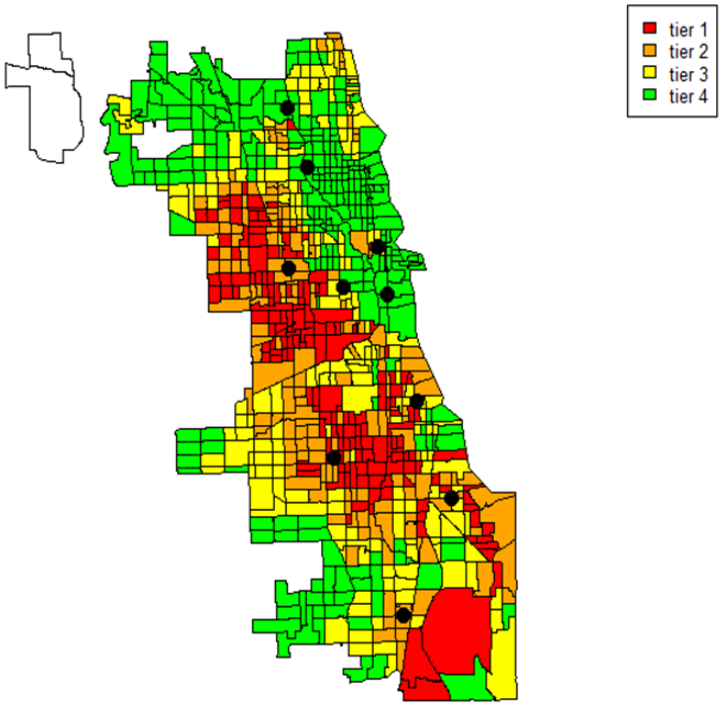
Increasing Access to Selective High Schools through Place-based Affirmative Action: Unintended Consequences

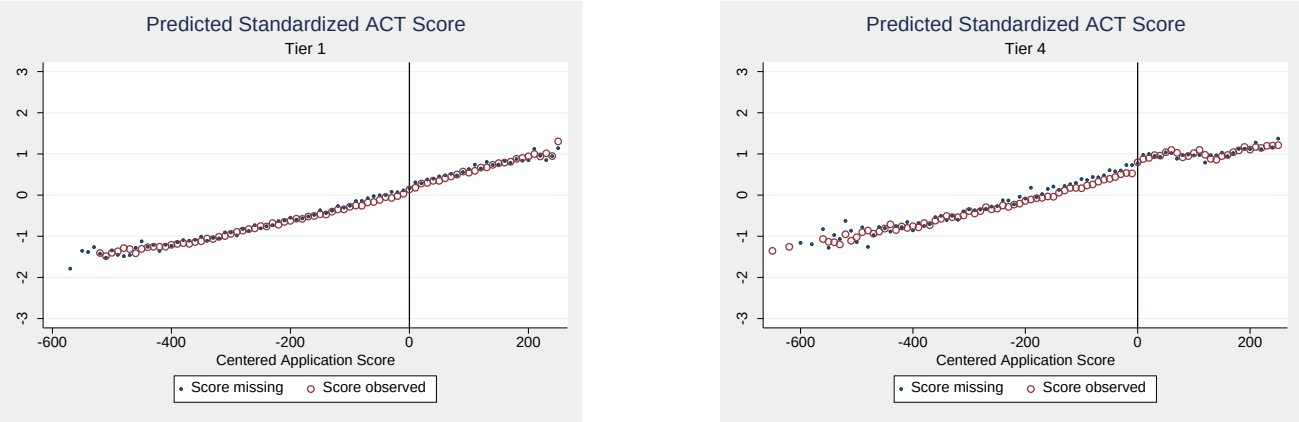
BY LISA BARROW, LAUREN SARTAIN, AND MARISA DE LA TORRE

Online Appendix



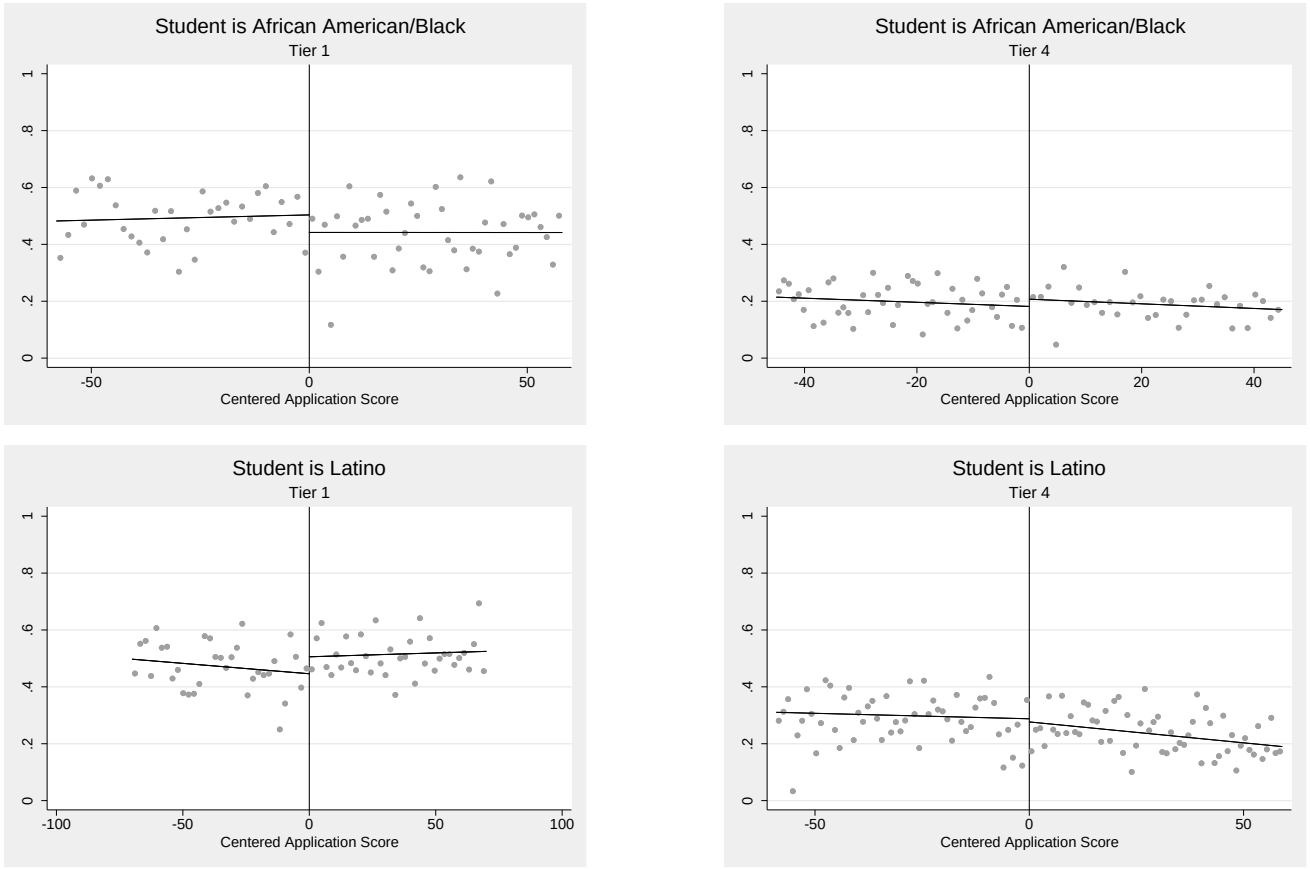
APPENDIX FIGURE 1. MAP OF 2013-14 CHICAGO CENSUS TRACT TIERS AND LOCATIONS OF SELECTIVE ENROLLMENT HIGH SCHOOLS

Notes: Each dot represents the location of a Chicago selective high school that was open during the study period. Tier 1 Census tracts have relatively low socioeconomic status while Tier 4 Census tracts have relatively high socioeconomic status.



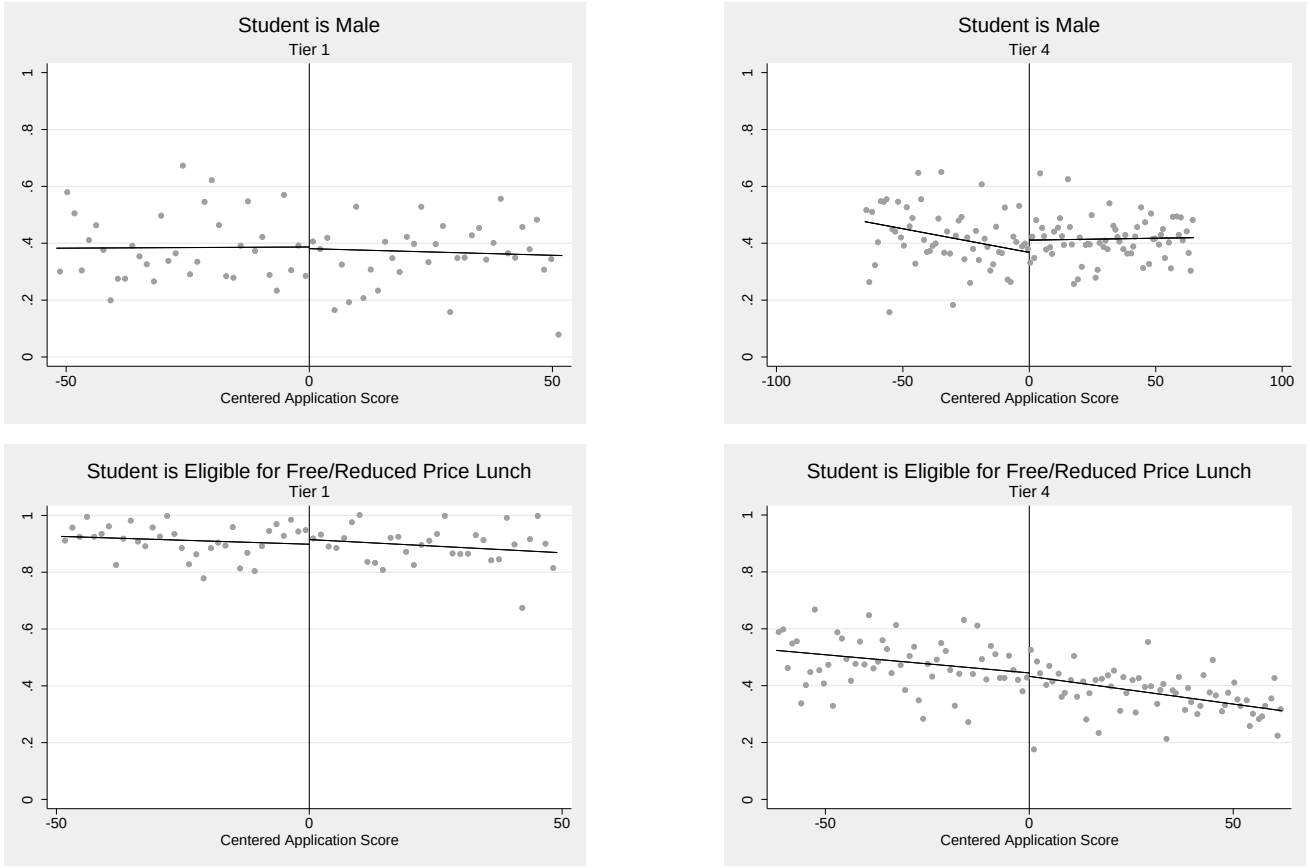
APPENDIX FIGURE 2. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND PREDICTED STANDARDIZED ACT SCORES, TIERS 1 AND 4

Notes: In each panel we plot bin-averaged actual and predicted standardized ACT test scores against centered application scores for students with (red open circle) and without (black dot) ACT scores. Bin size is 10 application points. We predict standardized ACT scores by regressing observed ACT scores on points from the three application components (SEHS exam, 7th grade exam, and grades); indicators for student is Black/African American, Latino, male, eligible for FRPL, scores above the cutoff score, and attended assigned elementary schools; as well as fixed effects for tier, cohort, and elementary school. All students entering CPS in 9th grade are coded as not being enrolled in their assigned elementary school and given an indicator for missing their 8th grade school identifier.



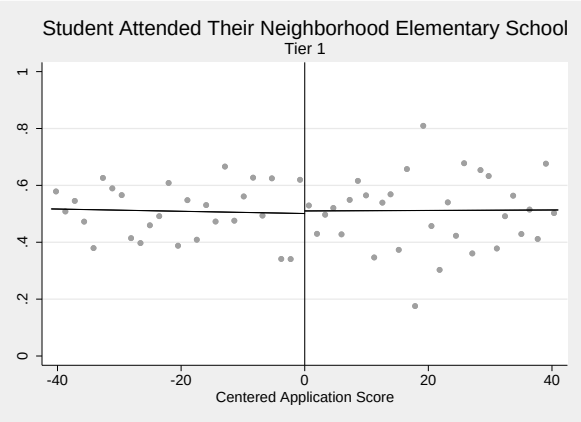
APPENDIX FIGURE 3A. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND PRE-TREATMENT CHARACTERISTICS, TIERS 1 AND 4

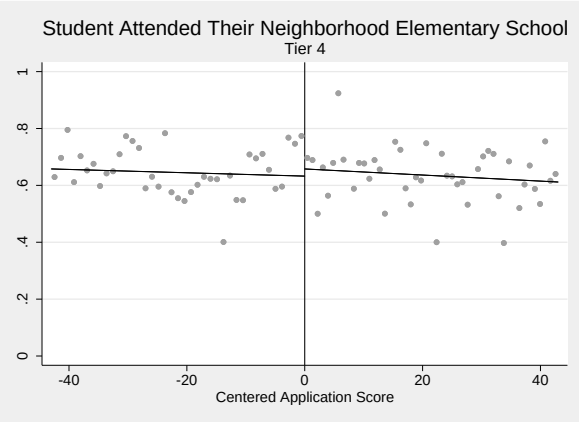
Notes: In each panel, the solid lines are local linear fits; dots are within bin averages. The number of bins is allowed to differ to the right and left of the cutoff and is selected using the mimicking variance evenly-spaced method (Calonico, et al., 2017). We also limit the bandwidth for each characteristic and tier using a single, mean square error-optimal bandwidth selector. Optimal bandwidths are chosen separately for each characteristic and tier. The left-hand-side panels limit the sample to students living in Tier 1 neighborhoods; the right-hand-side panels limit the sample to students living in Tier 4 neighborhoods. Variables are adjusted for tier by school by cohort fixed effects before plotting within bin average and generating local linear fits.



APPENDIX FIGURE 3B. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND PRE-TREATMENT CHARACTERISTICS, TIER 1 AND 4

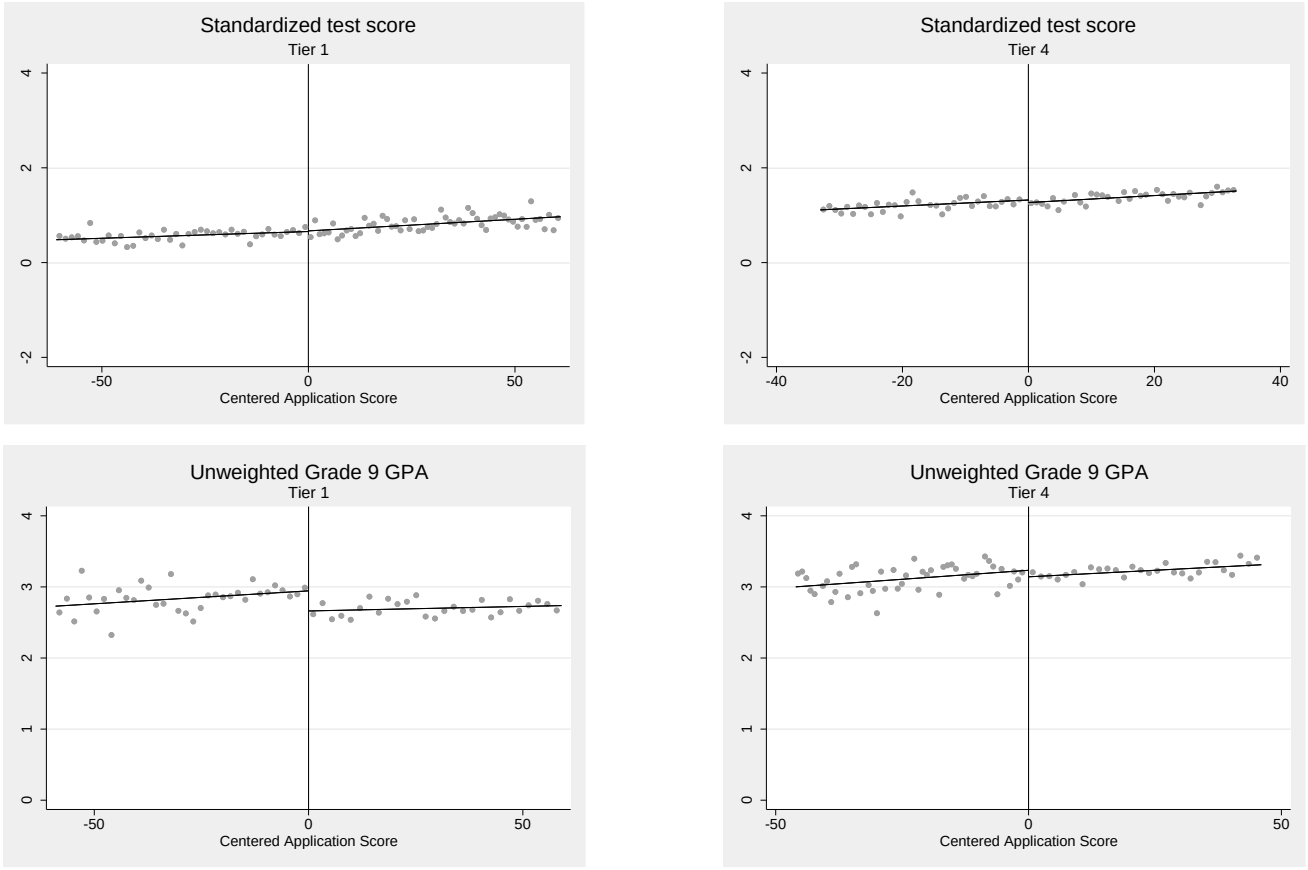
Notes: See notes for Appendix Figure 3A.





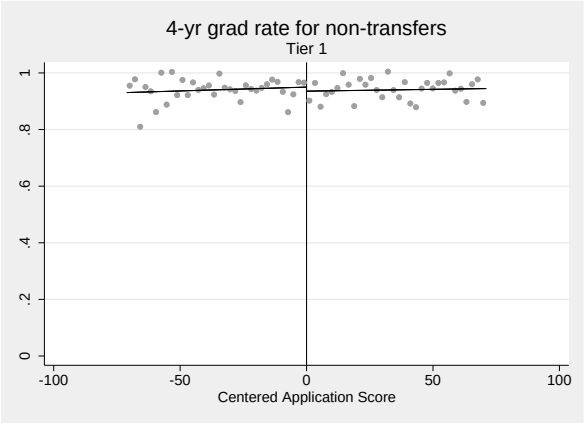
APPENDIX FIGURE 3C. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND PRE-TREATMENT CHARACTERISTICS, TIERS 1 AND 4

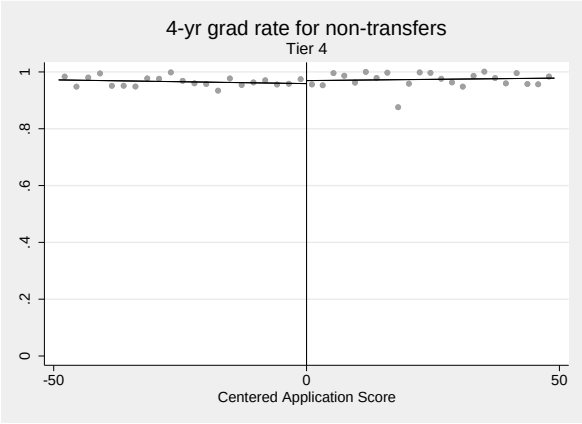
Notes: See notes for Appendix Figure 3A.

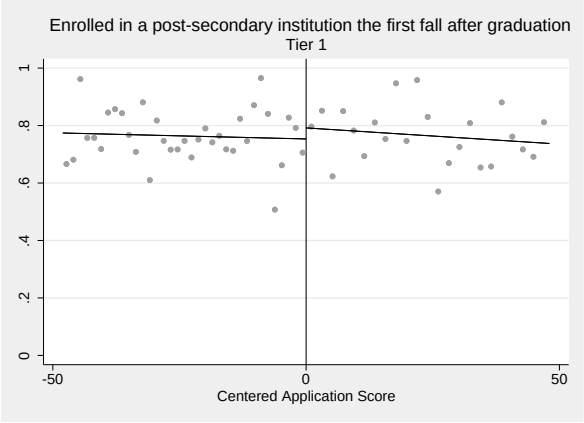


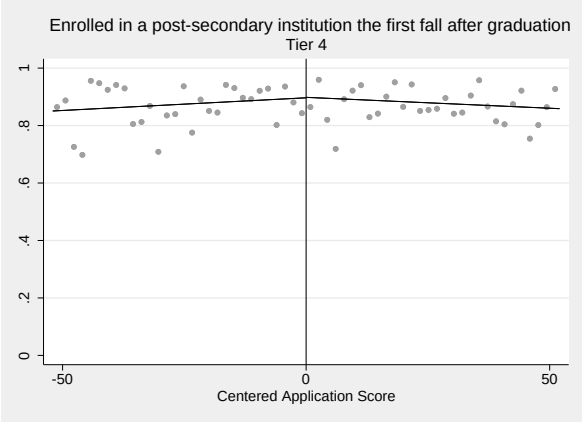
APPENDIX FIGURE 4A. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND OTHER OUTCOMES, TIERS 1 AND 4

Notes: In each panel, the solid lines are local linear fits; dots are within bin averages. The number of bins is allowed to differ to the right and left of the cutoff and is selected using the mimicking variance evenly-spaced method (Calonico, et al., 2017). We also limit the bandwidth for each characteristic and tier using a single, mean square error-optimal bandwidth selector. The left-hand-side panels limit the sample to students living in Tier 1 neighborhoods; the right-hand-side panels limit the sample to students living in Tier 4 neighborhoods. Outcome variables are adjusted for tier by school by cohort fixed effects before plotting the bin averages and generating local linear fits.



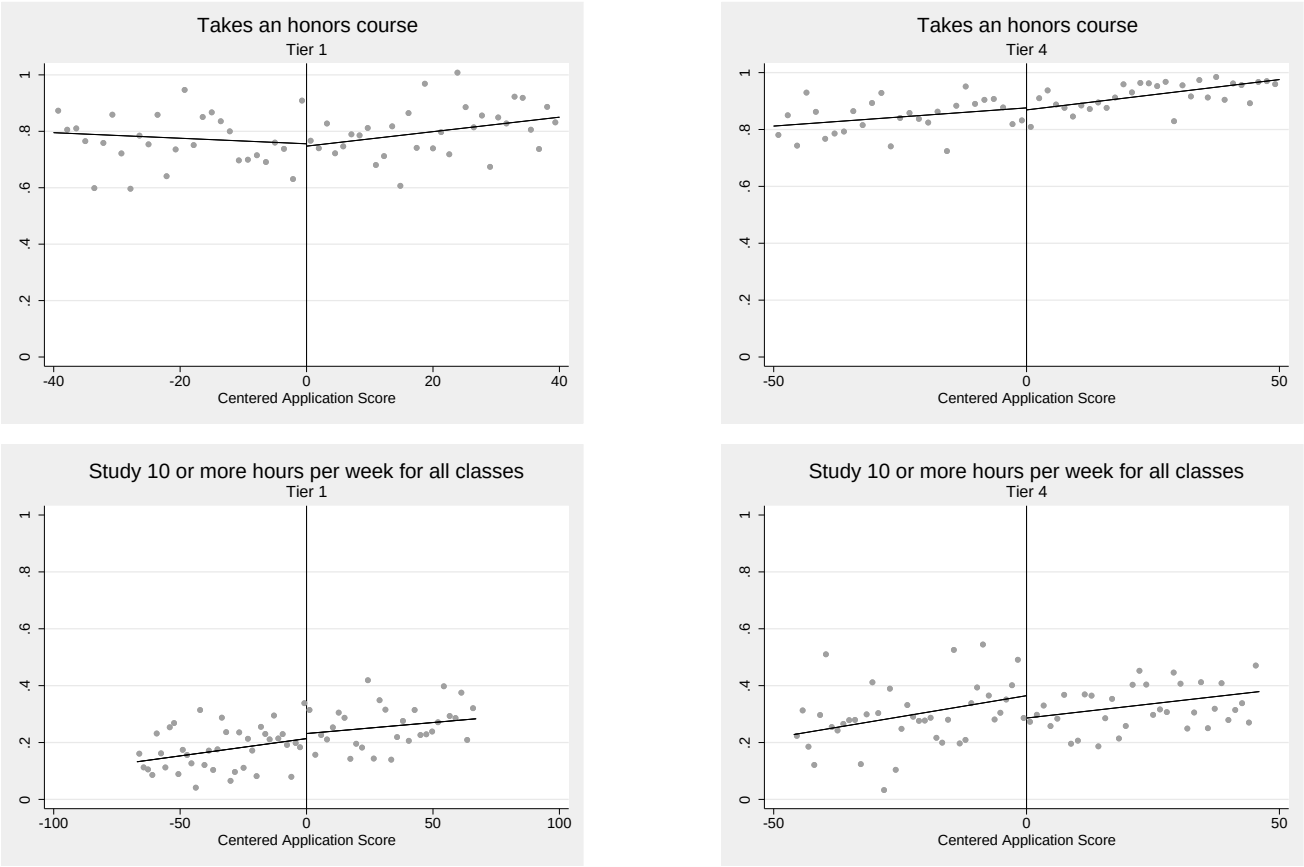






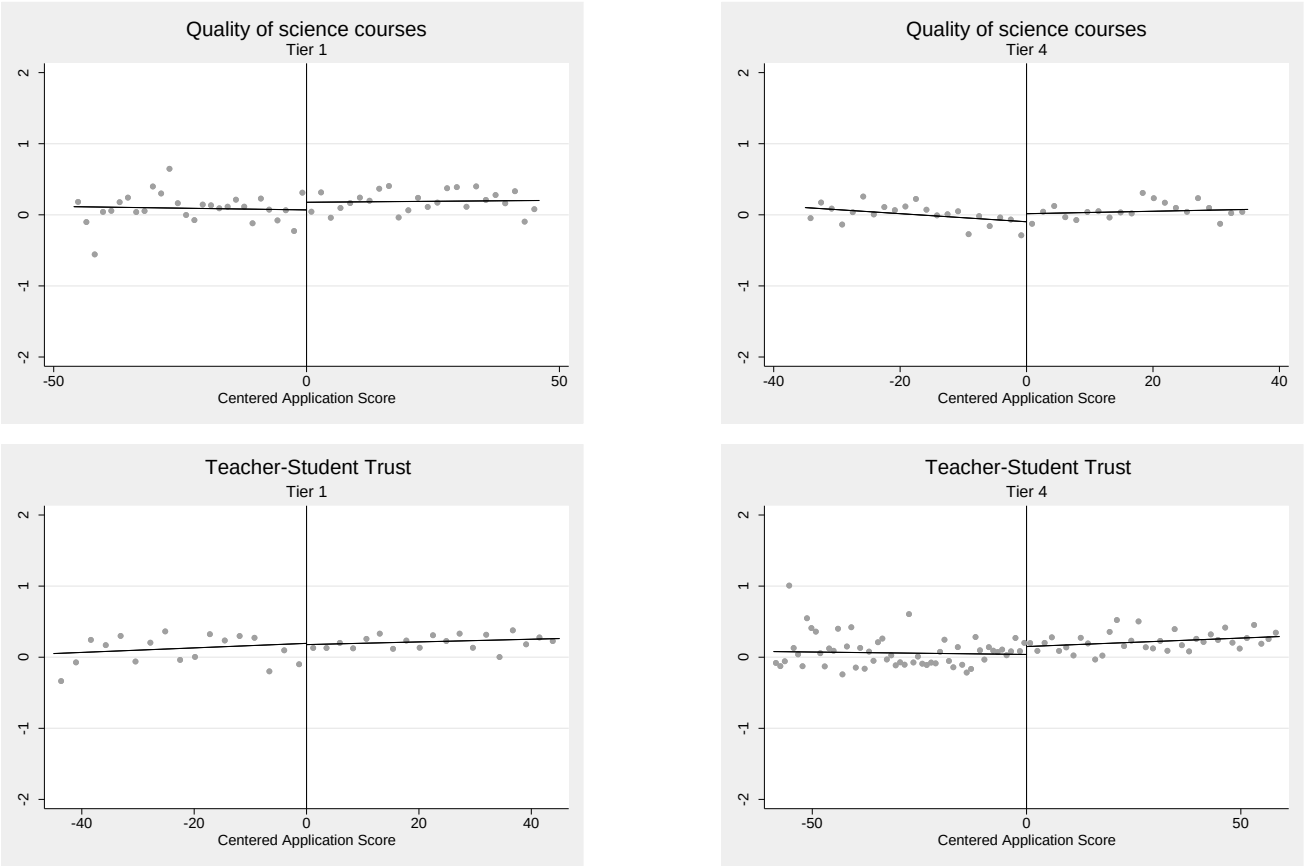
APPENDIX FIGURE 4B. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND OTHER OUTCOMES, TIERS 1 AND 4

Notes: See notes for Appendix Figure 4A.



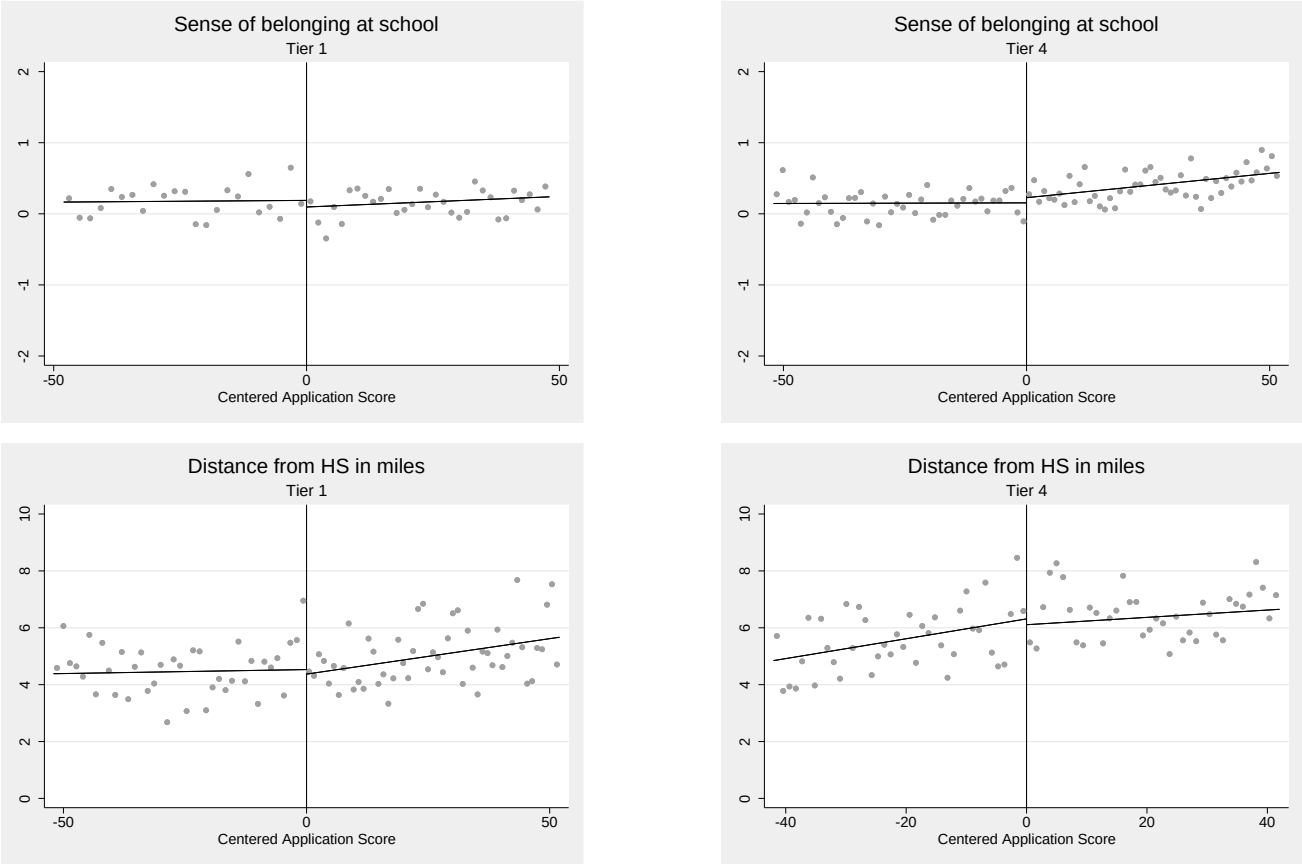
APPENDIX FIGURE 4C. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND OTHER OUTCOMES, TIERS 1 AND 4

Notes: See notes for Appendix Figure 4A.



APPENDIX FIGURE 4D. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND OTHER OUTCOMES, TIERS 1 AND 4

Notes: See notes for Appendix Figure 4A.



APPENDIX FIGURE 4E. RELATIONSHIP BETWEEN THE CENTERED APPLICATION SCORE AND OTHER OUTCOMES, TIERS 1 AND 4

Notes: See notes for Appendix Figure 4A.

APPENDIX TABLE 1. SCHOOL-LEVEL SURVEY MEASURES

Student report of parental support	*How often do your parents do the following?* • Encourage you to work hard at school • Are supportive of the things you like to do outside of school • Listen to you when you need to talk • Show they are proud of you • Take time to help you make decisions
Student report of community support	*How much do you agree with the following statements about the community in which you live?* • Adults in this neighborhood know who the local children are. • During the day it is safe for children to play in the local park or playground. • People in this neighborhood can be trusted. • There are adults in this neighborhood that children can look up to. • The equipment and buildings in the neighborhood, park, or playground are well kept.
Teacher satisfaction with CPS	*To what extent do you agree or disagree with the following statements?* • I would recommend CPS as a great place to work for my friends. • If I were offered a comparable teaching position with similar pay and benefits at another district, I would stay with CPS. • My school leader encourages me to come up with new and better ways of doing things. • I am satisfied with the recognition I receive for doing my job. • The people I work with at my school cooperate to get the job done. • I have access to the resources (materials, equipment, technology, etc.) I need in order to effectively teach my students.

Notes: UChicago Consortium conducts district-wide surveys of all high school students and teachers every spring.

APPENDIX TABLE 2. ADMISSION CUTOFF SCORES BY SCHOOL, TIER, AND YEAR

Tier	2010-11 Cohort	2011-12 Cohort	2012-13 Cohort	2013-14 Cohort
		Brooks		
1	688	650	681	675
2	699	697	720	701
3	746	741	758	745
4	758	727	756	715
		Jones		
1	797	780	775	757
2	826	810	816	811
3	847	847	854	840
4	852	865	875	867
		King		
1	672	650	657	650
2	676	671	663	650
3	678	690	691	650
4	665	652	651	650
		Lane Tech		
1	736	688	737	713
2	761	734	768	770
3	771	770	813	804
4	789	782	839	831
		Lindblom		
1	660	651	685	665
2	660	696	706	716
3	660	708	732	708
4	662	686	716	675
		Northside		
1	850	792	792	782
2	850	828	835	837
3	863	872	882	878
4	882	891	895	891
		Payton		
1	855	806	822	801
2	862	833	861	845
3	877	869	885	871
4	889	889	896	892

APPENDIX TABLE 2. ADMISSION CUTOFFS BY SCHOOL, TIER, AND YEAR (CONTINUED)

Tier	2010-11 Cohort	2011-12 Cohort	2012-13 Cohort	2013-14 Cohort
		Southshore		
1				653
2				653
3				650
4				651
		Westinghouse		
1	701	676	704	691
2	727	717	728	723
3	705	728	738	717
4	702	705	718	689
		Young		
1	818	784	800	803
2	832	802	822	840
3	852	837	864	859
4	864	865	879	876

Notes: Table compiled using publically released admission cutoff scores in each year by tier available from CPS.

APPENDIX TABLE 3. DESCRIPTION OF STUDENT-LEVEL SURVEY MEASURES ON HIGH SCHOOL EXPERIENCE

Time spent on homework	*How much time do you spend studying or doing homework for ALL your classes?* • Less than 2 hours • 3-5 hours • 6-9 hours • 10-14 hours • 15 or more hours
Quality of science course	*How often do you do the following?* • Use laboratory equipment or specimens • Write lab reports • Generate your own hypotheses • Use evidence/data to support an argument or hypothesis • Find information from graphs and tables
Personal safety (reverse coded)	*How much do you agree with the following statements about your school?* • I worry about crime and violence at this school • Students at this school are often teased or picked on • Students at this school are often threatened or bullied
Peer relationships	*How much do you agree with the following statements about students in your school? Most students in my school:* Strongly Disagree, Disagree, Agree, Strongly Agree • Like to put others down • Help each other learn • Don't get along together very well • Treat each other with respect
Teacher-student trust	*How much do you agree with:* Strongly Disagree, Disagree, Agree, Strongly Agree • My teachers really care about me • My teachers always keep his/her promises • My teachers always try to be fair • I feel safe and comfortable with my teachers at this school • When my teachers tell me not to do something, I know he/she has a good reason • My teachers will always listen to students' ideas • My teachers treat me with respect
Sense of belonging	*How much do you agree with the following statements about your school?* • I feel like a real part of my school • People here notice when I'm good at something • Other students in my school take my opinion seriously • People at this school are friendly to me • I'm included in lots of activities at school • I'm excited to go to school every day

Notes: UChicago Consortium conducts district-wide surveys of all high school students and teachers every spring.

APPENDIX TABLE 4. BASELINE CHARACTERISTIC DISCONTINUITIES

	Overall	Tier 1	Tier 2	Tier 3	Tier 4
African American	0.003 (0.012)	-0.050 (0.030)	0.016 (0.027)	0.027 (0.022)	0.008 (0.017)
Latino	0.006 (0.014)	0.060 (0.031)	-0.013 (0.029)	-0.006 (0.027)	0.003 (0.023)
Male	-0.028 (0.015)	-0.009 (0.033)	-0.043 (0.030)	-0.099 (0.028)	0.037 (0.027)
Free or reduced-price lunch	-0.001 (0.011)	-0.002 (0.020)	0.012 (0.021)	0.030 (0.023)	-0.030 (0.025)
Attended assigned elementary school	0.016 (0.015)	0.047 (0.033)	-0.045 (0.031)	0.021 (0.028)	0.041 (0.027)
P-value	0.318	0.387	0.433	0.007	0.226
Number of observations	17,812	3,542	4,102	4,893	5,275

Notes: Sample is limited to observations with centered application scores within 0.5 standard deviations of zero. Discontinuities are estimated using seemingly unrelated regression. Standard errors are in parentheses. Each covariate equation includes an indicator for admission to any SEHS, the centered application score, the interaction between the admission indicator and the centered application score, and application school-by-cohort-by-tier fixed effects. The p-value reported is for the chi-squared test that the discontinuities are jointly equal to zero.

APPENDIX TABLE 5. ESTIMATES OF THE EFFECTS OF ADMISSION TO A SEHS ON SELECT OUTCOMES, LIMITING THE SAMPLE TO SCHOOLS AND COHORTS WITH SIMILAR ADMISSION CUTOFFS FOR TIERS 1 AND 4

	Standardized test score (ACT) (grade 11)	Incoming class rank	GPA (grade 11)	Enroll in any selective college the fall after graduation	Personal safety	Peer relationships
	(1)	(2)	(3)	(4)	(5)	(6)
Counterfactual mean	-0.007	72.419	2.701	0.156	0.053	0.045
All tiers estimate	-0.002	-8.204	-0.254	-0.057	0.108	0.091
	(0.054)	(1.873)	(0.089)	(0.041)	(0.063)	(0.053)
Observations	2,670	4,151	2,859	1,859	3,049	3,881
Counterfactual mean	-0.064	77.186	2.845	0.109	0.138	0.078
Tier 1 estimate	0.004	-12.431	-0.417	-0.048	0.089	0.213
(Lowest SES)	(0.076)	(2.831)	(0.091)	(0.045)	(0.175)	(0.071)
Counterfactual mean	0.035	71.034	2.583	0.144	0.150	0.160
Tier 2 estimate	-0.029	-7.228	-0.124	-0.049	0.075	0.089
	(0.084)	(2.674)	(0.028)	(0.066)	(0.169)	(0.185)
Counterfactual mean	0.028	71.349	2.721	0.157	0.133	-0.002
Tier 3 estimate	-0.007	-5.481	-0.342	-0.032	-0.045	0.032
	(0.021)	(2.265)	(0.114)	(0.032)	(0.064)	(0.109)
Counterfactual mean	0.096	70.703	2.748	0.239	-0.222	-0.193
Tier 4 estimate	-0.083	-12.015	-0.177	-0.097	0.277	0.236
(Highest SES)	(0.067)	(2.213)	(0.213)	(0.015)	(0.213)	(0.056)
P-value Tier 1 = Tier 4	0.386	0.838	0.238	0.320	0.616	0.863
Observations	3,639	3,516	2,581	2,407	2,681	3,440

Notes: See notes for Tables 4 and 5. A student's application score is centered around the cutoff for the school on their application with the lowest cutoff score. We then limit the sample to schools and cohorts for which the cutoffs for tiers 1 and 4 are no more than 10 points apart.