

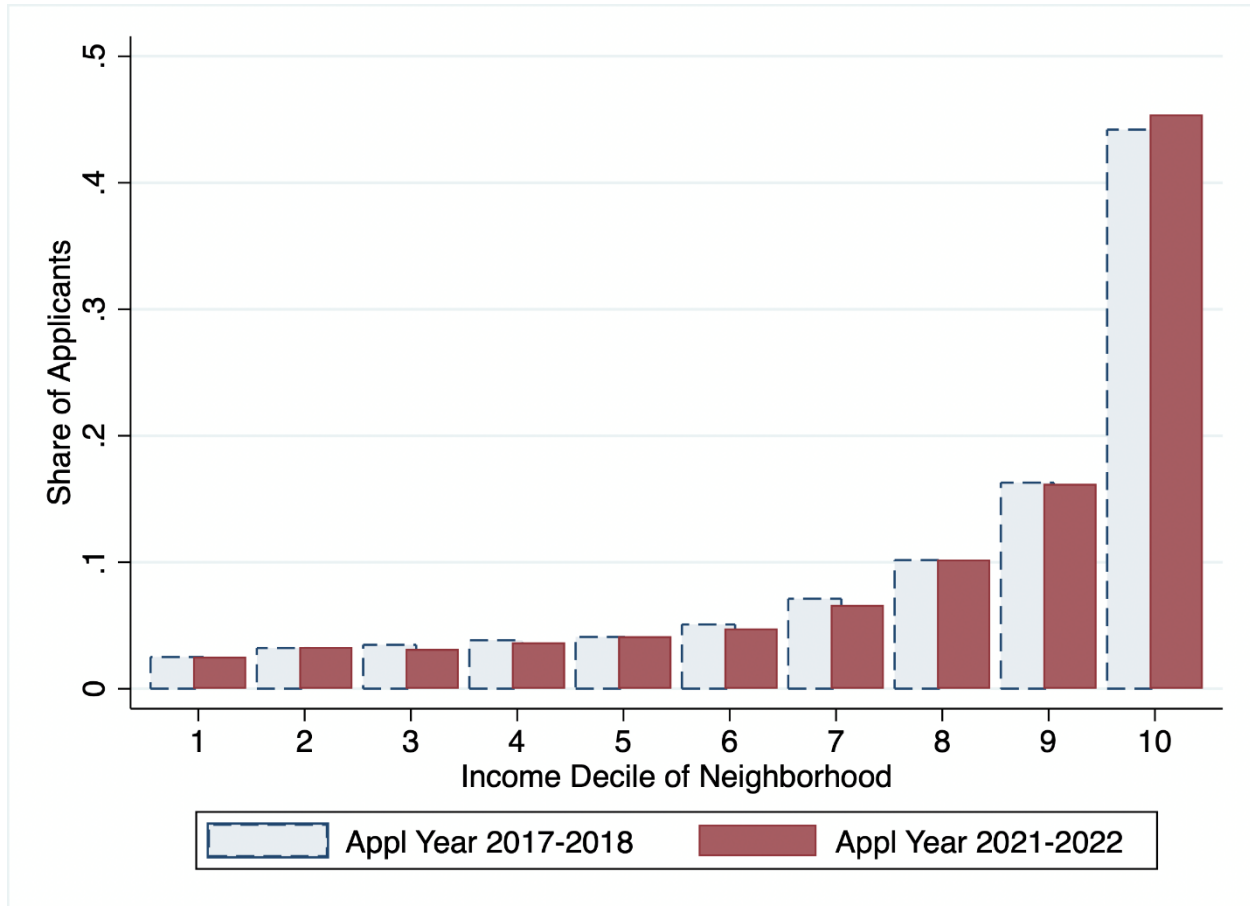
Supplemental Appendix

How Test Optional Policies in College Admissions Disproportionately Harm High Achieving Applicants from Disadvantaged Backgrounds

Bruce Sacerdote, Douglas O. Staiger, and Michele Tine

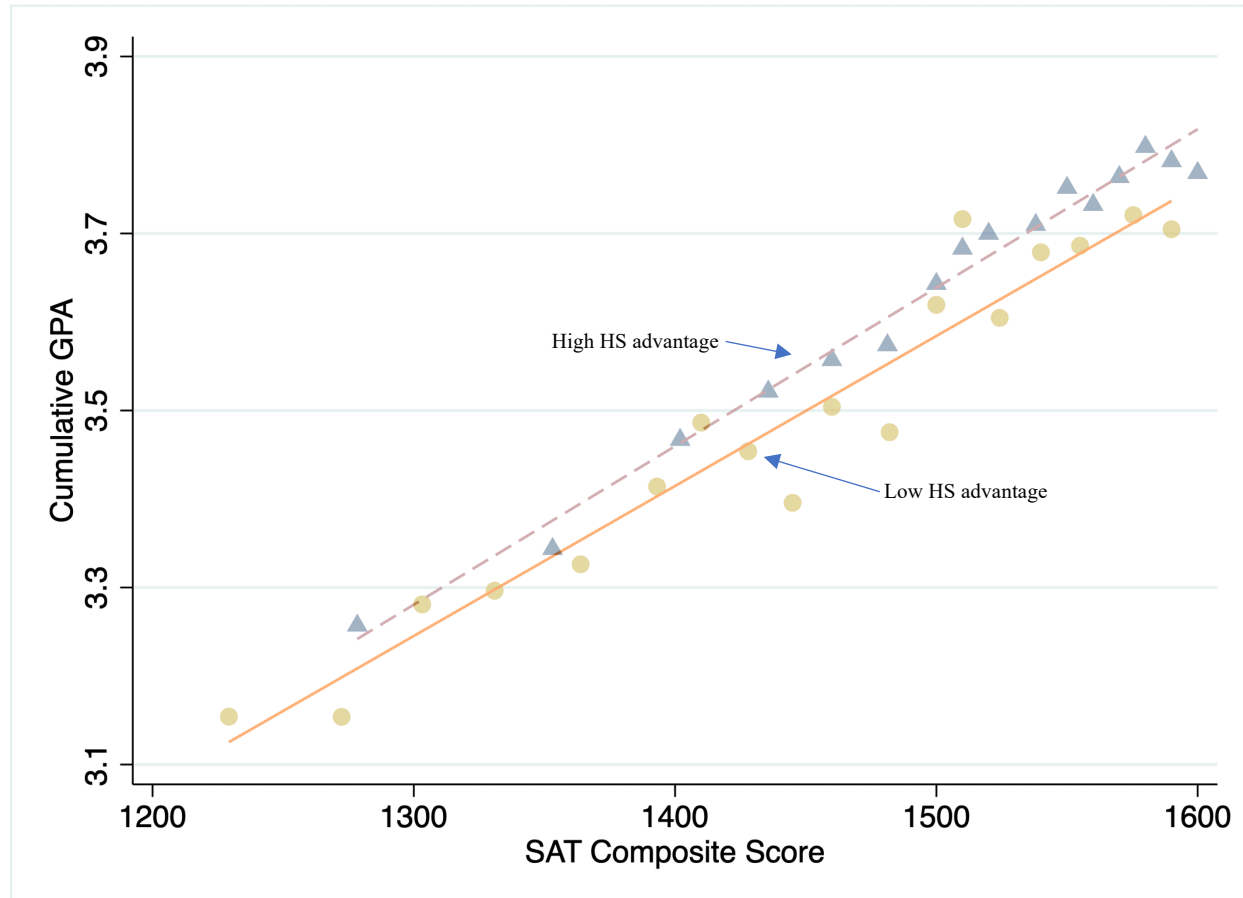
Appendix A: Supplementary Figures and Tables

Figure A.1: Applications by Neighborhood Income Decile Pre and Post Test Optional



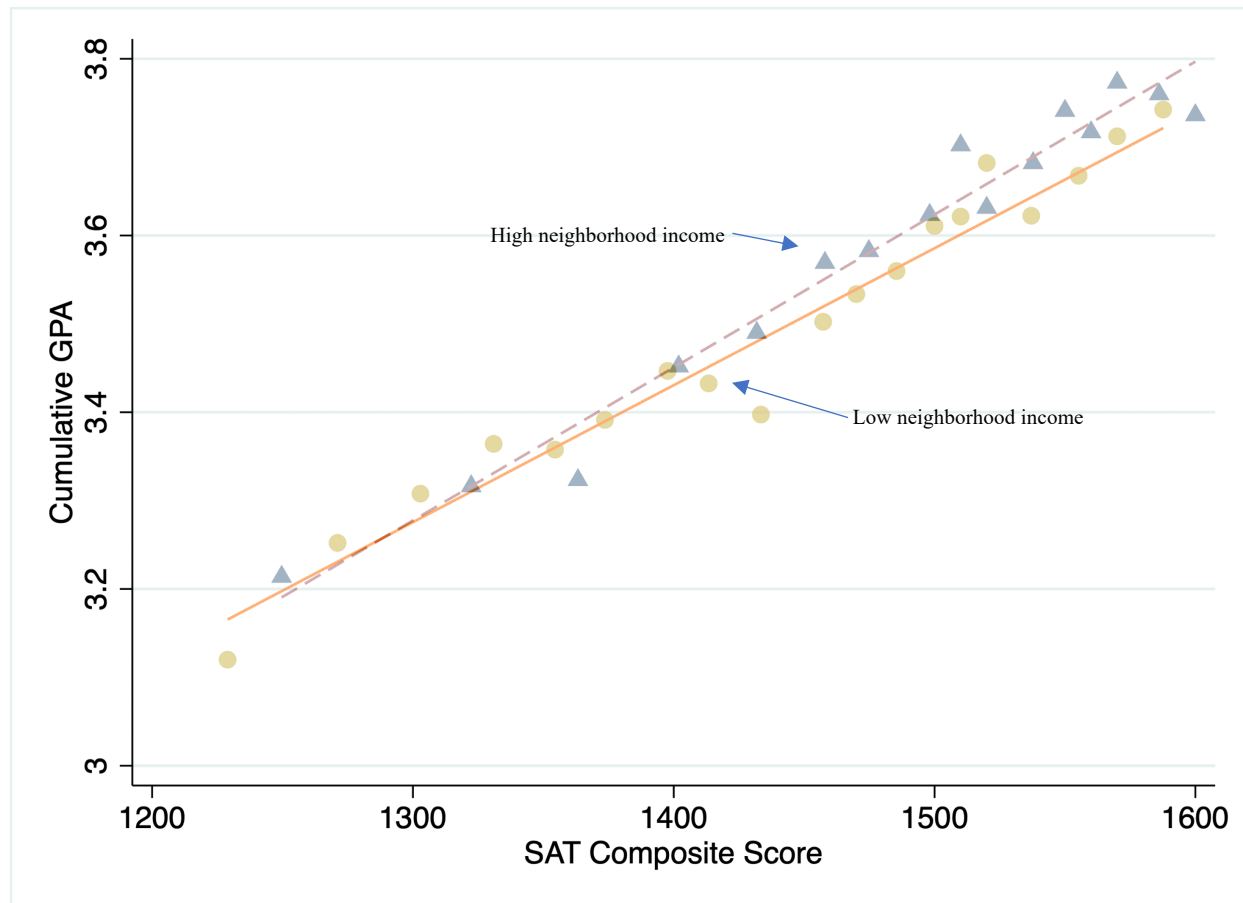
Notes: This figure uses data for Dartmouth applicants in years 2017-2018 (test-required) or 2021-2022 (test-optional). The two test-optional cohorts are on average 35% larger than the two test-required cohorts (see Table 2). *Key takeaway:* The neighborhood income distribution of Dartmouth applicants is similar for the test-required and test-optional cohorts.

Figure A.2: Relationship Between Cumulative First Year GPA and Composite SAT Scores: High (Navy) versus Low(Yellow) Levels of Advantage At High School (sample split into equal halves)



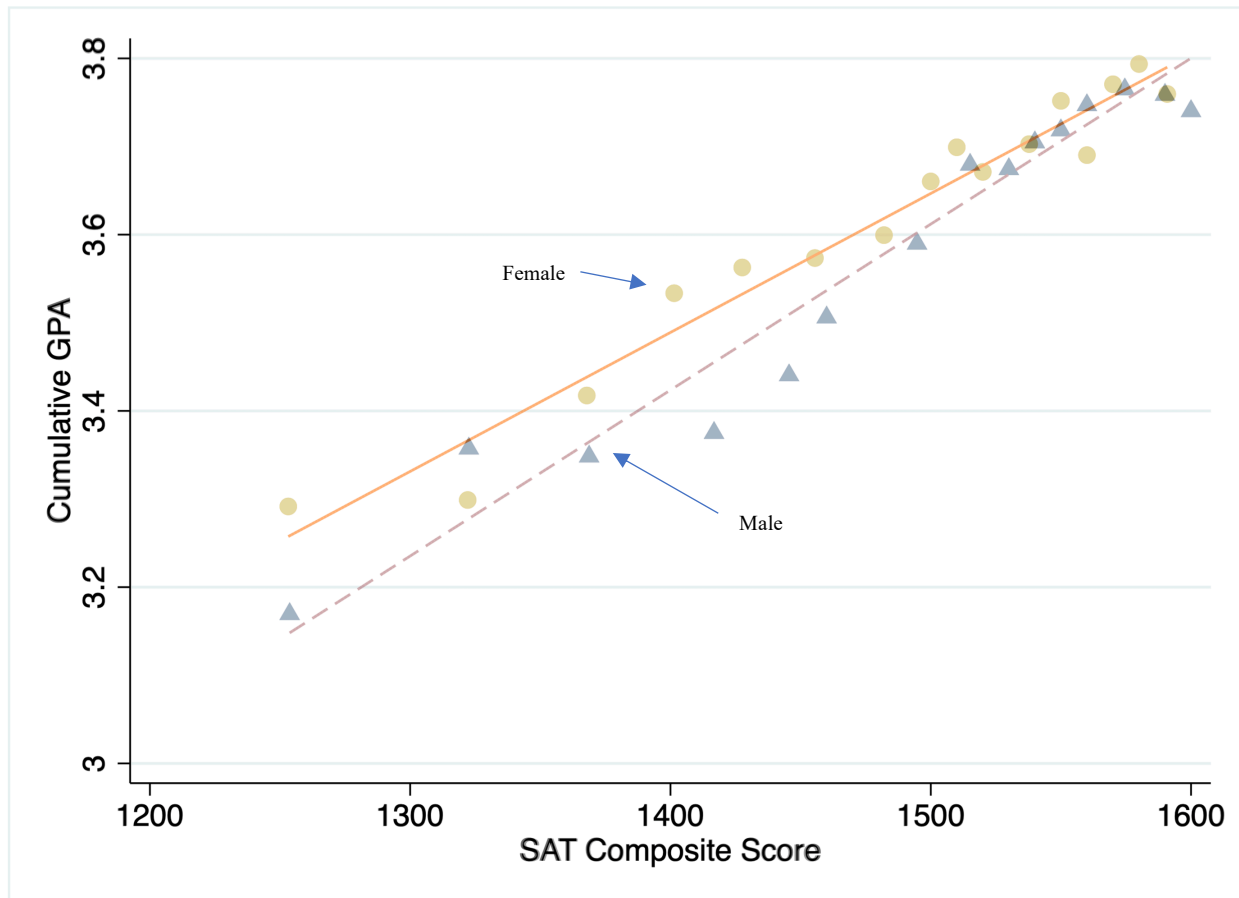
Notes: Figure shows a binned scatter plot of cumulative first year GPA against the SAT for 16 equal-sized bins of SAT for enrolled Dartmouth students in the 2017-2018 (test-required) and 2020-2021 (test-optional) cohorts. Separate binned scatters are shown for low levels of high school advantage (yellow circles) and high levels of high school advantage (navy triangles) students. High school advantage is measured using the College Board Landscape index of challenges for the high school which include family income, college going rates for students from the high school, crime rates in the area, housing stability, education levels of the adults in the area, and family structure in the area. For this graph we use an alternative definition of less advantaged high school. We split high school advantage into the lower 80 percent of high school advantage and the upper 20 percent which splits the Dartmouth enrolled sample roughly in half. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *Key takeaway:* The linear relationship between cumulative first year GPA and SAT score is similar across Dartmouth students with high versus low-high school advantage.

Figure A.3: Relationship Between Cumulative First Year GPA and Composite SAT Scores: High (Navy) versus Low (Yellow) Family Neighborhood Income (sample split into equal halves)



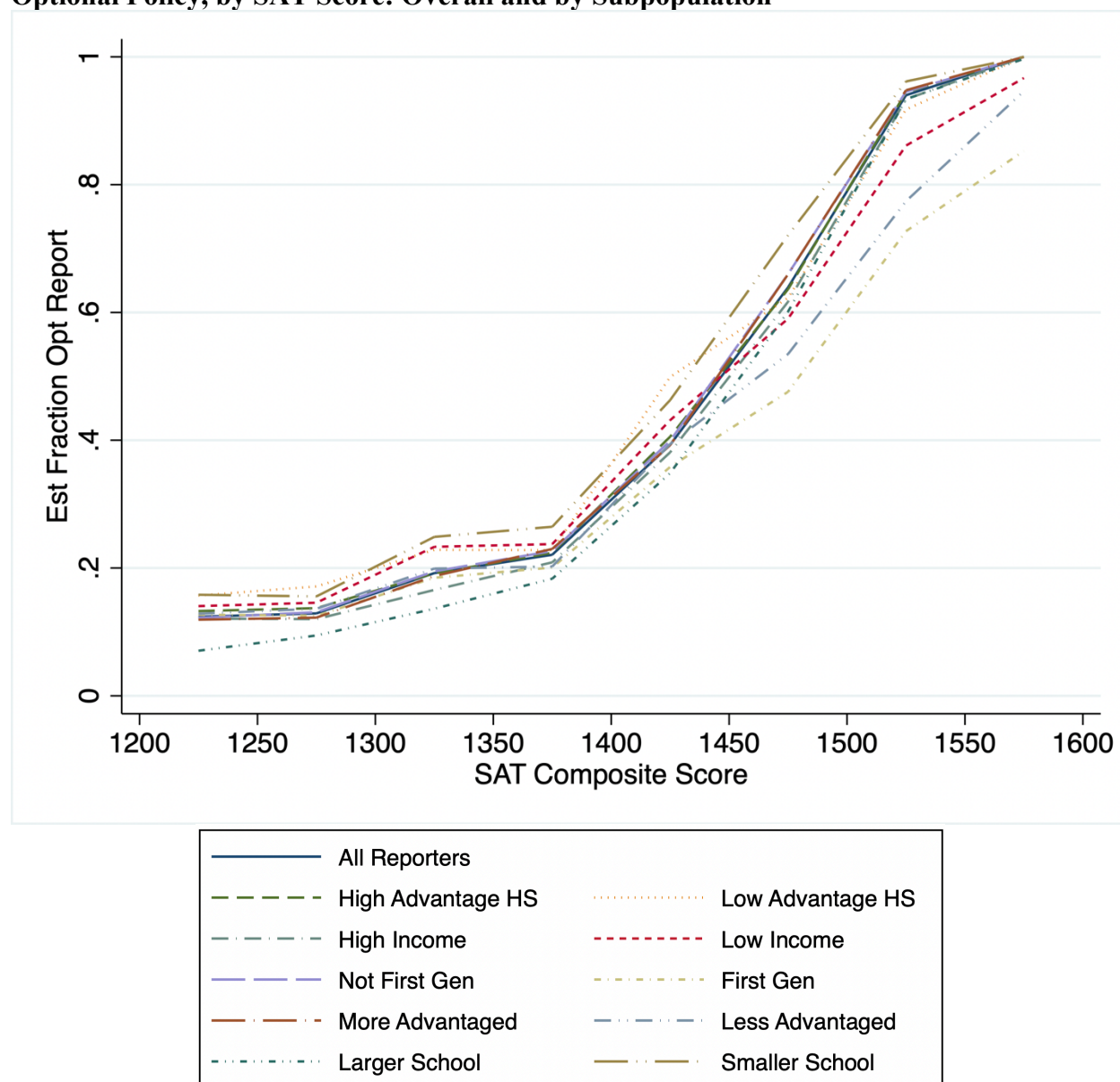
Notes: Figure displays bin scatter plot of cumulative first year GPA against the SAT for 16 equal-sized bins of SAT for enrolled Dartmouth students in the 2017-2018 (test-required) and 2020-2021 (test-optional) cohorts. Separate bin scatters are shown for students from low median neighborhood income (yellow circles) and high median neighborhood income (navy triangles). For this graph we use an alternative definition of high-low median neighborhood income. We define “high income” as neighborhood income above the US 85th percentile which splits the sample of enrolled students roughly in half. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *Key takeaway:* The linear relationship between cumulative first year GPA and SAT score is similar across Dartmouth students from high- and low-income neighborhoods.

**Figure A.4: Relationship Between Cumulative First Year GPA and Composite SAT Scores:
Male (Navy) versus Female (Yellow) Dartmouth Students**



Notes: Figure displays bin scatter plot of cumulative first year GPA against the SAT for 16 equal-sized bins of SAT for enrolled Dartmouth students in the 2017-2018 (test-required) and 2020-2021 (test-optional) cohorts. Separate bin scatters are shown for female (yellow circles) and male (navy triangles) students. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *Key takeaway:* The linear relationship between cumulative first year GPA and SAT score is similar across male and female Dartmouth students.

Figure A.5: Estimated Fraction of Dartmouth Applicants Reporting Scores Under Test Optional Policy, by SAT Score: Overall and by Subpopulation



Notes: Chart displays estimates of the fraction of applicants opting to report scores in the test-optional period, separately for 50-point bins of the SAT composite score. Analysis uses data for Dartmouth applicants in years 2017-2018 (test-required) or 2021-2022 (test-optional). The SAT composite is included for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. Estimates are derived by dividing the number of scores for the test-optional cohorts by the number of scores for the test-required cohorts (scaled up for the increase in applications in the later period), separately by bin. 46% of test-optional applicants opted not to submit a score. Low (high) advantage HS=U.S. high school in top 20% (bottom 80%) of the College Board's index for challenge; low (high) income=neighborhood median income below (at or above) the U.S. 50th percentile; less advantaged=U.S. first-generation college-going or low advantage HS or low income; more advantaged=not U.S. first-generation college-going and high advantage HS and high income. *Key takeaway:* The likelihood of reporting a given SAT score appears similar across groups of Dartmouth applicants.

Table A.1: Summary Stats
A. Test Score Required Cohorts

	Applications			Enrolled		
	Mean (1)	Std Dev (2)	N (3)	Mean (1)	Std Dev (2)	N (3)
Cumulative First Year GPA				3.53	0.36	2,345
Scaled High School GPA	3.84	0.26	37,298	3.86	0.21	2,296
SAT Composite	1420.68	123.01	41,725	1462.86	104.8	2,379
Opt No Score	0	0	41,142	0	0	2,386
Recruited Athlete	0.02	0.13	42,124	0.16	0.37	2,386
First Gen	.16	.37	42,142	.11	.31	2,386
Less Advantaged	.24	.43	42,142	.16	.37	2,386
Income Decile	8.05	2.54	34,283	8.58	2.29	2,039
International	.17	.37	42,142	.1	.3	2,386
Admitted	0.1	0.29	42,142	1	0	2,386
Accepted	0.06	0.23	42,142	1	0	2,386
Application Year	2017.52	0.5	42,142	2017.5	0.5	2,386
Above High Schools 75th percentile SAT	0.53	0.5	29,968	0.53	0.5	1,880
Overall High School Income Decile	8.11	2.44	31,299	8.64	2.2	1,964
Percent Taking AP Courses	60.17	23.43	29,388	64.09	23.98	1,813
High Schools 75 th percentile SAT	1316.67	138.13	29,968	1354.82	131.52	1,880

B. Test optional Cohorts

	Applications			Enrolled		
	Mean (1)	Std Dev (2)	N (3)	Mean (1)	Std Dev (2)	N (3)
Cumulative First Year GPA				3.64	0.33	2,315
Scaled High School GPA	3.86	0.25	49,865	3.91	0.16	2,286
SAT Composite	1465.19	108.30	35,083	1494.11	94.72	1,732
Opt No Score	0.46	0.50	56,897	0.31	0.46	2,353
Recruited Athlete	0.01	0.10	56,856	0.16	0.36	2,327
Admitted	0.06	0.24	56,897	1	0	2,353
Accepted	0.04	0.20	56,897	1	0	2,353
Application Year	2021.50	0.50	56,897	2021.48	0.5	2,353
First Gen	0.14	0.34	56,897	.12	.33	2,353
Less Advantaged	0.20	0.40	56,897	.18	.38	2,353
Income Decile	8.10	2.53	42,189	8.38	2.5	1,904
International	0.24	0.43	56,897	.14	.35	2,353
Above High Schools 75th percentile SAT	0.58	0.49	25,845	0.59	0.49	1,392
Overall High School Income Decile	8.10	2.45	40,283	8.33	2.42	1,918
Percent Taking AP Courses	59.91	23.55	37,564	62.88	24.85	1,766
High Schools 75 th percentile SAT	1342.05	128.53	25,845	1364.33	120.61	1,392

Notes: This table provides means, standard deviations, and number of observations for each applicant and enrolled student. Panel A uses data for years 2017-2018 and B uses data for years 2021-2022.

Table A.2: Estimation of Propensity to Observe SAT Score Conditional on Not Submitting SAT Score

	Observe SAT Conditional on Not Submitting
Less Advantaged Student	0.0903 (0.0821)
Application Year= 2022	0.134*** (0.0326)
First Generation Student	-0.194*** (0.0669)
High School Decile of Disadvantage = 2	-0.137** (0.0575)
High School Decile of Disadvantage = 3	-0.127* (0.0677)
High School Decile of Disadvantage = 4	0.0308 (0.0738)
High School Decile of Disadvantage = 5	-0.0589 (0.0805)
High School Decile of Disadvantage = 6	-0.136 (0.0911)
High School Decile of Disadvantage = 7	0.0286 (0.0951)
High School Decile of Disadvantage = 8	-0.0126 (0.1)
High School Decile of Disadvantage = 9	-0.217** (0.101)
High School Decile of Disadvantage = 10	-0.13 (0.108)
Neighborhood Income Decile= 2	0.206* (0.113)
Neighborhood Income Decile= 3	0.0207 (0.119)
Neighborhood Income Decile= 4	0.0405 (0.115)
Neighborhood Income Decile= 5	0.0904 (0.116)
Neighborhood Income Decile= 6	-0.103 (0.121)
Neighborhood Income Decile= 7	-0.0801 (0.116)
Neighborhood Income Decile= 8	-0.171 (0.114)
Neighborhood Income Decile= 9	-0.165 (0.113)
Neighborhood Income Decile= 10	-0.367*** (0.113)
International Student	-0.301*** (0.0759)
Constant	-0.993*** (0.116)
Observations	25,749

Notes: This table uses data for enrolled Dartmouth students who applied in 2021-2022 (test-optional). We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board’s index for challenge. *** Statistically significant at the 1% level.

Table A.3: Applications at Ivy Plus Institutions

Year	Dartmouth	Cornell	Harvard	Columbia	Brown	Yale
2019	23,650	41,900	43,330	42,569	38,674	36,844
2020	21,392	44,965	40,248	40,083	36,793	35,220
2021	28,356	47,039	57,786	60,551	46,568	47,240
2022	28,336	51,324	61,221	60,374	50,649	50,060

Notes: All numbers pulled from institutions' web pages in 2025. Cornell University <https://irp.cornell.edu/university-factbook/factbook-archives/admissions/undergraduate-admissions>. Harvard College https://oira.harvard.edu/factbook/fact-book-admissions/admissions_history.pdf. Columbia University https://opir.columbia.edu/sites/opir.columbia.edu/files/content/Statistical%20Abstract/opir_admissions_history.pdf. Brown University <https://oir.brown.edu/institutional-data/factbooks/admission>. Yale University <https://oir.yale.edu/data-browser/student-data/admissions/yale-college-admissions-summary-w033>.

Table A.4: Applications and Testing Requirements by State

State	Number of Applicants	SAT/ACT Required in State
Alaska	206	No
Alabama	444	Yes
Arkansas	323	Yes
Arizona	1,383	Yes
California	17,948	No
Colorado	1,590	Yes
Connecticut	4,060	Yes
Delaware	501	Yes
Florida	8,510	No
Georgia	2,690	No
Hawaii	561	Yes
Iowa	372	No
Idaho	332	Yes
Illinois	4,333	Yes
Indiana	824	Yes
Kansas	371	Yes
Kentucky	483	Yes
Louisiana	457	Yes
Massachusetts	8,243	No
Maryland	3,096	No
Maine	517	No
Michigan	1,394	Yes
Minnesota	1,333	No
Missouri	754	No
Mississippi	203	Yes
Montana	187	Yes
North Carolina	2,193	Yes
North Dakota	44	No
Nebraska	251	Yes
New Hampshire	2,519	Yes
New Jersey	6,859	No
New Mexico	364	Yes
Nevada	586	Yes
New York	12,329	No
Ohio	1,528	Yes
Oklahoma	461	No
Oregon	894	No
Pennsylvania	3,192	No
Rhode Island	499	Yes
South Carolina	580	No
South Dakota	114	No
Tennessee	843	Yes
Texas	5,670	No
Utah	472	Yes
Virginia	3,538	No
Vermont	842	No
Washington	2,514	No
Wisconsin	747	Yes
West Virginia	131	Yes
Wyoming	81	Yes

Notes: This table uses data for enrolled Dartmouth students who applied in 2017-2018 (test-required) or 2021-2022 (test-optional). Data on state testing policy are sourced from <https://www.ontocollege.com/act-sat-mandate-states/>.

Table A.5: Value of High School GPA and the SAT Composite in Predicting Cumulative First Year GPA at Dartmouth

	(1) First Year GPA	(2) First Year GPA	(3) First Year GPA	(4) First Year GPA	(5) First Year GPA Less Adv	(6) First Year GPA More Adv
SAT Composite Score	0.00158*** (4.64e-05)		0.00139*** (4.88e-05)	0.00140*** (6.56e-05)	0.00129*** (0.000132)	0.00158*** (5.31e-05)
HS GPA		0.550*** (0.0261)	0.322*** (0.0263)	0.220*** (0.0485)		
Class Rank				-0.490*** (0.124)		
Constant	1.271*** (0.0687)	1.447*** (0.101)	0.304*** (0.103)	0.703*** (0.197)	1.630*** (0.185)	1.275*** (0.0794)
Observations	4,051	4,507	3,937	1,920	580	3,471
R-squared	0.222	0.090	0.255	0.260	0.141	0.203

Notes: This table uses data for enrolled Dartmouth students who applied in 2017-2018 (test-required) or 2021-2022 (test-optional). We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board’s index for challenge. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *** Statistically significant at the 1% level. *Key takeaway: The SAT Composite offers more predictive power for first year GPA at Dartmouth than high school GPA.*

Table A.6: Regression of SAT Composite on Cumulative First Year GPA: Tests for Equality of Slopes

	(1) First Year GPA (Split By HS Challenge)	(2) First Year GPA (Split by Less Advantaged)	(3) First Year GPA (Split by First Gen)	(4) First Year GPA (Split by Gender)	(5) First Year GPA (Split By Family Income)
HS Disadvantage Dummy	-0.0577*** (0.0124)				
SAT Composite (Centered at 1500)	0.00177*** (6.54e-05)	0.00161*** (5.39e-05)	0.00161*** (5.02e-05)	0.00149*** (6.18e-05)	0.00161*** (7.92e-05)
Low-Moderate Income * SAT Composite (Centered at 1500)	-0.000300*** (0.000102)				
Less Advantaged		-0.0993*** (0.0161)			
Less Advantaged * SAT Composite (Centered at 1500)		-0.000362*** (0.000108)			
First Generation			-0.139*** (0.0207)		
First Generation * SAT Composite (Centered at 1500)			-0.000565*** (0.000129)		
Male				-0.0320*** (0.00912)	
Male * SAT Composite (Centered at 1500)				0.000269*** (8.75e-05)	
Lower Family Income					-0.0403*** (0.0141)
Lower Family Income * SAT Composite (Centered at 1500)					-0.000240** (0.000112)
Constant	3.636*** (0.00568)	3.637*** (0.00482)	3.635*** (0.00471)	3.644*** (0.00663)	3.621*** (0.00825)
Observations	4,149	4,972	4,972	4,970	2,955
R-squared	0.235	0.220	0.221	0.218	0.213

Notes: This table uses data for enrolled Dartmouth students who applied in 2017-2018 (test-required) or 2021-2022 (test-optional). We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board’s index for challenge. We define “lower income” as neighborhood income below the US 85th percentile. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *** Statistically significant at the 1% level. *Key takeaway: The linear relationship between SAT Composite and first year GPA at Dartmouth is similar across subgroups.*

Table A.7: Analysis of High School GPA & SAT In Predicting 1st Year GPA: Full Sample With Dummies for Missing Values

	(1) First Year GPA	(2) First Year GPA	(3) First Year GPA	(4) First Year GPA Less Adv	(5) First Year GPA More Adv	(6) First Year GPA
SAT Composite Score	0.00158*** (4.84e-05)		0.00138*** (5.00e-05)	0.00129*** (0.000133)	0.00158*** (5.49e-05)	0.00135*** (5.04e-05)
HS GPA		0.550*** (0.0262)	0.331*** (0.0254)			0.320*** (0.0265)
Class Rank						-0.472*** (0.107)
Missing SAT	-0.138*** (0.0136)		-0.138*** (0.0134)	-0.210*** (0.0342)	-0.0731*** (0.0152)	-0.134*** (0.0134)
Missing HS GPA		0.00474 (0.0273)	0.0447* (0.0252)			0.0417* (0.0252)
Missing Class Rank						0.00683 (0.00935)
Constant	1.271*** (0.0716)	1.447*** (0.102)	0.281*** (0.103)	1.630*** (0.186)	1.275*** (0.0820)	0.374*** (0.109)
Observations	4,662	4,662	4,662	788	3,874	4,662
R-squared	0.200	0.086	0.229	0.116	0.183	0.232

Notes: This table uses data for enrolled Dartmouth students who applied in 2017-2018 (test-required) or 2021-2022 (test-optional). We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board's index for challenge. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. *** Statistically significant at the 1% level.

Table A.8: Logit to Predict Admissions in the Highest Neighborhood Income Decile with No Context

	Admitted
SAT Composite Score	0.0109*** (0.000736)
H.S. GPA	0.421 (0.264)
Academic Rigor = Demanding	-1.400 (1.014)
Academic Rigor = Most Demanding	1.888*** (0.155)
Academic Rigor = Not Rated	1.322*** (0.236)
Constant	-22.25*** (1.474)
Observations	13,663

Notes: This table uses data for enrolled Dartmouth students who applied in 2021-2022 (test-optional) limited to the highest neighborhood income decile. *** Statistically significant at the 1% level.

Table A.9: Analysis of SAT Reporting in The Admission Decision: Test Optional Period (Propensity Score Weighting No Additional Controls)

	(1) Admitted 21-22 All Students	(2) Admitted 21-22 Less Adv Students	(3) Admitted 21-22 More Adv Students	(4) Admitted 21-22 First Gen Students	(5) Admitted 21-22 Not First Gen Students	(6) Admitted 21-22 Low- Moderate HS Advantage	(7) Admitted 21-22 Higher HS Advantage	(8) Admitted 21-22 Lower Income	(9) Admitted 21-22 Higher Income	(10) Admitted 21-22 School w Few Applicants	(11) Admitted 21-22 School w More Applicants
Report SAT for Admission	-0.0021 (0.0033)	-0.0152** (0.0074)	0.0007 (0.0035)	-0.0198** (0.0095)	0.0010 (0.0034)	-0.0141** (0.0062)	-0.0038 (0.0060)	-0.0093 (0.0087)	-0.0019 (0.0035)	0.0001 (0.0042)	-0.0043 (0.0054)
Report SAT for Admission*SAT>=1420	0.0140** (0.0064)	0.0522*** (0.0156)	0.0061 (0.0068)	0.0461** (0.0207)	0.0090 (0.0066)	0.0342*** (0.0128)	-0.0001 (0.0099)	0.0709*** (0.0167)	0.0096 (0.0066)	0.0292*** (0.0088)	0.0049 (0.0089)
Constant	0.0050 (0.0049)	0.0112 (0.0104)	-0.0000 (0.0002)	0.0008* (0.0005)	0.0080 (0.0080)	0.0123 (0.0115)	0.0001 (0.0001)	0.0164 (0.0157)	0.0001 (0.0001)	-0.0000 (0.0002)	0.0265 (0.0261)
Observations	34,680	5,748	28,932	3,639	31,041	8,756	17,784	3,533	31,147	11,562	23,118
R-squared	0.0312	0.0198	0.0376	0.0170	0.0368	0.0176	0.0368	0.0208	0.0343	0.0213	0.0305
Baseline P(admit) if Student did not Report SAT:											
Sat>=1420	0.0338	0.0289	0.0344	0.0410	0.0333	0.0485	0.0409	0.0127	0.0348	0.0214	0.0408
Sat<1420	0.0243	0.0438	0.0142	0.0477	0.0164	0.0386	0.0246	0.0425	0.0195	0.0213	0.0286

Notes: For the students not using their score in admissions, we estimate their propensity to have their score observed and weight the observations by the inverse propensity for their score to be observed. This table uses data for Dartmouth applicants who applied in years 2021-2022. We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board’s index for challenge. We define “least-moderate” & “higher” high school advantage as being in the bottom 8 deciles (least-moderate) versus the top 2 deciles (higher) of the College Board Landscape index of challenges. We define “higher income” & “lower income” as neighborhood income above or below the US 50th percentile. We define “school with few applicants” & “school with more applicants” as having 10 or fewer or more than 10 applicants from the applicants’ school. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. Controls included are dummies for SAT bins. In this robustness table, no additional controls are included.

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**Table A.10: Analysis of SAT Reporting in The Admission Decision: Test Optional Period
(Weighting Assuming Test Score Distribution Matches Test Required Period)**

	(1) Admitted 21-22 All Students	(2) Admitted 21-22 Less Adv Students	(3) Admitted 21-22 More Adv Students	(4) Admitted 21-22 First Gen Students	(5) Admitted 21-22 Not First Gen Students	(6) Admitted 21-22 Low- Moderate HS Advantage	(7) Admitted 21-22 Higher HS Advantage	(8) Admitted 21-22 Lower Income	(9) Admitted 21-22 Higher Income	(10) Admitted 21-22 School w Few Applicants	(11) Admitted 21-22 School w More Applicants
Report SAT for Admission	-0.0003 (0.0034)	-0.0054 (0.0067)	0.0035 (0.0037)	-0.0110 (0.0087)	0.0035 (0.0035)	-0.0051 (0.0058)	0.0060 (0.0058)	-0.0029 (0.0082)	0.0008 (0.0036)	-0.0049 (0.0045)	0.0043 (0.0053)
Report SAT for Admission*SAT>=1420	0.0052 (0.0086)	0.0582*** (0.0151)	-0.0064 (0.0096)	0.0474** (0.0192)	-0.0019 (0.0091)	0.0273* (0.0141)	-0.0096 (0.0142)	0.0811*** (0.0172)	-0.0012 (0.0091)	0.0272*** (0.0088)	-0.0088 (0.0121)
Constant	-0.0818*** (0.0217)	-0.0979** (0.0483)	-0.0717*** (0.0241)	-0.1197** (0.0579)	-0.0569** (0.0261)	-0.0698 (0.0428)	-0.0399 (0.0392)	-0.0731 (0.0554)	-0.0798*** (0.0225)	-0.0769*** (0.0250)	-0.0745* (0.0434)
Observations	34,680	5,748	28,932	3,639	31,041	8,756	17,784	3,533	31,147	11,562	23,118
R-squared	0.0901	0.1158	0.0884	0.1386	0.0880	0.0935	0.0979	0.1092	0.0901	0.0977	0.0872
Baseline P(admit) if Student did not Report SAT:											
Sat>=1420	0.0438	0.0286	0.0463	0.0427	0.0439	0.0501	0.0514	0.00940	0.0464	0.0219	0.0527
Sat<1420	0.0272	0.0443	0.0178	0.0500	0.0197	0.0379	0.0245	0.0421	0.0227	0.0260	0.0285

Notes: For the students not using their score in admissions, we weight these observations by assuming that the true fraction of applicants in each test score bin is the same as in the test score required period. Subsamples are less (more) advantaged students as defined in the text, first gen students, students in the highest 8 deciles of high school disadvantage, students below 50th percentile of neighborhood income, schools that send a small number of applications to dartmouth. Controls are dummies for SAT bin, early decision, male, first gen, low or moderate high school advantage, very low income, dummies for our disadvantage index, dummies for level of academic rigor, international applicant, pell eligible, small school, high school GPA scaled, low or moderate neighborhood income. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**Table A.11: Analysis of SAT Reporting in The Admission Decision
(Simple Weighting Assuming Test Scores Missing At Random)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Admitted 21-22 All Students	Admitted 21-22 Less Adv Students	Admitted 21-22 More Adv Students	Admitted 21-22 First Gen Students	Admitted 21-22 Not First Gen Students	Admitted 21-22 Low- Moderate HS Advantage	Admitted 21-22 Higher HS Advantage	Admitted 21-22 Lower Income	Admitted 21-22 Higher Income	Admitted 21-22 School w Few Applicants	Admitted 21-22 School w More Applicants
Report SAT for Admission	0.0001 (0.0033)	-0.0062 (0.0066)	0.0039 (0.0037)	-0.0120 (0.0086)	0.0037 (0.0035)	-0.0057 (0.0057)	0.0074 (0.0057)	-0.0036 (0.0082)	0.0015 (0.0036)	-0.0046 (0.0045)	0.0052 (0.0053)
Report SAT for Admission*SAT>=1420	0.0088 (0.0062)	0.0533*** (0.0133)	-0.0011 (0.0067)	0.0440*** (0.0165)	0.0029 (0.0065)	0.0263** (0.0125)	-0.0021 (0.0096)	0.0746*** (0.0173)	0.0029 (0.0065)	0.0264*** (0.0076)	-0.0037 (0.0087)
Constant	-0.0810*** (0.0213)	-0.0896* (0.0503)	-0.0723*** (0.0222)	-0.1220** (0.0568)	-0.0554** (0.0252)	-0.0697 (0.0433)	-0.0485 (0.0381)	-0.0516 (0.0638)	-0.0836*** (0.0207)	-0.0705** (0.0284)	-0.0821** (0.0394)
Observations	34,680	5,748	28,932	3,639	31,041	8,756	17,784	3,533	31,147	11,562	23,118
R-squared	0.0893	0.1155	0.0868	0.1303	0.0874	0.0961	0.0963	0.1170	0.0882	0.0982	0.0854
Baseline P(admit) if Student did not Report SAT:											
Sat>=1420	0.0363	0.0258	0.0379	0.0392	0.0360	0.0481	0.0383	0.0122	0.0382	0.0208	0.0429
Sat<1420	0.0281	0.0419	0.0177	0.0459	0.0204	0.0381	0.0245	0.0412	0.0229	0.0271	0.0294

Notes: For the students not using their score in admissions, we weight these observations by assuming (conditional on disadvantaged status) the observations are representative of all applicants not using scores. This table uses data for Dartmouth applicants who applied in years 2021-2022. We define “less-advantaged” students as those who are any of: U.S. first-generation college going, from a neighborhood with median income below the 50th percentile for the U.S., or attended a U.S. high school in the top 20% of the College Board's index for challenge. We define “least-moderate”, & “higher” high school advantage as being in the bottom 8 deciles (least-moderate) and the top 2 deciles (higher) of the College Board Landscape index of challenges. We define “higher income” & “lower income” as neighborhood income above or below the US 50th percentile. We define “school with few applicants” & “school with more applicants” as having fewer or more than 10 applicants from the applicants’ school. The SAT Composite is used for all applicants where reported. Where only ACT is available, scores are rescaled to the SAT scale. Controls are dummies for SAT bin, early decision, male, first gen, low or moderate high school advantage, very low income, dummies for our disadvantage index, dummies for level of academic rigor, international applicant, pell eligible, small school, high school GPA scaled, low or moderate neighborhood income.*** Statistically significant at the 1% level.

Table A.12: Information Content of SAT Scores for More and Less Advantaged Students

	(1) SAT Composite More Adv	(2) SAT Composite Less Adv	(3) First Year GPA More Adv	(4) First Year GPA More Adv	(5) First Year GPA Less Adv	(6) First Year GPA Less Adv
H.S. GPA	126.3*** (8.032)	108.4*** (26.77)	0.467*** (0.0291)	0.326*** (0.0294)	0.433*** (0.0813)	0.378*** (0.0885)
<i>Academic Rigor:</i>						
Not Rated	179.0*** (24.58)	200.9*** (71.41)	0.482*** (0.0898)	0.284*** (0.0876)	0.196 (0.215)	0.0707 (0.234)
Moderately Demanding	15.23 (80.23)	153.3 (137.2)	0.436 (0.306)	0.436 (0.284)	0.629 (0.460)	0.624 (0.447)
Demanding	53.73** (25.54)	66.36 (78.83)	0.260*** (0.0928)	0.220** (0.0903)	-0.0226 (0.222)	0.0576 (0.257)
Very Demanding	113.4*** (24.55)	88.03 (70.67)	0.317*** (0.0896)	0.203** (0.0871)	0.228 (0.211)	0.222 (0.230)
Most Demanding	184.7*** (24.42)	169.5** (69.54)	0.469*** (0.0892)	0.268*** (0.0871)	0.283 (0.208)	0.192 (0.228)
SAT Composite Score				0.00120*** (6.13e-05)		0.00123*** (0.000139)
Constant	830.1*** (37.31)	810.1*** (113.8)	1.365*** (0.135)	0.321** (0.141)	1.448*** (0.348)	0.0550 (0.387)
Observations	3,335	554	3,699	3,335	758	554
R-squared	0.264	0.111	0.151	0.245	0.076	0.201

Notes: This table uses data for enrolled Dartmouth students who enrolled in 2017-2018 (test-required) or 2021-2022 (test-optional). In columns 1-2 we show that SAT scores have more informational content for the less advantaged students. Other admissions variables predict much more of the variation in SAT scores for the more advantaged students. In columns 3-6 we show that SAT scores add more predictive power for first year college GPA for the less advantaged students.

Table A.13: Variance of First Year GPA By Test Required and Test Optional Periods and More and Less Advantaged

	Test Required			Test optional		
	Mean GPA	Std	n	Mean GPA	Std	n
Less Advantaged	3.35	0.41	381	3.44	0.43	407
More Advantaged	3.56	0.34	1,966	3.68	0.29	1,908

Notes: This table uses data for enrolled Dartmouth students who enrolled in 2017-2018 (test-required) or 2021-2022 (test-optional). We show that in the test optional years, the less advantaged students have an increase in variance of GPA whereas the more advantages students have a drop in variance of first year GPA.

Appendix B: Holistic and Test Scores in Context Admissions Statements from Ivy Plus Institutions

Brown University- “We review all applications holistically and in context, meaning that we do not make admissions decisions based on a grade average or class rank without also considering the many other factors that help us understand an applicant's preparation and potential to contribute to the Brown community.” See also “ All scores are considered in context and remain one aspect among the many that inform our holistic admission process.”

Yale University- “Keep in mind that Yale’s review process is holistic and contextual. All test scores are considered by a real person; they are not fed into an algorithm or weighting rubric. If extenuating circumstances affected your experience preparing for or completing an exam, share the details in Yale’s optional question”

Harvard College- “When reading an application, the Admissions Committee reviews test scores, along with all other aspects of the application, to get to know the person behind the numbers. Harvard has found that SAT and ACT scores are the best predictors of Harvard grades. The Committee also understands that SAT and ACT tests are one aspect of a student’s application.”

Princeton University- “The University's admission process involves a holistic review of each applicant's entire file. No particular factor is assigned a fixed weight; rather, the process involves a highly individualized assessment of the applicant's talents, achievements and his or her potential to contribute to learning at Princeton.” See also “Princeton has no minimum test score requirement for admission; rather, all of the information in each student’s application is considered in context.”

University of Pennsylvania- “Our goal is to identify students who we believe are ready for the academic challenges Penn has to offer. Our admissions committee meets in teams to discuss all parts of your application so we can look beyond the words on the page to discover the intangible qualities that make you authentically you.” See also “We understand that standardized testing only provides a fraction of insight into your academic performance, and through our comprehensive review process, we consider multiple factors to determine your preparedness for Penn.”

Notes: All Quotes pulled directly from institutions admissions web pages in 2025. Brown University <https://admission.brown.edu/ask/admission-process> & <https://admission.brown.edu/ask/standardized-tests>. Yale University <https://admissions.yale.edu/standardized-testing>. Harvard College <https://college.harvard.edu/resources/faq/how-will-admissions-committee-evaluate-my-test-scores>. Princeton University <https://admission.princeton.edu/apply/application-checklist>. <https://admission.princeton.edu/apply/standardized-testing>. University of Pennsylvania <https://admissions.upenn.edu/how-to-apply/preparing-your-application> <https://admissions.upenn.edu/how-to-apply/preparing-your-application/testing>.

