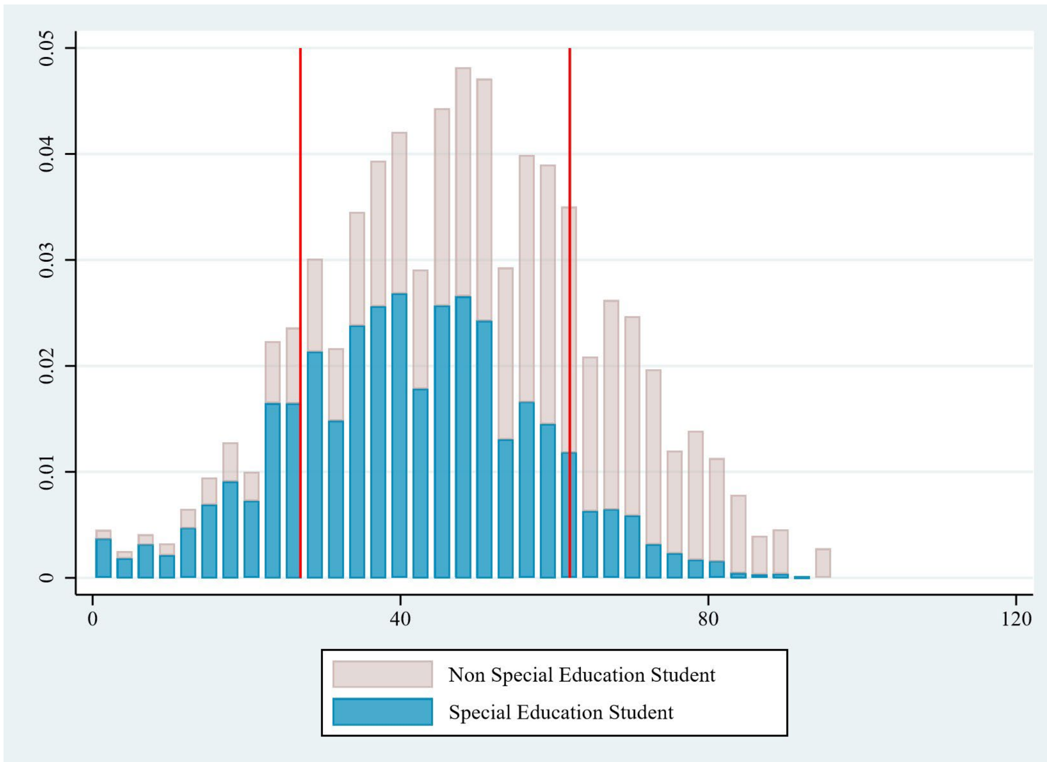
Appendix A: Figures and Tables

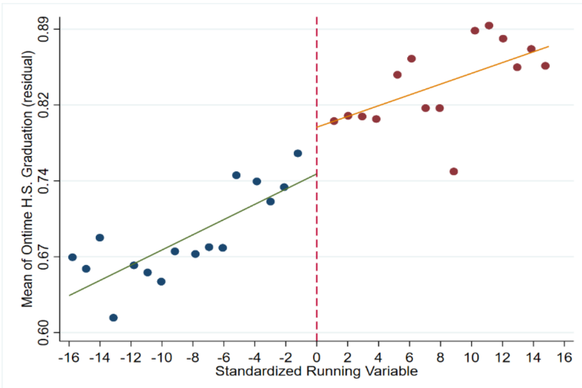
Figure A1: Histogram of Student Admission Scores



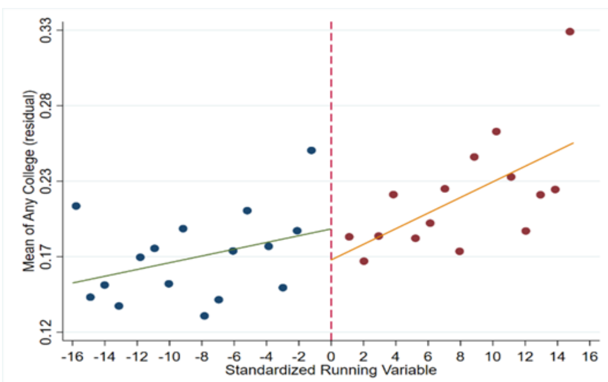
Notes: Figure shows density of admission scores for special education students (Blue) and non special education students (Tan). Admission scores and thresholds are adjusted by subtracting 6 points during the 2007-08 and the 2008-09 academic years when the maximum score was 106 points, and by subtracting 20 points between the 2009-10 and the 2013-14 years when the maximum score was 20. Vertical red lines correspond to minimum and maximum adjusted CTECS school admission cutoff scores.

Figure A2: Reduced Form Graphs: H.S. Graduation, Attend College, and Quarterly Earnings

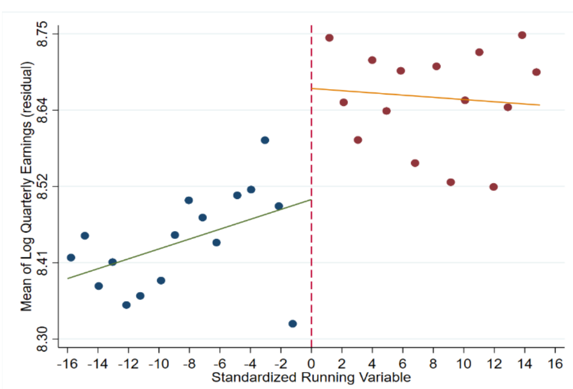
Panel A: On Time H.S. Graduation Male Students



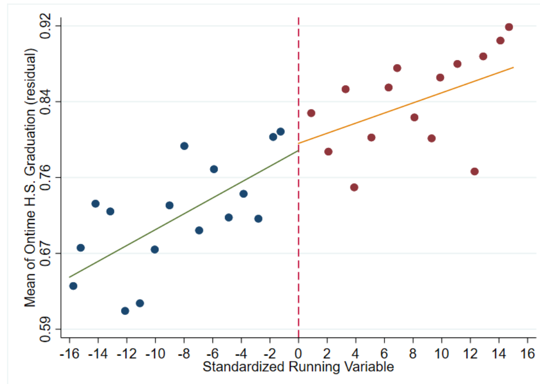
Panel B: Any College Male Students



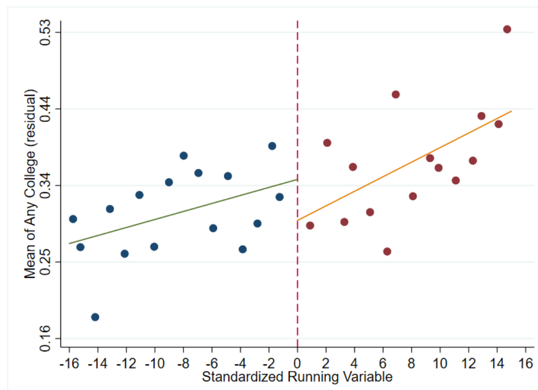
Panel c: Log Quarterly Earnings Male Students



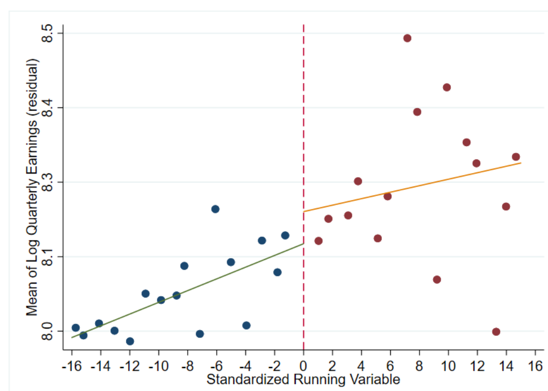
Panel D: On Time H.S. Graduation Female Students



Panel E: Any College Female Students

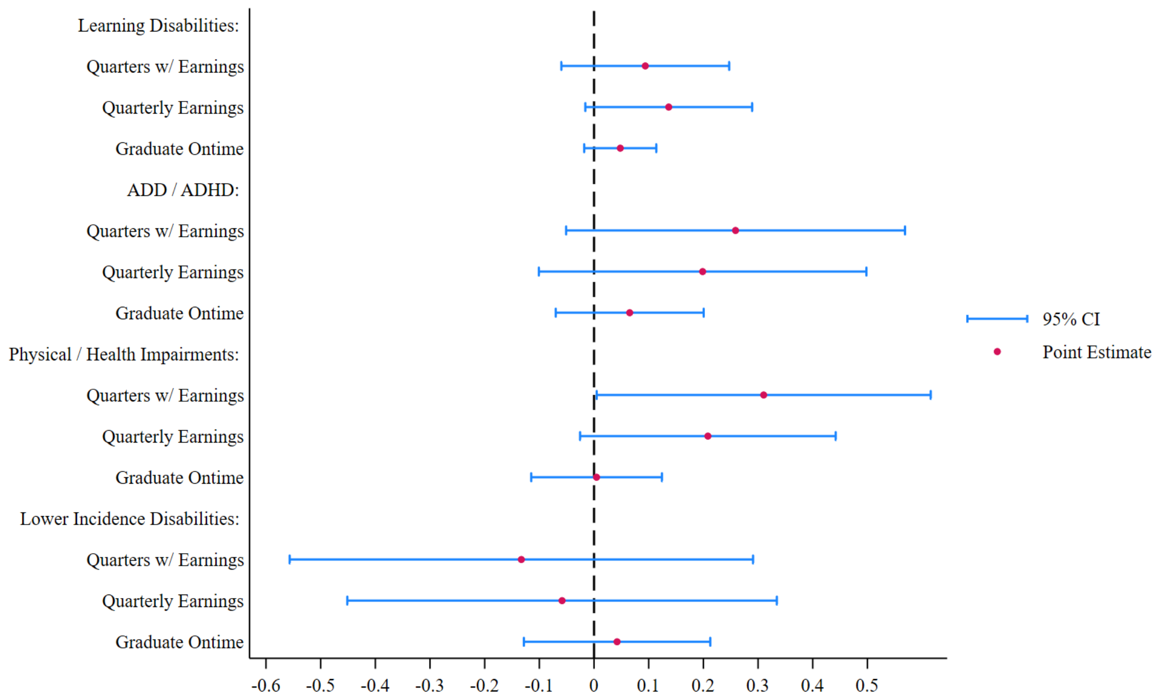


Panel F: Log Quarterly Earnings Female Students



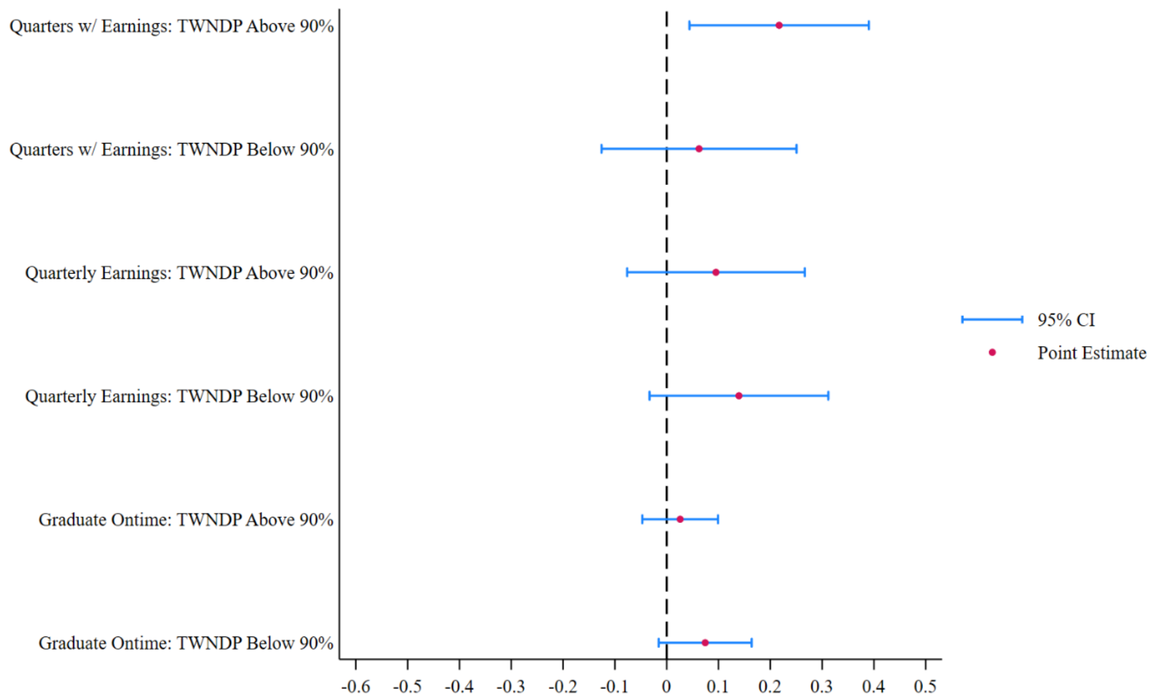
Notes: The scores forming the horizontal axis have been re-centered by subtracting the threshold for each school and year from the scores associated with the applicants from those schools and years. These figures document the share of students graduating from high school on time, the share of students attending any college, and the average of the logarithm of average quarterly earnings for each score value.

Figure A3: Treatment Effects by Type of Disability



Notes: Figure shows point estimates and 95% confidence intervals for select outcomes based on models where we spit the sample based on a student's identified disability in 8th grade. Unlike Figure 3, results are organized by outcome, rather than disability type, so that treatment effects for the same outcome can be visually compared. All results are based on a RD local linear regression with a 16-point bandwidth. Full set of estimates and standard errors are reported in Table A11.

Figure A4: Treatment Effects by Time Spent with Non-Disabled Peers



Notes: Figure shows point estimates and 95% confidence intervals for select outcomes based on models where we spit the sample based on the share of time spent with typically developing peers in 8th grade. All results are based on a RD local linear regression with a 16-point bandwidth. Full set of estimates and standard errors are reported in Table A12.

Table A1: State and CTECS District Means

	Statewide Sample		CTECS Sample		Within 16 Point Bandwidth	
	(1)	(2)	(3)	(4)	(5)	(6)
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Female	0.339	0.474	0.271	0.444	0.269	0.443
Asian	0.022	0.146	0.008	0.087	0.009	0.096
Black	0.152	0.359	0.190	0.393	0.190	0.392
Hispanic	0.257	0.437	0.323	0.468	0.288	0.453
Free Lunch	0.496	0.500	0.680	0.466	0.661	0.473
English Learner	0.091	0.288	0.114	0.318	0.092	0.289
8th Grade Learning Disabilities	0.448	0.497	0.517	0.500	0.523	0.500
8th Grade ADD/ADHD	0.156	0.363	0.161	0.368	0.165	0.372
8th Grade Physical/Health Impairments	0.161	0.368	0.170	0.376	0.171	0.377
8th Grade Lower Incidence Disability	0.235	0.424	0.152	0.359	0.140	0.347
8th Time Spent with Non-Disabled Peers	82.241	21.730	85.599	18.507	85.504	19.087
Reading						
Below Basic	0.274	0.446	0.337	0.473	0.292	0.455
Below Proficient	0.428	0.494	0.540	0.499	0.525	0.500
Below Goal	0.582	0.493	0.704	0.457	0.708	0.455
Writing						
Below Basic	0.271	0.444	0.280	0.449	0.236	0.425
Below Proficient	0.522	0.499	0.593	0.491	0.553	0.498
Below Goal	0.787	0.409	0.868	0.339	0.866	0.340
Math						
Below Basic	0.169	0.374	0.182	0.386	0.128	0.334
Below Proficient	0.410	0.491	0.478	0.500	0.434	0.496
Below Goal	0.722	0.448	0.794	0.405	0.810	0.393

Notes: Table presents means and standard deviations for the 2013-14 school year for students with disabilities in the State of Connecticut, for those students with disabilities in the state who applied to a CTE High School, and for those applicants who test scores place them within the 16-point bandwidth around the admissions threshold given the application school and year. The aggregate categories for disability type are defined as follows: Learning Disabilities include the learning disabilities; ADD/ADHD is a category by itself; Physical/Health Impairments include Hearing Impairments, Visual Impairments, Orthopedic Impairments, Other Health Impairments, and Speech/Language Impairments; Lower Incidence Disabilities include Intellectual Disabilities, Emotional Disturbances, Autism, and Traumatic Brain Injury. The results of 8th grade test scores are presented as percent of students below a given standard where proficient is the standard established for compliance with federal No Child Left Behind legislation, while goal is the state's established standard of performance and basic is a level below the federal standard.

Table A2: First Stage Estimates (Bandwidth 16)

Outcome	Probability of Being Admitted Full Sample (1)	Probability of Attending Full Sample (2)	Probability of Being Admitted Male Students (3)	Probability of Attending Male Students (4)	Probability of Being Admitted Female Students (5)	Probability of Attending Female Students (6)
Offer	0.873**	0.645**	0.866**	0.653**	0.868**	0.591**
	(0.0200)	(0.0297)	(0.0193)	(0.0311)	(0.0359)	(0.0512)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
F	1,897	471	1,997	444	584	133
Observations	6,287	6,287	4,639	4,639	1,618	1,618

Notes: Table presents first-stage estimates of the probability of being admitted to a CTECS school and the probability of attending a CTECS school for the sample of 8th grade IEP students who applied to CTECS from 2006-2014. Estimates are from a RD specification using local linear regression and a 16 point bandwidth. Column 1 presents first-stage estimates of the probability of being admitted to a CTECS school where the dependent variable is an indicator for receiving an offer of admittance and the sample includes both male and female students. Column 2 presents main first-stage estimates for probability of attending a CTECS school after receiving an offer where the dependent variable is an indicator for attendance at a CTECS school in 9th grade. Columns 3-4 present the same information as columns 1-2 but limits the sample to male students while columns 5-6 present the same information for the sample of female students. All specifications include controls for standardized 7th grade combined test scores in English and math and indicators for whether an applicant is Black, Hispanic, Free or reduced price lunch eligible and whether the student is an English language learner. Columns 1 and 2 also include an indicator for whether a student is female. All specifications include CTECS school-by-year fixed effects and 8th grade sending-town fixed effects. Robust standard errors, clustered at the school-by-year and sending town in parentheses. ** p<0.01, * p<0.05

Table A3: Summary Statistics Above and Below Threshold

	All IEP Students				Male IEP Students			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Applied to CTHSS	Enrolled in CTHSS	Below Threshold BW 16	Above Threshold BW 16	Applied to CTHSS	Enrolled in CTHSS	Below Threshold BW 16	Above Threshold BW 16
Outcomes								
On Time Graduation	0.70	0.88	0.70	0.82	0.71	0.87	0.70	0.82
Any College	0.22	0.25	0.21	0.24	0.19	0.22	0.18	0.20
Total Earnings	127,338	169,367	123,078	154,454	141,249	182,675	137,736	170,220
Quarterly Earnings	5,682	7,220	5,440	6,725	6,219	7,723	5,974	7,334
Quarters with Earnings	18.55	20.22	18.80	19.60	18.72	20.27	19.16	19.72
Predetermined Variables								
Female	0.26	0.20	0.27	0.25				
Asian	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Black	0.17	0.09	0.18	0.11	0.16	0.07	0.17	0.10
Hispanic	0.26	0.16	0.27	0.18	0.23	0.14	0.23	0.15
Free Lunch	0.60	0.42	0.62	0.47	0.55	0.38	0.56	0.42
English Learner	0.08	0.04	0.08	0.05	0.07	0.03	0.07	0.04
7th Grade CMT-Reading	195	217	187	211	196	217	188	211
7th Grade CMT-Math	211	233	204	226	214	236	207	229
7th Grade CMT-Writing	199	211	195	208	197	210	193	206
8th Grade Learning Disabilities	0.50	0.52	0.50	0.51	0.47	0.50	0.46	0.48
8th Grade ADD / ADHD	0.16	0.17	0.16	0.17	0.18	0.18	0.19	0.19
8th Grade Physical / Health Impairments	0.20	0.20	0.21	0.20	0.19	0.19	0.20	0.19
8th Grade Lower Incidence Disability	0.14	0.12	0.13	0.13	0.16	0.13	0.15	0.14
8th Time Spent with Non-Disabled Peers	85.95	89.68	85.13	87.60	85.16	89.33	84.13	86.79

Notes: Table presents summary statistics for main outcomes and predetermined variables. Columns 1-4 report means for the full sample of IEP students. Columns 5-8 report means for sample of male IEP students. Columns 1 and 5 present summary statistics for students with an IEP that applied to a CTECS school. Columns 2 and 6 present summary statistics for sample of IEP students that enrolled in a CTECS school. Columns 3 and 4 and 7 and 8 present summary statistics for the sample of students 16 points above and below the admission score threshold.

Table A4: First Stage Estimates Labor Market (Bandwidth 16)

	Probability of Attending Full Sample		Probability of Attending Male Students		Probability of Attending Female Students	
	(1)	(2)	(3)	(4)	(5)	(6)
Outcome						
Offer	0.653**	0.653**	0.660**	0.661**	0.603**	0.602**
	(0.0292)	(0.0293)	(0.0317)	(0.0319)	(0.0530)	(0.0554)
Controls	No	Yes	No	Yes	No	Yes
F	500	497	434	431	129	118
Observations	5,398	5,398	4,039	4,039	1,327	1,327

Notes: Table presents first-stage estimates based on sample of students in labor market. Estimates are for probability of attending a CTECS school after receiving an offer where dependent variable is an indicator for attendance at a CTECS school in 9th grade. Columns 1 and 2 are for full sample of IEP male and female students in labor market. Columns 3 and 4 are for sample of male IEP students in labor market and columns 5 and 6 are for sample of female IEP students in labor market. All specifications include CTECS school-by-year fixed effects and resident 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. ** p<0.01, * p<0.05

Table A5: Labor Market Effects Conditional on Education

Outcome	(1) Total Earnings	(2) Log of Quarterly Earnings	(3) Quarters with Earnings	(4) Log of Quarterly Earnings Age 22+
Attend	0.439**	0.235**	2.831**	0.283**
	(0.141)	(0.0829)	(0.919)	(0.0904)
H.S. Graduate	0.741**	0.363**	5.619**	0.362**
	(0.0719)	(0.0407)	(0.562)	(0.0485)
Semesters of College	-0.0329**	-0.0269**	-0.135	-0.0158**
	(0.0109)	(0.00573)	(0.0737)	(0.00575)
Observations	4,039	4,039	4,039	3,292

Notes: Table presents 2SLS estimates for labor market outcomes of male students adding controls for whether a student graduated from high school and the number of semesters a students attended college. All results are based on a RD local linear regression with a 16 point bandwidth and include applications from 8th graders from 2006-2014. All specifications include controls for standardized 7th grade combined test scores in English and math and indicators for whether an applicant is Black, Hispanic, Free or reduced price lunch eligible and whether the student is an English language learner. All specifications also include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. ** $p<0.01$, * $p<0.05$

As shown above, when controls are added for high school graduation and semesters observed in college, the estimates are nearly identical to Table 1. While these controls are clearly endogenous, these models allow us to examine labor market effects while recognizing that early exit from high school may influence labor market outcomes due to increased experience and that participation in secondary education may have an incapacitation effect on labor supply.

Table A6: 2SLS Estimates No Controls

Outcome	(1) On Time H.S. Grad	(2) Any College	(3) In Labor Market	(4) Log of Total Earnings	(5) Log of Quarterly Earnings	(6) Quarters with Earnings	(7) Log of Quarterly Earnings Age 22+
				Male Students			
Attend	0.0683	-0.0330	-0.00689	0.458**	0.248**	2.975**	0.300**
	(0.0357)	(0.0323)	(0.0107)	(0.145)	(0.0855)	(0.971)	(0.0920)
Observations	4,639	4,639	4,639	4,039	4,039	4,039	3,292
Mean CG	0.696	0.176	0.897	11.136	8.441	19.155	8.626
St. Dev. CG	0.460	0.381	0.304	1.489	0.814	11.394	0.857
				Female Students			
Attend	0.0130	-0.0838	-0.0426	0.145	0.0892	2.098	0.0822
	(0.0918)	(0.0577)	(0.0388)	(0.256)	(0.159)	(1.379)	(0.162)
Observations	1,618	1,618	1,618	1,327	1,327	1,327	1,048
Mean CG	0.716	0.316	0.837	10.701	8.059	17.820	8.234
St. Dev. CG	0.451	0.465	0.370	1.448	0.793	10.327	0.852

Notes: Table presents 2SLS estimates for main outcomes based on specifications with no controls. Top panel presents estimates for male IEP students. Bottom panel presents estimates for sample of female IEP students. All estimates are based on a RD specification using local linear regression and a 16-point bandwidth. All specifications include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. ** p<0.01, * p<0.05

Table A7: First Stage and 2SLS Estimates - Alternative Bandwidths Male Students

Outcome	(1) Attend (First Stage)	(2) On Time H.S. Grad	(3) Log of Total Earnings	(4) Log of Quarterly Earnings	(5) Quarters with Earnings	(6) Log of Quarterly Earnings Age 22+
			Bandwidth 16			
Offer	0.654**	0.0633	0.453**	0.245**	2.917**	0.292**
	(0.0309)	(0.0364)	(0.142)	(0.0835)	(0.943)	(0.0901)
Observations	4,639	4,639	4,039	4,039	4,039	3,292
			Bandwidth 14			
Offer	0.638**	0.0479	0.454**	0.240**	3.196**	0.304**
	(0.0330)	(0.0391)	(0.146)	(0.0882)	(0.980)	(0.0960)
Observations	4,173	4,173	3,633	3,633	3,633	2,960
			Bandwidth 12			
Offer	0.641**	0.0455	0.395**	0.211*	2.384*	0.219*
	(0.0338)	(0.0422)	(0.149)	(0.0941)	(0.980)	(0.0960)
Observations	3,665	3,665	3,201	3,201	3,201	2,614
			Bandwidth 10			
Offer	0.647**	0.0591	0.515**	0.293***	2.904**	0.328**
	(0.0378)	(0.0470)	(0.136)	(0.0830)	(1.000)	(0.0951)
Observations	3,085	3,085	2,707	2,707	2,707	2,217

Notes: Table presents first-stage and reduced form estimates for the main outcomes based on various bandwidths. Sample is limited to male students. All specifications include the full set of controls listed in Table 1 and CTECS school-by-year fixed effects and resident 8th grade town fixed effects. Robust standard errors, clustered at the school-by-year and resident town levels in parentheses. ** p<0.01, * p<0.05

Table A8: Falsification Test - Reduced Form Male Students

Outcome	(1) On Time H.S. Grad	(2) Log of Total Earnings	(3) Log of Quarterly Earnings	(4) Quarters with Earnings	(5) Log of Quarterly Earnings Age 22+
			Reduced Form Estimates		
Offer	0.0414	0.300**	0.162**	1.929**	0.201**
	(0.0243)	(0.0953)	(0.0566)	(0.639)	(0.0635)
Observations	4,639	4,039	4,039	4,039	3,292
			Cutoff +20 Points		
Offer	-0.0591*	-0.142	-0.0355	-1.093	0.0335
	(0.0323)	(0.143)	(0.0844)	(0.822)	(0.0944)
Observations	2,771	2,395	2,395	2,395	1,888
			Cutoff +16 Points		
Offer	-0.0280	-0.0940	-0.0180	-0.705	0.0418
	(0.0309)	(0.128)	(0.0736)	(0.807)	(0.0853)
Observations	2,707	2,330	2,330	2,330	1,839
			Cutoff -16 Points		
Offer	-0.0346	0.00370	0.00114	-0.0874	0.0420
	(0.0217)	(0.108)	(0.0558)	(0.766)	(0.0616)
Observations	4,203	3,661	3,661	3,661	3,001

Notes: Table presents reduced-form RD falsification tests for main outcomes based on pseudo cutoffs where we move the actual cutoff threshold: 1) up 20 points, 2) up 16 points and 3) down 16 points. Top Panel presents actual reduced form estimates from main specifications for comparison. All specifications include the full set of controls listed in Table 1 and CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. ** $p<0.01$, * $p<0.05$

Table A9: Mechanisms - 2SLS Male Students

	(1)	(2)	(3)	(4)	(5)
Outcome	10th Grade Composite Test Scores	10th Grade Math Score	10th Grade Reading Score	Missing 10th Grade Test Scores	9th Grade Time Spent with Non-Disabled Peers
Attend	0.249**	0.194*	0.205	-0.0764*	12.73**
	(0.0868)	(0.0798)	(0.106)	(0.0303)	(1.822)
Observations	2,251	2,344	2,355	3,061	3,808
Mean CG	-0.861	-0.712	-0.845	0.220	83.593
St. Dev. CG	0.913	0.977	0.894	0.414	21.866
Outcome	Ever Expelled	Ever Out of School Suspension	Ever In-School Suspension	Ever Any Discipline	
Attend	0.0174	0.0590	0.109*	0.125**	
	(0.0159)	(0.0392)	(0.0451)	(0.0463)	
Observations	4,639	4,639	4,639	4,639	
Mean CG	0.035	0.267	0.396	0.489	
St. Dev. CG	0.184	0.443	0.489	0.500	

Notes: Table presents 2SLS RD estimates based on sample of male students with an IEP. Top panel presents RD estimates with a 16-point bandwidth for standardized individual and composite 10th grade reading and math scores, and share of time spent in 9th grade with non-disabled peers. Bottom panel presents RD estimates with a 16 point bandwidth for whether a student was ever expelled in H.S., ever had an out of school suspension, ever had an in-school suspension and whether the student had any disciplinary action while in H.S. Mean CG is the mean of the dependent variable for the control group and is defined as the mean to the left of the cutoff within the 16 point bandwidth. St. Dev. CG is the standard deviation of Mean CG. All specifications include the full set of controls listed in Table 1 and CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-application year and 8th grade town levels in parentheses. ** p<0.01, * p<0.05

Table A10: Mechanisms - 2SLS Female Students

	(1)	(2)	(3)	(4)
Outcome	10th Grade Composite Test Scores	10th Grade Math Score	10th Grade Reading Score	9th Grade Time Spent with Non-Disabled Peers
Attend	0.0639	0.262	-0.0322	10.18**
	(0.129)	(0.208)	(0.154)	(2.058)
Observations	673	702	698	1,310
Mean CG	-1.17	-1.21	-0.82	85.20
St. Dev. CG	0.88	0.93	0.91	20.24
Outcome	Ever Expelled	Ever Out of School Suspension	Ever In-School Suspension	Ever Any Discipline
Attend	-0.0237	-0.0199	0.0643	0.0497
	(0.0265)	(0.0741)	(0.0733)	(0.0725)
Observations	1,618	1,618	1,618	1,618
Mean CG	0.01	0.20	0.28	0.36
St. Dev. CG	0.11	0.40	0.45	0.48

Notes: Table presents 2SLS RD estimates based on sample of female students with an IEP. Top panel presents RD estimates with a 16-point bandwidth for standardized individual and composite 10th grade reading and math scores, and share of time spent in 9th grade with non-disabled peers. Bottom panel presents RD estimates with a 16-point bandwidth for whether a student was ever expelled in H.S., ever had an out of school suspension, ever had an in-school suspension and whether the student had any disciplinary action while in H.S. Mean CG is the mean of the dependent variable for the control group and is defined as the mean to the left of the cutoff within the 16-point bandwidth. St. Dev. CG is the standard deviation of Mean CG. All specifications include the full set of controls listed in Table 1 and CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-application year and 8th grade town levels in parentheses. ** p<0.01, * p<0.05

Table A11: Heterogeneity Estimates Male Students

Outcome	On Time H.S. Grad	Log of Quarterly Earnings	Quarters with Earnings
	(1)	(2)	(3)
Learning Disabilities			
Offer	0.0480	0.137	0.938
	(0.0337)	(0.0780)	(0.7850)
Observations	1,870	1,638	1,638
ADD / ADHD			
Offer	0.0653	0.199	2.588
	(0.0692)	(0.1530)	(1.5850)
Observations	765	673	673
ADD / ADHD minus Learning Disability	0.0173	0.0620	1.6500
	(0.0770)	(0.1717)	(1.7687)
Physical / Health Impairment			
Offer	0.00465	0.208	3.103*
	(0.0611)	(0.1200)	(1.5610)
Observations	731	624	624
Physical / Health minus Learning Disability	-0.0434	0.0710	2.1650
	(0.0698)	(0.1431)	(1.7473)
Lower Incidence Disability			
Offer	0.0422	-0.0584	-1.329
	(0.0871)	(0.2010)	(2.1640)
Observations	564	431	431
Lower Incidence minus Learning Disability	-0.0058	-0.1954	-2.2670
	(0.0934)	(0.2156)	(2.3020)

Notes: Table presents reduced form RD estimates for main outcomes based on sample of male students and a 16 point bandwidth. Panel A presents results for students whose primary disability is a learning disability. Panel B presents results for students whose primary disability is ADD or ADHD and Panel C presents results for students whose primary disability is a physical or health impairment. The bottom row in each panel presents the difference between the estimate for a specific disability type and the estimate for learning disability. All specifications include the full set of controls listed in Table 1 and CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses.** $p<0.01$, * $p<0.05$

Table A12: Heterogeneity Estimates Male Students

Outcome	On Time H.S. Grad	Log of Quarterly Earnings	Quarters with Earnings
	(1)	(2)	(3)
Time Spent with Non-Disabled Peers Less Than 90%			
Offer	0.0743	0.139	0.625
	(0.0458)	(0.0882)	(0.9620)
Observations	1,686	1,429	1,429
Time Spent with Non-Disabled Peers Greater Than 90%			
Offer	0.026	0.0951	2.171*
	(0.0374)	(0.0877)	(0.8860)
Observations	1,607	1,411	1,411
Less than 90% minus Greater than	0.0483	0.0439	-1.5460
	(0.0591)	(0.1244)	(1.3078)
Free Lunch Eligible			
Offer	0.0640	0.171*	1.625*
	(0.0432)	(0.0882)	(0.7990)
Observations	2,289	1,931	1,931
Not Free Lunch Eligible			
Offer	0.0313	0.138	2.143*
	(0.0312)	(0.0791)	(0.8990)
Observations	2,321	2,074	2,074
Free Lunch minus Not Eligible	0.0327	0.0330	-0.5180
	(0.0533)	(0.1185)	(1.2027)
Black or Hispanic			
Offer	0.0686	0.130	1.366
	(0.0666)	(0.1020)	(0.9900)
Observations	1,500	1,274	1,274
White, Asian, Other			
Offer	0.0300	0.152*	1.924*
	(0.0263)	(0.0695)	(0.7810)
Observations	3,089	2,706	2,706
Black or Hispanic minus White, Asian, Other	0.0386	-0.0220	-0.5580
	(0.0716)	(0.1234)	(1.2610)

Notes: Table presents reduced form RD estimates for main outcomes based on sample of male students and a 16 point bandwidth. Panels A and B split the sample by time spent with non-disabled peers in 8th grade with Panel A being for students spending less than 90% of time with non-disabled peers and Panel B for students spending 90% of their time or more with non-disabled peers. Panels C and D split the sample based on free or reduced price lunch eligibility status, and panels E and F split the sample based on race and ethnicity with panel E presenting estimates for black or Hispanic students and panel F showing estimates for all other students. The bottom row in each panel presents the difference between the estimate in the top half of the panel and the estimate in the bottom half. All specifications include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses.** $p<0.01$, * $p<0.05$

Table A13: Summary Statistics by Admission Threshold Score Terciles

	(1) Tercile 1	(2) Tercile 2	(3) Tercile 3
Admission Threshold Score	39.73	48.15	55.29
Asian	0.01	0.01	0.01
Black	0.17	0.11	0.12
Hispanic	0.25	0.17	0.16
Free Lunch	0.60	0.44	0.42
English Learner	0.09	0.04	0.03
7th Grade CMT-Reading	195	196	207
7th Grade CMT-Math	213	215	225
8th Grade Learning Disabilities	0.49	0.48	0.43
8th Grade ADD / ADHD	0.18	0.18	0.21
8th Grade Physical / Health Impairments	0.19	0.19	0.22
8th Grade Lower Incidence Disabilities	0.14	0.15	0.14
8th Time Spent with Non-Disabled Peers	85.32	83.86	86.68

Notes: Table presents summary statistics by terciles of the admission threshold scores. Column 1 reports means for the 1st (lowest score) tercile, while columns 2 and 3 report means for the 2nd and 3rd terciles.

Table A14: Heterogeneity Estimates Male Students by Terciles of Admission Threshold Scores

VARIABLES	(1) On Time H.S. Grad	(3) Log of Quarterly Earnings	(5) Quarters with Earnings
Tercile 1 * Offer	0.0810**	0.164**	2.422**
	(0.0301)	(0.0593)	(0.7330)
Tercile 2 * Offer	0.0446	0.160*	1.792*
	(0.0281)	(0.0728)	(0.8430)
Tercile 3 * Offer	-0.03	0.162*	1.331
	(0.0293)	(0.0766)	(0.7990)
Observations	4,639	4,039	4,039
Tercile 1 minus Tercile 2	0.0364	0.004	0.63
	(0.0412)	(0.0939)	(1.1171)
Tercile 3 minus Tercile 2	-0.0746	0.002	-0.461
	(0.0406)	(0.1057)	(1.1615)

Notes: Table presents reduced-form estimates for main outcomes for the sample of male students. Tercile 1, Tercile 2 and Tercile 3 are indicators for the terciles of admission threshold scores, each of which is interacted with the offer of admission indicator. Tercile 1 includes the lowest admission threshold scores, while Tercile 3 includes the highest admission threshold scores. The second panel presents the difference between both estimtes for the top and bottom teciles and the middel tercile. All results are based on a RD local linear regression with a 16 point bandwidth and include applications from 8th graders from 2006-2014. All specifications include controls for standardized 7th grade combined test scores in English and math and indicators for whether an applicant is Black, Hispanic, Free or reduced price lunch eligible and whether the student is an English language learner. All specifications also include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. ** p<0.01, * p<0.05

Table A15: Summary Statistics of Students with Disabilities Nationally and for Connecticut

	National		State of Connecticut	
	Mean	Std.Dev	Mean	Std.Dev
Composition of Students with Disabilities				
Learning Disabilities	0.354	0.478	0.341	0.474
Physical Impairment	0.236	0.425	0.163	0.369
ADHD and Health impairments	0.121	0.326	0.195	0.396
Lower Incidence Disabilities	0.225	0.418	0.238	0.426
Share of Student with Disabilities				
All Students	0.129	0.335	0.119	0.324
Asian	0.056	0.231	0.022	0.146
Black	0.146	0.353	0.152	0.359
Hispanic	0.144	0.350	0.257	0.437

Notes: Mean composition for students with disabilities for the 14-15 school year for both the United States and separately for the State of Connecticut.

Table A16: Summary Statistics Students with and without Disabilities

	State	CTHSS IEP Sample		CTHSS Non-IEP Sample	
	Mean	Mean	Std. Dev.	Mean	Std. Dev.
Female	0.49	0.26	0.44	0.46	0.50
Asian	0.04	0.01	0.08	0.01	0.11
Black	0.13	0.17	0.38	0.20	0.40
Hispanic	0.17	0.26	0.44	0.32	0.47
Free Lunch	0.33	0.60	0.49	0.66	0.47
English Learner	0.06	0.08	0.27	0.06	0.24
7^{th} Grade CMT-Reading	249	195	36	230	35
7^{th} Grade CMT-Math	263	211	35	244	36
7^{th} Grade CMT-Writing	246	198	28	231	28
Total Application Score	--	51.07	17.42	64.39	19.26
Application Grades Score	--	22.00	8.56	25.46	9.24
Application Attendance Score	--	6.43	4.47	7.03	4.22
Application Math Score	--	9.30	4.47	13.42	4.68
Application Language Arts Score	--	8.99	4.92	13.67	5.26

Notes: Table presents means and standard deviations of individual control variables, 7th grade standardized test scores, total application score and components of application score. Column 1 presents mean of characteristics for the state of Connecticut overall. Columns 2 and 3 present summary statistics for the sample of students with an IEP that applied to a CTECS school. Columns 4 and 5 present summary statistics for the sample of CTECS applicants who do not have an IEP.

Table A17: Balancing Tests

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	Black	Hispanic	Free Lunch	English Learner	7th Grade Test Scores	Share of Time Spent with Non-Disabled Peers
			Male IEP Students			
Offer	-0.0256	0.0154	-0.0164	0.00546	-2.427	0.243
	(0.0187)	(0.0193)	(0.0216)	(0.0133)	(1.503)	(1.105)
Observations	4,726	4,726	4,726	4,726	4,033	3,321
Mean CG	0.166	0.235	0.560	0.073	194.602	86.347
St. Dev. CG	0.372	0.424	0.496	0.261	24.432	15.350
			Female IEP Students			
Offer	0.0202	0.00517	-0.00670	0.0169	-2.627	0.0811
	(0.0412)	(0.0491)	(0.0288)	(0.0293)	(3.142)	(0.820)
Observations	1,637	1,637	1,637	1,637	1,387	1,208
Mean CG	0.234	0.349	0.764	0.106	193.811	87.892
St. Dev. CG	0.424	0.477	0.425	0.308	23.840	13.373

Notes: Table presents balancing tests for the sample of IEP students that applied to CTECS. Estimates are from a RD specification using local linear regression and a 16 point bandwidth. Top panel presents balancing tests for the sample of male IEP students. Bottom panel presents balancing tests for female IEP students. Columns 1-10 present balancing tests for individual covariates. Columns 11 and 12 present balancing tests for school-level pupil-teacher ratio and 6th grade average test scores for sending middle schools. Pupil teacher ratio and average 6th grade test scores are for 2006 - 2011. Mean CG is the mean of the dependent variable for the control group and is defined as the mean to the left of the cutoff within the 16 point bandwidth. St. Dev. CG is the standard deviation of Mean CG. All specifications include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A17 (Continued): Balancing Tests

	(7) Learning Disabilities	(8) ADD / ADHD	(9) Health / Physical Impairment	(10) Lower Incidence Disability	(11) Pupil Teacher Ratio	(12) 6th Grade Average Test Scores
			Male IEP Students			
Offer	-0.0120	0.0608	-0.0140	-0.0347	0.0390	-0.0935
	(0.0270)	(0.0371)	(0.0277)	(0.0211)	(0.0980)	(0.707)
Observations	3,398	3,398	3,398	3,398	4,660	4,007
Mean CG	0.458	0.188	0.205	0.149	13.291	249.298
St. Dev. CG	0.498	0.391	0.404	0.356	2.334	18.778
			Female IEP Students			
Offer	0.0144	-0.0447	0.0490	-0.0186	-0.132	-0.490
	(0.0364)	(0.0489)	(0.0476)	(0.0308)	(0.163)	(1.280)
Observations	1,210	1,210	1,210	1,210	1,632	1,410
Mean CG	0.607	0.089	0.209	0.095	13.568	243.169
St. Dev. CG	0.489	0.284	0.407	0.294	2.339	17.799

Table A18: Balancing Tests Labor Market Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	Black	Hispanic	Free Lunch	English Learner	7th Grade Test Scores	Share of Time Spent with Non-Disabled Peers
			Male IEP Students			
Offer	-0.0318	0.0128	-0.0279	-0.00304	-1.994	0.150
	(0.0212)	(0.0228)	(0.0242)	(0.0127)	(1.503)	(1.245)
Observations	4,113	4,113	4,113	4,113	3,503	2,859
Mean CG	0.166	0.233	0.546	0.071	194.667	86.485
St. Dev. CG	0.372	0.423	0.498	0.257	23.898	15.255
			Female IEP Students			
Offer	0.0361	0.0103	-0.00890	0.0246	-2.606	0.178
	(0.0464)	(0.0557)	(0.0366)	(0.0377)	(3.151)	(1.029)
Observations	1,345	1,345	1,345	1,345	1,153	1,007
Mean CG	0.237	0.362	0.767	0.111	194.515	88.523
St. Dev. CG	0.425	0.481	0.423	0.314	23.744	12.128

Notes: Table presents balancing tests for the sample of IEP students that applied to CTECS and are observed in the labor market. Estimates are from a RD specification using local linear regression and a 16 point bandwidth. Top panel presents balancing tests for the sample of male IEP students. Bottom panel presents balancing tests for female IEP students. Columns 1-10 present balancing tests for individual covariates. Columns 11 and 12 present balancing tests for school-level pupil-teacher ratio and 6th grade average test scores for sending middle schools. Pupil teacher ratio and average 6th grade test scores are for 2006 - 2011. Mean CG is the mean of the dependent variable for the control group and is defined as the mean to the left of the cutoff within the 16-point bandwidth. St. Dev. CG is the standard deviation of Mean CG. All specifications include CTECS school-by-year fixed effects and 8th grade sending town fixed effects. Robust standard errors, clustered at the school-by-year and town levels in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A18 (Continued): Balancing Tests Labor Market Sample

	(7)	(8)	(9)	(10)	(11)	(12)
	Learning Disabilities	ADD / ADHD	Health / Physical Impairment	Lower Incidence Disability	Pupil Teacher Ratio	6th Grade Average Test Scores
			Male IEP Students			
Offer	-0.00737	0.0602	-0.0244	-0.0284	0.0431	0.123
	(0.0302)	(0.0413)	(0.0304)	(0.0205)	(0.0899)	(0.789)
Observations	2,928	2,928	2,928	2,928	4,059	3,520
Mean CG	0.468	0.198	0.202	0.132	13.311	249.028
St. Dev. CG	0.499	0.398	0.401	0.339	2.329	18.817
			Female IEP Students			
Offer	0.00381	-0.0490	0.0189	0.0263	-0.163	-0.851
	(0.0399)	(0.0601)	(0.0513)	(0.0353)	(0.205)	(1.527)
Observations	1,008	1,008	1,008	1,008	1,340	1,148
Mean CG	0.610	0.091	0.213	0.086	13.522	243.343
St. Dev. CG	0.488	0.288	0.410	0.281	2.349	17.964

Appendix B: Analytic Sample Details

In Appendix B, we present additional details about the analytic sample used in the analysis. Table A16 presents descriptive statistics for the sample of CTE applicants without disabilities for comparison to applicants with identified disabilities. Further, for comparison purposes, Table A15 presents the composition of special education students nationally and in Connecticut showing that the composition in Connecticut is broadly comparable to the population nationally with a few exceptions. National data from National Center for Education Statistics (2016) and state administrative data from Connecticut, reveal that the State of Connecticut has substantially more students classified as having ADD or ADHD than the U.S. overall (19.1% versus 12.1%), and a smaller share of students classified as having a physical disability (16.3% vs 23.6%). Hispanic representation among the state's population of students with disabilities is also much larger (25.7% vs. 14.4%), see Table S14.

To create our regression sample, we match students to an application score threshold associated with the school to which they applied and their application year. The means arising from restricting our sample of applicants to within 16 points (our bandwidth) of their admission threshold is shown in the last two columns of Table A1 and in more detail in Table A3. On average, this restriction mitigates some of the negative selection arising from the decision to apply to CTE high schools in Connecticut, especially in the area of test score proficiency. In terms of type of disability and time spent with non-disabled peers, the composition of the sample within the admissions threshold bandwidth is quite similar to the composition for the entire applicant sample. Figure A1 illustrates the distribution of the sample with the blue bars showing a histogram of admission scores for students with disabilities and the tan bars showing the histogram for students without disabilities. Since maximum possible admission scores vary over time between 100 and 120, we subtract the excess of the maximum above 100 so that all thresholds and scores fall at or below 100. The two red vertical lines illustrate the lowest and highest adjusted admission scores observed across schools and cohorts during our sample period with thresholds ranging between 27 and 62 points out of 100. Given our 16-point bandwidth, applicants with adjusted admissions scores as low as 11 points are in some cases included in the sample. This adjustment is not used in any of our regression analyses, except for splitting the sample into terciles for the models presented in Table A14. Note that test scores are only available for the sample through the 2011 application cohort because the last year for administering the 10th grade Connecticut Mastery Test was 2013.

Appendix C: Methodological Details

Please note that this material is drawn heavily from previous published material by the authors in (Brunner et al. 2023). We employ a fuzzy, local-linear regression discontinuity framework using a uniform kernel. These models will capture the Local Average Treatment Effect (LATE) for students near the admissions threshold, and we estimate treatment on the treated effects by instrumenting for actual school attendance using the admission threshold as an instrument. Further, given variation in cut-offs across schools and over time, the estimates are representative over a broad set of scores.

Specifically, using a school (*s*) by application year (*y*) admissions threshold ($\widehat{X_{sy}^{*}}$), we center each student's (*i*) admission score (X_{isyt}) from town *t*, $\tilde{X}_{isyt} = X_{isyt} - \widehat{X_{sy}^{*}}$ and pool the data across schools and years. We then estimate models of student outcomes (y_{isyt}) using Two Stage Least Squares conditional on school-by-application year fixed effects (δ_{2sy}) and applicant town of residence fixed effects (γ_{2t}) effectively identifying the likely counterfactual high school or schools:

$$y_{isyt} = \beta A_{isyt} + \theta_{21}\tilde{X}_{isyt} + \theta_{22}X_{isyt}d\big(0 \leq \tilde{X}_{isyt}\big) + \delta_{2sy} + \gamma_{2t} + \varepsilon_{2ist} \qquad \text{(C1)}$$

where A_{isyt} denotes whether the individual attends the school to which they applied and being above the threshold, $d\big(0 \leq \tilde{X}_{isyt}\big)$ is used as an instrument for A_{isyt}. The first stage equation for A_{isyt} is:

$$A_{isyt} = \tilde{\alpha}\ d\big(0 \leq \tilde{X}_{isyt}\big) + \theta_{31}\tilde{X}_{isyt} + \theta_{32}X_{isyt}d\big(0 \leq \tilde{X}_{isyt}\big) + \delta_{3sy} + \gamma_{3t} + \varepsilon_{3ist} \qquad \text{(C2)}$$

where $\tilde{\alpha}$ represents the composite or sample average effect of being above the threshold. The parameter of interest in equation (C1) is β capturing the effect of attending a CTHSS school for students who are just above the admissions threshold compared to those who just missed the threshold.

Standard errors are clustered following our fixed effects structure: application school by application year and sending town. While many prior studies with discrete running variables have clustered standard errors by the running variable, clustering by the running variable has been shown to provide confidence intervals with poor coverage properties (Kolesár and Rothe 2018). As an alternative to our two-way clustering, we have also conducted inference using finite-sample exact randomization inference tests following Cattaneo et al. (2019), but we find that randomization inference leads to much less conservative inference because changes the null hypothesis as noted by Cattaneo et al. (2019).

Estimating Admissions Thresholds

Since admission thresholds are not observed, thresholds are identified empirically for each school and year as the threshold that yields the largest discontinuity in the dependent variable. The location of each threshold is identified by selecting the threshold that maximizes the size of the discontinuity (Porter and Yu 2015), or specifically:

$$\widehat{X^*} = argmax_{X^*}\hat{\alpha}(X^*) \tag{C3}$$

where the treatment (T) is defined by

$$T = \begin{cases} 1 \ \ if\ y^* \geq 0 \\ 0 \ \ if\ y^* < 0 \end{cases},\ T^* = \begin{cases} f_1(X) + \varepsilon & if\ X < X^* \\ f_2(X) + \alpha + \varepsilon & if\ X \geq X^* \end{cases},\ f_1(X^*) = f_2(X^*) \tag{C4}$$

where $f_1(X)$ and $f_2(X)$ are continuous and differentiable functions. The inclusion of different functions on either side of the threshold allows for differential processes for non-compliance. In practice, for every possible integer value of the admissions score, we estimate an equation similar to (C2) for whether the student was mailed an admissions letter. This implies that we estimate linear probability models and specify $f_1(X)$ and $f_2(X)$ above as linear functions of X. The resulting estimated thresholds $\widehat{X^*_{sy}}$ are used to center student admissions scores for estimating (C1) and (C2).

The disadvantage of this approach is that our analysis is conditional on the estimated discontinuity and the estimated discontinuity may not represent the true discontinuity. In a 2SLS context, we need to establish the power of the instrument and the validity of the exclusion restriction. Determining the power of the instrument, however, is not straightforward since the cutoff has been selected using the same data that is then used to estimate the first stage equation.

Naturally, treatment (receiving an acceptance letter) affects attendance and so the F-test may be biased upwards providing misleading evidence on instrument power because we selected $\widehat{X^*}$ to maximize the discontinuity for T which is strongly correlated with A.

We address this concern using a hold-out sample in Brunner et al. (2023). Specifically, we divided the applicants in each school and year into equal sized analytic and hold-out samples so that we could use the analytic sample to select the thresholds and use the hold-out sample to estimate the first stage for attendance and examine the power of the instrument. Specifically, we did the following:

1) For each school and year, divide all applicants into deciles, assign each applicant a random number, place applicants in the hold-out sample if they are above the median on the random number and in the analysis sample if below, split median applicants half in hold-out/half in analysis samples, and in the case of an odd number of median applicants assign the last median applicant randomly to either the hold-out or analysis sample.

2) Using a bandwidth of 10 points (due to the larger sample size for applicants without disabilities) and linear running variables, estimate equation (C2) using admission as the outcome for each school and year starting with a candidate cutoff score at 10 so that the bottom of the 20-point band is at a score of zero using the analysis sample.

3) Re-estimate these models incrementing the candidate cutoff score by 1 each time and ending 10 points away from the maximum score so that the top of the band is at the maximum.

4) Select the cutoff for each school and year as the cutoff that provides the maximum estimate of α.

5) Center the scores for each school and year by subtracting the cutoff and pool all years and schools.

6) Estimate equation (C2) for school attendance and calculate the F-statistic associated with the indicator $d(\widehat{X^*} \leq X)$ using the hold-out sample.

We conducted this hold-out simulation four times, and the resulting *F*-statistics always fell between 456 and 628 for the full sample and between 458 and 674 for the donut hole sample. We also estimated the first stage models separately for each school and year. The means of the estimated discontinuities over all schools and years ranged between 0.525 and 0.540 for the four simulations, very close to our full sample first stage estimate of 0.582. See the supplemental material for Brunner et al. (2023) for detailed results.

Validation of the Identification Strategy

In terms of the validity of the exclusion restriction, the key assumption in regression discontinuity analyses is that the attributes of individuals evolve smoothly with the running variable across the discontinuity so that the estimated effect of the discontinuity does not capture the effect of individual attributes on outcomes after controlling for the running variable. As mentioned in the paper, we provide evidence on this assumption by estimating balancing tests where we demonstrate that observable student attributes (Z_{isyt}) vary smoothly over the threshold. Specifically, we estimate reduced form models based on C2 where we replace the dummy for being above the admissions threshold with each student attribute.

$$Z_{isyt} = \tilde{\alpha}\, d\left(0 \leq \tilde{X}_{isyt}\right) + \theta_{31}\tilde{X}_{isyt} + \theta_{32}X_{isyt}d\left(0 \leq \tilde{X}_{isyt}\right) + \delta_{3sy} + \gamma_{3t} + \varepsilon_{3ist} \qquad \text{(C5)}$$

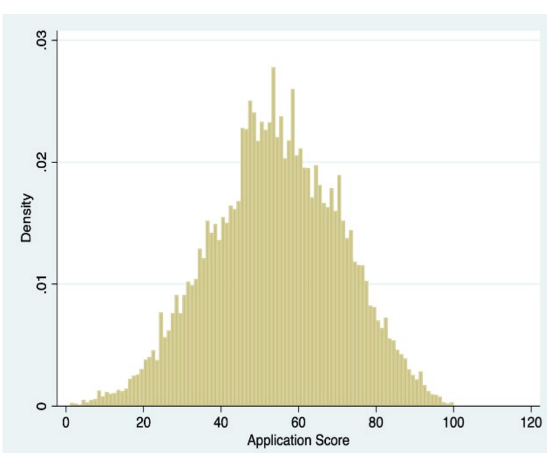
These results are presented in Appendix Tables A17 and A18.

A second common test used with regression discontinuity analyses is the McCrary test for bunching at the threshold that is used to test for whether scores might have been manipulated to systematically move individuals above or below the threshold. As noted in Brunner et al. (2023), our data on CTEC high school admissions fails these tests for bunching at the threshold. However, manipulation by students in the current context is highly unlikely given the admission process used by CTECS. Schools set the threshold after observing the pool of applicants, all their scores, and all their provided materials. As a result, it is nearly impossible for students to know the exact position of the threshold at their application school. While there is potentially more room for manipulation by school personnel, manipulation also seems unlikely in this situation. First, school administrators have no incentive to manipulate the score given that they are free to depart from any threshold that they set and that their admission decisions are not monitored.

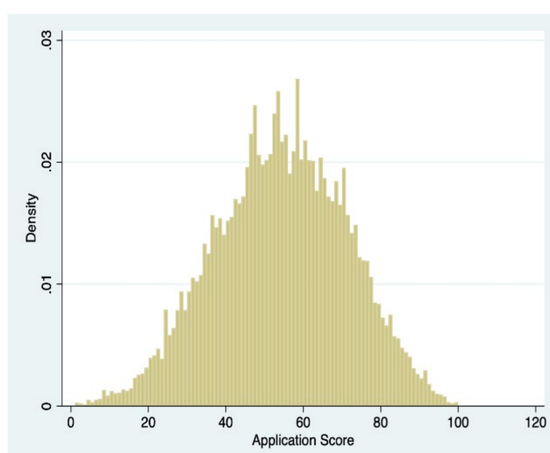
Further, the four primary components of a student's total score, standardized 7th grade test scores in math and language arts (reading and writing), GPA, and attendance in middle school, are clear and objective with little to no room for manipulation. Manipulation of the final two components, namely the points assigned for extracurricular activities and a student's written statement for why they want to attend a technical high school, appears more feasible, but students applying to CTECS most likely never interacted with school officials and we observe a non-standard distribution prior to the consideration of these additional components. We also verify that the components sum to the composite score for all students in our sample so any manipulation would have to involve school administrators manipulating components to get a desired result on the total score.

Nonetheless, to be conservative, all analyses in the paper are conducted using the standard "donut hole" strategy for addressing manipulation at the threshold. This strategy involves dropping observations just on either side of the threshold where manipulation is most likely to have an effect. Specifically, the sample is selected based on the following criteria: $X_{isyt} \in \left[X_{sy}^{*} - BW, X_{sy}^{*} - 1\right] \ or \ \left[X_{sy}^{*} + 1, X_{sy}^{*} + BW\right]$. Results are very similar whether or not we use a donut hole specification. Further, the distributions with and without the observations at the threshold are similar, and the elimination of observations immediately around the threshold does not eliminate the irregular distribution of scores. As an illustration we show the distribution of scores for the 2006-2008 admission cohorts, a three-year period where the score definition was stable at a total of 100 points and prior to the inclusion of subjective criteria.

Actual Distribution



Dropping Observations at the Cut-off



Finally, simulation analyses in Brunner et al. (2023) (see supplemental material for that paper), strongly suggest that the McCrary failure arises from the way in which the admission score was created (see below for more detailed discussion). The failure of the McCrary test for our data appears to arise because even though admission score components like test scores, grade point averages and attendance data are relatively continuous, the system for assigning points divides students into more aggregated bins leading to both mass points and holes in the empirical distribution of application scores. We demonstrate this in Brunner et al. (2023) using three different simulation analyses that eliminate any actual manipulation in the data: 1) Showing that we can generate most of the variation between the true distribution and the distribution dropping observations at the threshold by selecting fake thresholds from the population of observed thresholds and dropping observations at these fake thresholds; 2) Generating score distributions that look similar to true score distributions by randomly simulating the components of the admission score while preserving the correlation between components and building a sample of false admission scores; 3) Generate centered score distributions that look similar to the true centered score distributions based on fake thresholds that arise by simulating a population of applicants for each school and year to create a false thresholds that arise at the score where the simulated population fills the target incoming class.

References

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