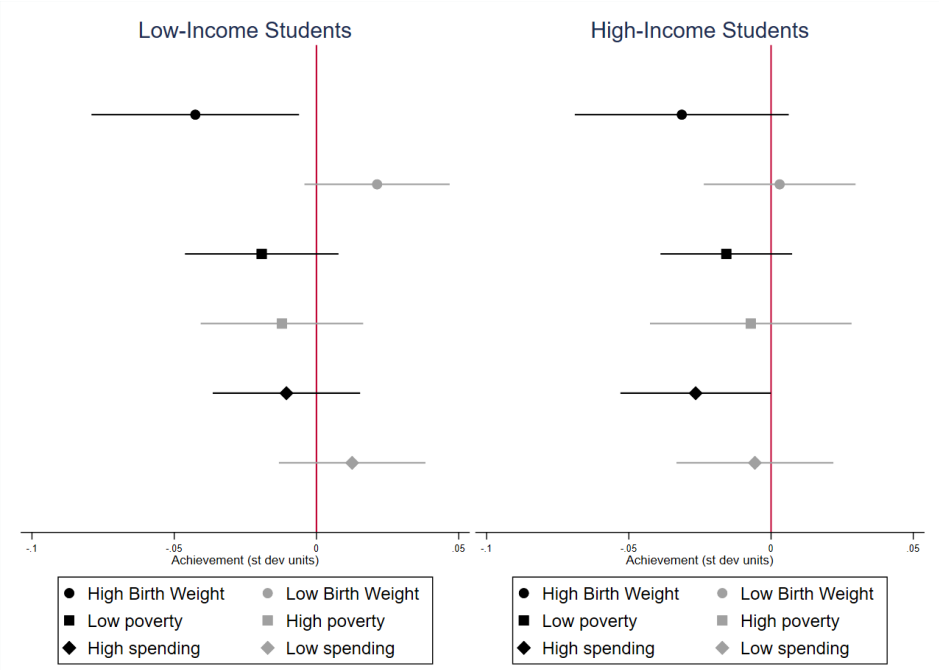
B: By Race



Estimates from the same models in Table 3 Panel A, but predicting achievement among Black and White students, with 95% confidence intervals.

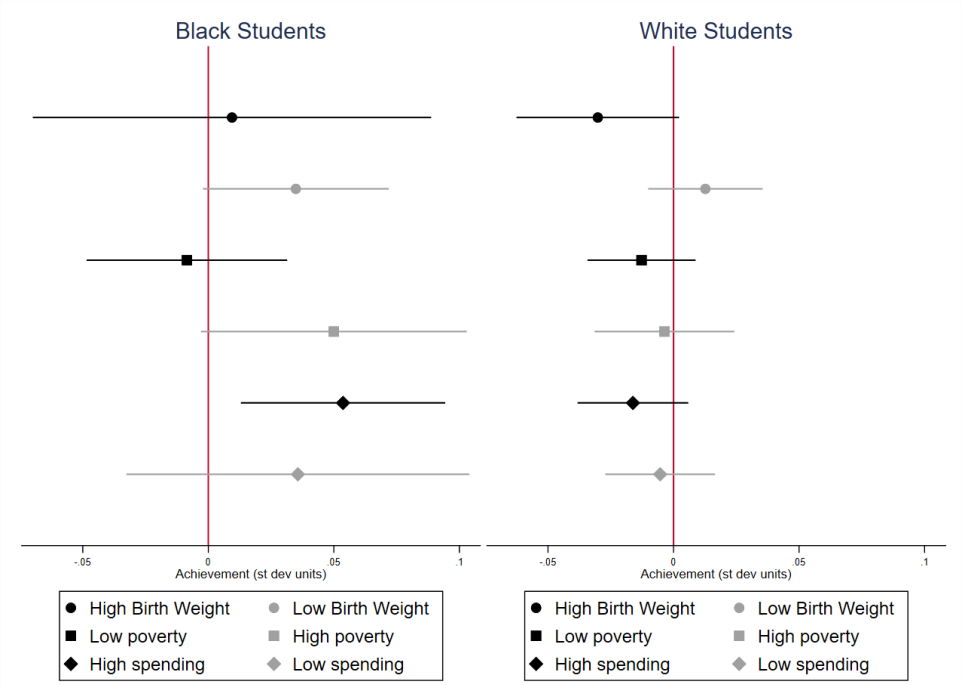
Figure S4: Difference-in-Differences Coefficients Predicting Achievement by Previous Investment

A: By Income



Estimates from Table 3 Panel B, with 95% confidence intervals.

B: By Race



Estimates from the same models in Table 3 Panel B, but predicting achievement among Black and White students, with 95% confidence intervals.