Online Appendix

The Long-Run Impacts of Special Education

Briana Ballis and Katelyn Heath

Sample IEP transition plan for college-bound students

Name: Noah Lee Grade: 11

Date: Graduation date:

Student's strengths, preferences, and interests

Noah demonstrates that he's a hardworking student. He reported in an interview that he enjoys spending time with family and going to the gym. Based on transition questionnaires, Noah wants to go to college and is interested in a career working with young kids. However, he isn't sure if he wants to be a classroom teacher.

His most recent evaluation and present level of performance in his current IEP indicate that Noah has a specific learning disability in reading comprehension. He also struggles with time management when completing schoolwork, but he is meeting most of his IEP goals. Noah has acknowledged that his difficulties with organization may be a barrier to his goals after high school.

Measurable postsecondary goals

Postsecondary education/vocational training:

Noah will attend a local four-year college after graduation. He will take courses leading to a major in early childhood education.

Jobs and employment:

The summer after graduation, Noah will work part-time at a local childcare center.

Independent living (if needed):

Noah already has these skills.

Understood

Sample IEP transition plan for college-bound students

Supporting IEP goals and services

Supporting IEP goal	Transition activities/services	Person/agency involved
By December 2020, Noah will fully complete two college applications with 100 percent accuracy.	Prepare a list of what Noah wants in a college. Research colleges and identify three he'd like to apply to that offer training and degree programs in early childhood education.	Noah, his parents, high school counselor
	Noah will obtain applications from each college and will plan a tour of at least one college of his choice.	Noah, his parents, college admissions offices
	Receive proofreading support to help check for errors in the applications.	Noah, his parents, transition specialist (school staff member who helps students transition to life after high school)
By May 2021, Noah will complete a college-skills course offered at a local college or nonprofit organization.	Look into possible programs that will help build organizational skills and prepare him for the demands of college. Apply to program.	Noah, his parents, transition specialist
By May 2021, Noah will identify three careers that involve working with young children.	Noah will find and interview three people in the community who work with young children.	Noah, transition specialist, local community members, possibly a private coach
By June 2021, Noah will apply to volunteer at a local childcare center.	Identify three local childcare centers. Ask about volunteering and complete an interview for each.	Noah, transition specialist, local childcare centers

Understood

Figure A.1 Sample IEP Transition Plan for College-Bound Students, By Andrew M.I. Lee, JD, `understood.org`

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PERFORMANCE LEVEL ASSIGNMENT

The district-level special education representation rate is compared to the PBMAS standards for the indicator, and performance levels are assigned as follows:

SPED #12: District Special Education Representation Rate				
Performance Level (PL) Assignments				
Performance Level = Not Assigned	**Performance Level = 0 (met standard) (Also includes 0RI)**	**Performance Level = 1**	**Performance Level = 2**	**Performance Level = 3**
PL not equal to 0 and district does not meet minimum size requirements.	The district representation of students receiving special education services is 8.5% or lower. Minimum size requirements not applicable if PL = 0.	The district representation of students receiving special education services is between 8.6% and 12.0%.	The district representation of students receiving special education services is between 12.1% and 16.0%.	The district representation of students receiving special education services is 16.1% or higher.

The PBMAS special analysis process is not applicable to this indicator. Performance levels are only assigned through standard analysis.

Figure A.2 Performance Level Assignment for the Special Education Representation Rate

Note: This figure shows the performance ratings districts received based on their special education rate. Performance level 0 is the "best" level, which indicates a district is in compliance with the target.
Source: Reprinted courtesy of the Texas Education Agency. ©Texas Education Agency, 2004-2021. All rights reserved. This figure comes from the 2004 Performance Based Monitoring Analysis (PBMAS) Manual, available on the Texas Education Agency's website at the following link: `https://tea.texas.gov/student-assessment/monitoring-and-interventions/rda/rda-and-pbmas-manuals`.

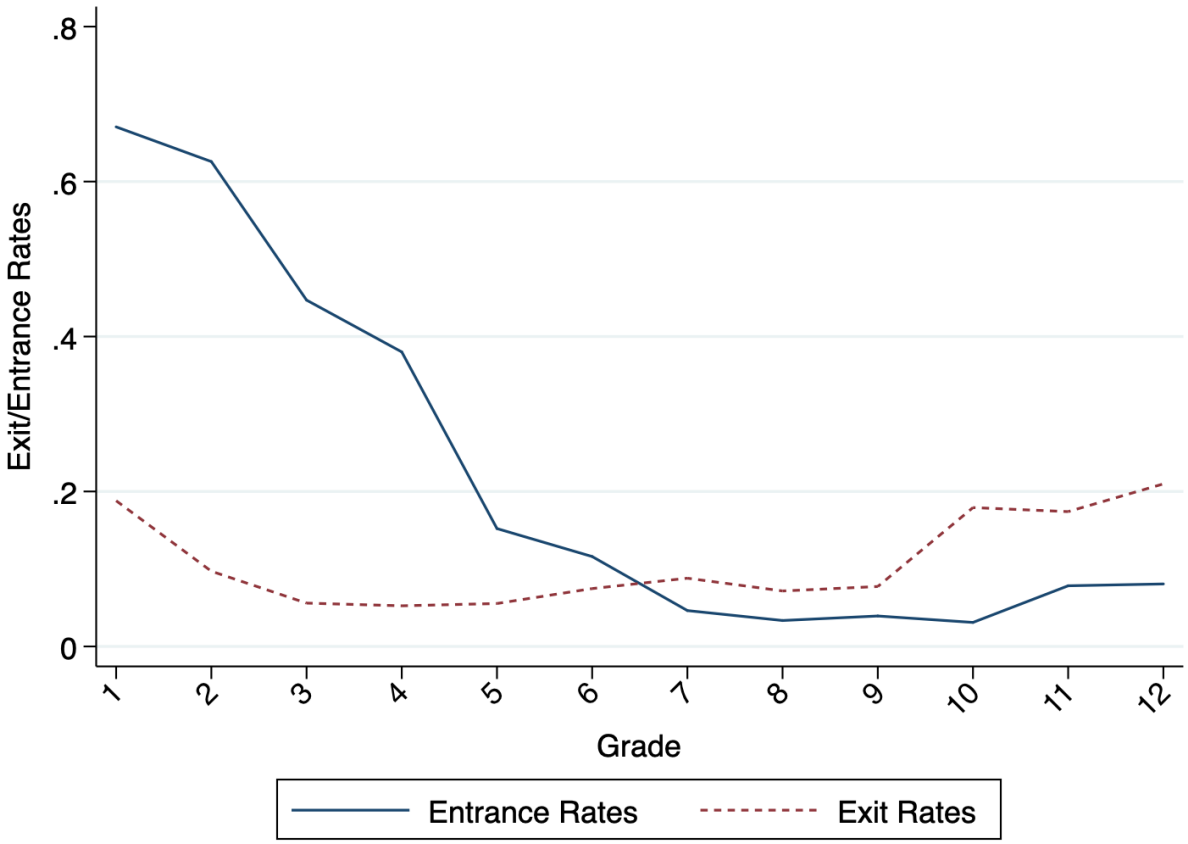
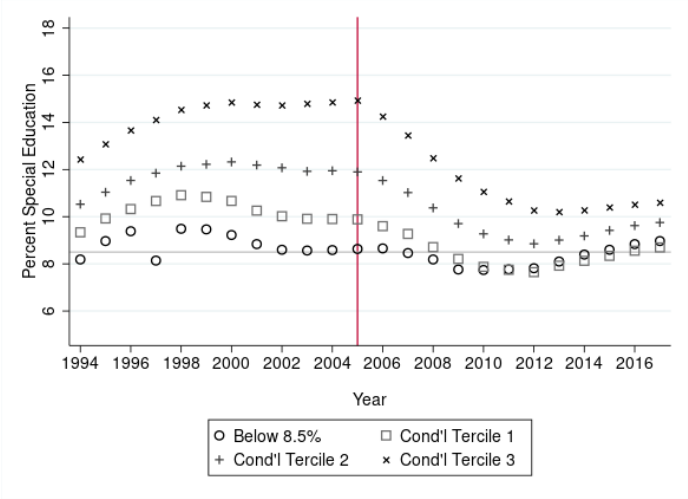
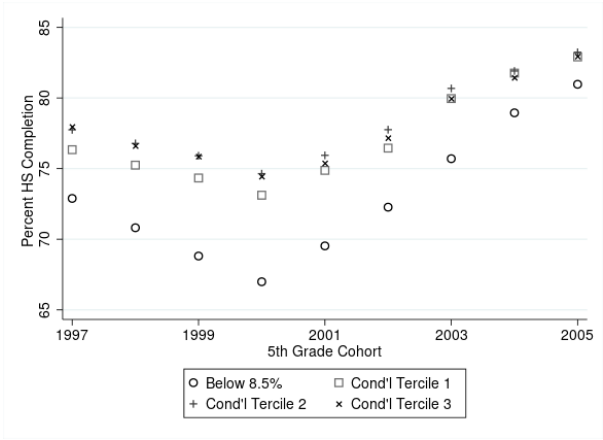


Figure A.3 Entrance and Exit Rates for Students with Malleable Disabilities

Note: The figure plots Special Education (SE) entrance rates (solid line) and SE exit rates (dashed line) in each grade for students with malleable disabilities (i.e. learning disabilities, speech impairments, other health impairments, or emotional disturbance). Entrance rates represent the number of new students enrolled in SE, divided by the total number of students enrolled in the current grade. Exit rates represent the number of students who lost SE, divided by the total number of students enrolled in SE during the grade prior. The sample includes only cohorts who were completely unexposed to the policy.



(a) SE Participation

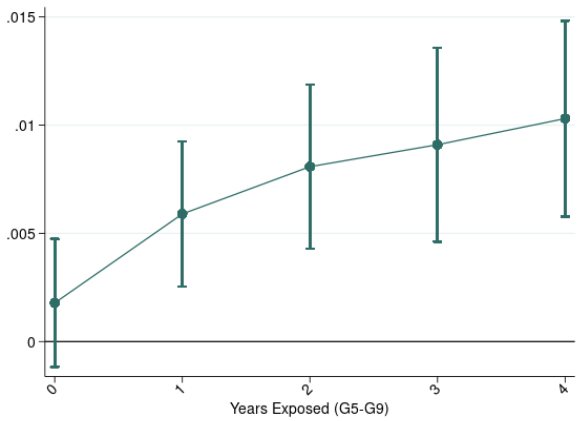


(b) High School Graduation

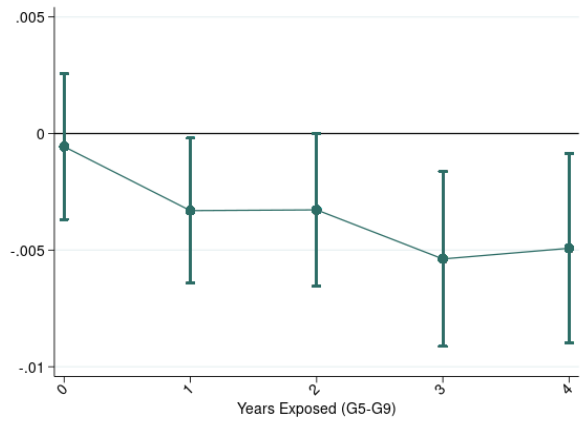
(c) College Enrolled

Figure A.4 Average District SE Rates, High School Completion, and College Enrollment

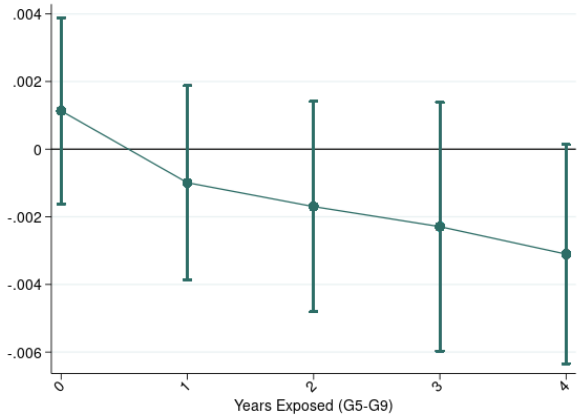
Note: The bottom series denotes districts whose 2005 SE rate was below 8.5%. The top three series break districts into terciles based on their 2005 SE rate, conditional on being above 8.5%. Each series in Panel A plots the district average SE rate in each year, from 1994 to 2017. Each series in Panel B plots the percent of all (SE+GE) students who obtain a high school diploma, across 5th grade cohort years. Each series in Panel C plots the percent of all students who enroll in post-secondary school, across 5th grade cohort years.



(a) Special Education Removal



(b) High School Graduation



(c) College Enrolled

Figure A.5 Event Study Estimates of the Impact of the Policy on Educational Attainment (High-Impact Sample)

Note: These figures plot coefficients and 95% confidence intervals from event-study regressions that estimate interactions between 5th grade cohort dummies and the pre-policy district Special Education (SE) rate. The dependent variable is shown in the sub-figure labels. Event time is computed by subtracting 9 from the grade each 5th grade cohort was expected to be enrolled in during the first year of the policy (or the 2005-06 school year). The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05 who were in our high-impact sample. The 5th grade cohort from 1999-00 is omitted, so estimates are relative to that cohort. See Figure 2 for more detail on the sample and the full set of controls. Standard errors are clustered at the district level.

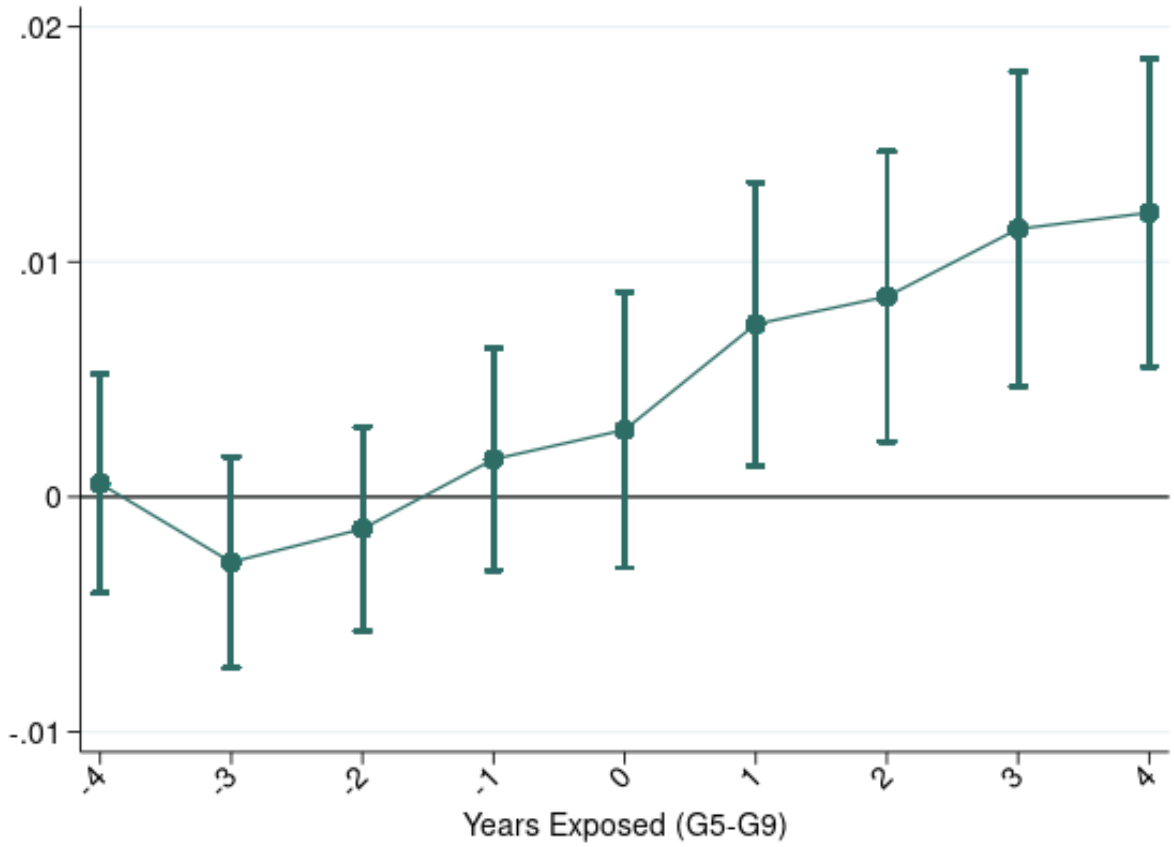
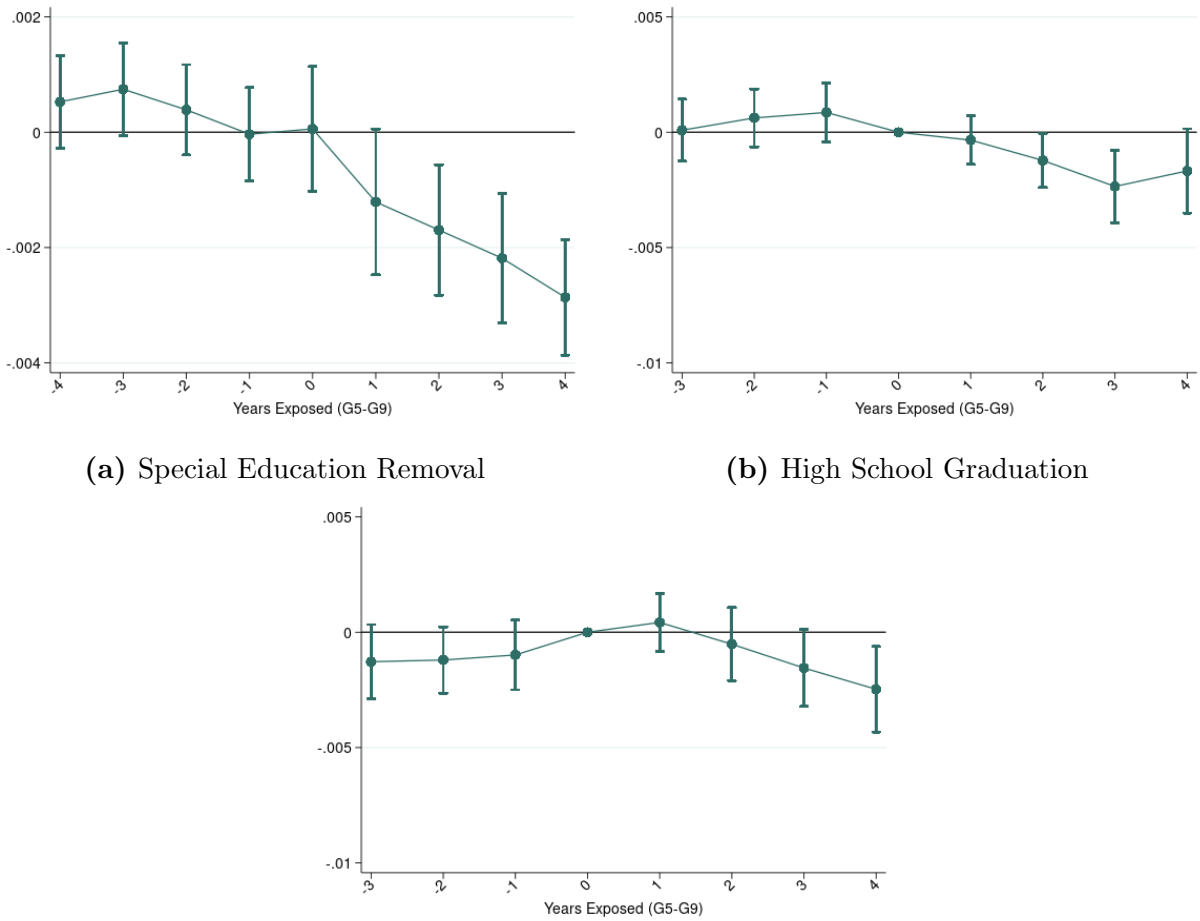


Figure A.6 Event Study Estimates of the Impact of the Policy on Special Education Removal Any Time after 5th Grade (High-Impact Sample)

Note: This figure plots coefficients and 95% confidence intervals from an event-study regression that estimates interactions between 5th grade cohort dummies and the pre-policy district Special Education (SE) rate. The dependent variable is an indicator variable for whether a student ever lost SE services after 5th grade. Event time is defined as the grade each 5th grade cohort was expected to be enrolled in during the first year of the policy (or the 2005-06 school year). The sample includes 5th grade cohorts enrolled in SE between 1995-96 to 2004-05 who were in our high-impact sample. The 5th grade cohort from 1995-96 is omitted, so estimates are relative to that unexposed cohort. See Figure 2 for more detail on the sample and the full set of controls. Standard errors are clustered at the district level.



(a) Special Education Removal

(b) High School Graduation

(c) College Enrolled

Figure A.7 Event Study Estimates of the Impact of the Policy on Educational Attainment (Special Education and General Education 5th Grade Cohorts Combined)

Note: These figures plot coefficients and 95% confidence intervals from event-study regressions that estimate interactions between 5th grade cohort dummies and the pre-policy district Special Education (SE) rate. The dependent variable is shown in the sub-figure labels. Event time is computed by subtracting 9 from the grade each 5th grade cohort was expected to be enrolled in during the first year of the policy (or the 2005-06 school year). The sample in Panel A includes 5th grade cohorts enrolled between 1995-96 to 2004-05. The sample in Panel B and C includes 5th grade cohorts enrolled between 1997-98 to 2004-05. See Table 6 for more detail on the full set of controls used in the aggregate sample. Standard errors are clustered at the district level.

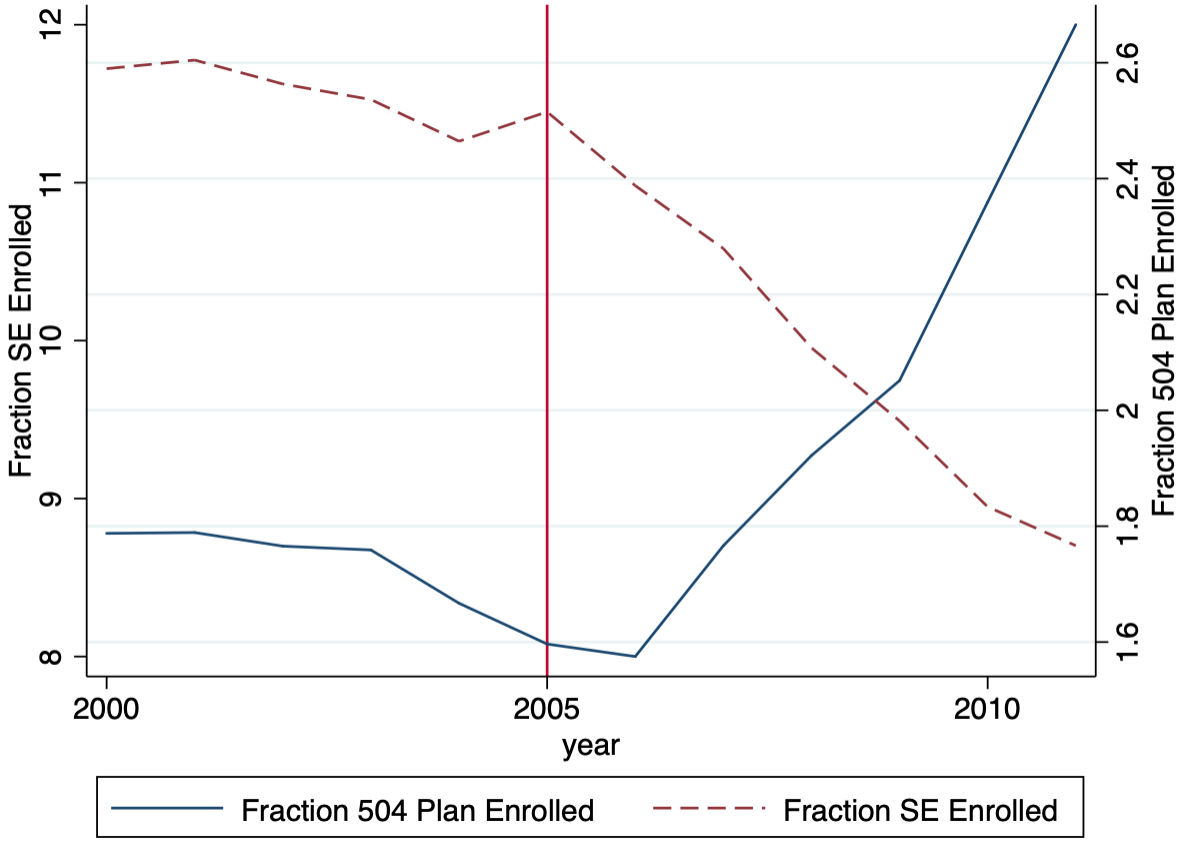


Figure A.8 State Level Participation in 504 Plans and SE Programs

Note: Averages represent district level population averages, that is, the number of students in Special Education or with 504 plans, divided by the total number of students in that district and year.
Source: United States Department of Education. Office for Civil Rights. Civil Rights Data Collection (CRDC) Data Collection for the 2008-09 – 2014-16 School Years. UC Davis, last accessed 2019–06-03.)

Table A.1 Policy Pressure due to PBMAS (2004-05 School Year)

Panel A: Fraction of Districts meeting standards in each PBMAS Monitoring Category

						Reduce Services	
PBMAS	Reduce SE Enrollment			Improve Outcomes		Separate	Modified
Performance Level	Overall	Black	Hispanic	Behavioral	Academic	Instruction	Test-Taking
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
0 = Met	0.09	0.58	0.69	0.72	0.92	0.45	0.30
1 = Nearly Met	0.29	0.09	0.08	0.27	0.07	0.35	0.59
2 = Not Met	0.36	0.13	0.11	0.02	0.01	0.17	0.11
3 = Worst Rating	0.25	0.20	0.12	0.00	0.00	0.03	0.00

Panel B: Correlation b/w Pressure to Reduce Overall SE Enrollment and other PBMAS Pressures

					Reduce Services	
	Reduce SE Enrollment		Improve Outcomes		Separate	Modified
	Black	Hispanic	Behavioral	Academic	Instruction	Test-Taking
	(2)	(3)	(4)	(5)	(6)	(7)
Correlation Coefficient	0.002	0.017	0.017	-0.071	0.087	0.121

Note: This table shows the policy pressure to make changes for Special Education (SE) due to the introduction of PBMAS monitoring in 2005. Panel A shows the fraction of districts that met the standard (0), nearly met the standard (1), did not meet the standard (2), or had the worst rating (3) under each area of SE monitoring. Panel B shows the raw correlation coefficient between the policy pressure to reduce overall SE enrollment (based on the distance above the 8.5 SE enrollment target in 2005) and the average rating in each of the other PBMAS monitoring areas (measured in 2005).

Table A.2 The Impact of the Policy on Special Education Placement and Educational Attainment– Accounting for Differences in Performance in Special Education Monitoring (High-Impact Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Special Education Removal								
Treatment	0.00958	0.0108	0.00829	0.00917	0.00920	0.0100	0.00969	0.0101
	(0.00217)	(0.00260)	(0.00245)	(0.00210)	(0.00243)	(0.00210)	(0.00217)	(0.00210)
	[0.0431]	[0.0488]	[0.0373]	[0.0413]	[0.0414]	[0.0451]	[0.0436]	[0.0453]
Mean (Y)	0.317	0.324	0.333	0.317	0.317	0.317	0.317	0.317
Panel B: High School Completion								
Treatment	-0.00497	-0.00578	-0.00522	-0.00466	-0.00507	-0.00520	-0.00481	-0.00506
	(0.00163)	(0.00176)	(0.00177)	(0.00161)	(0.00187)	(0.00165)	(0.00162)	(0.00165)
	[-0.0224]	[-0.0260]	[-0.0235]	[-0.0210]	[-0.0228]	[-0.0234]	[-0.0216]	[-0.0228]
Mean (Y)	0.710	0.712	0.713	0.710	0.710	0.710	0.710	0.710
Panel C: College Enrollment								
Treatment	-0.00363	-0.00395	-0.00559	-0.00315	-0.00534	-0.00329	-0.00347	-0.00319
	(0.00149)	(0.00181)	(0.00185)	(0.00151)	(0.00177)	(0.00149)	(0.00148)	(0.00148)
	[-0.0163]	[-0.0178]	[-0.0252]	[-0.0142]	[-0.0240]	[-0.0148]	[-0.0156]	[-0.0144]
Mean (Y)	0.354	0.358	0.364	0.354	0.354	0.354	0.354	0.354
N	189,042	158,949	152,703	189,042	189,042	189,042	189,042	189,042
District Sample								
All	X			X	X	X	X	X
Reduce Separate Inst		Low						
Modified Test-Taking			Low					
Controls								
$f(t)\times$ Modified Test-Taking				X				
$f(t)\times$ Separate Instruction					X			
$f(t)\times$ Black Overrepresentation						X		
$f(t)\times$ Hispanic Overrepresentation							X	
Black Overrepresentation $\times$ FracExposed$_c$								X
Hispanic Overrepresentation $\times$ FracExposed$_c$								X

Note: This table shows DiD estimates of the impact of the policy on the likelihood of Special Education (SE) removal and educational attainment decisions. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings. The sample includes 5th grade cohorts enrolled in SE between 1999-00 and 2004-05 in our high-impact sample. See Table 2 for more detail on the sample and the full set of controls. The district sample restriction "Reduce Separate Inst" low refers to districts meeting or nearly meeting PBMAS incentives to reduce the amount of time SE students spend in resource rooms. "Modified Test-taking" low refers to districts meeting or nearly meeting PBMAS incentives to reduce the number of students taking modified/accommodated versions of standardized exams. The controls "$f(t)$" refer to time trends interacted with baseline (2004-05) district PBMAS ratings for Modified test taking and separate instruction, as well as district baseline percent of black or Hispanic representation. "Overrepresentation" is defined as the relative proportion of black or Hispanic students in SE compared to a district overall. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.3 Sensitivity of Results to Sample Restrictions and Treatment Definition (High-Impact Sample)

	Main Analysis	No Drops	More Cohorts	Cohort G4	Cohort G6	Policy Exposure 5th -8th Grade	Policy Exposure 5th -10th Grade
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Special Education Removal							
Treatment	0.00958	0.00949	0.0112	0.00927	0.00849	0.00776	0.0108
	(0.00217)	(0.00195)	(0.00197)	(0.00226)	(0.00192)	(0.00194)	(0.00233)
	[0.0431]	[0.0427]	[0.0502]	[0.0417]	[0.0382]	[0.0349]	[0.0486]
Mean (Y)	0.317	0.317	0.314	0.387	0.242	0.269	0.351
Panel B: High School Completion							
Treatment	-0.00497	-0.00462	-0.00522	-0.00259	-0.00505	-0.00426	-0.00488
	(0.00163)	(0.00147)	(0.00149)	(0.00152)	(0.00147)	(0.00147)	(0.00174)
	[-0.0224]	[-0.0208]	[-0.0235]	[-0.0117]	[-0.0227]	[-0.0192]	[-0.0220]
Mean (Y)	0.710	0.710	0.700	0.739	0.690	0.694	0.738
Panel C: College Enrollment							
Treatment	-0.00363	-0.00341	-0.00251	-0.00397	-0.00218	-0.00302	-0.00318
	(0.00149)	(0.00134)	(0.00150)	(0.00168)	(0.00171)	(0.00141)	(0.00163)
	[-0.0163]	[-0.0153]	[-0.0113]	[-0.0179]	[-0.00979]	[-0.0136]	[-0.0143]
Mean (Y)	0.354	0.354	0.339	0.378	0.330	0.347	0.366
N	189,042	190,973	282,730	176,626	185,594	193,028	182,422

Note: This table shows DiD estimates of the impact of the policy on the likelihood of Special Education (SE) removal and educational attainment decisions. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05 in our high-impact sample. See Table 2 for more detail on the sample and the full set of controls. Column 1 is our baseline estimates, Column 2 does not drop the set of district outliers in 2004-05 (those with SE rates below 6.6% and above 21.5%). Column 3 includes cohorts from 1996-07 through 2004-05. Columns 4 and 5 use different grade cohorts (instead of 5th grade to define the sample), where treatment is measured between the respective grade and expected 9th grade. Columns 6 and 7 change the share of time exposed after 5th grade, which we use to define treatments. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.4 Disability Types Before and After the Policy Change

Disability Type	Pre-2005	Post-2005
Learning Disability	56.092	42.991
Speech Impairment	17.549	17.329
Other Health Impairment	7.663	13.065
Emotional Disturbance	7.764	6.703
Orthopedic Impairment	1.229	0.972
Intellectual Disability	6.328	8.315
Autism	1.362	7.837
Auditory Impairment	1.180	1.409
Visual Impairment	0.555	0.755
Deaf/Blind	0.027	0.041
Traumatic Brain Injury	0.179	0.311
Early Childhood Disability	0.074	0.271
Total	5,299,590	5,203,736

Note: This table presents the relative proportion of Special Education (SE) students with each disability type, for those in school in grades K to 12 before (pre-2005) and after (post-2005) policy implementation. Early childhood disabilities only include students ages 3-5.

Table A.5 Cross District Summary Statistics - Grade 5 Special Education Students

	District Fraction SE Enrollment 2004-05			
	6.6-10	10.1 - 11.6	11.7-13.5	13.6-21.5
Panel A: Student Demographics				
Hispanic	0.421	0.391	0.470	0.363
Black	0.206	0.232	0.155	0.156
White	0.351	0.359	0.365	0.472
Free-Lunch	0.594	0.626	0.691	0.665
ELL	0.210	0.160	0.196	0.069
Male	0.666	0.661	0.651	0.645
Panel B: Baseline Disability Information				
Std Math (G4)	-0.499	-0.524	-0.595	-0.539
Std Reading (G4)	-0.501	-0.526	-0.613	-0.544
Reg Test Math (G4)	0.381	0.367	0.329	0.335
Reg Test Reading (G4)	0.312	0.299	0.254	0.277
Learning Disability	0.546	0.583	0.640	0.634
Speech Impairment	0.173	0.143	0.117	0.107
Other Health Impairment	0.109	0.106	0.0956	0.109
Emotional Disturbance	0.059	0.071	0.065	0.071
Intellectual Disability	0.058	0.047	0.043	0.041
Autism	0.023	0.021	0.015	0.013
Orthopedic Impairment	0.011	0.013	0.009	0.011
Auditory Impairment	0.015	0.012	0.009	0.008
Visual Impairment	0.005	0.005	0.004	0.004
Deafness and Blindness	0.000	0.000	0.000	0.000
Malleable	0.886	0.902	0.918	0.921
Less Malleable	0.114	0.098	0.082	0.079
Mainstream	0.257	0.250	0.208	0.231
Separate Classroom (<= 50%)	0.603	0.613	0.677	0.649
Separate Classroom (> 50%)	0.141	0.138	0.115	0.120
Total Students	57,350	56,543	57,474	56,188
C: District Level Information				
Rural	0.068	0.109	0.240	0.443
Average Cohort Size (SE)	384	544	254	184
Average Cohort Size (All)	3488	4090	1598	1070
Tax Base Wealth PP/1000	337	372	301	312
% Tax Base Wealth Residential	58	58	54	48
Total Districts	138	158	224	459

Note: This table presents district-level summary statistics, where districts are grouped by their 2004-05 district-level Special Education (SE) enrollment. The sample includes all students who were in 5th grade cohorts from 1999-00 to 2004-05, and the summary statistics are reported as of 5th grade (or 4th grade for the test score outcomes).

Table A.6 Cross-Cohort Variation in Policy Exposure (5th Grade SE Cohorts)

Grade 5 Cohort	Policy Exposure by Year-Grade				Policy Exposure Before Expected
	6	7	8	9	9th Grade (FracExposed_c)
1999 - 2000	2000-01	2001-02	2002-03	2003-04	0
2000 - 2001	2001-02	2002-03	2003-04	2004-05	0
2001 - 2002	2002-03	2003-04	2004-05	2005-06	1/4
2002 - 2003	2003-04	2004-05	2005-06	2006-07	1/2
2003 - 2004	2004-05	2005-06	2006-07	2007-08	3/4
2004 - 2005	2005-06	2006-07	2007-08	2008-09	1

Note: This table shows the cross-cohort variation in policy exposure by 5th grade cohort. The first year that districts faced pressure to reduce Special Education (SE) enrollment was during the 2005-06 school year, which we define as the first post-policy year. While all 5th grade SE cohorts were designated as SE before the policy was implemented, they differed in the amount of years that they were exposed to the policy after 5th grade. For each 5th grade cohort, this table shows the share of time policy exposed between 5th grade and expected 9th grade (i.e. FracExposed_c in Equation (1)).

Table A.7 The Impact of the Policy on Attrition, Predicted Long-Run Outcomes, and Exogenous Student Characteristics

				Predicted				
	Hispanic	White	FRL	SE Removal (By G9)	High School Completion	College Enrollment	Enrollment (By G9)	District Switch (By G9)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Full Sample								
Treatment	0.0011	0.0007	-0.0019	0.0025	-0.0002	0.0014	0.0001	0.0004
	(0.0010)	(0.0011)	(0.0011)	(0.0011)	(0.0003)	(0.0005)	(0.0008)	(0.0009)
	[0.0049]	[0.0031]	[-0.0085]	[0.0114]	[-0.0012]	[0.0061]	[0.0004]	[0.0017]
Mean (Y)	0.412	0.387	0.645	0.270	0.721	0.327	0.902	0.235
N	227,555	227,555	227,555	227,555	227,555	227,555	252,315	227,555
Panel B: High-Impact Sample								
Treatment	0.0014	0.0005	-0.0019	0.0018	-0.0002	0.0007	-0.0004	0.0007
	(0.0011)	(0.0012)	(0.0012)	(0.0015)	(0.0003)	(0.0005)	(0.0008)	(0.0011)
	[0.0062]	[0.0023]	[-0.0087]	[0.0079]	[-0.0010]	[0.0031]	[-0.0019]	[0.0032]
Mean (Y)	0.422	0.392	0.639	0.316	0.713	0.356	0.905	0.234
N	189,042	189,042	189,042	189,042	189,042	189,042	208,944	189,042
Controls								
Individual							X	X
Individual Disability							X	X
District-Cohort	X	X	X				X	X
District-Finance	X	X	X				X	X

Note: This table shows DiD estimates of the impact of the policy on student demographics, attrition (by expected 9th grade), predicted outcomes, and district switching between 5th and expected 9th grade. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the column headings. To obtain predicted values we generate fitted values from a regression of outcomes on the full set of controls (excluding treatment) based on special education students in the pre-policy period (between 1994-95 to 1998-99). Panel A includes estimates for the full sample and Panel B includes estimates from our high-impact sample. The sample includes 5th grade cohorts enrolled in Special Education (SE) between 1999-00 to 2004-05. Each column includes district and cohort fixed effects. See Table 2 for more detail on the sample and full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level. *p<0.10, ** p<0.05, *** p<0.01.

Table A.8 Impact of the Policy on District Resources: 2000-2010

District Level Outcome	Districts (N)	Mean	Estimated Effect
Panel A: Denominator = All Students in District			
Total Spending Per pupil	1,041	7,551	-15.88
			(32.33)
GE Spending Per Pupil	1,041	4,515	-10.84
			(18.84)
Instructional Spending Per Pupil	1,041	5,818	-17.82
			(24.75)
Administrative Spending Per Pupil	1,041	1,522	1.720
			(7.041)
Health Spending Per Pupil	1,037	353	1.199
			(2.558)
Student/Teacher (All)	1,296	15	-0.0234
			(0.0268)
Panel B: Denominator = Special Education (SE) Students			
SE Spending Per SE-Pupil	1041	8,979	22.83
			(88.89)
Student/Teacher (SE Only)	1,252	15	-0.203
			(0.312)

Note: This table shows DiD estimates of the impact of the policy on district-level spending and resources. The dependent variable is shown in the first column. Panel A uses all students in a district to compute each measure. Panel B includes only students enrolled in Special Education (SE) to compute the measure. Each column reports estimates from district level regressions, which regress district level exposure (i.e. $\text{SERate}_d^{PRE} \times \text{FracExposed}_t$), on each of the dependent variables. Controls include the percent of students in a district belonging to each racial group, receiving FRL and classified as male. Additionally, these models control for tax base wealth per-pupil and the percent of tax base wealth that is residential. Data from the years 1999-00 to 2009-10 are used in these regressions. The sample includes districts that served between 6.6 and 21.5 percent of their students in SE in 2005.

Table A.9 The Impact of Policy on Types of Services and Accommodations

		Regular Classroom	Unmodified Exam		Ever
	SE Removal	($\geq$ 79 % day)	Math	Reading	Disciplined
	(1)	(2)	(3)	(4)	(5)
Panel A: Full Sample					
Treatment	0.00826	0.00632	0.00759	0.00518	-0.00165
	(0.00192)	(0.00270)	(0.00251)	(0.00266)	(0.00158)
	[0.0372]	[0.0285]	[0.0341]	[0.0233]	[-0.00742]
Mean (Y)	0.275	0.670	0.440	0.455	0.405
N	227,555	227,555	227,555	227,555	227,555
Panel B: High-Impact Sample					
Treatment	0.00958	0.00737	0.00887	0.00627	-0.00132
	(0.00217)	(0.00281)	(0.00272)	(0.00283)	(0.00162)
	[0.0431]	[0.0332]	[0.0399]	[0.0282]	[-0.00595]
Mean (Y)	0.317	0.747	0.496	0.511	0.419
N	189,042	189,042	189,042	189,042	189,042
Panel C: Continuing Special Education Sample					
Treatment	-	0.00165	0.00423	0.000912	-0.00264
	-	(0.00355)	(0.00281)	(0.00299)	(0.00178)
	-	[0.00741]	[0.0190]	[0.00410]	[-0.0119]
Mean (Y)	-	0.545	0.272	0.291	0.430
N	-	165,043	165,043	165,043	165,043

Note: This table shows DiD estimates of the impact of the policy on intermediate outcomes. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the column headings. All dependent variables are measured in the year each student was expected to be in 9th grade. We identify a student as ever being disciplined in that year if the student had an in school or out of school suspension, expulsion, or other disciplinary action. Panel A presents estimates for the full sample. Panel B presents estimates from our high-impact sample. Panel C presents estimates from students in our main analysis sample who continue to be enrolled in special education (SE) during expected 9th grade. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.10 The Effect of the Special Education (SE) Enrollment Target on SE Removal and Educational Attainment (Low-Impact Samples)

	SE Removal		High School Completion		College Enrollment	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Severe Malleable Disabilities						
Treatment	-0.00145	-0.00172	-0.00397	-0.00794	-0.000293	-0.00145
	(0.00398)	(0.00316)	(0.00455)	(0.00444)	(0.00405)	(0.00382)
	[-0.00653]	[-0.00774]	[-0.0179]	[-0.0357]	[-0.00132]	[-0.00652]
Mean (Y)	0.0847	0.0847	0.653	0.653	0.180	0.180
N	17,280	17,280	17,280	17,280	17,280	17,280
Panel B: Non-Malleable Disabilities						
Treatment	0.000718	0.00156	0.00325	0.00136	0.00155	0.00150
	(0.00259)	(0.00198)	(0.00263)	(0.00283)	(0.00402)	(0.00280)
	[0.00323]	[0.00700]	[0.0146]	[0.00611]	[0.00700]	[0.00673]
Mean (Y)	0.0490	0.0490	0.840	0.840	0.206	0.206
N	21,233	21,233	21,233	21,233	21,233	21,233
Controls						
Full Controls		X		X		X

Note: This table shows DiD estimates of the impact of the policy on SE removal and educational attainment. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the column headings. Panel A includes students who had severe malleable disabilities, defined as having a malleable disability type (i.e. learning disabilities, speech impairments, other health impairments, or emotional disturbance), but spending greater than 50% of the day in the General Education (GE) classroom. Panel B includes students who had non-malleable disabilities, defined as autism, intellectual disability, orthopedic impairment, audio/visual impairments, deaf/blindness, and traumatic brain injury. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05. All specifications include cohort and district fixed effects. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.11 The Effect of the Special Education (SE) Enrollment Target on SE Removal and Educational Attainment: Heterogeneity by Disability Type

	LD	Speech	OHI	ED	Autism	Physical	Cog. Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Special Educaton Removal							
Treatment	-0.00985	-0.00821	0.000932	-0.00477	0.00137	0.00185	-0.00113
	(0.00222)	(0.00382)	(0.00332)	(0.00421)	(0.00422)	(0.00529)	(0.00171)
PP Change	-0.0443	-0.0369	0.00419	-0.0215	0.00618	0.00831	-0.00509
Mean (Y)	0.781	0.208	0.823	0.800	0.967	0.889	0.979
Panel B: High School Completion							
Treatment	-0.00428	-0.00648	-0.000123	-0.00881	-0.000289	-0.00353	0.00108
	(0.00173)	(0.00299)	(0.00380)	(0.00519)	(0.00807)	(0.00602)	(0.00449)
	[-0.0192]	[-0.0292]	[-0.000554]	[-0.0397]	-0.00130	-0.0159	0.00487
Mean (Y)	0.695	0.789	0.745	0.573	0.912	0.824	0.823
Panel C: College Enrollment							
Treatment	-0.00269	-0.00350	-0.00383	-0.0121	0.00865	0.00483	-0.00111
	(0.00141)	(0.00339)	(0.00341)	(0.00446)	(0.00914)	(0.00736)	(0.00275)
	[-0.0121]	[-0.0157]	[-0.0172]	[-0.0545]	[0.0389]	[0.0217]	[-0.00501]
Mean (Y)	0.304	0.535	0.350	0.249	0.288	0.408	0.0676
N	136,694	30,725	23,805	15,098	4,080	6,025	11,128

Note: This table shows DiD estimates of the impact of the policy on SE removal and educational attainment decisions for students by disability type (as of 5th grade). Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings and the disability type is shown in the column titles. LD is learning disabilities, speech is students with speech impairments, OHI is other health impairments, and ED is emotional disturbance. Physical disabilities include orthopedic impairments, auditory impairments, visual impairments, and deafness/blindness. Cognitively severe disabilities include autism, intellectual disabilities, and brain injuries. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.12 The Effect of the Special Education Enrollment Target on Special Education Removal and Educational Attainment: Heterogeneity by Classroom Setting

	Any Setting	Mainstream	Resource Room ≤50%	Mainstream & Resource Room ≤50%	Resource Room≥50%
	(1)	(2)	(3)	(4)	(5)
Panel A: Special Education Removal					
Treatment	0.00875	0.0152	0.00778	0.00962	-0.00178
	(0.00211)	(0.00322)	(0.00223)	(0.00215)	(0.00292)
	[0.0394]	[0.0683]	0.0350	0.0433	-0.00799
Mean (Y)	0.298	0.624	0.200	0.317	0.0847
Panel B: High School Completion					
Treatment	-0.00520	-0.00811	-0.00331	-0.00491	-0.00771
	(0.00161)	(0.00240)	(0.00186)	(0.00162)	(0.00423)
PP Change	-0.0234	-0.0365	-0.0149	-0.0221	-0.0347
Mean (Y)	0.706	0.757	0.693	0.710	0.653
Panel C: College Enrollment					
Treatment	-0.00318	-0.00357	-0.00323	-0.00359	-0.00196
	(0.00142)	(0.00278)	(0.00147)	(0.00148)	(0.00353)
	[-0.0143]	[-0.0161]	[-0.0145]	[-0.0161]	[-0.00883]
Mean (Y)	0.339	0.481	0.306	0.354	0.180
N	206,322	52,079	136,963	189,042	17,280

Note: This table shows DiD estimates of the impact of the policy on Special Education (SE) removal and educational attainment decisions for students with malleable disabilities (i.e. learning disabilities, speech impairments, other health impairments, or emotional disturbance) in different classroom settings. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings and the disability is shown in the column titles. Mainstream refers to students who spend the full day in the General Education (GE) classroom. Resource Room≤50% and Resource Room≥50% is students who sped less than or greater than 50% of the day in resource rooms (i.e. outside of the GE classroom), respectively. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.13 Likelihood of Being Enrolled in Special Education in 5th Grade

	(1)	(2)
FRL	0.0187	-0.00514
	(0.00119)	(0.000919)
Migrant	-0.0302	-0.0124
	(0.00634)	(0.00384)
Male	0.0370	0.0369
	(0.000907)	(0.000930)
ELL	0.0306	-0.0332
	(0.00620)	(0.00345)
Native American	0.00100	-0.00767
	(0.00532)	(0.00530)
Asian	-0.0491	-0.0473
	(0.00266)	(0.00269)
Black	0.00652	-0.0395
	(0.00226)	(0.00227)
Hispanic	-0.0218	-0.0421
	(0.00168)	(0.00156)
Std Read (G3)		-0.0551
		(0.00191)
Std Math (G3)		-0.0279
		(0.00121)
Constant	-0.902	-0.420
	(0.0276)	(0.0185)
N	1,345,875	1,345,875
R-squared	0.038	0.106
Mean (Y)	0.0674	0.0674

Note: This table contains results from linear prediction models that predict SE participation in 5th grade based on demographics and achievement measured in 3rd grade. Standard errors in parentheses are clustered at the district level.

Table A.14 OLS and IV Estimates of the Impact of the Enrollment Target on Educational Attainment (Regular Math Test-Takers)

	First Stage	Reduced Form	OLS	IV
	(1)	(2)	(3)	(4)
	Special Education			
Dependent Variable:	*Removal*	*High School Completion*		
Treatment	0.0128	-0.00718		
	(0.00311)	(0.00202)		
	[0.0574]	[-0.0323]		
Mean (Y)	0.516	0.749		
Special Education Removal			-0.0534	-0.563
			(0.00544)	(0.195)
	Special Education			
Dependent Variable:	*Removal*	*College Enrollment*		
Treatment	0.0128	-0.00408		
	(0.00311)	(0.00242)		
	[0.0574]	[-0.0184]		
Mean (Y)	0.516	0.478		
Special Education Removal			0.0686	-0.320
			(0.00483)	(0.216)
Kleibergen-Paap F-Statisitic	16.99			

Note: This table reports DiD estimates of the impact of the policy on Special Education (SE) removal and educational attainment (Columns 1 -2). This table also reports OLS and IV estimates of SE removal on educational attainment outcomes (Columns 3-4). The dependent variable is shown in the panel headings. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05 in our high-impact sample who were taking the regular math test at baseline (i.e. 4th grade) (N=76,238). See Table 2 for more detail on the sample and for the full list of controls used. Standard errors in parentheses are clustered by district.

Table A.15 Triple-Difference Estimates for Special Education Placement and Educational Attainment for Regular Math Test-Takers in 4th Grade only

	SE Removal	HS Grad	College Enrolled
	(1)	(2)	(3)
Treatment	0.0149	-0.00706	-0.00330
	(0.00305)	(0.00208)	(0.00240)
Treatment × Std Test Score (G4)	0.00440	0.000240	0.00160
	(0.000968)	(0.000753)	(0.000851)
Mean (Y)	0.516	0.749	0.478
N	76238	76238	76238

Note: This table contains results obtained from a triple difference model where we augment Equation (1) by including a term that interacts 4th grade standardized math test scores with treatment and including lagged 4th grade standardized math test scores. See Table 2 for the full list of controls and information about each of the outcome variables. The sample for these regressions includes students who were taking the unmodified math exam during 4th grade in SE cohorts between 2000 and 2005. Standard errors in parentheses are clustered at the district level.

Table A.16 The Effect of the Enrollment Target on Special Education Placement and Educational Attainment –Accounting for Differences in District-Level Demographics (High-Impact Sample)

	(1)	(2)	(3)	(4)	(5)
Panel A: Special Education Removal					
Treatment	0.00958	0.00926	0.00864	0.00940	0.00955
	(0.00217)	(0.00240)	(0.00243)	(0.00215)	(0.00236)
	[0.0431]	[0.0417]	[0.0389]	[0.0423]	[0.0430]
Mean (Y)	0.317	0.317	0.317	0.317	0.317
Panel B: High School Completion					
Treatment	-0.00497	-0.00382	-0.00422	-0.00463	-0.00452
	(0.00163)	(0.00160)	(0.00173)	(0.00154)	(0.0071)
	[-0.0224]	[-0.0172]	[-0.0190]	[-0.0209]	[-0.0203]
Mean (Y)	0.710	0.710	0.710	0.710	0.710
Panel C: College Enrollment					
Treatment	-0.00363	-0.00341	-0.00388	-0.00347	-0.00398
	(0.00149)	(0.00155)	(0.00181)	(0.00144)	(0.00167)
	[-0.0163]	[-0.0153]	[-0.0175]	[-0.0156]	[-0.0179]
Mean (Y)	0.354	0.354	0.354	0.354	0.354
Controls					
$f(t)\times$ Fraction Hispanic		X			
$f(t)\times$ Cohort Size			X		
$f(t)\times$ Fraction FRL				X	
$f(t)\times$ Fraction Rural					X

Note: This table shows DiD estimates of the impact of the policy on the likelihood of Special Education (SE) removal and educational attainment decisions. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05 in our high-impact sample. See Table 2 for more detail on the sample and the full set of controls. In column (1) we present the main results from Tables 2 and 3 for comparison. In columns (2)-(5) we include linear time trends that vary by the fraction of the district that was Hispanic in 2004-05, the total cohort size in 2004-05, fraction FRL, and fraction rural in 2004-05. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.17 General Education Students: Heterogeneity by Baseline Achievement (4th Grade)

Panel A: Reading Test Score Quintiles					
	≤20	20-40	40-60	60-80	≥80
	(1)	(2)	(3)	(4)	(5)
High School Completion					
Treatment	-0.00212	-0.00179	-0.000827	-0.000286	-0.000121
	(0.00151)	(0.00130)	(0.00108)	(0.000843)	(0.000790)
	[-0.00954]	[-0.00805]	[-0.00372]	[-0.00129]	[-0.000543]
Mean (Y)	0.618	0.771	0.843	0.891	0.921
College Enrollment					
Treatment	-0.00121	-0.00486	-0.00477	-0.00210	-0.000220
	(0.00146)	(0.00154)	(0.00133)	(0.00116)	(0.00116)
	[-0.00547]	[-0.0219]	[-0.0214]	[-0.00947]	[-0.000988]
Mean (Y)	0.388	0.555	0.657	0.734	0.785
N	230,051	263,376	238,515	253,030	204,293
Panel B: Math Test Score Quintiles					
	≤20	20-40	40-60	60-80	≥80
	(1)	(2)	(3)	(4)	(5)
High School Completion					
Treatment	-0.00296	-0.00269	-0.00121	0.000240	-0.000847
	(0.00162)	(0.00120)	(0.00107)	(0.000992)	(0.000869)
PP Change	-0.0133	-0.0121	-0.00546	0.00108	-0.00381
Mean (Y)	0.605	0.769	0.844	0.889	0.927
College Enrollment					
Treatment	-0.00253	-0.00406	-0.00211	-0.00234	-0.00128
	(0.00151)	(0.00151)	(0.00136)	(0.00122)	(0.00121)
	[-0.0114]	[-0.0183]	[-0.00949]	[-0.0105]	[-0.00574]
Mean (Y)	0.398	0.553	0.645	0.723	0.783
N	230,607	245,996	241,893	246,959	223,957

Note: This table shows DiD estimates of the impact of the policy on high school completion and college enrollment for General Education (GE) students split by their baseline achievement level. Panel A shows differences across students in their reading achievement quintile, as measured in 4th grade. Panel B shows differences across students in their math achievement quintile, as measured in 4th grade. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings. The sample includes 5th grade GE cohorts enrolled between 1999-00 to 2004-05. See Table 2 for more detail on the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.18 The Effect of the Special Education Enrollment Target on College Enrollment - National Student Clearinghouse Cohorts (High-Impact Sample)

	(1)	(2)	(3)	(4)	(5)
Panel A: College Enrollment					
Treatment	-0.00340	-0.00412	-0.00448	-0.00459	-0.00460
	(0.00155)	(0.00152)	(0.00155)	(0.00153)	(0.00153)
	[-0.0153]	[-0.0185]	[-0.0202]	[-0.0206]	[-0.0207]
Mean (Y)	0.303	0.303	0.303	0.303	0.303
Panel B: College Enrollment - National Student Clearinghouse					
Treatment	-0.00254	-0.00332	-0.00375	-0.00369	-0.00370
	(0.00156)	(0.00153)	(0.00154)	(0.00151)	(0.00152)
	[-0.0114]	[-0.0150]	[-0.0169]	[-0.0166]	[-0.0167]
Mean (Y)	0.322	0.322	0.322	0.322	0.322
N	156,717	156,717	156,717	156,717	156,717
Controls					
Year FE	X	X	X	X	X
District FE	X	X	X	X	X
Individual Demo		X	X	X	X
Individual Disability			X	X	X
District-Cohort Demo				X	X
District Finance					X

Note: This table shows DiD estimates of the impact of the policy on college enrollment. Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in panel headings. College enrollment is now measured within two years of actual high school graduation. Panel A includes in-state college enrollment. Panel B includes in-state and out-of-state college enrollment using National Student Clearinghouse data. This sample includes 5th grade cohorts enrolled in Special Education (SE) between 2000-01 to 2004-05 in our high-impact sample. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.

Table A.19 IV Estimates of the Impact of Special Education Removal on High School Exit Exam Outcomes and Educational Attainment (High-Impact Sample)

	Took HS Exit		Pass HS Exit			
	Math	Reading	Math	Reading	Graduated HS	College Enrolled
	(1)	(2)	(3)	(4)	(5)	(6)
Special Education Removal	0.704	0.707	-0.330	-0.093	-0.519	-0.379
	(0.209)	(0.215)	(0.293)	(0.156)	(0.183)	(0.180)
Mean (Y)	0.418	0.421	0.526	0.844	0.710	0.354
N	189,042	189,042	78,921	79,676	189,042	189,042

Note: This table reports IV estimates of Special Education (SE) removal on taking the high school (HS) exit exam, passing the HS exit exam (conditional on taking it), HS completion, and enrolling in college. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05 in our high-impact sample. See Table 2 for more detail on the sample and the full set of controls. Standard errors in parentheses are clustered at the district level.

Table A.20 Heterogeneity by Predicted Likelihood of Taking the High School Exit Exam

	Quartiles of Predicted Likelihood of Taking HS Exit Exam			
	≤25	25-50	50-75	≥75
	(1)	(2)	(3)	(4)
Panel A: Special Education Removal				
Treatment	0.00713	0.00891	0.00819	0.0111
	(0.00156)	(0.00228)	(0.00321)	(0.00367)
	[0.0321]	[0.0401]	[0.0369]	[0.0499]
Mean (Y)	0.0868	0.147	0.250	0.614
Panel B: Took High School Exit Exam				
Treatment	0.00594	0.00844	0.00738	0.00193
	(0.00194)	(0.00265)	(0.00326)	(0.00329)
	[0.0267]	[0.0380]	[0.0332]	[0.00870]
Mean (Y)	0.117	0.219	0.367	0.678
Panel C: High School Completion				
Treatment	-0.00318	-0.00235	-0.00300	-0.00786
	(0.00223)	(0.00260)	(0.00206)	(0.00248)
	[-0.0143]	[-0.0106]	[-0.0135]	[-0.0354]
Mean (Y)	0.688	0.678	0.715	0.791
Panel D: College Enrollment				
Treatment	-0.00237	-0.00212	-0.00166	-0.00388
	(0.00166)	(0.00233)	(0.00236)	(0.00323)
	[-0.0107]	[-0.00954]	[-0.00746]	[-0.0174]
Mean (Y)	0.162	0.250	0.348	0.548
N	56,746	56,950	56,872	56,987

Note: This table shows DiD estimates of the impact of the policy on Special Education (SE) removal and educational attainment decisions for students with different likelihoods of taking the high school exit exam. We use the full set of controls (described in Table 2) to predict the likelihood of taking both the math and reading exit exams. This likelihood is then split into quartiles, from the lowest likelihood of taking the exams in column (1) to the highest likelihood in column (4). Within each panel, each column reports estimates of δ_1 from a separate regression of Equation (1). The dependent variable is shown in the panel headings. The sample includes 5th grade cohorts enrolled in SE between 1999-00 to 2004-05. See Table 2 for more detail on the sample and the full set of controls. The effect for the fully exposed student at the average district is shown in brackets, and is defined as the coefficient multiplied by 4.5. Standard errors in parentheses are clustered at the district level.