

Diversity, Inequality and Predictive Power: Why Do Colleges Go SAT Optional?

by

Olivia Chavez
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Abstract

Standardized testing is a controversial topic that has gained national attention from the press. Testing is an issue that impacts students from the moment that they enter the school system. The emphasis on testing follows students throughout elementary, middle and high school, culminating with college entrance exams at the end of their high school career. The SAT and ACT are the most commonly used assessments to gain admission to a college or university in the United States. There is a movement in higher education to adopt test optional policies. The implications of test optional policies have not been examined extensively. Previous research suggests that SAT optional policies increase an institution's selectivity rate, but does not enhance diversity (Belasco et. al 2014). This study examines the relationship between test optional policies and diversity rates and assesses how colleges rationalize the decision to transition.

Introduction

History of the SAT:

The College Board, the company that produces the SAT, was created by a collection of university presidents as a way to ensure a uniform admissions process. Carl Brigham, a psychology professor at Princeton University, first introduced the SAT. Brigham administered a test similar to an IQ test to first year students at Princeton and to applicants seeking admission to Cooper Union. He then became the leader of the College Board, where he was given the task of creating an assessment that could be used more widely. The SAT was given to high school students for the first time in 1926. In an attempt to determine a way to admit public school students, members of the Harvard administration consulted Brigham. In 1934, students applying to a Harvard scholarship program were selected using the SAT. A year later, Harvard began using the SAT to select candidates for the entire incoming class.

Predictive Power:

The ACT/SAT were originally designed to increase access to college, by helping to identify academically gifted students. The standardized tests, however have now been under scrutiny because the association between scores and socioeconomic status is very strong (Belasco et. al 2014) Although several studies have shown that the SAT does have predictive power for determining success in college, Atkinson and Geiser (2009), argue that GPA is a more accurate reflection of a student's ability. Specifically, they claim that the correlation between SAT and first year college GPA is confounded by socioeconomic status and that the predictability of the SAT is overestimated. Geiser and Santelices (2007) found that within their sample of University of California students high school GPA was the strongest predictor of

college outcomes, measured by graduation rate and college GPA. The correlation between HS GPA and college success was consistent across different majors. The findings also indicate that the predictive power of high school GPA increased after students' first year of college. Based on their results, Geiser & Santelices (2007), suggest that placing a stronger emphasis on HS GPA rather than standardized test scores could be beneficial for students of low socioeconomic status and ethnically diverse backgrounds.

Gatekeepers - Diverse Students:

In *The Gatekeepers*, Jacques Steinberg recounts the early history of college admissions and the homogenous nature of applicants. He states that highly selective colleges relied on elite private high schools for applicants. Harvard's incoming class would consist of students from Phillips Exeter and admission would be determined mainly by a consultation with the principal. Prior to the 1950's, a majority of Americans did not go on to college; higher education was dominated by upper class white males. The start of the civil rights movement marked a shift in college admissions. Colleges and Universities began to recruit students of ethnically diverse backgrounds from across the country. The outcome of the supreme court case, *Bakke V. Regents of University of California*, helped schools diversify their incoming class, by upholding affirmative action. The supreme court ruled that colleges and universities could not set aside a specific number of seats for students of a specific race, admissions could, however, use race to an applicant's advantage in the process. Currently, highly selective institutions have a small percentage of minority students and continue to expand their efforts to recruit applicants from diverse backgrounds. Approximately 6% of Black and Latino students attend top tier schools in the U.S. Financial disparities also exist in higher education with a majority of students enrolled

at highly selective institutions coming from the highest income bracket, families that make over \$200,000 per year (Bial & Rodriguez, 2007).

Presidential Support for Diversity, Affirmative Action:

Before being used in higher education, affirmative action was first introduced in the context of employment. During the Kennedy administration, an executive order was issued in order to ensure that racially underrepresented applicants were given equal access to employment. Under the order, applicants would be considered without regard to their race, ethnicity or nationality.

The 1978-landmark Supreme Court case, *Regents of the University of California v. Bakke*, upheld the use of race in college admissions, but ruled that the use of quotas was not allowed. In this particular case, Allan Bakke, after twice being denied admission to the University of California Medical School at Davis, sued. He claimed that he was more qualified than the minority students offered admission. He was ultimately admitted to the medical school, but the use of race in the admission process was deemed constitutional. In the 2002, *Gratz v. Bollinger* (University of Michigan) case, the Supreme Court ruled that colleges could not use a point system to admit applicants. The University of Michigan at the time assigned 20 points out of the 100 needed for admission automatically to Native American, African American and Latino/Hispanic applicants. The Supreme Court ruled that universities must take a more individualized approach and evaluate applicants based on a holistic approach.

The issue of affirmative action has been brought to the attention of the Supreme Court again, in the case of Abigail Fisher, a woman who sought admission to University of Texas at Austin, but was rejected. Abigail Fisher claims that the university unfairly discriminated against

her because she is white. There are questions as to whether or not race played a major role in Fishers rejection from UT Austin. Supporters of affirmative action cite her lower than average credentials would have placed her below most of the applicants admitted regardless of her race.

Justice Antonin Scalia has cited the mismatch hypothesis in his argument against affirmative action, claiming that underrepresented students may be better served at a less elite university. The mismatch hypothesis states that underrepresented students are harmed when they are admitted to highly ranked universities through affirmative action because the environment is too challenging and they are likely to not succeed. The mismatch hypothesis is not supported by academic research and although students from ethnically diverse backgrounds continue to be underrepresented in higher education, the lack of representation is rooted in institutional racism and discrimination rather than the lack of ability to succeed. Efforts to eliminate affirmative action could potentially decrease the amount of diversity in higher education today.

Alternative Assessments:

In order to address the confounding factors associated with the predictive power of the SAT, Robert J. Sternberg developed the Rainbow Project, an assessment that can be used along with the SAT to evaluate students for admission. Sternberg's Triarchic theory of successful intelligence serves as the foundation for the Rainbow Project. The Triarchic Abilities Test (STAT) measures analytical, practical, and creative abilities (Sternberg, 1999). Sternberg developed the STAT as an unconventional method of assessing intelligence. He argues that intelligence is not only determined by an individual's ability to memorize and perform other analytical tasks, but also practical and creative ones. Results from the first phase of the Sternberg Triarchic Abilities Test (STAT) suggest that the measures from the assessment have predictive

validity in predicting college GPA. The STAT results support the construct validity of theory of successful intelligence.

The Re-Designed SAT:

The College Board (CB) launched a new form of the SAT in March 2016. The College Board attributes the need for a new design to an increasingly changing educational landscape and developing economy. The executive summary highlights that many students fail to meet basic standards for college preparation in a society where many positions in the workforce require a post secondary degree. The 2013 College Readiness Report stated that 57% of students taking the SAT did not have the skills necessary to succeed in entry level courses without having to take remedial classes in at least one subject area. The re-designed SAT is intended to more closely assess the skills that are needed to succeed in college and the workforce.

The College Board consulted with 250 higher education enrollment administrators through a series of interviews and surveys. The re-design addressed seven different areas: focus, transparency, command of evidence, demonstrated achievement, rich application, relevance and craft. There were structural changes to the overall format of the test, which include: no penalty for incorrect answers, a reduction in the number of answer choices to just four and an optional writing component. The optional writing component is an essay scored from 3 to 8 on individual components and will be reported separately from the Reading Section. The final score on the new SAT ranges from 200 to 800 for both the Evidence – Based Reading and Mathematics sections, for a maximum score of 1600 points.

The mathematics section of the SAT will assess four areas: Algebra, Problem solving and data analysis and what the College Board refers to as “passport to advanced math” which tests

students' mastery of skills that are necessary for success in college level classes. The mathematics section in general focuses on fewer topics. Students are expected to demonstrate mastery of topics that are considered important for certain majors and careers. The College Board cites the results of a national survey by David Coneley in which instructors were asked to rate the importance of certain areas that were included in Common Core Standards in Mathematics. Algebra was consistently rated as most important in terms of applicability to introductory college courses. The other content areas, geometry, functions, number and quantity are mentioned less frequently as skills that are essential to college level work. The second major component of the Mathematics section of the SAT is problem solving and data analysis. Results from the Programme for International Student Assessment (pisa), an exam used to assess students' mathematical literacy indicate that the US lags behind in performance. The new SAT math section closely mirrors the pisa in requiring students to solve multistep problems. The re-design is intended to provide clear guidance as to what should be emphasized in the classroom.

The re-designed Evidence-Based Reading and Writing Tests section on the SAT will focus on students' ability to understand prose passages and provide revision. The passages will be taken from a variety of different content areas, from history to science, including informational graphics. There is an emphasis on texts that are challenging and align closely with the reading material in first year college courses. Evidence for the transition to the new SAT was drawn from a 2009 literature review focusing on the texts that students read in high school. The study found that there was a decline in complexity of texts that were included in K-12 curriculum over time. Scores on the SAT Critical Reading Section support the notion that students are unprepared for college level reading. Results from a 2012 College Board SAT Benchmark Report show that from a sample of 1,457,489 students approximately only 50% obtained a score

of 500 on Critical Reading and an overall score of 1550/2400 on the SAT. The report found that students who did not meet the benchmark were less likely to attend college, compared to the students who met the benchmark, 46% versus 78% respectively. Among students who did meet the benchmark, a quarter did not enroll in a post secondary institution, where as the rate of non-enrollment for students who met the benchmark was only 14%.

Sample Questions:

There is a notable difference between the former and re-designed SAT.

For example, the former version of the SAT included questions like the one below:

Family	Number of Consecutive Nights
Jackson	10
Callan	5
Epstein	8
Liu	6
Benton	8

The table above shows the number of consecutive nights that each of five families stayed at a certain hotel during a 14-night period. If the Liu family's stay did not overlap with the Benton family's stay, which of the 14 nights could be a night on which only one of the five families stayed at the hotel?

- A) The 3rd
- B) The 5th
- C) The 6th
- D) The 8th
- E) The 10th

This question requires students to reason through the situation, but does not ask students to use any of the mathematics skills that they have learned in the classroom directly. The question does not accurately measure students' mastery of high school mathematics. It is presented in a verbose manner intended to cloud students' understanding. The College Board has moved away from this puzzle-like approach and has developed a test that aligns more closely to the mathematics curriculum.

The question below is a sample from the re-designed SAT:

$$4x - y = 3y + 7$$

$$x + 8y = 4$$

Based on the system of equations above, what is the value of the product xy ?

A) $\frac{3}{2}$

B) $\frac{1}{4}$

C) $\frac{1}{2}$

D) $\frac{11}{9}$

This question tests foundational algebra skills. It requires students to use algebra skills that are commonly taught in the first year of high school. The equations are not presented in standard form, but students who have mastered algebra can manipulate the equations to write them in standard form, proceed to solve for X , substitute and calculate the final answer.

Research Questions

1. Is there an association between adopting an SAT optional policy and percentage of students of color?
2. Is there a relationship between financial aid as measured by Pell grants and loans and adopting an SAT optional policy?
3. How do colleges that adopt an SAT optional policies rationalize their decision to transition?
4. How does media coverage surrounding SAT optional policies compare to college press releases?

Method

Quantitative Analysis:

A total of 118 colleges and universities were included in this study. Data from the institutions was derived from the College Score Card Data Set. The College Score Card data includes data from the Integrated Postsecondary Education Data System (IPEDS), NSLDS (National Student Loan Data System), and the Department of Treasury. IPEDS is a compilation of surveys administered by the National Center for Education Statistics (NCES). The database includes data from higher education institutions that receive federal funding from the US government for student financial aid. IPEDS reports enrollment, admissions, graduation and retention rate data. NSLDS is a database of Title IV grants and loans, managed by the U.S. Department of Education. Data about Title IV loans and grants is reported by individual colleges and universities, the Direct Loan program and student loan guarantors.

For this particular study, median SAT Verbal and Math scores were used along with acceptance rate for admission criteria. Diversity was assessed using the percentage of Black and Hispanic/Latino students enrolled. Due to limited sample size, Native American students were not included in the analysis. The analysis included data from a span of ten years, from 2003 to 2013. Institutions that implemented SAT optional policies in or after the winter of 2004 were included in the experimental group. Data regarding the year that colleges and universities adopted a test optional policy was taken from fairtest.org. Institutions that have adopted test flexible or test blind policies were excluded from the analysis. In addition, colleges and universities that transitioned to SAT optional from a test flexible or test blind policy were not included in the analysis.

The experimental group included 59 schools that transitioned to an SAT optional admission policy from a traditional admissions policy. The earliest adopter in the data set transitioned in 2004. The average acceptance rate across all the SAT optional schools was 63% (SD=.13). The average percentage of Black and Hispanic/Latino (SOC) students was 7% (SD=.07). The average graduation rate for SOC was 57% (SD=.18). An average of 21% of students were Pell grant recipients (SD=.10) along with 62% of students who received federal loans (SD=12).

The control group included 59 traditional admissions schools. The average acceptance rate was 60%. (SD = .19). There were 10% students of color enrolled (SD =.10) and a 65% graduation rate for SOC students (SD=.20). The average percentage of Pell grant recipients was 24% (SD =.10).

Control schools with traditional admissions policies were selected using a randomized sampling function from a subset of schools, with the exception of Wellesley College. Wellesley

was selected specifically to compare to Smith College because there were no women's colleges in the randomized sample. A number of schools within the subset were eliminated due to non-traditional admissions policies. The subset of schools met the following criteria: admission rates between 20% and 96%, located within the 50 states, awarding a bachelor's degree or higher, and having non-for profit control over finances.

Liberal arts colleges comprised the majority of the control group in order to account for the high percentage of similar institutions adopting SAT optional policies. Open enrollment colleges and colleges and universities and institutions with a special admissions policy based on high school GPA or rank were not included in the experimental or control group.

Qualitative Analysis:

Press release statements announcing the adoption of SAT optional policies were analyzed to assess the major reasons for the change. A total of 60 institutions were included in the analysis. The colleges and universities were chosen based on the list of schools in the quantitative analysis. Some institutions were excluded because a public statement from the administration was not made at the time of the transition to SAT optional or is no longer available on the website.

As a comparison, data from New York Times articles from 2003 to present were extracted from the API. The keyword "SAT optional" was used to retrieve articles covering the transition away from traditional admissions policies. Text from the lead paragraph was used to conduct the analysis, as opposed to headlines to account for the large amount of text in college press releases. There were a total of 98 articles included in the analysis. The New York Times API was selected over other news sources because of the readily accessible developer tools.

Word frequency as well as word associations were used to determine the most common themes among the statements surrounding SAT optional policies. The Apriori algorithm was applied to the statements in order to determine how frequently terms occurred together.

Results

Quantitative Results:

A hierarchical linear model (HLM) was attempted to examine whether or not the percentage of Black and Latino/Hispanic students changed over time after institutions adopted an SAT optional policy. The unconditional model with time and enrollment percentage of students of color, however did not converge, which can be attributed to sparse data. Several observations were missing data from one or more years for the enrollment percentage. An HLM model using student of color (SOC) graduation rate was attempted to address the missing data issue, however the second model also did not converge.

The data was subsetted to include only one year before and after the implementation of a SAT optional policy for the experimental group. A group of control schools was selected for each SAT optional school and the appropriate years were included. An ANOVA was conducted to assess if there was a significant change in the percentage of student of color enrollment between groups over time. The average pre-enrollment SOC rate was 6.6% for traditional schools and 5.5% for SAT optional schools. The average post enrollment for traditional schools was 11.9 % and 7.6% for SAT optional schools. Results indicated that there was not a significant association between pre and post enrollment rates and the interaction between enrollment and SAT optional status was not significant ($F(3,40) = 1.66, p=.192$)

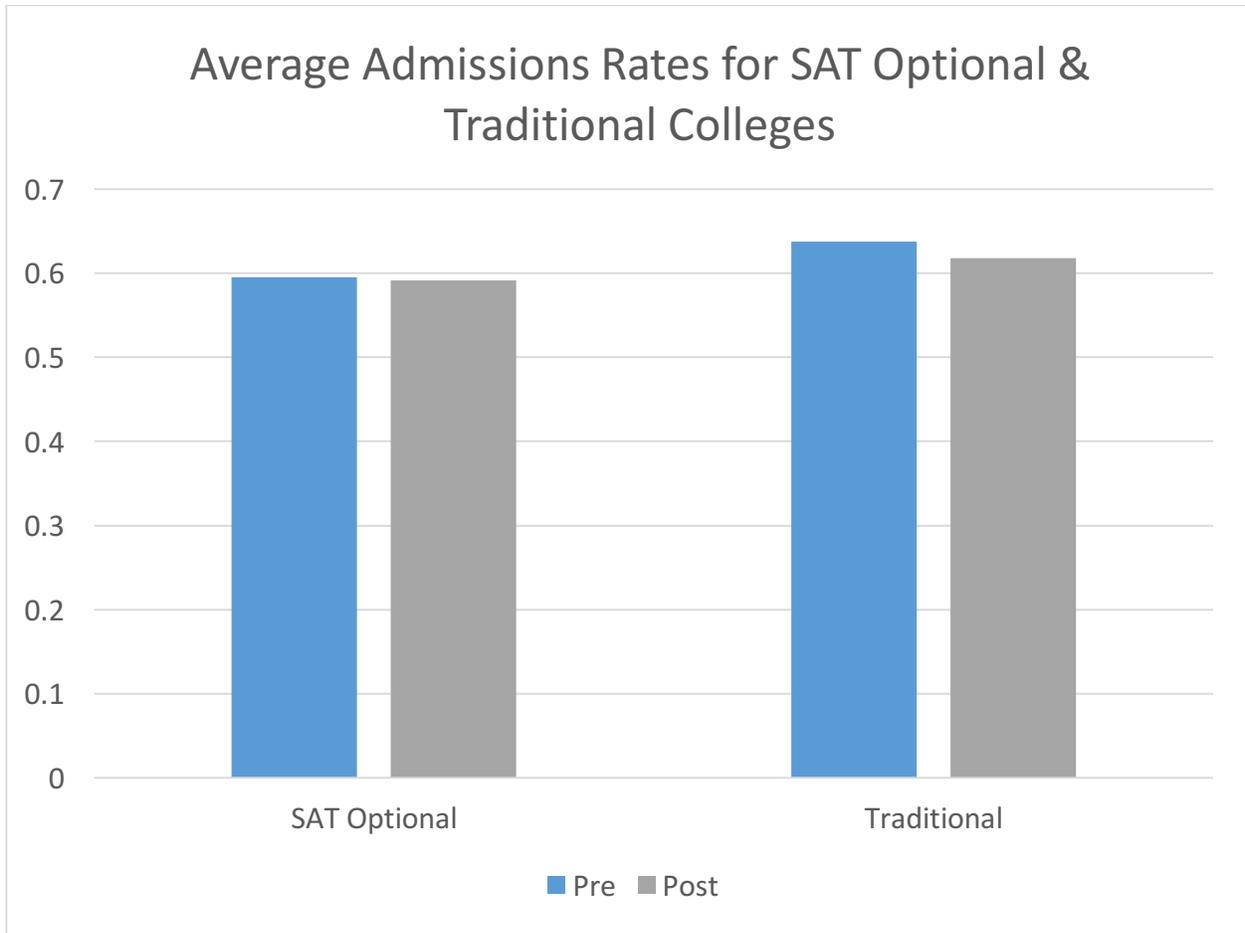
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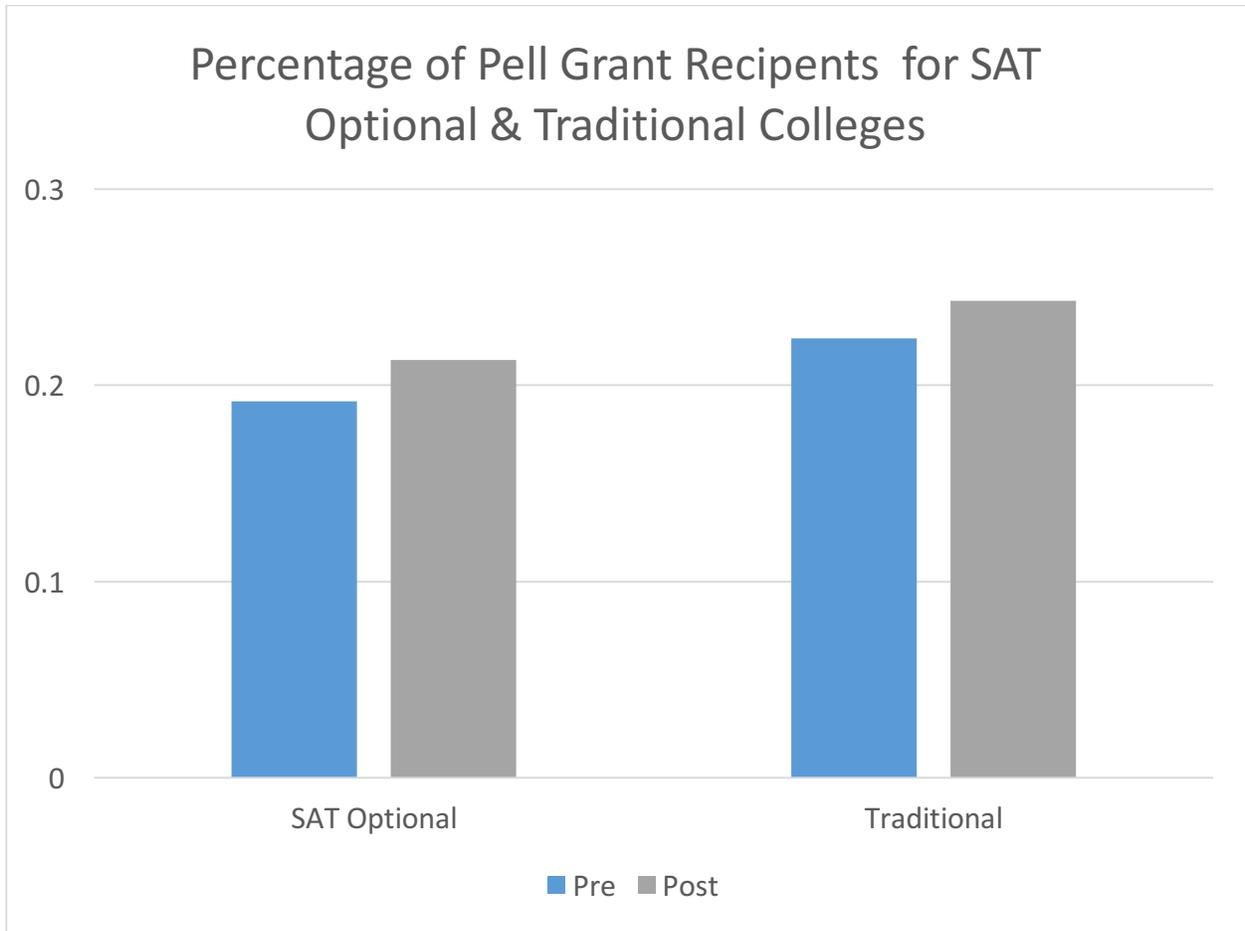
An ANOVA was conducted on pre and post admission rates and SAT optional status, however there was no significant difference between the SAT optional and traditional admissions institutions over time. There was a relationship between pre and post rates ($F(3, 107) = 49.11$, $p < 0.05$). For traditional schools the mean average acceptance rate was 61% before and 59% after. For SAT optional schools the pre- average acceptance rate was 64% and the post- average acceptance rate was 62%. The interaction between pre/post admission rates and SAT Optional status was not significant. The relationship was not moderated by SAT optional status.

Pre and Post retention rates were also examined. There was a significant association between retention rates over time ($F(3,105) = 240.6$, $p < 0.05$), however the interaction between SAT optional status and retention rates was not significant. The pre-retention rate for traditional schools was 82.7% and the post rate was 82.6%. The pre-retention rate was 82.4% and the post retention rate was 82.8% for SAT optional schools.

Socioeconomic status variables included Pell grant recipients and federal loan recipients. The relationship between pre and post Pell grant rates was significant and the interaction between SAT optional status and Pell was significant ($F(3,40) = 28.34$, $p < 0.05$). For SAT traditional schools, the pre Pell grant rate was 22.4% and increased to 24.4% for the post year. The Pell rate for SAT optional schools increased from 19.2% to 21.3%.

The relationship between pre and post federal loan percentages was significant, however the interaction between loan percentages and SAT optional status was not significant ($F(3,24) = 31.76$, $p > 0.05$). The pre loan percentage was 50% and the post loan percentage was 54.7% for traditional schools. For SAT optional schools, there was an increase from 60% to 63% for the percentage of students taking out federal loans.





Qualitative Results:

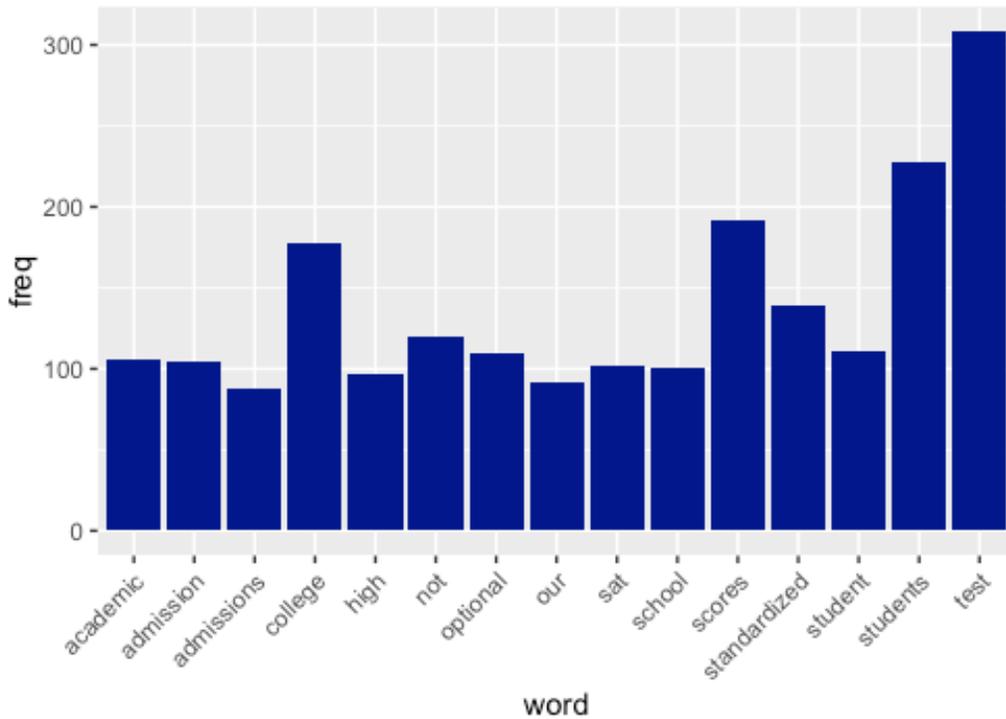
The movement to go SAT Optional has gained popularity over the years, with more and more colleges opting to change their testing policies. Bowdoin College went SAT optional in 1969 and Bates College followed a few decades later adopting an SAT Optional policy in 1984. Following the success of a few early adopter schools, more than 30 liberal arts colleges ranked in the Top 100 of U.S. News & World Report adopted SAT optional or test flexible policies in

2009. In 2016, the number of SAT Optional liberal arts colleges has risen to 48 colleges (Epstein, J. P. 2009).

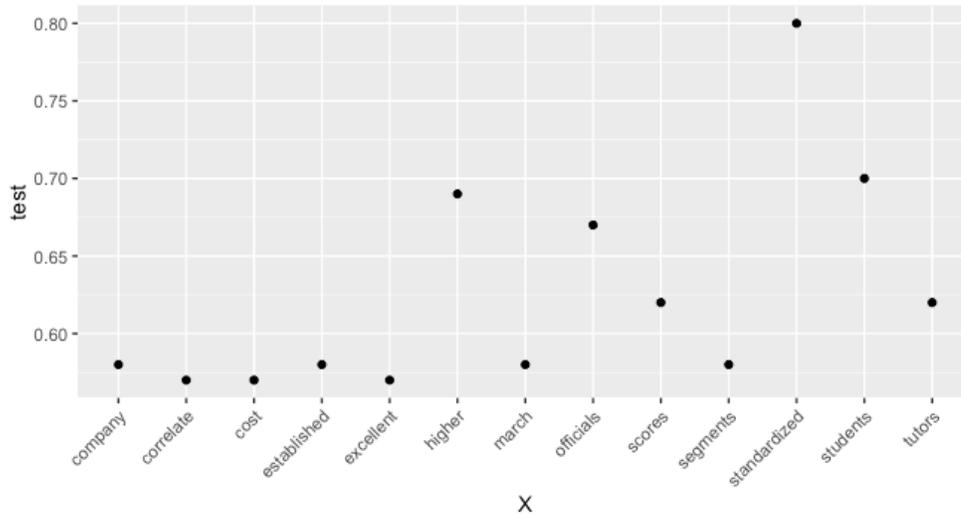
Colleges emphasized a holistic admissions process in their reasoning to adopt a test optional policy. Universities adopting the policy believe that a test optional policy would allow applicants to present themselves in the best possible manner, giving them more autonomy over their application. Nancy Hargrave Meislahn, Dean of Admission and Financial Aid at Wesleyan stated, “This option provides students more control over their applications, how best to present themselves to the admission committee.” With an SAT optional policies, admissions officers then weigh other aspects of the application more heavily. For selective liberal arts colleges, such as Wesleyan, there is a belief that high school transcripts, personal statements and recommendations give the admissions committee a more accurate view of students. The most frequently used terms were centered around the language used to describe the admissions process: “test” was the most commonly used term, followed by “student”, “standardized”, “scores” and “college”. Among the most frequently used terms, not directly used to describe the admissions process. were the words, “ability”, “experience”, “potential”, “quality” and “predictive”. The most commonly associated words with the term “test” include: “standardized”, “students”, “officials”, “scores” and “segment”. Other terms that are closely associated with the term “test” are “company”, “correlate” and “cost”. These terms suggest that schools often reference the barriers that prevent students from gaining admission when the SAT is required. One example of reasoning behind the transition to SAT optional relating to finances is the in the statement released by Knox College. An official from Knox College stated “High school students can artificially boost their scores on standardized tests by taking expensive cram courses that cost hundreds or even thousands of dollars. Knox remains committed to providing access to a top-

notch liberal arts education for all qualified students, regardless of financial means.”. The theme of reducing the amount of classism in admissions policies is consistent throughout SAT optional schools’ press releases.

Most Frequently Used Terms in College Press Releases

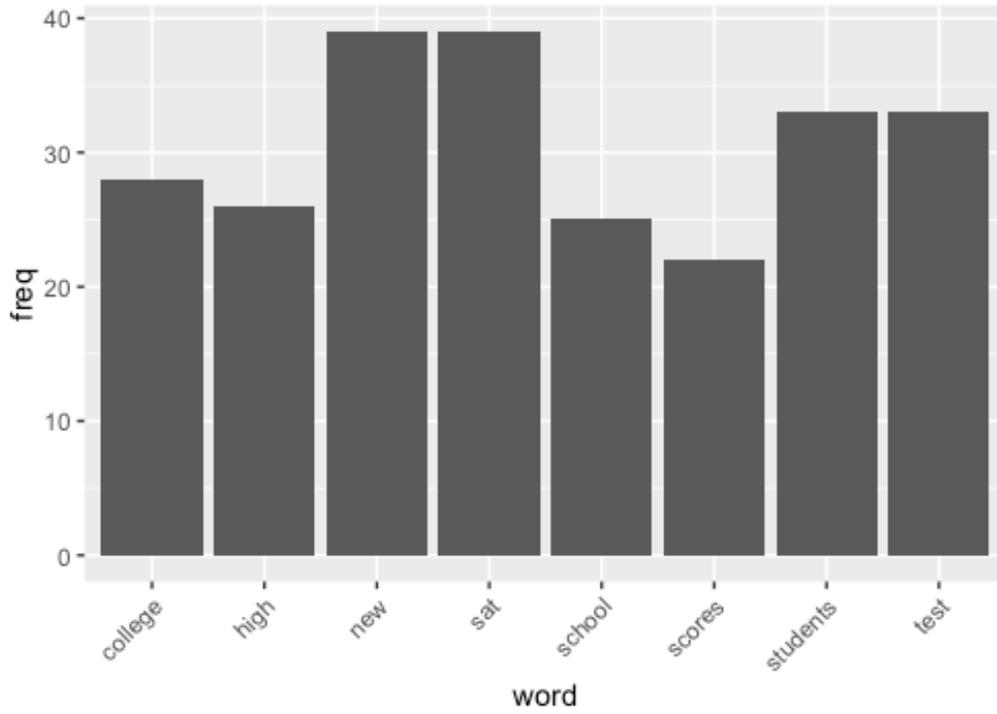


Terms Associated with “Test” for College Press Releases

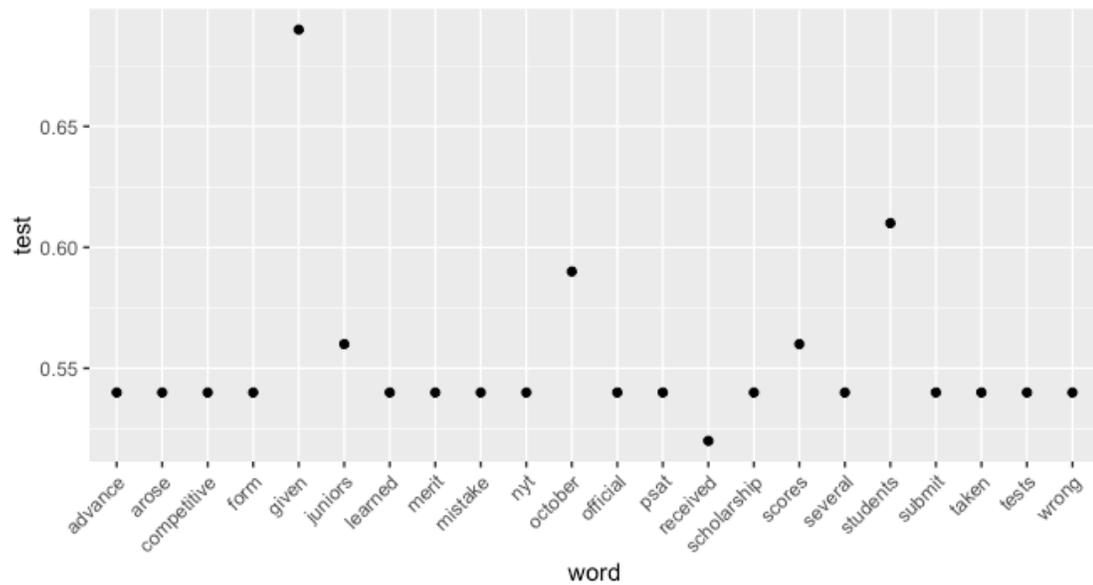


The most frequently used terms to describe the transition to SAT optional policies in the NYTimes were similar to those used in college press release statements. The most commonly used terms in the NYTimes include “test”, “SAT”, “students” and “new”, which is similar to the college press release statements. One notable difference is the lack of words that relate to qualitative measures of applicants, such as their potential. The association between the word “test” and other terms is shown below.

Most Frequently Used Terms in NYTimes Coverage



Terms Associated with "Test" for NYTimes Coverage



Limitations

Quantitative:

This study had several limitations due to the lack of available data through College Score Card. Results from 2014 were not available at the time of analysis. The percentage of Native Americans for both SAT optional and traditional schools was lower than any other student of color group, because of the lack of representation of this group in higher education. Black and Hispanic students were combined in the final analysis to assess the impact of SAT optional studies on student of color populations as a whole. White students were more than double the number of students of color. Retention rates were included in the College Score Card dataset, however there was no distinction between students of different racial and economic backgrounds. An important measure of the relationship between SAT optional policies and diversity is the ability for the institution to attract and retain students from underrepresented backgrounds, so that they go on to obtain a degree.

Qualitative:

The qualitative portion of this study was restricted because a number of universities did not publicize the transition to SAT optional policies. The initial press releases were located through schools' individual websites and some schools chose to remove the statements after implementing the test optional policies. The NYTimes API is limited to retrieving text from headlines and lead paragraphs. The text analysis could be improved if entire articles were provided.

Future Studies

Future studies could incorporate a variety of different data sources to supplement the missing values in the College Scorecard dataset. With additional datasets, more recent SAT scores could be included. The sample size for the qualitative analysis could be increased as more schools adopt SAT optional policies in the future.

Historically Black Colleges and Universities were excluded from the analysis and further research could be done to determine how the SAT scores for admitted candidates vary from traditional institutions and if there is a significantly higher percentage of students from lower socioeconomic backgrounds.

The College Board will be releasing a new version of the SAT in March of 2016. There will need to be future research that compares student outcomes on the new and the old version of the SAT. The re-designed test may impact an institution's decision to allow for test optional policies in admissions if the new SAT is found to be more equitable in assessing students' knowledge.

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