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ABSTRACT

This paper uses data from the largest college application platform in the U.S. to describe application and enrollment changes in response to widespread test-optional admissions adoption between 2018-2021. Although test-optional policies aimed to expand college access, underrepresented students did not apply to Elite colleges at higher rates and Elite colleges still received large numbers of high-scoring applications after tests became optional. Despite the oversupply of high-scoring applicants in the test-optional period, Elite colleges enrolled more lower-scorers with high grades, in particular first-generation and lower-income students. Enrollment in less selective colleges also increased among high-scorers, so test-optional policies may exacerbate undermatching.

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I. INTRODUCTION

There is a longstanding debate about whether standardized college admissions tests, the American College Testing (ACT) and Scholastic Aptitude Test (SAT), promote or inhibit access to selective colleges for minoritized and low-income students in the U.S. As college admissions becomes increasingly competitive, students face more pressure to signal their academic ability, particularly through test scores (Bound, Hershbein, and Long, 2009). Critics of these tests[1] argue that the nature of the questions, inequities in education quality, and the widespread availability of costly test preparation programs make these tests biased in favor of students from advantaged backgrounds. Research has documented gaps in SAT participation and performance by socioeconomic status, gender, and race (Hoxby and Avery 2013; Dixon-Román, Everson, and Mcardle 2013; Rothstein 2004; Leonard and Jiang 1999; Camara and Schmidt 1999), which may even be partly explained by non-academic factors such as proximity to testing locations, access to test preparation, and SAT re-taking frequency (Buchmann, Condron, and Roscigno 2010; Bulman 2015; Goodman, Gurantz, and Smith 2018; Hurwitz et al. 2015).

Proponents of these tests observe that despite their weaknesses, ACT and SAT scores still reliably predict academic success in college (Lemann 1999; Sackett et al. 2012; Kobrin et al. 2008; Chetty et al. 2023; Sacerdote et al. 2025; Friedman et al. 2025) and that colleges can account for bias in their interpretations of test scores (Dynarski 2018; Leonhardt 2024; Deming 2024).[2] In addition, other elements of applications, such as essays, extracurricular activities, and letters of recommendation may reveal socioeconomic differences (Bound et al. 2009) and be slanted even more in favor of students from advantaged backgrounds (Akos and Kretchmar 2016; Lareau 2011; Kim et al. 2024; Arcidiacono et al. 2022). Similarly, high school grades may vary by course type and high schools, and grades are also susceptible to bias and inflation over time (Pattison et al. 2013; Buckley et al. 2018; Gershenson 2018; Zhang and Sanchez 2013; Malouff and Thorsteinsson 2016; Quinn 2020; Bonefeld and Dickhäuser 2018).

[1] For brevity, we use “SATs” or “tests” to refer to both the SAT and ACTs.
[2] For example, the predictive power of tests was an important justification for reinstating testing requirements in college applications at MIT, Harvard, Yale, Dartmouth, and others (“Q&A: Stuart Schmill on MIT’s Decision to Reinstate the SAT/ACT Requirement” 2022; “Reactivating the SAT/ACT Requirement for Dartmouth Undergraduate Admissions” 2024; “Return to Required Testing – Harvard Faculty of Arts and Sciences,”2024; “Yale Announces New Test-Flexible Admissions Policy” 2024).

Standardized test scores may also help to match students and colleges. On the student side, an unexpectedly high score may help students discover that they are academically qualified and can succeed in four-year colleges (Goodman 2016). Likely for this reason, universal ACT and SAT testing programs supported by states generally increase four-year college enrollments, particularly for lower-income students (Hurwitz et al. 2015; Hyman 2017; Cook and Turner 2019; Klasik 2013). On the college side, admissions offices can use standardized test scores to proactively identify and recruit qualified students who might otherwise not apply (Dynarski et al. 2021; Hoxby and Turner 2014). Despite the ongoing debate, there are few evaluations of test-optional admissions policies on application and enrollment rates—particularly at the most selective colleges.

In this paper, we use data from the Common Application (Common App), an online college application platform used by over one million people and over one-thousand colleges each year, to study the effects of recent widespread adoption of test-optional policies, whereby students can choose whether or not to submit a standardized test score as part of their college application.[3] It is often hypothesized that test-optional policies can expand diversity of the applicant pool and/or applicants' college application and enrollment choices if access to and performance on SATs created barriers for underrepresented students. Past studies of test-optional policies at individual colleges (Belasco et al. 2015; Sweitzer et al. 2018; Wildavsky et al. 2018; Saboe and Terrizzi 2019), using college-level results (Bennett 2022), and simulation based on a structural model (Borghesan, 2023) have generally found that this policy promotes applications but does not provide consistent results about the its effects on disadvantaged applicants (Rosinger, Kelly et al. 2024). Overall, there is little evidence distinguishing whether enrollment trends following test-optional adoption were driven by students' application choices or college admissions behavior.

The breadth and depth of our recent application data enables us to address three challenges that have limited the generalizability of previous studies. First, recent changes in

[3] In 2020, the University of California and Caltech adopted a "test-free" (or "test-blind") policy, meaning that it does not consider test scores in the admissions process for any applicant. We study the more common test-optional policy. As of January 2024, the non-profit organization Fair Test lists 1,961 colleges that offer test-optional and 88 that offer test-free admissions policies. https://fairtest.org/test-optional-list/.

college policies now make it possible to evaluate test-optional policies at the most selective colleges for the first time. Widespread adoption of these policies was prompted by lockdown conditions during the pandemic, which naturally complicates the interpretation of our results. Nevertheless, we introduce several robustness checks to address potential selection of students into the sample and different comparison groups that may coincide with COVID. Second, our data includes applicant-level information, which makes it possible to distinguish whether any changes during the test-optional period were driven by students' application choices or colleges' admissions behaviors. Finally, this dataset covers over one thousand colleges, which makes it possible to observe application and portfolio choices across a diverse set of colleges.

Test-optional policies offer students with high grades but lower scores, in particular, an opportunity to remove weaker signals from their college applications. Our research design compares changes in application and enrollment decisions for students from similar backgrounds and high schools—but who differed in the competitiveness of their test score and whether they applied to college before or during the test-optional period. We focus on a sample of students with at least an A-average in high school, making them competitive for admissions to all colleges. Among students with high grades, we compare lower-scoring students against higher-scoring students, who were less affected by test-optional policies because they remained competitive applicants who had the incentive to report their scores, regardless of colleges' decision to require tests or not.

Our analysis produces three broad findings. First, we find that there were no sustained increases in application rates to the most competitive colleges between 2018 and 2021. Although test-optional policies provided incentives for underrepresented students with strong grades but lower test scores to apply to the most selective colleges, application rates to the most selective colleges actually declined among Black, Latinx, and First-generation students who scored below the median in 2020 and 2021. Second, we find that SAT scores continued to be a large part of applications and admissions at the most selective colleges. Despite universal test-optional policy adoption at the most selective colleges, most applicants—and an even higher share of admitted and enrolled students—still submitted their scores. At the most selective colleges, the vast majority of enrolled students reported scores. Third, we find a moderate shift in enrollment at the most selective colleges towards lower-scoring students, suggesting that colleges may have reduced the weight placed on test scores in their admission decisions during this time period. These enrollment effects exceeded the magnitude of application effects, implying college admissions decisions played a significant role in enrollment results. However, since higher-scoring students also increased their enrollments at less selective colleges, it raises the question of whether colleges could have achieved similar goals of boosting college access without test-optional policies, which may have worsened undermatching.

We conduct additional analyses to address concerns about selection related to timing and comparison groups. First, it is possible that highly qualified students were misclassified as lower-scoring applicants because of decreased access to testing sites, dampened effort on tests, or other reasons. We show that results were similar when we boosted test scores by the expected increase from retaking the test (Goodman, Gurantz, and Smith 2018) and when excluding missing scores. Should the weakening of academic standards and grade inflation coinciding with the test-optional period change the sample as well, we show that results hold across various GPA definitions and are similar for all applicants and the top 5 percent of applicants based on grades. Second, we may be concerned that the test-optional period coincided with COVID, making it challenging to disentangle whether results were driven by other factors in this period. We show that the finding that lower-scoring students increased their enrollment during the test-optional period is also robust to restricting the analysis to a select group of colleges that re-instated test requirements within one year, still during the COVID era. Our results on enrollment patterns by college selectivity were also similar to projected results based on simulation conducted by Borgeshan (2023) for an earlier time period. Through these and other analyses, we demonstrate that our results hold across multiple robustness checks and specifications.

The paper proceeds as follows. Section 2 describes the policy background and stated motivations for test-optional policies. Section 3 describes the data and sample. Section 4 reports descriptive findings, highlighting clear changes in score-sending patterns but limited changes in the selectivity of the colleges where students applied after Test Optional policies were in place. Section 5 explains the empirical strategy and elaborates on how we divide students into subgroups for comparisons. Section 6 provides our formal analysis of changes in enrollment patterns over time. Section 7 discusses the policy implications of our findings and concludes.

II. POLICY CONTEXT

Shortly after the COVID-19 pandemic was declared a national emergency in the U.S., the College Board and ETS postponed and then subsequently canceled SAT and ACT tests in March 2020 and the following months. ETS offered the ACT in-person starting in June 2020, offered both remote and in-person options starting in September, and added more testing dates for Fall 2020. The College Board offered the SAT in-person in August 2020 and urged colleges to offer more flexibility around the use of test scores in admissions.

Afterwards, an Elite college in Ohio was one of the first colleges to announce test-optional policies in March 2020, citing concerns around the test's impact on equity and highlighting how the pandemic expedited and solidified the decision to drop testing requirements. A wave of colleges with the lowest acceptance rates and highest yield rates removed their SAT and ACT requirements in June of 2020 for the fall application cycle, which was at least four months ahead of early action and early decision deadlines in October and November, and at least six months ahead of the most common college application deadlines in December and January. Over five hundred other colleges removed test score requirements in their college applications between 2020 and 2022.[4]

Whereas most colleges using the Common App required test scores before 2020, after the start of the pandemic, 90.1 percent made tests optional in 2020-21 and 95.9 percent made them optional in 2021-2022. Figure 1 shows adoption by college selectivity and shows that test-optional policies were most common among less selective institutions in 2018-19 and 2019-20 and then universally adopted by the most selective institutions in 2020-21 and 2021-22. Several of the most selective colleges have reversed their test-optional policies since then.

[Insert Figure 1]

Figure 2 shows that these policy changes resulted in substantial changes in student behavior. Most students who used the Common App applied *without* a test score to at least one college in the 2020 and 2021 admission cycles; 72 to 76 percent of all students in our sample nationwide applied to college *with* an SAT or ACT score in 2018 and 2019, but in 2020 and

[4] The list of colleges adopting test-optional policies has been documented by FairTest.

2021, 51 to 56 percent applied *without* a score. Taken together, Figures 1 and 2 indicate substantive changes to both the admission rules and the behavior of applicants.

[Insert Figure 2]

The promise for test optional policies to expand access to the most selective colleges rests on the twin premises that (1) there are many well-qualified students whose test scores reduce their admissions chances and that (2) this set of students consists disproportionately of low-income and minoritized applicants. Table 1 presents summary statistics for the 2018 and 2019 application cycles dividing students into groups by GPA and test score:

- We use an A-average in high school grades (or 94 out of a 100 scale), which most enrollees at the most selective colleges met or exceeded.[5]
- We use a test score cutoff of 1468, the baseline median score for enrolled students at the most selective colleges.[6]

Among highest GPA students (those with GPA of 94 or greater on the 100 scale), test scores were highly correlated with applications to the most selective colleges, while underrepresented minority and low-income students were relatively unlikely to have test scores that met the 1468 cutoff. For example, the proportion of Black students and the proportion of first-generation students were each approximately four-times higher in the "Highest (A) GPA, Test Score Above Cutoff" subgroup than in the "Highest (A) GPA, Test Score Missing or Below Cutoff" subgroup. This opens the possibility that the advent of test-optional application policies could promote increases in applications from students with highest GPAs but not high test scores at the most selective colleges, in particular from underrepresented minority and low-income students. Adoption of a test-optional policy could have substantial effects on the demographics of enrollment if these students applied and were admitted at higher rates.

[Insert Table 1]

[5] Many schools allow students to exceed a 4.0 GPA, generally by getting extra credit for advanced courses.
[6] The minimum increment in SAT scores is 10 points, so using the median cutoff divides applicants into one group with test score of 1468 and above and another with lower or no test reported score.

III. DATA AND SAMPLE

A. Data

We use data from the Common App, which includes comprehensive data on applications from over one million applicants per year to more than 1,000 member colleges in all 50 U.S. states.[7] Launched in 1975 and converted to an online portal in 2007, it is the largest single common application portfolio service based on the number of colleges, applicants served, and applications filed. The Common App allows students to apply to multiple colleges within its membership using a standardized form and then complete separate supplementary forms that are required by individual colleges. By offering a centralized application and platform, Common App has made it easier to apply to multiple colleges and expand the number and types of colleges that each individual applies to (Liu et al. 2007; Knight and Schiff 2022). Each August, the Common App releases the new version of its application for the application cycle that runs through the following July.

The datasets include students' responses to each application's common portion and college's supplementary portions, such as such as students' demographic information, family education, list of colleges to which they applied, and high school grade and score information where available. Our dataset covers four academic years, which we also describe as "admission cycles", from 2018-19 to 2021-22. We refer to each admissions cycle by the calendar year at the start of the cycle, so that the 2019 application cycle includes applications submitted during the 2019-20 academic year.

Most colleges that used the Common App were private and selective colleges, and 59.2 percent required test scores before the pandemic. We classified colleges into three tiers based on Barron's selectivity ranking: the "most selective colleges" consists of Elite colleges, "highly selective colleges" corresponded to Barron's Tier 2 colleges, and "Less selective colleges" consists of selective, non-selective, and unrated colleges.

We supplement the Common App data with information from public-use data sources. We link applicants' residential information to the U.S. Census Bureau's American Community

[7] While this dataset does not capture enrollment decisions to colleges outside of the Common App, this application platform is widely used among many of the Most Selective colleges.

Survey to merge in data about the locality's income. We also merged in high school characteristics such as Title I status from the U.S. Department of Education's Common Core Dataset. We add characteristics for each college, including admissions and enrollment, information from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS).

We use two primary variables to classify students according to academic achievement. The <u>GPA Ratio</u> is given by the student's grade-point average (GPA) divided by the GPA scale as reported by the high school. A total of 17.3% of applicants in our sample have GPA Ratio greater than 1, meaning that they had GPAs greater than the maximum value on the nominal scale, presumably because their high schools give extra credit for certain advanced classes. <u>Test Score</u> is the maximum SAT (Verbal + Math) and ACT (composite) score after conversion to the 1600-point SAT scores using a standard crosswalk table.

B. Sample Restrictions

We restrict our sample to applicants from the U.S. who applied after the application opened in August and indicated plans to attend college the following year's fall.

We also focus our quasi-experimental analysis on a sub-sample of applicants with enrollment information, though we later replicate the application findings using the full sample. While our data does not include direct information on college enrollment for every student, it does include that information for a subsample of students who submit a final high school transcript through the Common App platform to the colleges where they plan to enroll. We use the college where applicants sent their final high school transcript as a proxy for enrollment. This proxy is restricted to a sample of high schools that appear to send final transcripts to colleges for (almost) all of their graduates through the Common App platform. only use transcript sending as a proxy for college enrollment for students who both attend a high school that is tagged as a "reliable transcript sending school" and who used the Common App to apply to at least two of the most competitive colleges. Even within the reliable high schools, we exclude the small share of applicants that send their final transcript to multiple colleges. The development of the proxy enrollment measure mirrors the spirit of the methodology developed by Grossman et al., 2024 in their data context and verified using National Student Clearinghouse data.[8] Applicants with no high school name or high schools that do not remain in the sample for all four years are therefore excluded. The enrollment subsample consists of students who submitted a final high school transcript through the Common App portal to a single college, thereby indicating an unambiguous intention to enroll at that college. We also replicate the findings using an alternative enrollment proxy that also relies on sending a final transcript to one college and is not restricted to this specific high school sample.

IV. DESCRIPTIVE RESULTS

In this section, we describe the continued prevalence and importance of test scores even during the test-optional period. During the test-optional period, the most selective colleges continued to receive a similar or larger pool of applicants with high scores, in addition to an increased supply of applicants without scores. Applicants' advising and peer information affected their probability of sending scores, which may introduce more disadvantages and complexity to students without strong college networks, such as first-generation students. Ultimately, students who used the option of applying without a test likely a) had less information to navigate the complex application process and/or b) had a lower score. Although higher rates of black, Latinx, and first-generation students fell into those categories, they still comprised a small share of students who applied without a score.

Table 2 presents descriptive statistics for enrolled students by college types for the two time periods of our sample. Across the three types of colleges, SAT scores increased among applicants and enrollees, but GPA ratios increased by less than 0.01 points (1 percent) among applicants across all college types. Enrolled students' GPAs also did not significantly increase on average, implying that, in the aggregate, colleges did not give additional weight to GPA in admission decisions despite the reduction in information from test scores during this time period.

[8] Specifically, we consider a set of high schools to have reliable transcript sending patterns if less than 5 percent of their students who applied to at least two colleges through the Common App have the same number of transcripts sent as the number of applications submitted.

The descriptive comparisons in Table 2 also indicate a slight increase in the proportion of non-white and first-generation students enrolled at each selectivity tier during the test-optional period despite minimal change in applicant composition (and in some cases, slight decreases). The increase in enrollment, particularly from black and first-generation students, was highest at colleges with the lowest admissions rates and highest yield rates. These increased enrollment rates for historically represented students were generally consistent with trends using aggregate college-level enrollment data from IPEDS in the same time period.

[Insert Table 2]

A. No Sustained Increase in Application Rates to the Most Competitive Colleges

The observed enrollment increases from descriptive analysis above could be driven by students' application choices or colleges' admissions choices. We first analyze changes in application rates. Figure 3A presents the distribution of applications by college selectivity and shows that application rates to most selective colleges did not increase in a sustained manner after colleges adopted test-optional policies. There was a modest increase from 18 to 20 percent in the proportion of all applications submitted to Highly Selective colleges in 2020 and 2021 and no change in application rates to the Most Selective colleges beyond 2020. Figure 3B shows that even for applicants with A-average GPAs, college applications decreased over time to the Most Selective colleges while applications to Highly Selective and Less selective colleges increased.[9]

[Insert Figure 3]

[9] Although application rates to the Most Selective colleges did not increase over time, the number of applicants did. The size of the cohorts using the Common App increased by nearly 20% from 2018 to 2021 and exceeded 1 million unique applicants by 2020. In the same period, there was a 12.9 percent increase in unique applicants to the most selective colleges. While there were modest increases in enrollment at some colleges during this time period, the main takeaway is that more students were competing for each seat at a selective college in the test-optional period than in the earlier period of our sample.

Figure 4 shows a clear negative correlation between undergraduate admissions rates and score submission rates in 2020-2021. This implies that only a small subset of students benefited from withholding scores. Applicants submitted scores at relatively high rates to more selective colleges, where there was an even stronger correlation between score submission and enrollment. The difference in score submission rates between enrollees and applicants was especially large at selective colleges that admitted less than half of its applicants. This suggests that most applicants anticipated that test scores remained an important component of applications to the most selective colleges and that they were generally correct in doing so.

[Insert Figure 4]

The change in test score submission rates resulted in a shift towards higher scores in the distribution of test scores submitted to colleges, though there was no comparable increase in high school GPAs. Appendix Table 1 and 2 show that the average SAT score submitted as part of an application increased 3.7 percent, from 1238 to 1284, between 2019 and 2020, and the increase was even larger for test-optional colleges. Figure 5 compares the GPA and SAT distributions from 2018-2019 to 2020-2021. Figures 5A and 5B show that the SAT distribution shifted to the right for all students, and to an even larger degree for applicants to test-optional colleges from 2018-2019 to 2020-2021. In contrast, Figures 5C and 5D show that GPA distributions were very similar in these two periods; there was a slight average increase of .02 (out of 1.0) in the GPA ratio in the later period that is not conspicuous in the graphs. These shifts in scores provide suggestive evidence of strategic score-sending, whereby students with relatively low SAT scores did not send them with their applications.

The drastic increase in SAT scores in 2020 and 2021 cannot be explained by changes in underlying applicant demographics. Observable student characteristics also did not significantly change in the overall applicant population (Appendix Table 1) and also remained relatively stable by college type (Table 2). In general, SAT scores increased, particularly at test-optional colleges, without accompanying changes in other indicators of academic preparation or qualifications. There are two notable but still relatively modest observable changes in student characteristics, though neither would be expected to explain rise in SAT scores; there were initial decreases and subsequent increases in both the share of first-gen students (which fell from 32.1 in 2019 to 30.9 percent in 2020 and then increased to 34.2 percent in 2021) and those receiving a college application fee waiver (which fell from 45.6 percent in 2019 to 44.2 percent in 2020 and then increased to 46.8 percent in 2021).

[Insert Figure 5]

Figure 6 offers a counterweight to Figure 5 by graphing the number of applications at each selectivity level with given test scores. The results demonstrate that colleges still received a similar (or larger) pool of exceptionally qualified applicants based on scores during the test-optional period. Despite the substantial drop in the proportion of students who sent test scores with their applications from 2018-19 to 2020-21, the number of applications at the right tail of the score distribution was almost the same in the two periods.[10] The number of scores below 1468, the median for the most selective colleges, decreased in 2020 and 2021, consistent with prior research showing that students use transparent admissions thresholds as signals to assess their qualifications when making application and enrollment decisions (C. M. Hoxby and Turner 2015; Mulhern 2020; Shi 2023; Tomkins et al. 2023; Kapor, Forthcoming). Figure 6 further shows that colleges continued to receive similar number of high-scoring applications from black and Latinx students before and after 2020.[11] The most selective colleges continued to receive an oversupply of highly qualified applicants even during the test-optional period.

While the value of the SAT or ACT score influenced whether applicants submitted it, environmental factors such as peer or parental information also predicted score-submission decisions. It seems natural to anticipate that applicants with the highest test scores, particularly those scoring above the median for the most selective colleges, would choose to submit those scores. Thus, we might have expected an even stronger result for the right tail in Figure 6 whereby the increase in the number of students using the Common App resulted in a larger number of applications with highest test scores in 2020 and 2021 than in 2018 and 2019. Instead, the overlap of curves in the right tails of each panel of Figure 6 suggests that students may have devoted less effort to standardized tests during the test optional period than before that, either in terms of test preparation or the number of times that they took a standardized test.

[10] The jagged nature of these empirical distributions results from lumpy conversion of ACT scores to the SAT range.
[11] The number of first-generation students were similar before- and after-test-optional adoption at scores above 1550.

Another possible explanation is that some high-scoring students did not report their scores, possibly due to misinformation or lack of advising.

[Insert Figure 6]

Figure 7 shows that while higher scores were positively correlated with submitting scores, other factors were more predictive of applying with a score. The strongest predictor of whether a student submits a score with their application was the share of their high school peers that submitted a score, with a coefficient around 0.4. This pattern even holds within each of the three college types. Figure 7 also shows that applicants were more likely to submit their score when their (predicted) score was higher, though this correlation was weaker (0.2). Further supporting the observation that outside information and advising affected decision-making, being a first-generation student or attending a high school with a higher share of first-generation students was one of the strongest predictors of applying *without* a score. Appendix Figure 1 shows that first-generation students were less likely to report a score along nearly every part of the GPA distribution. The gap is especially pronounced at the high end of the GPA distribution, implying that even the most academically qualified students were less likely to submit if they were the first in their families to attend college and therefore may have had less support to navigate application decisions. Overall, the evidence suggests that students were more likely to apply with a score when they had a good score and if they were exposed to others who were applying with scores. Test-optional admissions therefore may have introduced reliance on outside information and potentially disparities resulting from differential access to information.

[Insert Figure 7]

We conduct the following thought experiment to assess the effects of score-optional policies relative to a specific baseline. Suppose that applicants in 2021 and 2022 all took ACT or SAT and their scores followed the observed distribution of test scores for applicants by subgroup from 2018 and 2019. Then we could estimate the number of 2021 and 2022 applicants in each range even though some did not submit their scores. For example, we observe 45,547 distinct applicants from private school students to highly selective colleges in 2018 and 2019, including

3,091 (6.8%) with reported scores in the 1350-1390 range, and 56,248 distinct applicants to these colleges in 2012 and 2022. According to the thought experiment, we expect approximately 3,825 (6.8% of 56,248) applicants, but actually observe a smaller number 2,628 (4.7% of applicants) with scores in this 1350-1390 range. We use this ratio of 4.7% to 6.8%, or approximately 68% as an estimate of the proportion of private school applicants with scores in this range who chose to submit them under the test optional policy. We note that in the context of this thought experiment, we would expect submission rates close to 100% for the highest test score ranges because there is no reason not to submit a near perfect score.

Figure 8 graphs the simulated score submission rate for Black, First-Generation, Latinx, and Private School students based on this computation for applications to the most selective colleges in the test-optional period.[12] The projected submission rates generally increase with test score but fall short of 100% in the top range from 1550 to 1600, suggesting that there was a decline in realized test scores for students in each subgroup (or that some students who would have had near-maximum scores did not take the test). The projected score sending functions are relatively flat in the left portion of the graph for lower score ranges, indicating that factors other than the realized score influenced the score-sending decision. The projected curve for private school students is somewhat steeper than the others, suggesting that these students were more strategic in their score-sending decisions (i.e. more likely to submit with higher and less likely to submit with lower scores). Even so, approximately 40% of private school students in the lowest ranges in the figure submitted those scores and the distinctions between these projected score-sending curves are not substantial, so we conclude that on the whole, score-sending strategies likely had limited effect on the demographics of enrollment at selective colleges.

[Insert Figure 8]

V. EMPIRICAL STRATEGY FOR FORMAL ANALYSIS

While recognizing that we are working with observational data from a tumultuous time period, we make a conscious choice to structure our analysis along the lines of that of a standard evaluation. Comparisons of application and enrollment rates before and after test-optional

[12] Though not included in this figure, we find qualitatively similar patterns for score-sending for applicants to Highly Selective colleges.

policies may be biased because the timing of test-optional policies coincided with the COVID-19 pandemic and other equity-oriented policies, which could have affected these outcomes. Therefore, to distinguish the effects of the admissions policy affecting test requirements specifically, we compare changes in one group of students less affected by the option to apply with a test score against another group that benefits more from applying without a weak score. We provide extensive analysis of potential biases resulting from this method in Section 6-C below.

A. Comparisons Based on Relative Score and Timing

In particular, as discussed in Section 2, test-optional policies may differentially affect qualified students with high grades but weaker scores. Students with high grades and high scores are most likely to apply with their scores regardless of whether tests are optional because their high score continued to signal their academic qualifications. Therefore, we exploit two key sources of variation that would affect application and enrollment rates during the transition to test-optional. First, the timing of applying in a cycle before or after 2020 most directly affected applicants' exposure to test-optional policies. In 2020, each of the most selective colleges made it optional to apply without a test score. Second, students' relative scores affected the types of colleges where they would be considered a competitive candidate for admissions.

We begin by focusing on a sample of students with high school GPAs that would position them competitively for admissions at one of the most selective colleges. The primary focus is on those with at least A-average GPAs. Within this sample, we compare the outcomes for students who scored above the median test score for the most selective colleges against those who either scored below or had no score. While the pandemic certainly changed the substantive high school experiences of the students in our sample, it likely had more limited effect on whether or not they met these separate standards for grades and test scores. High school GPA is cumulative with some course grades already determined for 2021 and 2022 graduates before the start of the pandemic. While there was some decline in ACT and SAT taking during these years, most college applicants were able to take at least one of these tests (McManus, Howell, Hurwitz, 2023).[13]

[13] They write "most applicants in the 2021 cohort had at least one test score to consider disclosing".

To explore how test-optional policies changed application and enrollment decisions, we compare changes in outcomes for similar students who differed in the competitiveness of their score and application cohort. The identifying assumption is that there were no contemporaneous shocks that differentially affected high-performing students' application and enrollment rates as a function of their relative score profiles. We run the following regression to compare changes for students based on their score performance group and application timing, including cohort and high school fixed effects:

$$Y_{ist} = c_1 + \beta_1(TestOptional_t * BelowMedian_i) + \beta_2 BelowMedian_i + \delta_{1s} + \gamma_{1t} + \boldsymbol{X}_i + \epsilon_{ist} \qquad (1)$$

where Y_{ist} is the application or enrollment outcome of applicant i who attends high school *s* in application year *t*. $TestOptional_t$ is equal to one for applicants in season 2020 and 2021, and zero for applicants in 2018 and 2019. $BelowMedian_i$ is an indicator for whether the student scored below the published median for most selective colleges at baseline (1468 for the most selective colleges). δ_{1s} is a high school fixed effect and γ_{1t} is a cohort fixed effect. $\boldsymbol{X_i}$ is a vector of student covariates such as high school GPA, race, gender, income quintile of the applicant's residence, whether the applicant received a fee waiver on any application, and whether they identified as a first-generation student. β_1 is the coefficient of interest, which reflects the average change in application or enrollment rates at different types of colleges.

Cohort fixed effects eliminate bias from the possibility that the timing of test-optional coincided with shocks that differentially affected certain cohorts' applications and enrollment. High school fixed effects eliminate bias from time invariant school characteristics that may influence enrollment, such as the quality of courses, instructors, college advising, and other high school resources. The main specification includes cohort and high school fixed effects so that the impact of test-optional policies is identified using differences in score performance and timing from comparable students from similar educational environments. In a different specification, we interact the post indicator with student characteristics and produce similar results.

We then replicate the analysis for separately for applicants that were traditionally qualified for the "highly selective" colleges with A-average GPAs versus the "most selective" colleges with Perfect (A+ average) GPAs:

Group 1: Students with GPA ratios of 1 or higher (Perfect GPA) in two subgroups:

- Group 1A: Test score at least equal to the median for the most selective colleges (1468);
- Group 1B: Test score missing or less than that cutoff.

- Group 2: Students with GPA ratios of 0.94 to 0.99 (A GPA) in two subgroups:
  - Group 2A: Test score at least equal to the median for highly selective colleges (1335);
  - Group 2B: Test score missing or less than that cutoff.

We find modest increases in the size of Groups 1A and 2A along with substantial increases on the order of 70 to 80% in the number of students in Groups 1B and 2B from the earlier (2018-19, 2019-20) to the later period (2020-21, 2021-22) in our sample. This suggests that the onset of the pandemic may have induced a relaxation in grading standards, expanding the set of students in each grade range and raising the possibility that it was more difficult to achieve a high-test score (or that students exerted less effort to achieve high test scores) in the later period than in the earlier period in our sample. A related point is that there has been an increase over time in the number of students who used the Common Application and that increase continued during our sample period. We will account for these possibilities in robustness checks in VI.C and the discussion of our results in Section VII. To address potential positive selection into the Common App sample, in addition to showing robustness to different specifications and samples, we also show that results are similar even when weighting students similarly in the pre-and post-period; when focusing on states where the vast majority of high-performing students would have already been using the Common App; and when restricting our sample to the highest GPA students. We then show that positive selection into the lower scoring group is also unlikely to explain our results using different bounding exercises based on score boosts.

Our primary hypothesis is that the adoption of SAT optional policies favored students with high grades and lesser test scores, which translates in our context to relative increases in applications and enrollment for students in subgroup 1B relative to subgroup 1A and similarly for 2B vs. 2A and 3B vs. 3A. To test this hypothesis, we compare enrollment at the <u>most</u>

selective colleges for students in Group 1B relative to 1A, at highly selective (or more selective) colleges or up for students in Group 2B relative to 2A.

B. Additional Controls and Matching Students Based on Scores

A comparison between above- and below-median scorers with perfect high school GPAs in absence of test-optional policies may be biased if, for example, recruitment or advising efforts increase for more high-GPA and lower-scoring students around the same time that test-optional admissions went into place. High schools with a track record of applications and enrollment to the most selective colleges can serve as an additional control to rule out this possible source of bias, since they are likely to have the most resources and experience to do so. At least 25 percent of high schools had zero applications to the most selective colleges at baseline. Since these high schools' enrollment rates at the most selective colleges did not change based on score group over time (0.00 percentage points), this information can serve as an additional control.

Incorporating the applicant's high school applications to the most selective colleges at baseline may offer an even more conservative approach because it differences out potentially confounding time-trends within more (or less) experienced high schools and among only above-median scoring students. The identifying assumption is that there were no contemporaneous shocks that differentially affected enrollment rates at the most selective colleges only among above-median applicants in a select group of high schools that had more application experience to the most selective colleges. The supplementary regression model is:

$$Y_{ist} = c_1 + \beta_1(TestOptional_t * BelowMedian_i * ExperiencedSchool_s) + \beta_2(TestOptional_t * BelowMedian_i) + \beta_3 BelowMedian_i + \beta_4 ExperiencedSchool_s * BelowMedian_i + \beta_5 ExperiencedSchool_s * TestOptional_t + \delta_{1s} + \gamma_{1t} + \boldsymbol{X}_i + \epsilon_{ist} \qquad (2)$$

The primary coefficient of interest is β_1, which gives the estimate of the effect of test-optional policies on enrollment at the most selective colleges based on scores. This specification captures changes in the below-median scoring group over time (β_2), time-invariant differences between above- and below-median students (β_3), time-invariant characteristics of eligible students in high schools familiar with applications to the most selective colleges (β_4), and changes in those high schools over time (β_5). High school fixed effects, cohort fixed effects, and other student-level controls are included.

VI. RESULTS FROM FORMAL ANALYSIS

We now report results from our formal analysis, beginning with comparisons of enrollment by students in our scoring above-median ("A") and scoring below-median ("B") subgroups.

A. Application Rates Declined Less for Lower-Scoring Students

Table 3 compares mean application and enrollment rates for students in Groups 1 and 2 and applications/enrollment to Most and Highly Selective colleges. Students in each subgroup of Group 1 (perfect GPA) applied at similar rates to Most Selective colleges in both periods, which cuts against the view that Test Optional policies encouraged students with top grades but weaker (or absent) test scores to apply to the most competitive colleges. Appendix Table 3 provides regression results, students who did not submit a score were significantly *less* likely than others to apply to the most selective colleges. Since we control for predicted test scores in that analysis, the result further suggests that SAT optional policies did not encourage students with weaker test scores to apply to the most competitive colleges.

By contrast, Table 3 indicates substantial increases in applications for students in Group 2B by comparison to students in Group 2A over time to both Most and Highly Selective colleges. While the Most Selective colleges universally adopted test-optional policies and received the most attention for doing so, this finding indicates that those programs may have particularly expanded the applicant pool at Highly Selective colleges.

[Insert Table 3]

Regression estimates reported in Table 4 broadly corroborate these descriptive comparisons, though indicating modest increases in application rates to the most selective colleges and decreases in application rates to less selective colleges for students without higher test scores in each group. Here, the coefficient on the interaction term "Below Median x Test-Optional" indicates the estimated coefficient on the after vs. before application rate for lower-scoring students in subgroup B by comparison to those in high-scoring subgroup A in each case. Consistent with the results of Table 3, we see the largest effects for Group 2 students with estimated increases of 3 percentage points in application rates for subgroup B by comparison to subgroup A to both Most and Highly Selective colleges. Effects on application rates were similar when using the full applicant pool, so results were not driven by the enrollment sample (Appendix Table 4), and when focusing on regular cycle applicants (Appendix Table 5). When restricting the sample only to regular cycle applicants, however, the application effects to the most selective colleges were attenuated and increased for the Highly Selective colleges. This result still highlights how the most traditionally qualified students shifted their application choices towards highly selective and less selective colleges over the most competitive options.

[Insert Table 4]

B. Increased Enrollment at the Most Selective Colleges Reflected Lower Priority for High Scorers

Table 5 compares enrollment patterns for subgroups 1A vs. 1B and 2A vs. 2B before and after tests became optional. Among students with highest GPAs, There was a larger absolute decline in enrollment rate over time at Most Selective colleges for those with above median test scores in Group 1A (from 57.7% to 51.1%) than for those with below median test scores in Group 1B students (from 20.3% to 17.1%). On a proportional basis, however, this decline in enrollment is actually larger for Group 1B than for Group 1A. By contrast, we see clearer evidence of changes in enrollment rates over time in comparisons within Group 2. Students in Group 2B enrolled at higher rates whereas students in Group 2A enrolled at lower rates at both Most Selective and Highly Selective colleges in 2020-21 and 2021-22 than in 2018-2019. These findings suggest a reduction in the priority given by colleges to high SAT scores in each GPA range during the test-optional period, though the magnitudes of these effects are smaller for the highest GPA students in Group 1 than for Group 2.

[Insert Table 5]

Table 6 provides regression results with a binary enrollment outcome at each type of college as the dependent variable from the model from equation (1). Consistent with the unadjusted difference-in-means comparisons from Table 5, we estimate a 3.2 percentage point increase in enrollment at the most selective colleges (a 9.9 percent increase from a baseline average of 32 percent) and a 2.5 percentage point decrease at Less selective colleges (6.4 percent increase from a baseline average of 39.6 percent) among perfect GPA students. The enrollment estimates are robust when using other regression specifications (Appendix Table 6) and when using regular cycle applicants (Appendix Table 7).

Importantly, the magnitude of the enrollment effect at the Most Selective colleges for the Perfect GPA students exceeds the application effect, implying that the increased enrollment of students missing or below-median test scores cannot be explained by application decisions alone. In other words, seeing an outsized enrollment decrease relative to the application decrease for the same population may provide further evidence that colleges changed their preferences in deciding who to admit.

[Insert Table 6]

In the same time period, there was substantial under-matching whereby highly qualified students sorted into significantly less competitive colleges relative to their lower-scoring peers. The size of the enrollment effect at Less selective colleges matched the application effect more evenly, implying that the undermatching of higher-scoring students to less selective colleges is driven more by initial application changes. By 2021, over a quarter of students with a perfect GPA and scores in the top 1 percent of scores nationally[14] enrolled in colleges with median test scores equivalent to roughly the 80th percentile. Like Borghesan (2023), we find that higher-scoring students are sorting more into colleges where they are relatively overqualified. Table 6 Panel B shows that the results for students with lower GPAs were similar in magnitude and direction. Each of these estimated values is significant (p-value<.001).

The number of students enrolling in the Most Selective colleges increased over time, consistent with validations with IPEDS data. However, the number of students with below-median scores increases *more* than students with above-median scores. This provides further evidence that colleges gave less weight to high scores during the test-optional period and shows that enrollment rate changes are not primarily driven by a larger applicant pool over time.

Reassuringly, the estimates from the more conservative specification of interacting test-optional period with score group and high school application track records corroborate the

[14] This classification is based on College Board percentiles for test scores.

application patterns (Table 7) and enrollment patterns (Table 8). One difference from the earlier results is that Table 7 provides modest evidence (significant at the 10% level) of a relative increase in application rates over time to Most Selective colleges for students in Group 1B by comparison to students in Group 1A. However the results shown in Table 8 show no evidence of a change in enrollment rates over time for students in Group 1B by comparison to students in Group 1A.

With this more conservative specification, the effects for students in Group 2 are concentrated at the level of the Most Selective colleges, with similar 6.3 percentage point increases in application and enrollment rates over time for Group 2B relative to Group 2A as shown in Panel B of Tables 7 and 8. There are corresponding reductions in these rates over time for Group 2B relative to Group 1 for applications and enrollment at Less Selective colleges. Thus taken together, Tables 7 and 8 suggest a shift of enrollment of Group 2 (high GPA) students with higher test scores (Group 2A) out of Most Selective colleges and some students with lower test scores (Group 2B) into those Most Selective colleges. These findings are generally consistent with the estimates from the main specification from Equation (1), as reported in Table 5, for Group 2 students.

[Insert Table 7]

[Insert Table 8]

C. Robustness Checks

In this section, we present robustness checks that aim to address potential sources of biases. We focus on selection into the test-optional period based on timing, since more applicants used Common App in the post-period, and selection into the comparison groups based on score performance.

First, we address any potential concerns about selection into the Common App sample, given increased number of college members and applicants that use its application during this study's time period. Reassuringly, the membership among the most selective colleges did not change during this period and much of the increased college membership was among less selective colleges. The decreased application and enrollment rates to the Most Selective colleges remain robust even when we restrict the sample to colleges were members for the full 2018-2022 panel—and exclude colleges that joined or left in the time period, as shown in Appendix Tables 8 and 9. This attenuates concerns that the addition of new (typically less selective) colleges added to the Common App membership drove application effects in the test-optional period. Furthermore, we show that results hold across various GPA groups (Table 7 and 8), so grade inflation cannot explain selection into the high-grades category. Additional analyses show that results hold even for students in the top 5 percent of GPAs nationally, a group that is unlikely to reach such high grades through grade inflation alone (Appendix Figure 2).

Another way we address concerns about unobservable sorting into the sample of high-GPA students over time is by randomly matching students in the pre-test-optional period with a student in the post-period with nearly identical GPA and scores. This ensures a similar weight between students in both periods. Regression coefficients are similar with these weights (Appendix Table 10). Another approach to addressing positive selection into the Common App pool is to replicate the analysis in states with the most selective flagships; since the vast majority of students apply in-state, this setting would help ensure that the most competitive students would have already been using the Common App platform to apply to these colleges (rather than select into the Common App as a result of test-optional policies). Using this restricted sample, we continue to find that enrollment impacts for below-median students exceeded the application effect at the most selective colleges—and that, in particular for A-GPA students, lower scoring students with high grades increased their enrollment at Elite colleges (Appendix Table 11).

Second, we address selection into each comparison group, based on test scores. Specifically, we may be concerned about sorting of high-ability students from the above-median to below-median group during the test-optional period due to reduced effort, lack of access to testing sites, inability to retake the test, or other reasons. In Appendix Figure 3, we show that even if we applied generous boosts to students' test scores equivalent to their expected increases from re-taking the tests under non-COVID circumstances, we would still find similar results. Even restricting the sample to applicants with scores produces similar findings, suggesting results are not driven by students with missing scores (Appendix Table 12 Panel A). We also show that results hold when we predict SAT scores using observable academic and demographic characteristics, and use those predicted scores to determine placement above or below the median score (Appendix Table 12 Panel B). The results are also robust to when we exclude score outliers by restricting the sample to applicants within a 100-score bandwidth to the median (Appendix Table 12 Panel C).

Finally, we may be concerned that test-optional policies coinciding with COVID may reduce the external validity of these results. Arguably, the permanence of Elite colleges' testing policies up until this point makes it challenging to evaluate the impacts at the most selective institutions. Still, we attempt to distinguish the effects from the COVID era by replicating the analyses for colleges that reinstated test requirements within one year, still during the pandemic. The findings, shown in Appendix Table 13, provide further support that test-optional boosts in enrollment among lower-scoring students were restricted to the year of waiving test requirements. Furthermore, our findings are similar to Borghesan's (2023) analysis of test-optional policies using data from an earlier period.

Appendix Table 14 shows that there was minimal sorting into treatment based on traditional measures of academic ability (i.e. high school GPA) when tests became optional. While there were no changes in grades and demographic groups remained fairly constant in the quasi-experimental group, some observable characteristics were associated with treatment. These patterns further support the finding that imply that if enrollment (and therefore admissions) increased in the lower-scoring group, then it is likely that colleges placed greater weight on non-academic factors and demographics. Appendix Table 11 also compares the characteristics of applicants in each of these quasi-experimental groups for the before (2018, 2019) and after (2020, 2021) comparison periods for SAT Optional policies using three samples. Importantly, sorting along GPA (column 8) is nearly zero and insignificant across all three sample, suggesting that any unobservable or observable sorting along ability in a way that would influence application and enrollment effects is unlikely. Although some observable student characteristics were associated with treatment—though in different directions in the three samples—the findings were similar in each of these samples. For example, first-generation students were less likely to be assigned in the above-median scoring group in the test-optional period in the main model sample and in the regular cycle sample, but were more likely to be assigned to the treatment group in the specification interacting post-policy with below-median and high school application records. This may suggest that sorting along certain demographic dimensions were not driving the main application and enrollment findings. At the very least, this suggests that sorting based on certain observable demographic characteristics were not consistently biasing the result only upwards or downwards.

D. Heterogeneous Treatment Effects

Heterogeneous treatment effects in Appendix Table 15 also show that any significant differences in application decisions along the dimensions of race, first-generation status, and income were largely limited to Perfect GPA students. The increased application rates to most selective colleges were driven by lower-scoring, perfect-GPA students who were white and not first-generation students. Black, Hispanic, and First-generation students who scored below median but had perfect GPAs decreased their applications (insignificantly) to the most selective colleges. First-generation and lower-income applicants with lower scores and perfect GPAs decreased applications to Less selective colleges even more than their counterparts. These results suggest that lower-scoring students who were better resourced took advantage of the opportunity to apply to the most selective colleges without a score, and other high-performing students applied to less selective colleges at higher rates. Overall, there was not a clear indication that test-optional policies expanded access to the most competitive colleges by encouraging minoritized and lower-income students to apply at higher rates.

Appendix Table 16 shows that significant differences in enrollment rates were also largely concentrated among students with perfect GPAs. Although first-generation and lower-income students did not apply to the Most Selective colleges at higher rates, they did enroll at Most Selective colleges at higher rates than their counterparts. White, Black, and Hispanic students who scored below median enrolled in the Most Selective colleges at higher rates, but white applicants' enrollments increased more. Generally, first-generation students across all GPA groups enrolled at the Most Selective colleges at higher rates though this was significant only among the Perfect GPA students. In contrast, the not-first-generation and higher income students were significantly more likely to enroll in highly selective colleges than their counterparts. Historically minoritized students with lower grades and scores significantly decreased their enrollments at Other (less selective) colleges.

Neither underrepresented minority nor first-generation students applied to more selective colleges at higher rates than their peers, implying that any changes in enrollment demographics were unlikely to be explained by changes in students' application decisions under test-optional policies. It is therefore more likely that colleges admitted and selected students who were first-generation students and lower-income students without a score at higher rates when tests became optional.

VII. DISCUSSION AND CONCLUSION

This paper describes changes in application choices, test scores, and enrollment rates when submitting SAT and ACT scores as part of college applications became optional in 2020. While the COVID-19 pandemic accelerated the adoption of test-optional policies, colleges had long been debating the use and consequences of test scores in admissions given the disparate participation and performance from students from lower-income and minoritized backgrounds.. By removing testing requirements in college applications, colleges may have theorized that they would expand the pool to more talented students, particularly from underrepresented backgrounds, who were academically prepared but had low (or no) test scores. However, the removal of test score information also likely introduced uncertainty and noise into admissions decisions by reducing the information available to admissions offices and therefore increase reliance on other application information that may advantage better-resourced students. Therefore test-optional policies could discourage students from applying to "Reach" colleges given general uncertainty about their chances of admissions and the cognitive challenge of deciding whether or not to submit their test scores, especially if those scores appear to be below average for a particular college. Whether test-optional policies expand college access to these groups therefore largely depends on decisions made by both students and colleges.

On the one hand, it is possible that SAT Optional policies would have little or no effect on the admissions decisions of a college; since most applicants with above-median test scores submitted them, negative inference suggests that a student with no test score likely took the test and achieved a below-median score. However, given colleges' interests in diversity and inclusion, it is unclear whether the absence of a score would be a negative signal for minoritized students in particular as suggested in other contexts (Altonji and Perriet 2001). On the other hand, adopting an SAT Optional policy could represent a commitment by a college to give less weight to test scores in admissions decisions. SAT Optional policies could also represent a change of incentives for colleges, as they can admit students with relatively low but absent standardized test scores without having any effect on their public reports of average test scores.

Ultimately, test scores continued to play a large role in college applications and admissions even when they were optional. Students typically submitted scores to the most competitive colleges, and those colleges continued to receive an abundance of high-scoring applications, particularly above the published median scores at the most selective colleges. The score-sending behavior of peers from the same high school is positively correlated with applicants' decisions to submit scores. First-generation students tended to share scores at lower rates. This highlights the important role that outside information played in decision-making when tests became optional.

Our analysis of student score and application patterns did not identify any strong and positive application patterns to the most selective colleges from underrepresented students, particularly those with lower (or missing) test scores. In fact, application rates to the Most Selective colleges decreased between 2018 and 2021. Most Selective colleges' traditional population (i.e. students with the highest grades and test scores) and test-optional target population (i.e. students with the highest grades but lower scores) both applied there at lower rates. Notably, high-scoring students with highest grades reduced application rates to Most Selective colleges at higher rates. Instead, these traditionally qualified students increased their application rates to Other less selective colleges. These patterns suggest that students recognized an increase in competition and risk during test-optional, though students differed in their resources and support when navigating the additional uncertainty.

Although colleges continued to receive the same number of – or more – applications with exceptionally high scores during the test-optional period, lower-scoring applicants increased their enrollment rates at the Most Selective colleges. At the same time, higher-scoring applicants enrolled at Less selective colleges, which have less competitive admissions but also fewer resources. While enrollment outcomes depend on both the college admissions decisions and student decisions to accept the offer, observing applicants choose Less selective colleges over a Most Selective college most likely reflects admissions decisions rather than applicant choices because the Most Selective colleges have higher yield than the other college types. Furthermore, observing larger gains in enrollment in Less selective colleges among high-scoring students relative to lower-scoring students (which had a greater share of lower-income and underrepresented students) also suggests that admissions – rather than COVID-related explanations – likely contributed more to the results. In fact, one might expect a larger decrease in applications to the Most Selective colleges and more to Less selective colleges among lower-scoring students if COVID reduced resources and academic preparation. Observing more lower-scoring students enroll in the Most Selective colleges despite the continued oversupply of students with high scores during the test-optional period suggest that colleges placed less weight on test scores. In the same time period, there was a substantial increase in high-performing students' enrollment at the less selective colleges, which is consistent with earlier projections which used data from the Educational Longitudinal Survey from earlier test-optional adoption as the foundation for a structural model (Borghesan 2023). The extent to which test-optional admissions expanded college access for historically minoritized and underrepresented students was therefore unlikely driven by college application behavior.

From this perspective, the result of adopting an SAT Optional policy would depend crucially on the preferences of individual colleges. If colleges had an interest in promoting diversity in their entering classes, they might respond by adopting practices that increase the representation of underrepresented minority students. Researchers posit that test-optional admissions reduces information from certain applicants and therefore may aid colleges in making admissions decisions that may have weaker social support (Dessein et al. 2025). Our analysis suggests both that the adoption of SAT Optional policies reduced the emphasis on test scores at selective institutions and coincided with increased enrollment at the Most Selective colleges among first-generation and lower-income students with high grades but lower or missing scores. These student groups did not significantly increase their application rates to Most Selective colleges, providing further support that any noticeable increases in diversity during the test-optional period were driven by college, not student choices.

There are obvious costs to the Test Optional policies as well. One systematic disadvantage, as emphasized by Deming (2024) is that admissions office has less information about (certain) applicants in a Test Optional system than when standardized tests are required. Consistent with this critique, Edwards et al. (2023) find that first-year college students who did not submit test scores had lower average grades and accumulated fewer credits by comparison to otherwise similar students who submitted test scores with their applications. In addition, reducing the weight on test scores in admissions decisions may promote the importance of other elements of applications (e.g. extracurricular activities) that favor those from advantaged backgrounds. Test Optional policies also add a new element of strategy into the admissions process and so it would be natural to anticipate that wealthier well-connected students could gain additional advantages in college admissions by making savvy decisions about where to apply and whether to submit test scores with each application; Sacerdote, Staiger and Tine (2025) provide evidence that less well-connected students tended to reduce their admission chances by withholding their scores. Overall, given that underrepresented students did not overwhelmingly respond with application changes, colleges may have been able to make similar admissions and enrollment decisions without making tests optional.

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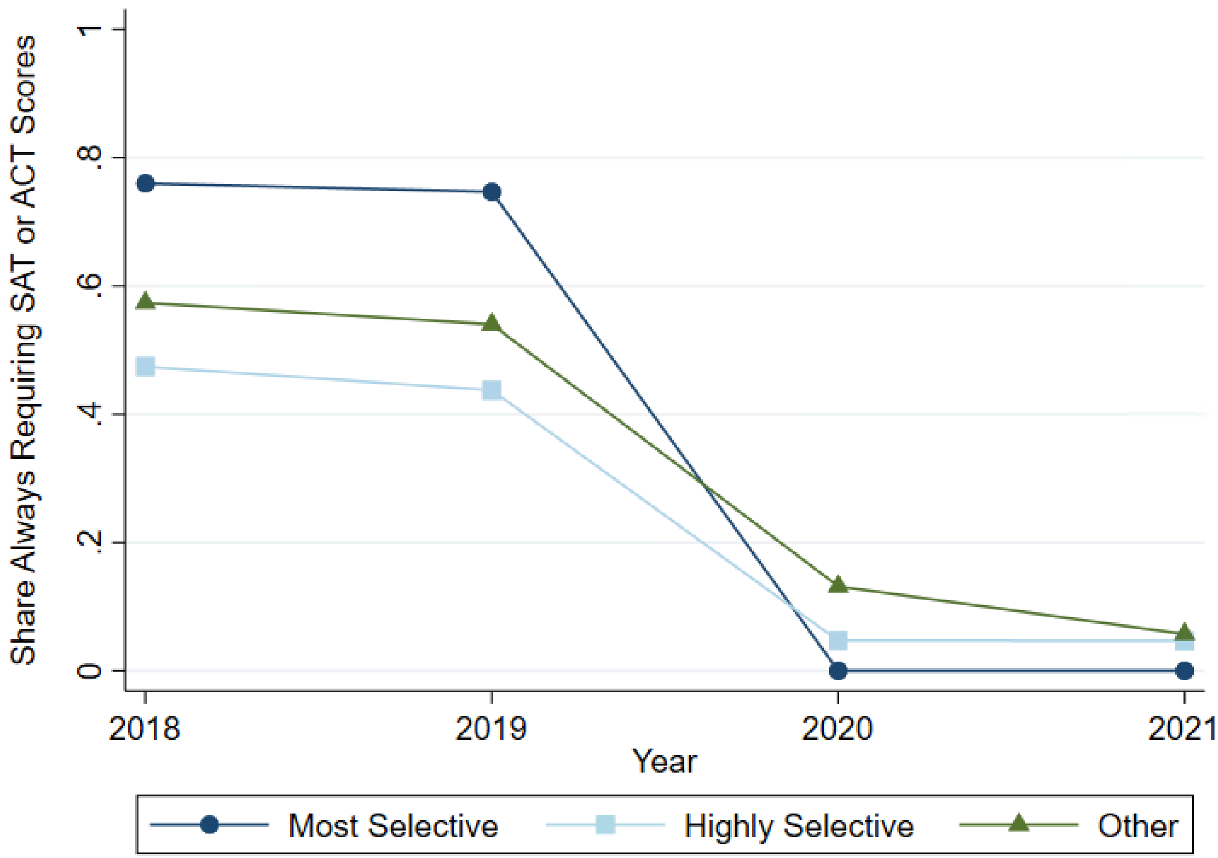
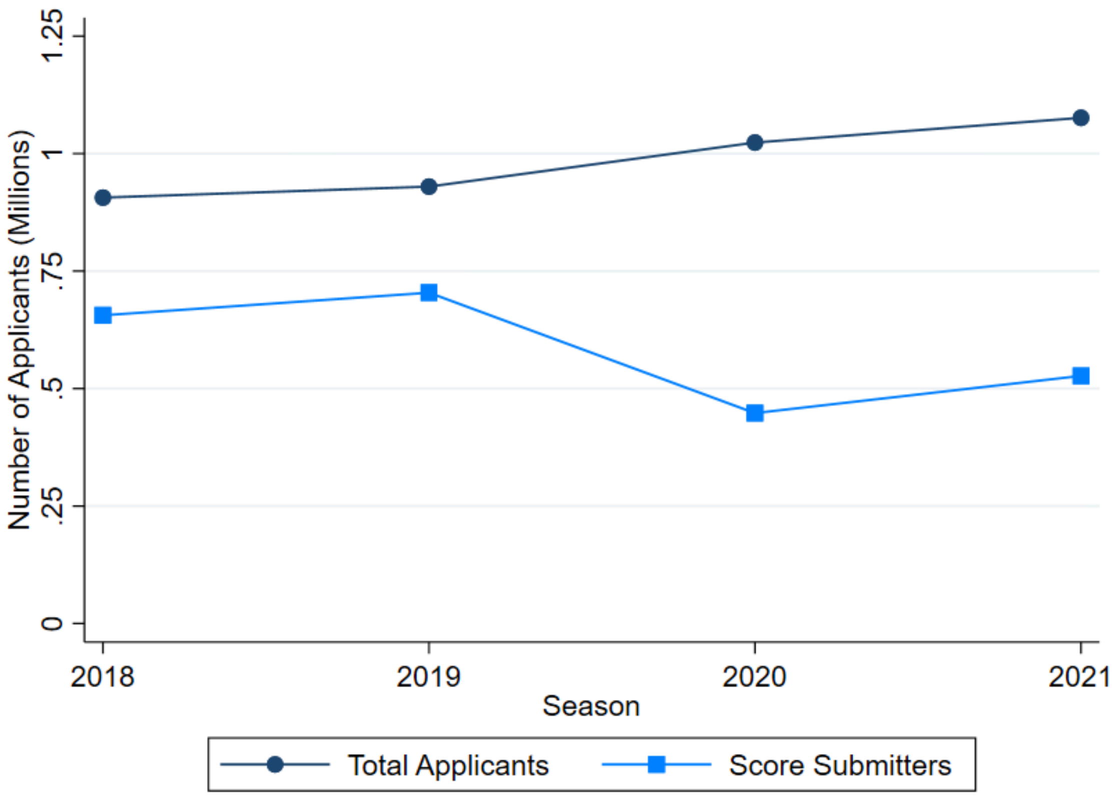
FIGURES AND TABLES

Figure 1: SAT and ACT Reporting Requirements by College Selectivity



Notes: This figure presents the share of member colleges that always require SAT or ACT scores by college selectivity, over time. The sample includes colleges that were members of the Common App starting in 2018 and through 2021.

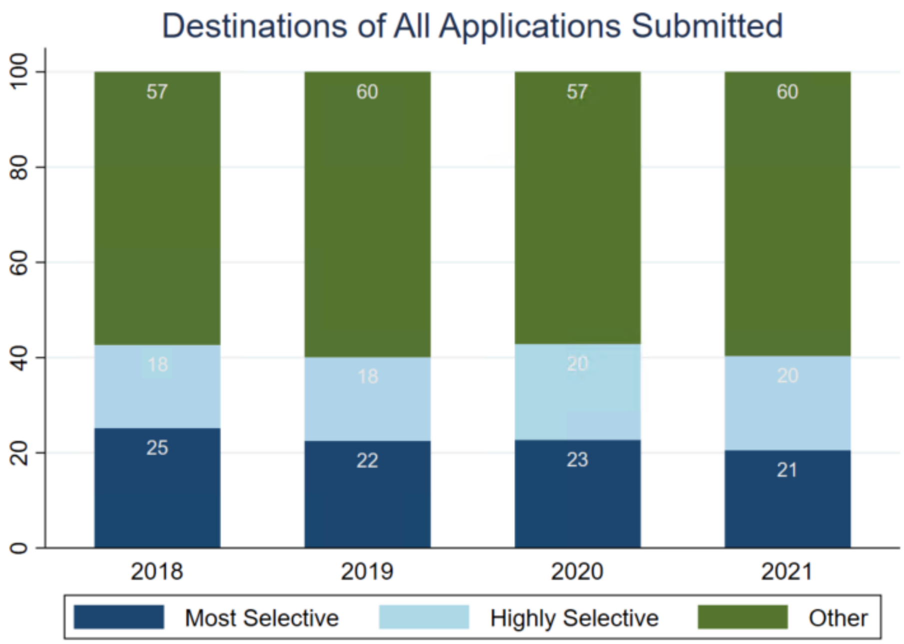
Figure 2: Number of Applicants Over Time, by Score Submission



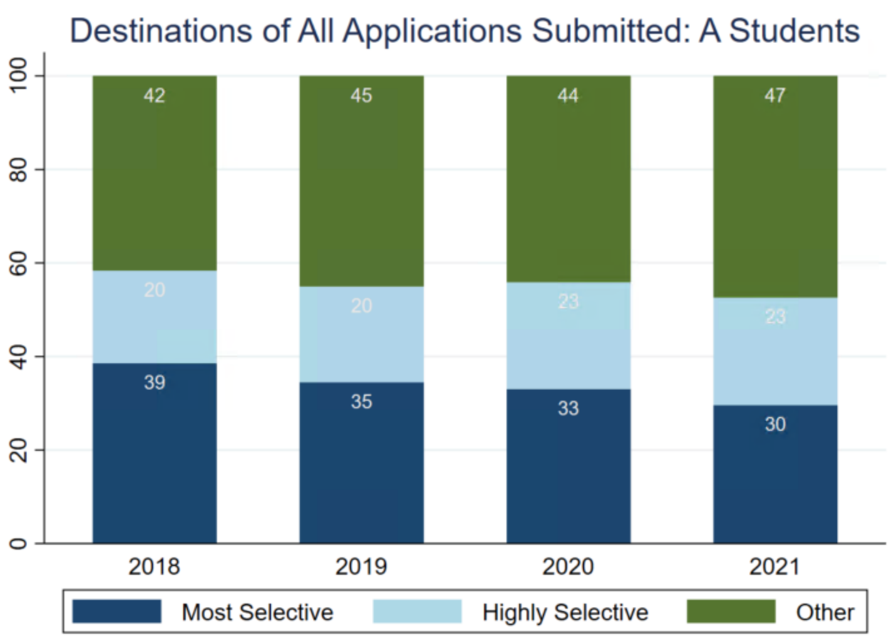
Notes: This figure presents the total number of applicants (in millions) to the Common App between 2018-2021. The top line shows the total number of applicants while the bottom line shows the number of applicants that submitted SAT or ACT scores in at least one college application.

Figure 3: Proportion of Applications Submitted to Different Colleges

A.

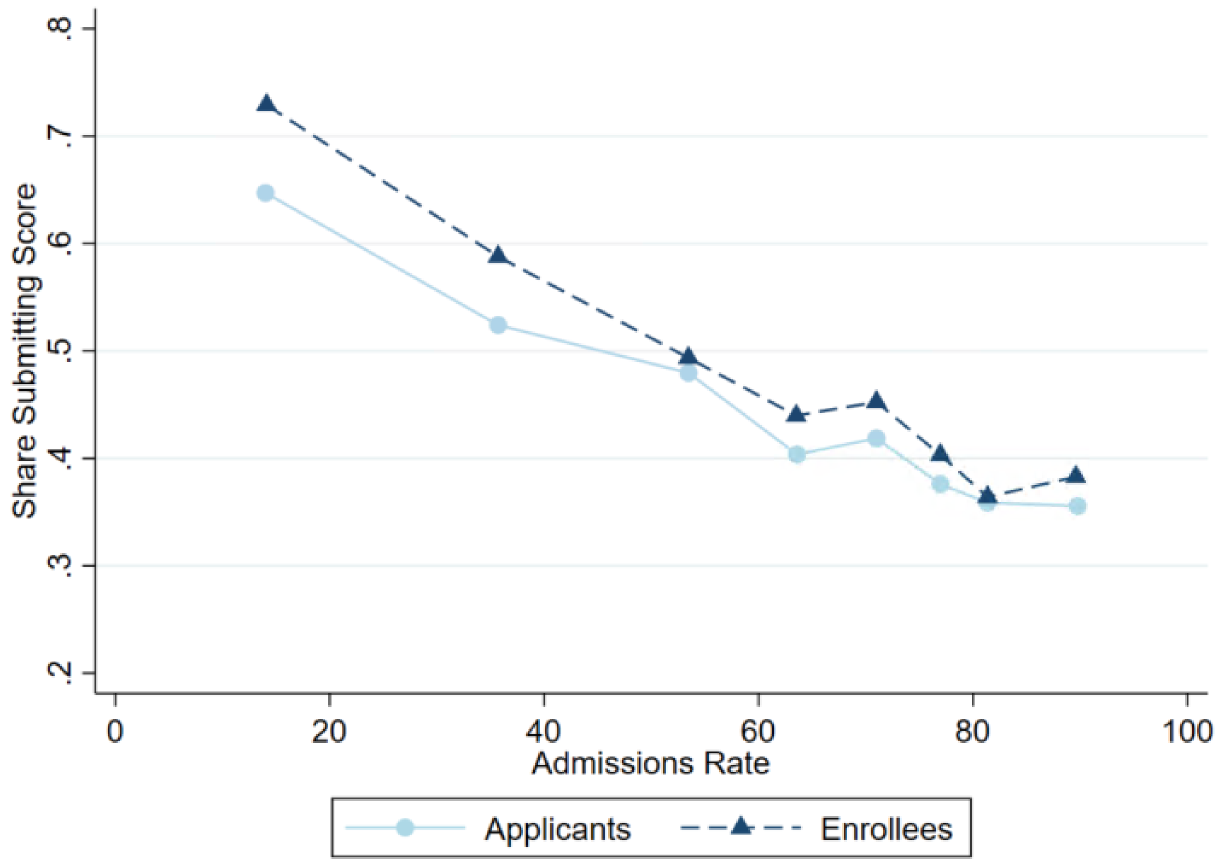


B.



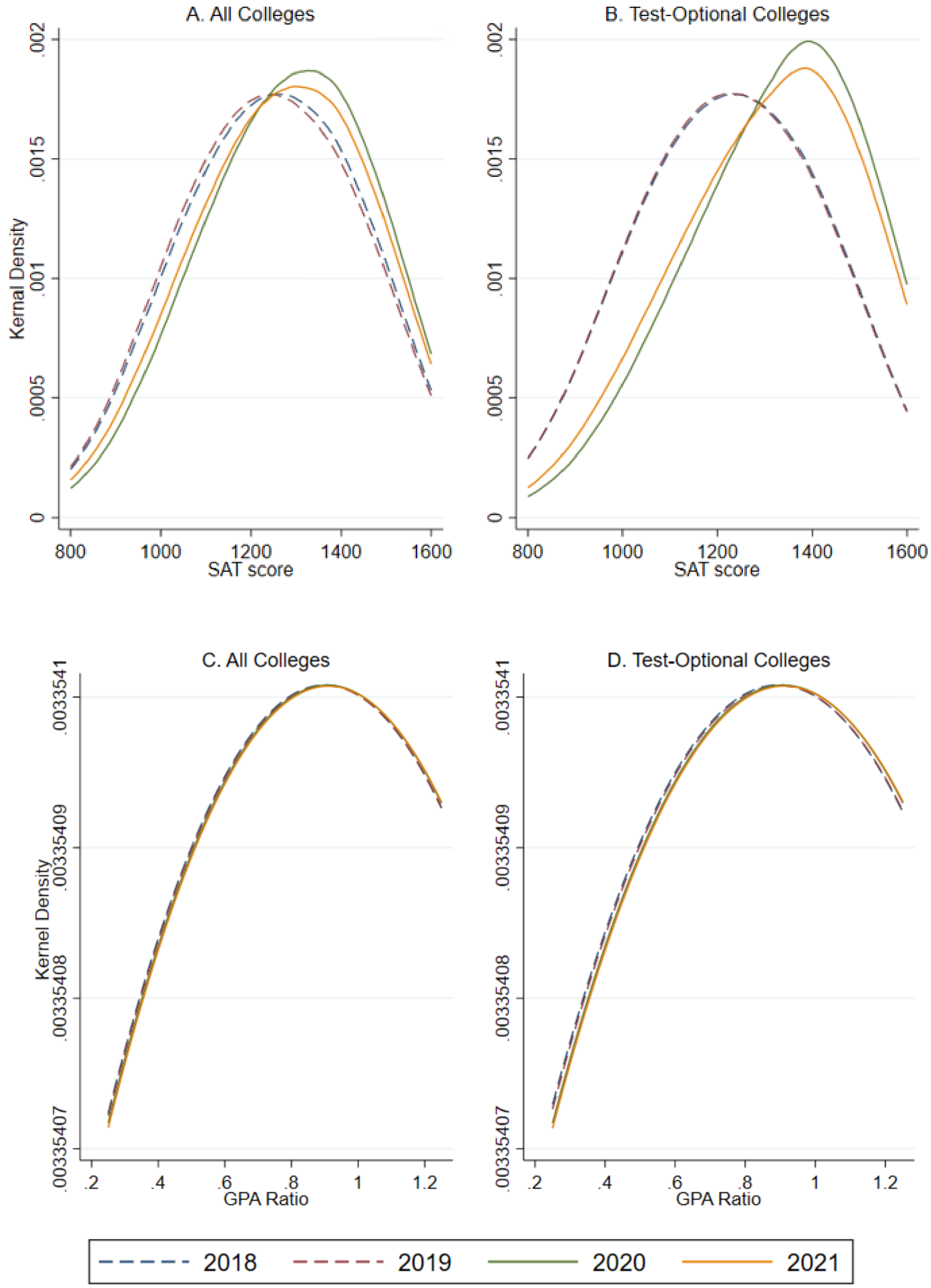
Notes: These figures present the total share of applications submitted to different types of colleges by selectivity. Figure B shows applications for applicants with an A-average GPA (0.94 and above).

Figure 4: Score Submission Rates by Selectivity for Applicants and Enrollees



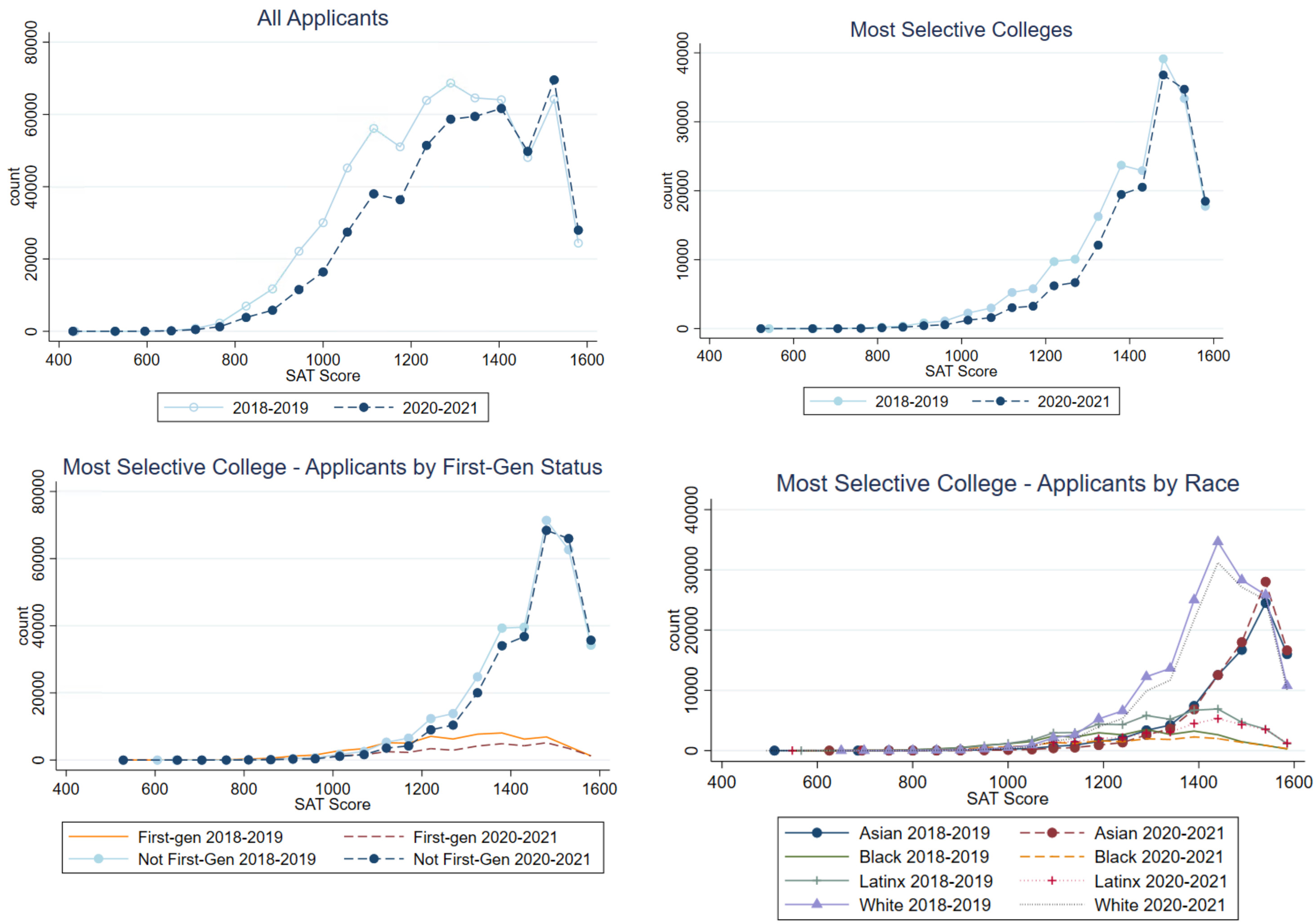
Notes: This binscatter plot displays the share that submitted SAT or ACT scores and enrollees by undergraduate admissions rate, separately for applicants. The sample is restricted to the 2020 and 2021 application cycles. Each dot displays the submission rate for 8 equal sized bins of at least 50 colleges.

Figure 5: SAT and GPA Distributions by Test Submission Policy Type



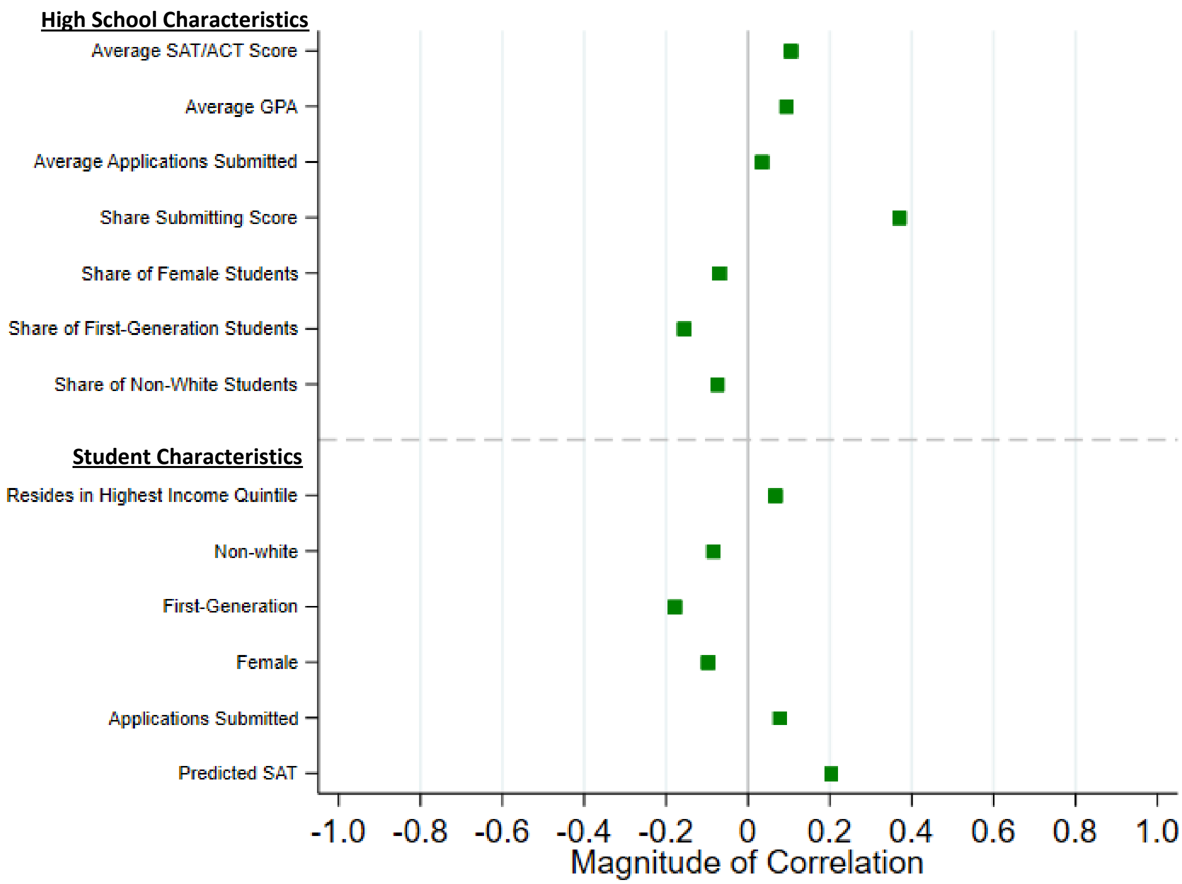
Notes: These figures plot the distribution of applicants' SAT and GPA scores for each season, from 2018-2021. The GPA Ratio is the GPA of the applicant divided by the maximum GPA scale for the applicant's high school (for example, a 3.8 out of 4.0 or 98 out of 100). Figure A presents all applicants, whereas figure B shows the distributions for all applicants at only colleges that were test-optional starting in 2020.

FIGURE 6: Number of Applications by SAT Score and College Type



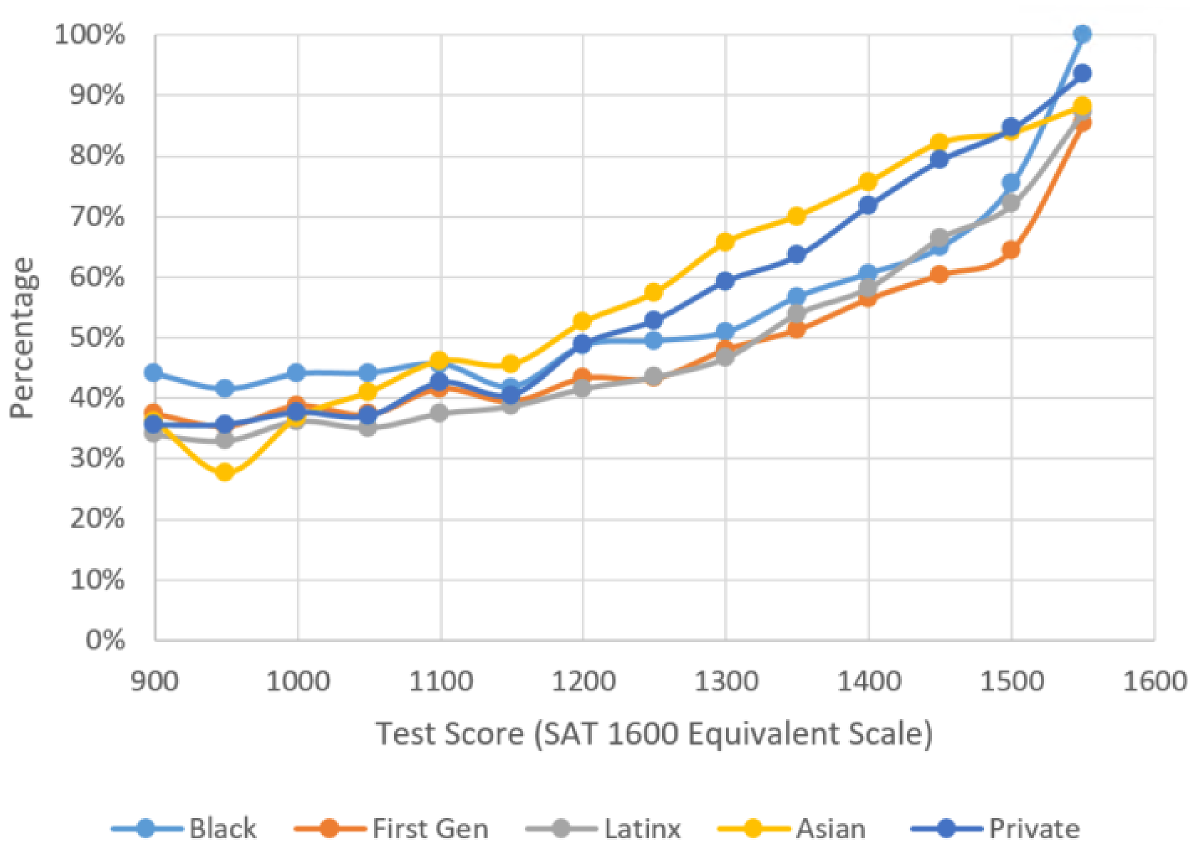
Notes: These figures plot the total number of applications with a score, averaged within the 2018-19 and 2020-21 cycles, by subgroup. Figure A plots the number of scores for all applicants between separately for 2018-19 and 2020-21. Figure B plots the number of scores for all applicants in the most selective colleges between separately for 2018-19 and 2020-21. Figure C plots the number of scores for all applicants in the most selective colleges between separately for 2018-19 and 2020-21 by first-generation status. Figure D plots the number of scores for all applicants in the most selective colleges separately for 2018-19 and 2020-21 by race.

Figure 7: Predictors of Score Reporting by College Type



Notes: These figures display pairwise correlation coefficients applicant characteristics and submitting any scores for 2020 and 2021 applicants. Figure A displays the coefficients for all applicants from all colleges in the sample, whereas B-C displays the coefficients for applicants to the different types of colleges labeled in the title.

Figure 8: Simulated Score Submission Rate Relative to Pre-Pandemic Levels



Notes: This figure graphs the simulated score submission rate by race and high school type, for each 50-point range of test scores on the 1600-point scale. Each simulated score-submission rate for each subgroup is constructed by comparing the proportion of applicants in the test-optional period to the proportion of applicants in the previous period on a score-by-score basis. For example, if 6.8% of private school applicants to the Most Selective colleges had (known) test scores in the range from 1350 to 1390 but only 4.7% did so in the subsequent test-optional period, then we project that the ratio of .047/.068 or approximately 68% of private school applicants to the Most selective colleges with test scores between 1350 and 1390 submitted those scores within the Test Optional period.

Table 1: Baseline Statistics for High GPA Students with Higher vs. Lower Test Scores

	Any GPA			A-Average GPA		
	SAT At Least 1468	SAT Below 1468 or Missing	Full Population	SAT At Least 1468	SAT Below 1468 or Missing	Full Population
	(1)	(2)	(3)	(4)	(5)	(6)
A. Student Characteristics						
Female	0.446	0.579	0.567	0.459	0.643	0.612
First-Generation	0.0797	0.349	0.325	0.0678	0.261	0.228
Asian	0.290	0.0789	0.0975	0.285	0.0907	0.124
Black	0.0207	0.127	0.117	0.0142	0.0709	0.0612
Latinx	0.0646	0.170	0.161	0.0626	0.146	0.132
Race Unknown	0.0781	0.0309	0.0351	0.0742	0.0309	0.0383
White	0.55	0.557	0.557	0.567	0.628	0.617
GPA Ratio	0.891	0.729	0.743	1.046	1.009	1.015
Resides in Highest Income Quintile	0.759	0.528	0.548	0.758	0.538	0.576
Ever Received Fee Waiver	0.347	0.467	0.456	0.347	0.428	0.414
SAT Score	1525	1204	1242	1526	1280	1330
B. Application Outcomes						
Most Selective College	0.898	0.344	0.393	0.914	0.489	0.562
Highly Selective College	0.701	0.453	0.475	0.704	0.545	0.572
Less selective College	0.601	0.915	0.887	0.588	0.869	0.821
C. Enrollment Outcomes						
Most Selective College	0.255	0.0329	0.0525	0.262	0.0554	0.0906
Highly Selective College	0.0897	0.0475	0.0513	0.0897	0.0633	0.0678
Less selective College	0.0771	0.174	0.166	0.0720	0.150	0.137
N	160777	1.663e+06	1.824e+06	111271	540992	652263

Notes: This table displays the mean values or count for all applicants that fall into each of the categories listed in columns 1-3. Panel B displays the mean values for the enrollment sample. The sample consists of students with at least a perfect GPA (e.g. 4.0 out of 4.0 scale or 100 out of 100 scale).

Table 2: Descriptive Statistics by Selectivity and Time

	2018 & 2019	2020 & 2021	2018 & 2019	2020 & 2021
	Applicants		Enrollees	
	(1)	(2)	(3)	(4)
A. Most Selective Colleges				
Applicants received per cycle	14896	17551		
GPA (Ratio)	0.971	0.978	0.988	0.998
Submitted Test Score	0.875	0.622	0.891	0.684
SAT score	1393	1418	1438	1450
SAT score (predicted)	1310	1320	1322	1331
Female	0.578	0.590	0.565	0.574
First-generation	0.196	0.184	0.117	0.123
Asian	0.182	0.189	0.164	0.174
Black	0.074	0.074	0.06	0.065
Latinx	0.141	0.138	0.116	0.125
White	0.494	0.495	0.555	0.526
Highest Income Quintile	0.642	0.661	0.734	0.729
Received a Fee Waiver	0.261	0.250	0.183	0.200
B. Highly Selective Colleges				
Applicants received per cycle	10260	13494		
GPA (Ratio)	0.920	0.929	0.929	0.941
Submitted Test Score	0.793	0.504	0.791	0.520
SAT score	1283	1316	1317	1338
SAT score (predicted)	1263	1275	1275	1286
Female	0.586	0.581	0.569	0.570
First-generation	0.269	0.253	0.165	0.166
Asian	0.099	0.109	0.087	0.095
Black	0.098	0.093	0.049	0.053
Latinx	0.170	0.166	0.130	0.129
White	0.545	0.549	0.654	0.647
Highest Income Quintile	0.571	0.596	0.671	0.685
Received a Fee Waiver	0.224	0.177	0.151	0.135
C. Less selective Colleges				
Applicants received per cycle	4525	5041		
GPA (Ratio)	0.861	0.870	0.877	0.887
Submitted Test Score	0.722	0.399	0.719	0.421
SAT score	1152	1183	1206	1226
SAT score (predicted)	1209	1219	1223	1229
Female	0.606	0.602	0.566	0.556
First-generation	0.427	0.420	0.285	0.304
Asian	0.055	0.056	0.063	0.062
Black	0.181	0.185	0.109	0.124
Latinx	0.181	0.180	0.140	0.148
White	0.504	0.508	0.614	0.596
Highest Income Quintile	0.433	0.442	0.596	0.586
Received a Fee Waiver	0.248	0.221	0.175	0.169

Notes: This table displays mean values of applicants to the types of colleges described in each panel, in the 2018 & 2019 cycle (column 1) or 2020 & 2021 cycle (column 2). The panels are separated by the type of college listed in A-B.

Table 3: Application Rate Comparisons for Quasi-Experimental Groups

	Group A 2018 & 2019	Group A 2020 & 2021	Difference	Group B 2018 & 2019	Group B 2020 & 2021	Difference
Group 1 (Perfect GPA)						
Applied to Most Selective Colleges	95.2%	94.6%	-0.61%	64.6%	64.3%	-0.36%
Applied to Most or Highly Selective Colleges	98.8%	99.1%	+0.3%	85.8%	88.6%	+2.8%
N	24,443	28,288		54,212	94,266	
Group 2 (A GPA)						
Applied to Most Selective Colleges	82.4%	83.5%	+1.1%	43.6%	47.6%	+3.9%
Applied to Most or Highly Selective Colleges	95.8%	97.0%	+1.2%	73.8%	80.8%	+7.0%
N	28,257	27,714		38,873	68,937	

Notes: Each cell shows the mean application rate (%) or total count for the various groups listed in the columns and panels. Group 1 refers to applicants with GPA ratios above 1.0, Group 2 refers to applicants with GPA ratios between 0.94-0.99. Group A consists of applicants above the median score corresponding to different levels while group B consists of applicants below the median. The sample consists of applicants in the enrollment sample.

Table 4: Estimates of Application Changes

	(1) Most Selective	(2) Highly Selective	(3) Less Selective	(4) Application Count
Panel A: Perfect GPA Applicants				
Below-Median x Post	0.010**	-0.003	-0.050***	0.082**
	(0.004)	(0.004)	(0.003)	(0.039)
Observations	200182	200182	200182	200182
R-squared	0.242	0.189	0.237	0.244
Panel B: "A GPA" Applicants				
Below-Median x Post	0.030***	0.037***	-0.036***	0.032
	(0.005)	(0.004)	(0.003)	(0.039)
Observations	162959	162959	162959	162959
R-squared	0.288	0.226	0.198	0.262
Controls	Yes	Yes	Yes	Yes
High School FE	Yes	Yes	Yes	Yes
Season FE	Yes	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as applications to the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables of applications to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants in the enrollment sample. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Enrollment Rate Comparisons for Quasi-Experimental Groups

	Group A 2018 & 2019	Group A 2020 & 2021	Difference	Group B 2018 & 2019	Group B 2020 & 2021	Difference
Group 1 (Perfect GPA)						
Enrolled in Most Selective College	57.6%	51.1%	-6.4%	20.7%	17.2%	-3.5%
Enrolled in Most or Highly Selective College	77.8%	73.0%	-4.8%	41.8%	39.8%	-2.0%
N	24,443	28,288		54,212	94,266	
Group 2 (A GPA)						
Enrolled in Most Selective College	35.1%	30.7%	-4.4%	7.9%	8.7%	+0.7%
Enrolled in Most or Highly Selective College	61.6%	59.5%	-2.1%	25.1%	27.6%	+2.5%
N	28,257	27,714		38,873	68,937	

Notes: Each cell shows the mean enrollment rate (%) or total count for the various groups listed in the columns and panels. The sample is restricted to applicants in the enrollment sample. Group 1 refers to applicants with GPA ratios above 1.0 and Group 2 refers to applicants with GPA ratios between 0.94-0.99. Group A consists of applicants above the median score corresponding to different levels while Group B consists of applicants below the median or who are missing a test score.

Table 6: Estimates of Enrollment Changes

	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post	0.032***	0.005	-0.025***
	(0.004)	(0.004)	(0.005)
Observations	200182	200182	200182
R-squared	0.264	0.106	0.216
Panel B: "A GPA" Applicants			
Below -Median x Post	0.054***	0.001	-0.042***
	(0.004)	(0.004)	(0.005)
Observations	162959	162959	162959
R-squared	0.228	0.107	0.211
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants in the enrollment sample. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Robust Estimates of Application Changes

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post x Experienced High School	0.028*	-.005	-0.026**
	(0.016)	(0.016)	(0.012)
Observations	64872	64872	64872
R-squared	0.333	0.191	0.310
Panel B: "A GPA" Applicants			
Below-Median x Post x Experienced High School	0.063***	-0.017	-0.058***
	(0.017)	(0.017)	(0.012)
Observations	53295	53295	53295
R-squared	0.427	0.256	0.272
Panel C: "A-/B+" GPA Applicants			
Below-Median x Post x Experienced High School	0.083***	0.057***	-0.018*
	(0.018)	(0.018)	(0.009)
Observations	46702	46702	46702
R-squared	0.388	0.262	0.170
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (2) with the dependent variables as applications to the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0, Panel B consists of applicants with GPA ratios between 0.94-0.99, and Panel C consists of applicants with GPA ratios between 0.88-0.93. The dependent variables to the colleges listed in the columns are regressed on an interaction of attending a high school with high The most selective application rates at baseline, a treatment variable of being above the median, and indicator for whether the student applies in 2020 or 2021; an interaction of high school type and the treatment variable; the treatment variable, an interaction of the treatment variable and post; interaction of attending a close school and applying in the 2020 or 2021 cycles, an indicator for high school type, high school fixed effects, application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the Most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The high school indicator is defined by whether the student attends a high school that at baseline had at least 25 percent of its Common App users apply to the most selective colleges. *** p<0.01, ** p<0.05, * p<0.1.

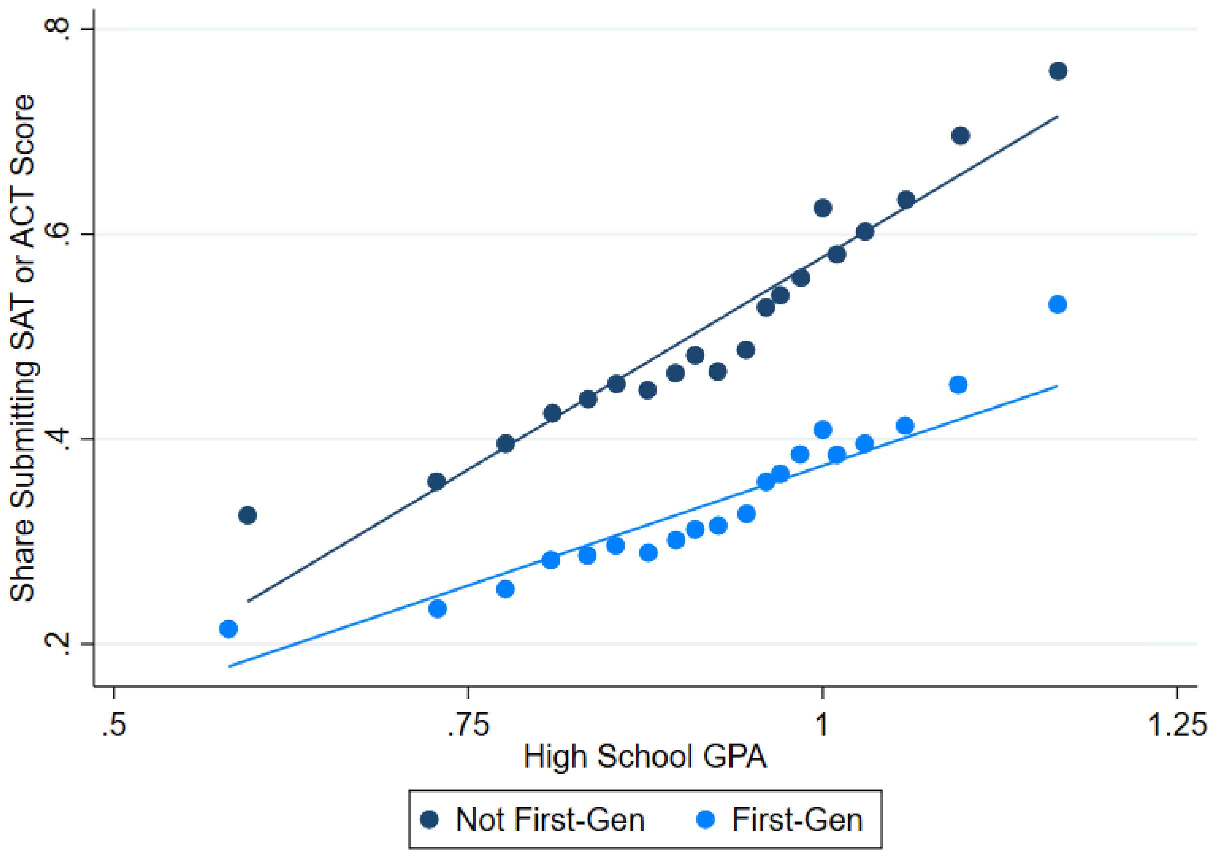
Table 8: Robust Estimates of Enrollment Changes

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post x Experienced High School	-0.015	-0.001	-0.015
	(0.014)	(0.016)	(0.017)
Observations	64872	64872	64872
R-squared	0.375	0.118	0.254
Panel B: "A GPA" Applicants			
Below-Median x Post x Experienced High School	0.063***	-0.012	-0.071***
	(0.014)	(0.017)	(0.019)
Observations	53295	53295	53295
R-squared	0.317	0.120	0.283
Panel C: "A-/B+" GPA Applicants			
Below-Median x Post x Experienced High School	0.069***	0.028*	-0.089***
	(0.013)	(0.016)	(0.020)
Observations	46702	46702	46702
R-squared	0.252	0.140	0.218
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (2) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0, Panel B consists of applicants with GPA ratios between 0.94-0.99, and Panel C consists of applicants with GPA ratios between 0.88-0.93. The dependent variables to the colleges listed in the columns are regressed on an interaction of attending a high school with high Most selective application rates at baseline, a treatment variable of being above the median, and indicator for whether the student applies in 2020 or 2021; an interaction of high school type and the treatment variable; the treatment variable, an interaction of the treatment variable and post; interaction of attending a close school and applying in the 2020 or 2021 cycles, an indicator for high school type, high school fixed effects, application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The high school indicator is defined by whether the student attends a high school that at baseline had at least 25 percent of its Common App users apply to the most selective colleges. The sample includes early applicants. *** p<0.01, ** p<0.05, * p<0.1.

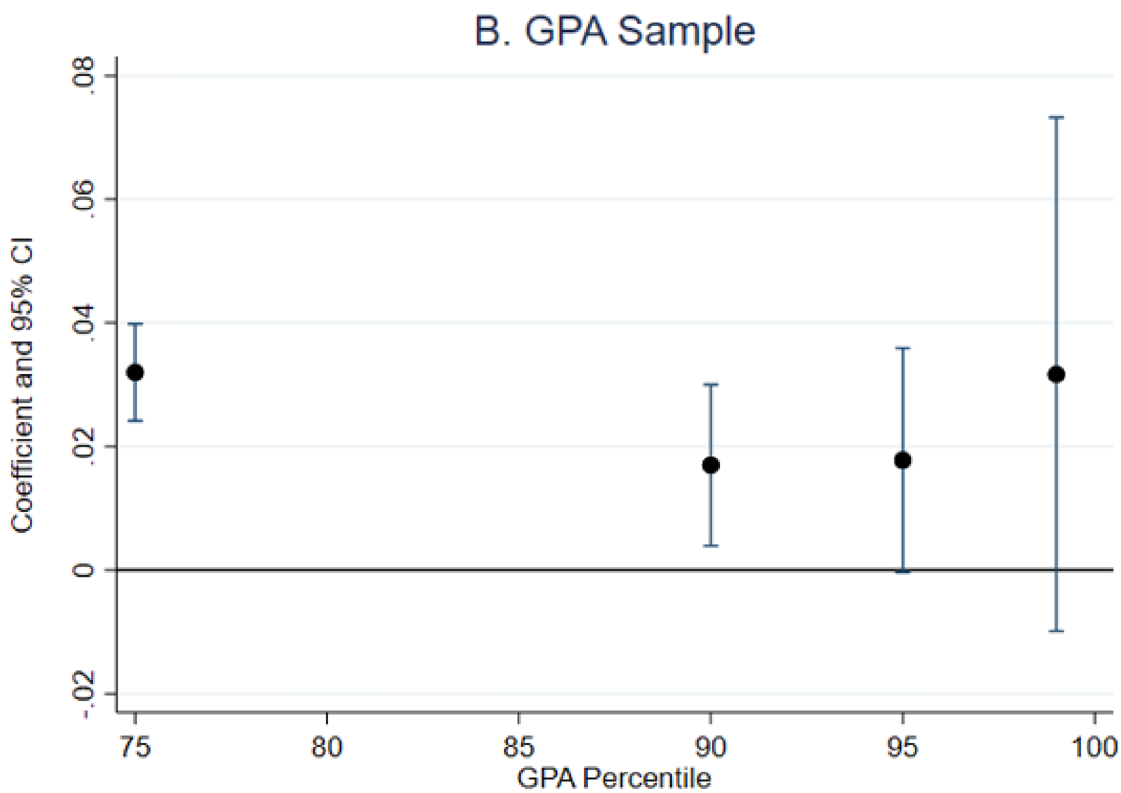
APPENDIX

Appendix Figure 1: Score Submission by GPA and First-Generation Status



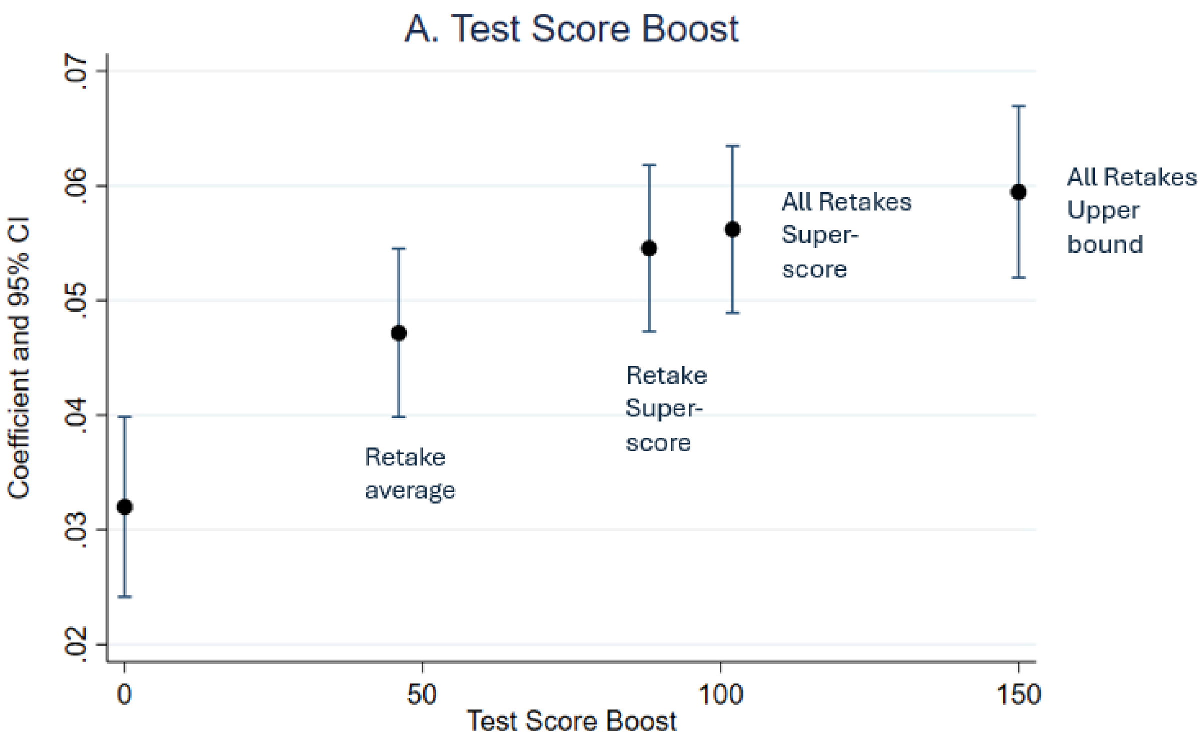
Notes: This figure displays a binscatter plot of the share of applicants submitting an SAT or ACT score as part of their application, by the first-generation status that they marked in their application along cumulative high school GPAs ranging from 0.5 to 1.25.

Appendix Figure 2: Bounding Exercise for Elite Enrollment Rates by GPA



Notes: The figure displays the coefficients for enrollment in Elite colleges from equation (1) using different samples based on GPA percentiles. The 75th percentile of GPA is from the preferred specification for the samples with an average GPA ratio of at least 1.0. The other coefficients refer to restricting the samples to replicate the main regression using 90th, 95th, and 99th percentile GPAs.

Appendix Figure 3: Bounding Exercise for Elite Enrollment Rates by Test Score



Notes: The figure displays the coefficients for enrollment in Elite colleges from equation (1) after boosting the applicant's test scores by different amounts while maintaining the original above- and below-median test score cut-offs. The coefficient at 0 is the coefficient from the preferred regression specification. The remaining coefficients corresponding to various score boosts from retaking the SAT, depending on retake scores used, based on estimates from Goodman, Gurantz, and Smith (2018).

Appendix Table 1: Applicant Characteristics by Year

	2018 (1)	2019 (2)	2020 (3)	2021 (4)
SAT Score (1600 scale)	1245	1238	1284	1270
GPA (1.0 Scale)	0.901	0.902	0.908	0.911
Number of Applications Submitted	5.059	5.195	5.631	6.012
Attended Public High School	0.778	0.782	0.786	0.788
Resides in Highest Income Quintile	0.549	0.545	0.547	0.544
Female	0.565	0.568	0.573	0.569
First-Generation	0.329	0.321	0.309	0.342
White	0.543	0.536	0.536	0.526
Asian	0.100	0.101	0.103	0.104
Black or African-American	0.121	0.123	0.123	0.128
Latinx	0.165	0.170	0.170	0.178
Unknown Race	0.0381	0.0320	0.0308	0.0298
Nonwhite	0.457	0.464	0.464	0.474
Received a Fee Waiver	0.456	0.456	0.442	0.468
Reported an SAT Score	0.724	0.757	0.438	0.490
N	656024	929862	1.024e+06	1.076e+06

Notes: This table reports the mean of each row within each application cycle (2018 refers to 2018-19) for each applicant from the U.S. that expressed enrollment intentions for the subsequent fall.

Appendix Table 2: Student Characteristics by Year and Score Status

	2018		2019		2020		2021	
	Score	No Score	Score	No Score	Score	No Score	Score	No Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SAT Score (1600 scale)	1245	0	1238	0	1284	0	1270	0
GPA (Ratio)	0.913	0.865	0.915	0.860	0.939	0.882	0.940	0.882
Applications Submitted	5.275	4.493	5.409	4.525	6.003	5.342	6.374	5.664
Attended Public High School	0.780	0.774	0.782	0.781	0.790	0.783	0.796	0.780
Highest Income Quintile	0.560	0.519	0.559	0.502	0.579	0.522	0.575	0.513
Female	0.563	0.571	0.565	0.579	0.528	0.608	0.526	0.611
First-Generation	0.305	0.390	0.296	0.401	0.215	0.382	0.251	0.430
White	0.539	0.552	0.537	0.532	0.588	0.497	0.573	0.482
Asian	0.116	0.059	0.115	0.057	0.135	0.077	0.132	0.077
Black or African-American	0.109	0.152	0.110	0.162	0.084	0.154	0.095	0.159
Latinx	0.163	0.170	0.166	0.182	0.126	0.204	0.136	0.217
Unknown Race	0.038	0.039	0.032	0.031	0.037	0.026	0.036	0.024
Nonwhite	0.461	0.448	0.463	0.468	0.412	0.503	0.427	0.518
Received a Fee Waiver	0.450	0.470	0.449	0.476	0.384	0.487	0.421	0.513
N	656024	250418	704119	225743	447853	575755	527081	549219

Notes: This table displays the means of student-level characteristics displayed in the right-most column, for each college application season from 2018 to 2021. Within each season, means by score submission status are displayed.

Appendix Table 3: Relationship Between Scoreless Submissions and Applications

	All Applicants		Perfect GPA Applicants	
	Enrollment sample	Full sample	Enrollment sample	Full sample
VARIABLES	(1)	(2)	(3)	(4)
Applying Without Score	-0.112***	-0.080***	-0.113***	-0.087***
	(0.003)	(0.001)	(0.006)	(0.002)
Observations	129949	1024109	37751	273014
R-squared	0.259	0.176	0.277	0.202
Controls	Yes	Yes	Yes	Yes
Season FE	No	No	No	No
High School FE	Yes	Yes	Yes	Yes

Notes: Columns 1-3 report the correlation between withholding a score and applying to the most selective colleges. The first two columns report the coefficient for all applicants, broken down by the enrollment sample and the full sample. The last two columns report the coefficient for applicants with at least a 1.0 GPA ratio, broken down for the enrollment sample and full sample. An indicator of applying to at least one the most selective college is regressed on an indicator for not sharing a score in an application, a set of student-level controls, high school fixed effects, and cohort fixed effects. The controls included in the regression are the applicant's grade point average ratio, predicted SAT score, and indicators for female, identifying as a first-generation college student, Asian, Black, Latinx, being an unknown race, being in the highest income quintile, and ever receiving a fee waiver for a college application. The predicted SAT score is calculated using a linear regression with the following predictors: applicants' income quintile; and indicators for female, first-generation, asian, black, latinx, unknown race, receiving any fee waiver, and receiving any free application; season fixed effects, and high school fixed effects. Heteroskedasticity robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 4: Application Effects with All Applicants

	(1) Most Selective	(2) Highly Selective	(3) Less Selective	(4) Application Count
Panel A: Perfect GPA Applicants - Most Selective				
Below-Median x Post	0.008***	-0.008***	-0.050***	0.239***
	(0.003)	(0.003)	(0.002)	(0.023)
Observations	652789	652789	652789	652789
R-squared	0.261	0.213	0.207	0.279
Panel B: "A GPA" Applicants - Highly Selective				
Below-Median x Post	0.035***	0.014***	-0.043***	0.156***
	(0.003)	(0.003)	(0.002)	(0.023)
Observations	539976	539976	539976	539976
R-squared	0.287	0.241	0.164	0.303
Controls	Yes	Yes	Yes	Yes
High School FE	Yes	Yes	Yes	Yes
Season FE	Yes	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0, Panel B consists of applicants with GPA ratios between 0.94-0.99, and Panel C consists of applicants with GPA ratios between 0.88-0.93. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants in the enrollment sample. The sample includes all applicants. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 5: Application Effects with Regular Cycle Applicants

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post	-0.010*	-0.023***	-0.028***
	(0.006)	(0.007)	(0.008)
Observations	64817	64817	64817
R-squared	0.255	0.202	0.254
Panel B: A GPA Applicants			
Below-Median x Post	0.026***	-0.005	-0.047***
	(0.008)	(0.008)	(0.009)
Observations	45355	45355	45355
R-squared	0.315	0.263	0.243
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as applications to the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables of applications to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants that applied during regular admissions and excludes those who applied using early action or during early admissions. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix Table 6: Robustness of Perfect GPAs' Enrollment Effects

	(1)	(2)	(3)	(4)
Panel A: Enrollment in Most Selective College				
Below-Median x Post	0.029***	0.032***	0.029***	0.032***
	(0.005)	(0.005)	(0.004)	(0.004)
Observations	201209	201209	201209	200182
R-squared	0.125	0.145	0.192	0.264
Panel B: Enrollment in Highly Selective College				
Below-Median x Post	-0.002	-0.000	0.002	0.005
	(0.004)	(0.004)	(0.004)	(0.004)
Observations	201209	201209	201209	200182
R-squared	0.000	0.005	0.066	0.106
Panel C: Enrollment in Less selective Colleges				
Below-Median x Post	-0.022***	-0.025***	-0.024***	-0.025***
	(0.004)	(0.004)	(0.005)	(0.005)
Observations	201209	201209	201209	200182
R-squared	0.081	0.090	0.151	0.216
Controls	No	Yes	Yes	Yes
High School FE	No	No	No	Yes
Season FE	No	No	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the panels. Each columns' bottom four rows detail the different regression specifications. The dependent variables of enrollment to the colleges listed in the panels are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample includes early and regular admissions applicants with at least a 1.0 GPA. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 7: Enrollment Effects with Regular Cycle Applicants

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Other
Panel A: Perfect GPA Applicants - Most Selective			
Below-Median x Post	0.017**	-0.003	-0.012*
	(0.007)	(0.007)	(0.007)
Observations	64817	64817	64817
R-squared	0.312	0.173	0.252
Panel B: A GPA Applicants - Highly Selective			
Below-Median x Post	0.056***	-0.010	-0.032***
	(0.008)	(0.009)	(0.009)
Observations	45355	45355	45355
R-squared	0.315	0.263	0.243
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables of applications to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants that applied during regular admissions and excludes those who applied using early action or during early admissions. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 8: Estimates on Application Rates—Stable College Sample

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post	0.015***	-0.037***	-0.026***
	(0.004)	(0.004)	(0.004)
Observations	182339	182339	182339
R-squared	0.248	0.235	0.253
Panel B: "A GPA" Applicants			
Below-Median x Post	0.031***	0.012***	-0.030***
	(0.005)	(0.004)	(0.003)
Observations	149911	149911	149911
R-squared	0.294	0.263	0.215
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as applications to the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants to colleges that remained Common App member each year between 2018 to 2022. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 9: Estimates on Enrollment Rates—Stable College Sample

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post	0.017***	-0.006	0.003
	(0.004)	(0.004)	(0.005)
Observations	182339	182339	182339
R-squared	0.274	0.119	0.230
Panel B: "A GPA" Applicants			
Below-Median x Post	0.035***	0.002	-0.024***
	(0.004)	(0.004)	(0.005)
Observations	149911	149911	149911
R-squared	0.237	0.113	0.225
Panel C: "A-/B+" GPA Applicants			
Below-Median x Post	0.019***	0.007*	-0.025***
	(0.003)	(0.004)	(0.005)
Observations	138068	138068	138068
R-squared	0.190	0.118	0.163
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to applicants to colleges that remained Common App member each year between 2018 to 2022. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 10: Robustness to Similarly Weighted and Matched Applicants

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Perfect GPA Applicants			
Below-Median x Post	0.035***	0.007*	-0.025***
	(0.004)	(0.004)	(0.005)
Observations	200113	200113	200113
R-squared	0.260	0.108	0.210
Panel B: "A GPA" Applicants			
Below-Median x Post	0.052***	-0.008*	-0.029***
	(0.004)	(0.004)	(0.005)
Observations	162947	162947	162947
R-squared	0.222	0.110	0.204
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as enrollment in the college types specified in each of the columns. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. Before assigning the grade sample and above- or below-median indicator, students in the pre-period are matched to those in the post-period based on GPA (within 0.05 out of 1) and test scores (within 10 points out of 1600), such that the post-period observations are weighted to be equivalent to the pre-period observations. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 11: Robustness with Most Selective Flagship States

VARIABLES	(1) Most Selective	(2) Highly Selective	(3) Less Selective	(4) Most Selective	(5) Highly Selective	(6) Less Selective
Panel A: Perfect GPA Applicants						
Below-Median x Post	-0.002	0.052***	-0.059***	0.007	0.044***	-0.042***
	(0.011)	(0.013)	(0.009)	(0.013)	(0.010)	(0.013)
N	24277	24277	24277	24277	24277	24277
R-squared	0.201	0.263	0.173	0.278	0.075	0.216
Panel B: "A GPA" Applicants						
Below-Median x Post	0.065***	0.069***	-0.027***	0.090***	-0.026	-0.038
	(0.025)	(0.024)	(0.009)	(0.016)	(0.018)	(0.025)
N	8552	8552	8552	8552	8552	8552
R-squared	0.207	0.295	0.094	0.209	0.092	0.114
Controls	Yes	Yes	Yes	Yes	Yes	Yes
High School FE	Yes	Yes	Yes	Yes	Yes	Yes
Season FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns 1-3 report the coefficients of β_1 from equation (1) with the dependent variables as application in columns 1-3 and enrollment in the college types specified in each of the columns in columns 4-6. Panel A consists of applicants with GPA ratios above 1.0 and Panel B consists of applicants with GPA ratios between 0.94-0.99. The dependent variables to the colleges listed in the columns are regressed on a treatment variable of being below the median for that group, and indicator for whether the student applied in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. The sample is restricted to states with Elite public colleges. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix Table 12: Robustness Checks on Enrollment Effects

	(1) Most Selective	(2) Highly Selective	(3) Less Selective
Panel A: Exclude missing scores			
Below-Median x Post	0.030***	0.004	-0.025***
	(0.004)	(0.004)	(0.005)
Observations	148731	148731	148731
R-squared	0.276	0.113	0.231
Panel B: Using predicted test scores			
Below-Median x Post	0.037***	0.009	-0.031***
	(0.007)	(0.007)	(0.008)
Observations	200182	200182	200182
R-squared	0.226	0.105	0.197
Panel C: Using predicted scores and bandwidth of 100 points			
Below-Median x Post	0.015**	-0.001	-0.020***
	(0.007)	(0.007)	(0.007)
Observations	73461	73461	73461
R-squared	0.266	0.125	0.242
Controls	Yes	Yes	Yes
High School FE	Yes	Yes	Yes
Season FE	Yes	Yes	Yes

Notes: Columns 1-3 report the average effects of test-optional policies on enrollment rates to various college types using the samples or data specified in each of the panels. The sample is restricted to applicants with GPA ratios of at least 1.0. Panel A runs equation (1) without students with missing scores. Panel B runs equation (1) using predicted instead of actual scores. The predicted SAT score is calculated using a linear regression with the following predictors: applicants' income quintile; and indicators for female, first-generation, asian, black, latinx, unknown race, receiving any fee waiver, and receiving any free application; season fixed effects, and high school fixed effects. Panel C runs equation (1) by using predicted scores and restricting the sample to be within 100 points of the median. The dependent variables of enrollment in the colleges listed in the columns are regressed on a treatment variable of being below the median, and indicator for whether the student applies in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is being above the most selective, Elite, or Highly selective college median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix Table 13: Robustness Check with Test Reinstatement Mid-COVID

	2020 - 2021		2018 - 2021	
	highly selective	selective	highly selective	selective
	(1)	(2)	(3)	(4)
Panel A: Perfect GPA Applicants				
Below-Median x T.O.	0.039	-0.006	0.042	-0.008
	(0.038)	(0.019)	(0.033)	(0.017)
Observations	3247	3247	4491	4491
R-squared	0.111	0.101	0.129	0.089
Panel B: "A GPA" Applicants				
Below-Median x T.O.	0.089**	0.039	0.047	0.038
	(0.036)	(0.029)	(0.030)	(0.026)
Observations	2273	2273	3104	3104
R-squared	0.211	0.128	0.213	0.119
Controls	Yes	Yes	Yes	Yes
High School FE	Yes	Yes	Yes	Yes

Notes: This tables displays coefficients for highly selective and selective colleges that that implemented test-optional policies for the first time in 2020 and then re-instated test requirements in 2021. In this case, T.O. refers to the 2020 years when they were test optional. Below-median refers to the same cut-offs as the baseline regression specification. The 2020-21 years in columns 1 and 2 focus on comparing the 2020 test-optional year to outcomes in the 2021 year whereas the 2018-2021 compare 2020 against the other three years. Heteroskedasticity robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 14: Characteristics of Quasi-Experimental Group Over Time

	(1) female	(2) first-gen	(3) asian	(4) black	(5) latinx	(6) highest income	(7) received fee waiver	(8) GPA
Panel A: Early and Regular Applicants from the DD								
Above Median x Post	0.004	0.011***	-0.026***	0.004**	0.006**	0.001	-0.023***	-0.002***
	(0.005)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.005)	(0.000)
Observations	200182	200182	200182	200182	200182	200182	200182	200182
R-squared	0.057	0.219	0.193	0.210	0.155	0.671	0.164	0.356
Panel B: Regular Applicants from the DD								
Above-Median x Post	0.007	0.016***	-0.009	0.005	0.002	-0.011**	0.007	-0.002**
	(0.008)	(0.006)	(0.006)	(0.004)	(0.005)	(0.004)	(0.008)	(0.001)
Observations	64817	64817	64817	64817	64817	64817	64817	64817
R-squared	0.085	0.278	0.225	0.246	0.209	0.677	0.206	0.400
Panel C: Early and Regular Applicants from the DDD								
Above-Median x Post x Experienced HS	-0.027	-0.037	0.064*	-0.026	-0.032	0.005	-0.079*	0.004
	(0.045)	(0.033)	(0.035)	(0.020)	(0.026)	(0.028)	(0.043)	(0.005)
Observations	18935	18935	18935	18935	18935	18935	18935	18935
R-squared	0.074	0.241	0.288	0.189	0.201	0.586	0.181	0.352

Notes: This table displays the coefficients from the main DD model, replacing the dependent variable with each of the student characteristics specified in the column headers. The sample includes applicants with GPA ratios above 1.0. The dependent variables are regressed on a treatment variable of being below the median, and indicator for whether the student applies in 2020 or 2021, an interaction of the treatment and post variable, high school fixed effects application cohort fixed effects, and a vector of controls for student characteristics. The treatment variable is an indicator for being above the most selective colleges' median scores and the post indicator is applying in 2020 or 2021. Heteroskedasticity robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 15: Heterogeneous Treatment Effects of Application Rates

	Most Selective College			Highly Selective College			Less Selective College		
	A+ GPA	A GPA	A-/B+ GPA	A+ GPA	A GPA	A-/B+ GPA	A+ GPA	A GPA	A-/B+ GPA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
White x Below-Median x Post	0.015***	0.030***	0.037***	-0.016***	0.030***	0.016***	-0.048***	-0.035***	-0.016***
	(0.004)	(0.005)	(0.006)	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
URM x Below-Median x Post	-0.003	0.028***	0.061***	-0.014**	0.030***	0.011	-0.050***	-0.037***	-0.022***
	(0.006)	(0.008)	(0.008)	(0.006)	(0.007)	(0.008)	(0.005)	(0.005)	(0.004)
P(Equivalence)	0.004	0.855	0.006	0.713	0.981	0.461	0.571	0.571	0.117
Not First-Gen x Below-Median x Post	0.011**	0.024***	0.033***	-0.003	0.034***	0.016***	-0.048***	-0.038***	-0.015***
	(0.004)	(0.005)	(0.006)	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
First-Gen x Below-Median x Post	-0.006	0.031***	0.045***	-0.016***	0.030***	0.002	-0.068***	-0.043***	-0.026***
	(0.006)	(0.007)	(0.008)	(0.006)	(0.006)	(0.007)	(0.005)	(0.004)	(0.003)
P(Equivalence)	0.003	0.359	0.100	0.017	0.595	0.044	0.000	0.243	0.001
Highest Income x Below-Median x Post	0.009**	0.024***	0.035***	0.002	0.040***	0.016***	-0.047***	-0.039***	-0.016***
	(0.004)	(0.005)	(0.006)	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
Middle or Low Income x Below-Median x Post	0.004	0.030***	0.041***	-0.025***	0.017***	0.003	-0.063***	-0.041***	-0.023***
	(0.006)	(0.007)	(0.008)	(0.005)	(0.006)	(0.007)	(0.004)	(0.004)	(0.004)
P(Equivalence)	0.288	0.402	0.444	0.000	0.000	0.093	0.000	0.547	0.068
N	200182	138507	123350	200182	138507	123350	200182	138507	123350

Notes: This table reports the treatment effects for applying to a most selective college. In each panel, the dependent variables are regressed on an interaction of a treatment variable and indicator for pre- or post-treatment (2020), treatment (an indicator for scoring below-median), high school fixed effects, cohort fixed effects, and student characteristics. Each panel interacts this specification with indicators for the panel categories. Panel A introduces an interaction by race, panel B by first-generation state, and panel C by income. Each panel also reports the p-value on tests for whether the two coefficients are statistically different. Each column specifies the GPA of students included in the sample. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 16: Heterogeneous Treatment Effects of Enrollment Rates

	Most Selective College			Highly Selective College			Less Selective College		
	A+ GPA	A GPA	A-/B+ GPA	A+ GPA	A GPA	A-/B+ GPA	A+ GPA	A GPA	A-/B+ GPA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
White x Below-Median x Post	0.046***	0.052***	0.033***	-0.004	0.000	-0.003	-0.027***	-0.039***	-0.018***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.006)
URM x Below-Median x Post	0.020***	0.054***	0.047***	-0.006	-0.006	0.002	-0.018**	-0.046***	-0.052***
	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
P(Equivalence)	0.000	0.731	0.014	0.765	0.412	0.539	0.189	0.448	0.000
Not First-Gen x Below-Median x Post	0.028***	0.056***	0.032***	0.007	-0.004	-0.003	-0.023***	-0.037***	-0.028***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
First-Gen x Below-Median x Post	0.041***	0.057***	0.040***	-0.008	-0.004	-0.005	-0.033***	-0.050***	-0.039***
	(0.006)	(0.006)	(0.005)	(0.006)	(0.007)	(0.006)	(0.007)	(0.008)	(0.008)
P(Equivalence)	0.024	0.747	0.118	0.012	0.994	0.705	0.128	0.081	0.132
Highest Income x Below-Median x Post	0.025***	0.056***	0.034***	0.010**	-0.003	-0.002	-0.023***	-0.040***	-0.030***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Middle or Low Income x Below-Median x Post	0.046***	0.057***	0.033***	-0.011**	-0.007	-0.005	-0.032***	-0.043***	-0.034***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.008)
P(Equivalence)	0.000	0.829	0.791	0.000	0.508	0.601	0.09	0.623	0.596
N	200182	138507	123350	200182	138507	123350	200182	138507	123350

Notes: This table reports the treatment effects for enrolling in a most selective college. In each panel, the dependent variables are regressed on an interaction of a treatment variable and indicator for pre- or post-treatment (2020), treatment (an indicator for scoring below-median), high school fixed effects, cohort fixed effects, and student characteristics. Each panel interacts this specification with indicators for the panel categories. Panel A introduces an interaction by race, panel B by first-generation state, and panel C by income. Each panel also reports the p-value on tests for whether the two coefficients are statistically different. Each column specifies the GPA of students included in the sample. *** p<0.01, ** p<0.05, * p<0.1.