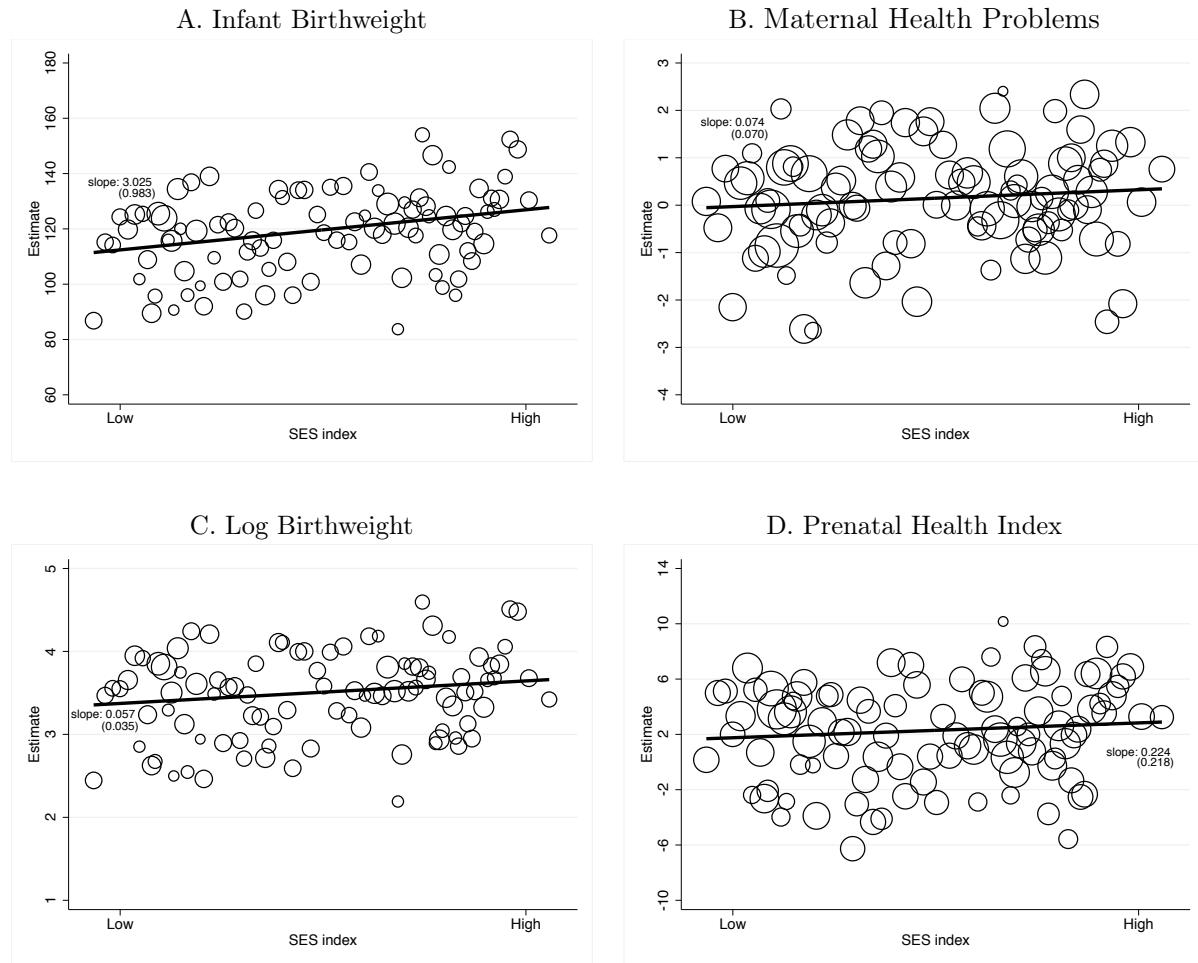


Family Disadvantage and the Gender Gap in
Behavioral and Educational Outcomes

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Online Appendix

Figure O1: Boy-Girl Gaps in Infant birthweight, Maternal Health Problems, Log Birthweight, and Prenatal Health Index, by SES



Note: This figure plots the regression-adjusted male-female gap against values of the SES index. We suppress bins with very small sample sizes for expositional clarity. Lines come from OLS regressions fitted through all bins and weighted by bin size. The SES measure is constructed as the first component of a principal components analysis of years of maternal education, maternal age at birth, non-Medicaid birth indicator and an indicator for parents married at the time of birth. The sample is non-twin singletons born 1994-2002. Infant birthweight is in grams. Maternal health issues during pregnancy is equal to one hundred if the mother suffered from any of a large set of chronic or pregnancy-related disorders (anemia; cardiac disease; acute or chronic lung disease; diabetes; genital herpes, hydramnios/oligohydramnios; hemoglobinopathy; chronic hypertension; pregnancy-associated hypertension; eclampsia; incompetent cervix; previous infant 4000+ grams; previous preterm or small for gestational age infant; renal disease; RH sensitization; uterine bleeding; other specified health problem). The prenatal health index is the first component from a PCA analysis using birth weight (grams), gestational age (weeks), one and five minutes Apgar scores (0-10 scale) as well as indicators for adequate prenatal care, maternal health problems in pregnancy, complications of labor and delivery, abnormal conditions at birth and congenital anomalies.

Table O1: Family Disadvantage and the Gender Gap in Behavioral Outcomes: Results with Main Effects

	A. Absence Rate (%)				B. Suspension Rate (%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×Mother years of education	-0.02 (0.01)				-0.75 (0.03)			
Boy× Married	-0.12 (0.03)				-1.28 (0.13)			
Boy×Non-medicaid birth	-0.19 (0.03)				-3.41 (0.13)			
Boy×Mother age at birth	0.01 (0.00)				-0.03 (0.01)			
Boy× SES index		-0.07 (0.01)	-0.08 (0.01)			-2.17 (0.03)	-2.40 (0.07)	
Boy	0.19 (0.01)	0.43 (0.07)	0.21 (0.01)	0.24 (0.02)	8.07 (0.05)	21.75 (0.33)	8.58 (0.05)	7.81 (0.12)
Boy×Black	0.27 (0.02)	0.15 (0.03)	0.17 (0.03)	0.20 (0.04)	4.50 (0.13)	1.67 (0.15)	1.48 (0.14)	2.31 (0.30)
Boy×Hispanic	0.07 (0.03)	0.03 (0.03)	0.03 (0.03)	0.08 (0.04)	-0.46 (0.14)	-1.73 (0.14)	-1.80 (0.14)	-1.61 (0.30)
Mother years of education	-0.34 (0.00)	-0.33 (0.00)			-1.04 (0.01)	-0.66 (0.02)		
Married	-0.42 (0.01)	-0.36 (0.02)			-3.46 (0.07)	-2.82 (0.08)		
Non-medicaid birth	-1.24 (0.01)	-1.14 (0.02)			-4.28 (0.06)	-2.57 (0.07)		
Mother age at birth	0.00 (0.00)	0.00 (0.00)			-0.22 (0.01)	-0.20 (0.01)		
SES index		-0.78 (0.01)	0.02 (0.02)			-2.80 (0.02)	1.01 (0.12)	
Black	-1.33 (0.02)	-1.27 (0.02)	-1.47 (0.02)		7.16 (0.09)	8.57 (0.09)	8.36 (0.09)	
Hispanic	-0.45 (0.02)	-0.43 (0.02)	-0.48 (0.02)		-0.54 (0.08)	0.10 (0.08)	0.06 (0.08)	
Sibling FE	No	No	No	Yes	No	No	No	Yes
Mean of Y		5.11		4.89		12.82		12.37
# children		792,729		301,128		792,729		301,128

Note: See note to Table 4a. Standard errors are clustered at the child level in columns 1-3 and mother level in column 4. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O2: Family Disadvantage and the Gender Gap in Academic Outcomes: Results with Main Effects

	<i>A. Mathematics Scores (SD)</i>				<i>B. Reading Scores (SD)</i>			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×Mother years of education		0.005 (0.001)				0.004 (0.001)		
Boy×		-0.009 (0.005)				-0.001 (0.005)		
Married								
Boy×Non-medicaid birth		0.013 (0.005)				0.012 (0.005)		
Boy×Mother age at birth		-0.001 (0.000)				-0.002 (0.000)		
Boy×		0.005 (0.001)	0.007 (0.003)			0.002 (0.001)	0.005 (0.002)	
SES index								
Boy	0.034 (0.002)	-0.013 (0.013)	0.033 (0.002)	0.054 (0.004)	-0.147 (0.002)	-0.163 (0.012)	-0.148 (0.002)	-0.121 (0.004)
Boy×Black	-0.119 (0.004)	-0.116 (0.005)	-0.112 (0.005)	-0.120 (0.009)	-0.070 (0.004)	-0.068 (0.005)	-0.067 (0.004)	-0.078 (0.009)
Boy×Hispanic	-0.025 (0.006)	-0.023 (0.006)	-0.023 (0.006)	-0.028 (0.011)	-0.009 (0.006)	-0.008 (0.006)	-0.007 (0.006)	-0.002 (0.011)
Mother years of education	0.102 (0.001)	0.100 (0.001)			0.096 (0.001)	0.094 (0.001)		
Married	0.085 (0.002)	0.090 (0.003)			0.083 (0.002)	0.084 (0.003)		
Non-medicaid birth	0.211 (0.002)	0.204 (0.003)			0.183 (0.002)	0.177 (0.003)		
Mother age at birth	0.003 (0.000)	0.003 (0.000)			0.008 (0.000)	0.009 (0.000)		
SES index		0.203 (0.001)	0.002 (0.004)			0.206 (0.001)	0.006 (0.004)	
Black	-0.404 (0.003)	-0.406 (0.003)	-0.345 (0.003)		-0.412 (0.003)	-0.413 (0.003)	-0.355 (0.003)	
Hispanic	-0.153 (0.004)	-0.154 (0.004)	-0.141 (0.004)		-0.169 (0.004)	-0.169 (0.004)	-0.160 (0.004)	
Sibling FE	No	No	No	Yes	No	No	No	Yes
Mean of Y		0.060		0.054		0.080		0.042
# children		785,664		297,907		785,673		297,938

Note: See note to Table 4b. Standard errors are clustered at the child level in columns 1-3 and mother level in column 4. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O3: Family Disadvantage and the Gender Gap in Academic and Behavioral Outcomes:
Additional Specifications

	A. Absence Rate (%)				B. Suspension Rate (%)			
	Siblings OLS		Siblings FE		Siblings OLS		Siblings FE	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy ×		-0.09		-0.08		-2.54		-2.40
SES index		(0.01)		(0.01)		(0.06)		(0.07)
Boy	0.17	0.20	0.22	0.24	7.07	7.95	6.99	7.81
	(0.02)	(0.02)	(0.02)	(0.02)	(0.09)	(0.09)	(0.11)	(0.12)
Boy × Black	0.37	0.21	0.33	0.20	6.07	1.81	6.37	2.31
	(0.04)	(0.04)	(0.04)	(0.04)	(0.22)	(0.24)	(0.27)	(0.30)
Boy × Hispanic	0.13	0.06	0.13	0.08	0.36	-1.46	0.16	-1.61
	(0.05)	(0.05)	(0.04)	(0.04)	(0.23)	(0.23)	(0.30)	(0.30)
Mean of Y		4.89				12.37		
# children		301,128				301,128		
C. Math Scores (SD)								
	Siblings OLS		Siblings FE		Siblings OLS		Siblings FE	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	Boy ×	0.008		0.007		0.007		0.005
SES index		(0.002)		(0.003)		(0.002)		(0.002)
Boy	0.049	0.046	0.057	0.054	-0.136	-0.139	-0.119	-0.121
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Boy × Black	-0.115	-0.101	-0.132	-0.120	-0.075	-0.064	-0.087	-0.078
	(0.007)	(0.008)	(0.008)	(0.009)	(0.006)	(0.007)	(0.007)	(0.009)
Boy × Hispanic	-0.029	-0.023	-0.033	-0.028	-0.007	-0.002	-0.006	-0.002
	(0.010)	(0.010)	(0.011)	(0.011)	(0.009)	(0.010)	(0.011)	(0.011)
Mean of Y		0.054				0.042		
# children		297,907				297,938		

Note: This table reports the results of regression models where the dependent variables are the absence rate, the suspension rate, and standardized FCAT math and reading test scores, from grades three through eight. All columns include controls for child year and month of birth, maternal race-ethnicity, birth order, and the main effect of the SES index. Sample restricted to matched siblings – children in families with two or more births between 1994 and 2002. Standard errors (in parentheses) are clustered at the mother level. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O4: Family Disadvantage and the Gender Gap in High School Graduation: Results with Main Effects

	<i>A. On-time HS Grad</i>		<i>B. 5+ Years of HS</i>		<i>C. HS Dropout</i>	
	(1)	(2)	(1)	(2)	(1)	(2)
Boy×Mother years of education	0.50 (0.12)		-0.25 (0.09)		-0.26 (0.10)	
Boy×	2.89 (0.60)		-0.93 (0.46)		-1.97 (0.51)	
Boy×Mother age at birth	0.01 (0.04)		-0.06 (0.03)		0.05 (0.04)	
Boy	-6.09 (0.25)	-15.16 (1.47)	3.94 (0.18)	9.63 (1.12)	2.15 (0.22)	5.53 (1.30)
Boy×Black	-6.68 (0.53)	-4.66 (0.60)	2.95 (0.43)	2.01 (0.48)	3.72 (0.43)	2.65 (0.50)
Boy×Hispanic	-2.09 (0.91)	-1.31 (0.91)	0.35 (0.69)	-0.10 (0.69)	1.74 (0.76)	1.41 (0.77)
Mother years of education	3.97 (0.06)	3.72 (0.08)	-1.57 (0.05)	-1.44 (0.06)	-2.40 (0.05)	-2.27 (0.07)
Married	10.20 (0.30)	8.79 (0.41)	-4.45 (0.23)	-4.00 (0.30)	-5.75 (0.26)	-4.79 (0.35)
Mother age at birth	0.50 (0.02)	0.50 (0.03)	-0.12 (0.02)	-0.08 (0.02)	-0.38 (0.02)	-0.41 (0.03)
Black	7.97 (0.39)	7.00 (0.41)	2.64 (0.30)	3.10 (0.31)	-10.62 (0.31)	-10.10 (0.33)
Hispanic	1.92 (0.62)	1.54 (0.62)	1.13 (0.45)	1.34 (0.45)	-3.05 (0.52)	-2.89 (0.52)
Mean of Y	70.42		12.75		16.83	
# children	161,537		161,537		161,537	

Note: See note to Table 5. Robust standard errors are in parentheses. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O5: The Relationship Between Elementary and Middle School Behavioral and Academic Measures and On-Time High School Completion: Allowing for Heterogeneous Effects among Race/Ethnic Groups

	(1)	(2)	(3)	(4)	(5)	(6)
<i>A. OLS Estimates: KG Readiness, Behavioral and Academic Measures, and On-Time HS Graduation</i>						
Absence rate	-14.49 (0.19)					-10.92 (0.20)
Absence rate \times black	1.50 (0.34)					1.19 (0.37)
Absence rate \times Hispanic	1.66 (0.59)					1.78 (0.65)
Suspension rate		-14.76 (0.24)				-9.83 (0.25)
Suspension rate \times black		4.48 (0.35)				3.82 (0.39)
Suspension rate \times Hispanic		1.17 (0.70)				0.60 (0.77)
Math score			12.50 (0.22)			6.54 (0.34)
Math score \times black			-1.30 (0.38)			-1.70 (0.62)
Math score \times Hispanic			-0.50 (0.69)			-0.78 (1.12)
Reading score				10.28 (0.20)		1.46 (0.31)
Reading score \times black				0.92 (0.39)		1.95 (0.63)
Reading score \times Hispanic				0.65 (0.67)		1.76 (1.09)
KG readiness					3.45 (0.22)	0.69 (0.21)
KG readiness \times black					-0.51 (0.36)	-0.42 (0.34)
KG readiness \times Hispanic					-2.13 (0.65)	-1.43 (0.62)
N					82,533	
<i>B. 100 \times Standardized Coefficients on SES \times Boy from Primary Models</i>						
	Absence rate	Suspension rate	Math score	Reading score	KG readiness	
SES \times boy	-2.34	-7.51	1.03	0.50	3.57	
SES \times boy \times black	1.23	5.23	-1.02	-1.25	-0.83	
SES \times boy \times Hispanic	0.63	2.72	-0.20	0.22	-0.44	
<i>C. Implied Contribution of Cognitive/Behavioral Gender Gaps in SES to HS Graduation Gender Gaps</i>						
	Absence rate	Suspension rate	Math score	Reading score	KG readiness	All
One SES σ	0.38	1.11	0.02	0.01	0.04	1.57
Black-White	0.16	0.31	0.00	0.01	0.01	0.44
Hispanic-White	0.10	0.28	0.02	-0.01	-0.01	0.40

Note: Panel A of this table reports the results from regressions of on-time high school graduation on absence rates, suspension rates, math scores, reading scores, and kindergarten readiness, respectively, each standardized with mean zero and unit variance. It additionally includes interactions between the academic and behavioral outcomes and race/ethnic group dummies. All regressions also include controls for gender, race, ethnicity, interactions between racial-ethnic categories and gender, child year/month of birth, birth order, and the composite SES measure (based on maternal age, education and marital status at birth). Panel B reports the results from regressions of each academic and behavioral outcome according to Equation (9), with coefficients on the interaction terms in a standardized form. Due to data limitations necessitating the use of grades five to eight in Panel A, we also use grade five through eight outcomes in Panel B. Panel C reports the implied contribution of the estimated SES gradient in the gender gap on the gender gap in high school graduation, by multiplying the race/ethnic-group-specific coefficients from panels A and B, and scaling the result by the standard deviation in SES, black-white SES gap, and Hispanic-white SES gap.

Table O6: Family Disadvantage and the Gender Gap in Neonatal Health: Results with Main Effects

	A. Infant Birth Weight (g)				B. Maternal Health Problems (%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×Mother years of education		0.64 (0.71)				0.12 (0.06)		
Boy× Married		0.33 (3.27)				0.27 (0.26)		
Boy×Non-medicaid birth		6.97 (3.22)				-0.10 (0.26)		
Boy×Mother age at birth		0.13 (0.26)				-0.03 (0.02)		
Boy× SES index			3.04 (0.88)	1.36 (1.98)			0.09 (0.07)	0.08 (0.20)
Boy	120.60 (1.49)	104.11 (8.47)	119.83 (1.52)	124.16 (3.44)	0.16 (0.12)	-0.80 (0.68)	0.15 (0.12)	-0.09 (0.35)
Boy×Black	-0.66 (2.95)	3.29 (3.32)	3.68 (3.24)	-3.55 (7.15)	-0.02 (0.24)	0.09 (0.26)	0.09 (0.26)	0.21 (0.68)
Boy×Hispanic	-16.17 (3.88)	-14.28 (3.92)	-14.41 (3.92)	-10.78 (8.52)	0.03 (0.31)	0.06 (0.31)	0.11 (0.31)	-0.28 (0.84)
Mother years of education	16.98 (0.36)	16.65 (0.50)			-0.68 (0.03)	-0.74 (0.04)		
Married	51.65 (1.65)	51.49 (2.29)			0.04 (0.13)	-0.09 (0.19)		
Non-medicaid birth	50.52 (1.64)	46.99 (2.26)			-4.50 (0.13)	-4.45 (0.18)		
Mother age at birth	-3.59 (0.15)	-3.65 (0.19)			0.55 (0.01)	0.56 (0.02)		
SES index			33.08 (0.62)	4.44 (3.21)			-0.34 (0.05)	-0.69 (0.31)
Black	-205.98 (2.22)	-207.96 (2.34)	-204.28 (2.28)		3.16 (0.18)	3.10 (0.19)	2.67 (0.18)	
Hispanic	-58.09 (2.71)	-59.03 (2.73)	-54.78 (2.72)		-3.69 (0.22)	-3.71 (0.22)	-4.05 (0.22)	
Mean of Y		3,320		3,325		26.33		24.88
# children		796,701		301,298		796,701		301,298

Note: See note to Table 7. Robust standard errors are utilized in columns 1-3 and standard errors are clustered at mother level in column 4. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O7: Testing for a Household Disadvantage Gender Gap in Neonatal Health: Log Birthweight and Composite Index

	A. Log Birth Weight (*100)				B. Birth Index (PCA) (*100)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×Mother years of education		0.01 (0.02)			-0.11 (0.19)			
Boy×		-0.08 (0.12)			-0.13 (0.88)			
Married								
Boy×Non-medicaid birth		0.18 (0.12)			0.89 (0.87)			
Boy×Mother age at birth		0.01 (0.01)			0.05 (0.07)			
Boy×		0.06 (0.03)	0.01 (0.07)			0.22 (0.23)	0.25 (0.60)	
SES index								
Boy	3.53 (0.05)	3.20 (0.30)	3.51 (0.05)	3.57 (0.12)	2.38 (0.38)	2.08 (2.27)	2.31 (0.39)	2.24 (1.03)
Boy×Black	0.39 (0.11)	0.45 (0.12)	0.47 (0.12)	0.19 (0.28)	5.24 (0.83)	5.58 (0.93)	5.59 (0.91)	4.99 (2.27)
Boy×Hispanic	-0.44 (0.14)	-0.40 (0.14)	-0.41 (0.14)	-0.32 (0.31)	-1.30 (0.99)	-1.12 (1.00)	-1.21 (1.00)	-1.24 (2.51)
Mean of Y	809.05		809.30		-6.00		-2.44	
# children	796,701		301,298		795,618		300,575	

Note: This table reports estimates from regression models where the dependent variables are the natural logarithm of birthweight and a neonatal health index constructed from a principal components analysis of birth weight (grams), gestational age (weeks), one and five minutes Apgar scores (0-10 scale) as well as indicators for adequate prenatal care, maternal health problems in pregnancy, complications of labor and delivery, abnormal conditions at birth and congenital anomalies. See note to Table 7. Robust standard errors are utilized in columns 1-3 and standard errors are clustered at mother level in column 4. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table O8: Main Estimates for Grade 3 through 8 Outcomes Augmented with Log Birthweight

	<i>A. Absence Rate (%)</i>	<i>B. Suspension Rate (%)</i>	<i>C. Math Scores (SD)</i>	<i>D. Reading Scores (SD)</i>
	Siblings	Siblings	Siblings	Siblings
<i>I. Primary Estimates for SES and Gender Gap: Controlling for Child Birthweight</i>				
Boy × SES index	-0.07 (0.01)	-0.08 (0.01)	-2.16 (0.03)	0.004 (0.001)
Boy	0.49 (0.43)	0.49 (0.72)	13.51 (2.03)	-0.116 (0.080)
Boy × Black	0.17 (0.03)	0.20 (0.04)	1.44 (0.14)	2.25 (0.30)
Boy × Hispanic	0.03 (0.03)	0.08 (0.04)	-1.81 (0.14)	-1.61 (0.30)
Boy × ln(Birth-weight)	-0.03 (0.05)	-0.03 (0.09)	-0.61 (0.25)	-0.88 (0.57)
ln(Birth-weight)	-0.37 (0.04)	0.16 (0.07)	1.23 (0.14)	2.94 (0.44)
<i>II. Comparison SES Coefficient from Models Excluding Birthweight</i>				
Boy × SES index	-0.07 (0.01)	-0.08 (0.01)	-2.17 (0.03)	-2.40 (0.07)
Mother FE	N	Y	N	Y
N	792,729	301,128	792,729	301,128
			785,664	297,907
			785,673	297,938

Note: Panel I of this table presents results from regressions on the sample of singleton births, grades three through eight, and results from sibling fixed effects models for the sample of siblings, grades three through eight. The dependent variables are absence rates, suspension rates, and FCAT math and reading scores. All columns include controls for child year and month of birth, birth order, and the main effect of the SES index. The singleton specifications additionally include main effects for mother race-ethnicity. Panel II reports the coefficient on the interaction term Boy × SES from Tables 4a and 4b, from the corresponding singleton or sibling fixed effects models. Standard errors are clustered at the child level in the singleton specifications and the mother level in the siblings specifications. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.

Table 09: Accounting Non-Parametrically for Neighborhood and School Effects on the Gender Gap in Behavioral and Academic Outcomes

	A. Absence Rate (%)				B. Suspension Rate (%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×SES index	-0.06 (0.01)	-0.05 (0.01)	-0.06 (0.01)	-0.04 (0.01)	-2.14 (0.03)	-1.70 (0.04)	-1.88 (0.04)	-1.65 (0.04)
Boy×Black	0.13 (0.03)	0.05 (0.03)	0.10 (0.03)	0.06 (0.03)	1.56 (0.14)	1.92 (0.17)	1.80 (0.17)	1.74 (0.18)
Boy×Hispanic	0.02 (0.03)	-0.02 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-1.83 (0.14)	-0.72 (0.16)	-0.99 (0.16)	-0.74 (0.17)
Zip & School FE	X	X	X	X	X	X	X	X
Boy×School FE								
Boy×Zip FE								
Mean of Y	5.08							
# children	754,399							
	C. Math Test Scores (SD)				D. Reading Test Scores (SD)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Boy×SES index	0.002 (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.002 (0.001)	0.001 (0.001)	-0.002 (0.001)	-0.000 (0.001)	-0.002 (0.001)
Boy×Black	-0.107 (0.005)	-0.110 (0.005)	-0.108 (0.006)	-0.111 (0.006)	-0.064 (0.004)	-0.071 (0.005)	-0.066 (0.005)	-0.071 (0.006)
Boy×Hispanic	-0.022 (0.006)	-0.021 (0.007)	-0.022 (0.007)	-0.022 (0.007)	-0.006 (0.006)	-0.004 (0.007)	-0.004 (0.007)	-0.004 (0.007)
Zip & School FE	X	X	X	X	X	X	X	X
Boy×School FE								
Boy×Zip FE								
Mean of Y	0.065							
# children	753,536							
					0.080			753,532

Note: This table presents results from regression models where the dependent variables are the absence rate, suspension rate, and standardized FCAT math and reading test scores, from grades three through eight. All columns include controls for child year and month of birth, maternal race-ethnicity, and birth order within family, the SES index, zip code fixed effects and school fixed effects. Column 2 additionally includes boy × school fixed effects, column 3 includes boy × zip code fixed effects, and column 4 includes both boy × school and boy × zip code fixed effects. The sample excludes families for whom zip code or school quality are not known. Standard errors are clustered at the child level. Point estimates marked **, *, and ~ are statistically significant at the 1, 5, and 10 percent levels, respectively.