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DEFINING ACCESS:
How Test-Optional Works

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AUTHORS' NOTE

This is a continuation into the investigation on test-optional policies, started by conducting individual case studies on 28 public and private colleges and universities in the United States. In every instance that we have presented an observation or comparison that sheds light on the use of test-optional admission policies, we have included every institution that provided reliable data for the particular comparison.

But unlike a study which captures a single database and conducts a series of analyses on that data, we have collected data from institutions that became test-optional more than a decade and a half ago, and others that adopted test-optional policies within the last few years. As a result, only a minority of our analyses draw on the full 28 institutions. We have tried to provide as wide a framework of findings as possible, while identifying for each analysis the number of institutions and student records that were included.

Please look for the explanation in the figure description of each chart on how that subset of institutions was selected. Though we've provided connecting narrative, this report can best be considered an anthology of short reports designed to provide insights into the use of test-optional college admissions policies in the nation in the past decade.

Though the participating institutions may choose to remain anonymous, we wish to publicly thank the deans of admission and particularly the Institutional Research staff at each of these colleges for their extraordinary commitments in helping us to assemble and interpret this massive amount of data in an effort to better understand how test-optional policies are working at their institutions.

"This Commission wishes to emphasize at the outset that a "one-size-fits-all" approach for the use of standardized tests in undergraduate admission does not reflect the realities facing our nation's many and varied colleges and universities. These institutions differ greatly in size, selectivity and mission. At some, standardized tests are important predictors of students' academic success, while at others, they add little compared to high school grades."

NACAC Commission on the Use of Standardized Tests in Undergraduate Admission, 2008

EXECUTIVE SUMMARY

The number of colleges using **Test Optional Policies (TOPs)** in higher education admissions has dramatically expanded in recent years. And these colleges have avoided "one-size-fits-all," finding varied ways to administer TOPs and experiencing varied outcomes. Much of the momentum around Test-Optional admission is focused on whether the use of standardized tests (specifically SAT and ACT) **unnecessarily truncates the admission of otherwise well-qualified students**. In particular, there is concern about whether widespread reliance on the use of these tests in the admission process tends to replicate the status quo in social class and opportunity in our American society.

In this study, we collected student-record level data from 28 institutions that illustrate the variety among institutions that have adopted a TOP. They ranged in undergraduate enrollments from 1,500 to 20,000 and 15%-90% in admission selectivity, and included long-time users of TOP as well as recent adopters of the policy. In most instances we received four cohorts of student data, in total representing a dataset of 955,774 individual applicant records. We focused on interpreting the data using practical significance rather than experimental statistical techniques.

A TOP was described by many of the admission deans of the participating institutions as a tool they employed in the hope of increasing applications from a more diverse range of students, so this report focuses great attention on traditionally under-represented populations in American higher education. To do so, we used our record-level data to identify the **intersectionality of these underserved populations**: First-Generation College Bound, students from lower SES backgrounds (Pell recipients as proxy), and students from racial and ethnic groups that have traditionally been underrepresented in college populations (URM). We identified students associated with *any* of these three groups and designated them as a single category of "Expanded Diversity," and when possible, used it in our explorations.

The experiences of institutions in this study provide evidence that the adoption of a well-executed test-optional admission policy can lead to an ***increase in overall applications*** as well as an ***increase in the representation of URM students*** (both numeric and proportionate) in the applicant pool and the freshman class. Roughly two-thirds of our TOP institutions experienced URM growth above that of a matched test-requiring peer institution. A similar but smaller magnitude increase was seen among Pell recipients.

Approximately **one quarter of the students in this study did not submit standardized test scores** with their college application (henceforth to be referred to as "Non-Submitters"). As noted in earlier studies, **URM, First-Generation-to-**

College, and **Pell recipients** were more strongly represented among Non-Submitters. For instance, **35%** of Black or African-American students chose to be Non-Submitters (12 percentage points higher than the overall non-submitting rate), as compared to **18**% of white students. Similarly, women chose to be Non-Submitters at higher rates than men.

We also found that Non-Submitters were often **admitted at *lower* rates** than Submitters, but, on average, **enrolled (yielded) at substantially *higher* rates**. Their HSGPAs were modestly lower than the Submitters, and, upon entering college, their First Year GPAs and Cumulative GPAs were comparably lower. However, **they ultimately graduated at rates equivalent to, or marginally higher than, Submitters**, the ultimate proof of success.

Furthermore, our data indicated that **high school GPA had a stronger correlation with college success for Non-Submitters than the ACT/SAT** (for the 27% of Non-Submitters for whom we had test scores) -- both in terms of college cumulative GPA and graduation rate. While test scores had a generally stronger relationship with college GPAs for the Submitters, for the Non-Submitters they tended to show a weaker relationship, essentially under-predicting the college GPA. The test scores continued to most strongly correlate with family income.

A financial analysis, though inconclusive, suggested that some degree of financial investment was required to support the success of a TOP policy. While the proportion of students with need did not necessarily increase after policy adoption, average demonstrated need and gift aid per capita did. **Non-Submitters were generally needier** than Submitters. They also, however, included a **sizable proportion of No-Need students,** only modestly lower than that of Submitters. We noted that well over half of all No-Need students were offered some gift aid, but No-Need **Non-Submitters were less likely than Submitters to receive gift awards**, in spite of the fact that these two groups were shown to graduate at comparable rates.

We cannot lay claim to definitive conclusions about the workings of a test-optional admission policy. However, our findings suggest that a **TOP works well for many types of institutions**. It appears to offer a less obstructed path to higher education for this population of students who feel that their scores do not match their ability. We do not argue that institutions should entirely eliminate consideration of the ACT and SAT for all their students, however, we do continue to **question whether the value-add of testing is large enough to justify the price—time spent, financial cost, and emotional drain—being paid by students** due to societal preoccupation with these tests.

We find that there is plenty of room in American higher education for diversity of process, allowing test-optional admission to contribute to that diversity. Some have asked, 'Why ignore a piece of information if it is available?" And we agree. Indeed, when a student chooses to be a Non-Submitter, that, too, is a valuable piece of information.

> *"We have great pride drawn from how well TOP works for first gen and diversity, and kids with special talents. For us, removing the testing was a big help in looking at everything else."*
>
> *Dean from a small private college*

OBSERVATIONS ON THE TEST-OPTIONAL MOVEMENT

A rapidly increasing number of colleges and universities have adopted test-optional admission policies, or TOPs, that allow some or all of their applicants to refrain from submitting standardized test scores. The institutions that officially deemphasize standardized tests in admission now total more than 1,000, including over 100 more not-for-profit institutions[1] in the past four years (FairTest List, 2018). From early adopter TOP institutions (Bowdoin in 1969, and Bates in 1984) to those recently adopting a TOP (Wesleyan and Bryn Mawr, both in 2014, George Washington University in 2016), some of the institutions choosing a TOP have national reputations for excellence. But TOP is not used just by highly selective private institutions—the FairTest list covers a range of public, regional private, and also for-profit institutions. A wide variety of institutions have found TOPs to be workable, productive tools to support their enrollment planning.

The momentum of the Test-Optional movement appears to be fed in part by several overlapping changes in how academic promise and outcomes are being evaluated. Collectively these changes are moving admission decisions away from heavy reliance on measures increasingly deemed to provide a narrow assessment of human potential. Many K-12 schools are moving toward proficiency and standards-based evaluations. Thousands of high schools have stopped providing Class Rank, as a false or misleading measure. Many colleges and universities are broadly moving to "holistic" admissions philosophies, using TOPs, and versions of "portfolio" admissions with new technologies like the Master Transcript that encourage students to provide evidence of individual talents and commitments. Collectively, these changes are decreasing the reliance on test scores and class rank to guide college admission decisions and guidebook rankings. Experiments are drawing on the findings of Admissions reform groups like the Institute on Character and Admission, or several on-going research projects: the "Turning the Tide" Project at Harvard, the Character Skills Snapshot from the Enrollment Planning Consortium, or the Master Transcript Consortium.

As this policy has become more pervasive, researchers have investigated its relative success. A 2015 study out of the University of Georgia (Belasco, 2014) found that, at the aggregate level, selective liberal arts colleges that adopted a TOP (in comparison with those that continued to require SAT or ACT scores) had <u>not</u> increased their enrollment of URM students or Pell recipients. But in focusing on these high-level, averaged outcomes, that study may not have been able to discern impact at the institutional level.

There has also been a proliferation of research on standardized testing in admission focused on the predictive value of testing and its fairness relative to various subpopulations of students. Much of the research affirming the value of the SAT and ACT has been conducted by the testing organizations. One such study, a synthesis of recent test score validity studies (Mattern and Patterson, 2014), states that the SAT provides incremental validity above and beyond HSGPA in the prediction of cumulative GPA, retention and graduation. Their conclusion: the combination of HSGPA and testing will produce the most accurate predictions of college success. Another recent release, a just-published volume of essays, *Measuring Success: Testing, Grades and the Future of College Admissions* (Buckley, Letukas, and Wildavsky, 2018) is principally a response by the College Board and ACT to the rapid growth of TOPs.

[1] The FairTest list includes many colleges that are "For Profit," and others that are "Test Flexible" -- allowing applicants to choose which form of testing to submit. The 28 institutions in this study, all Not-for-Profit and none using a "Test Flexible" policy, are drawn from two groups on the FairTest lists: the 129 National Liberal Arts Colleges and National Universities, and the 174 Regional Colleges and Universities.

Challenges to the pervasive use of these tests, their actual value, and their negative impact on students have come in a number of books (*Crossing the Finish Line: Completing College at America's Public Universities (*Bowen, Chingos, McPherson, 2009)*; SAT Wars: The Case for Test Optional Admissions (*Soares, 2012), the work and recommendations of the NACAC Commission on the Use of Standardized Testing in Undergraduate Admissions, the ongoing work of FairTest, a thoughtful documentary film released in early 2018, "The Test and the Art of Thinking" (Davis, 2018), and a variety of articles and smaller research projects.

In particular, the exhaustive research available in Crossing the Finish Line has been centrally important in this discussion. The authors, the late William Bowen and Michael McPherson, the former Presidents of Princeton and Macalester, respectively, with their research colleague Matthew Chingos, addressed what characteristics predicted graduation at a group of large public universities. Their data was drawn from institutions that required standardized tests from all students; none of the universities they studied had adopted a "threshold" admissions policy, with automatic admission granted to students who meet cut-off requirements for HSGPA. In the chapter which examined the predictive value of test scores and high school grades, they reported that:

> *The findings are dramatic. …the coefficients for SAT/ACT scores are always less than 0.02, which means that an increase in test scores of one standard deviation is associated with an increase of less than 2 percentage points in six-year graduation rates; this relationship is even negative at the historically black colleges and universities (HBCU's)…. The consistency of the results is extraordinary: In all but one of these more than 50 public universities, high school GPA remains a highly significant predictor of six-year graduation rates after taking account of the effects of test scores... Test scores, on the other hand, routinely fail to pass standard tests of statistical significance when included with high school GPA in regressions predicting graduation rates, especially when we leave the realm of the most highly selective public universities… …the remaining incremental predictive power of the SAT/ACT scores disappears entirely when we add controls for the high school attended, whereas the predictive value of the high school GPA increases.* (Bowen, Chingos, McPherson, 2009)

In 2014, William Hiss and Valerie Franks —two of the three co-authors of this study—released *Defining Promise: Optional Standardized Testing Policies in American College and University Admission* (Hiss, Franks, 2014). It was the first large-scale, multi-institution assessment of the outcomes of optional testing, and extended the research done in 2010 by Hiss and his co-author Kate Doria, in a 25-year look-back study on the outcomes of the policy at Bates College (Hiss, Doria, 2010).

The 2014 research revealed that—when given the option at one of those 33 TOP institutions —roughly a third of enrolled students chose to apply without standardized test scores (Non-Submitters). These Non-Submitters went on to graduate at virtually the same rates (a 0.6% difference) and with nearly the same college GPA (0.05 of a Cum GPA point) as the Submitters whose test scores were considered in the admission process. Their research also concluded that Non-Submitters were more likely to be first-generation-to-college, underrepresented minority students, women, Pell Grant recipients, and students with Learning Differences. And, using large volumes of HSGPA data, their findings underscored the sturdiness of the HSGPA as a predictor of college performance.

This research highlighted an interesting intersection between the testing agencies and that of the counter views. A meta-analysis of studies of "discrepant performance" revealed that "a quarter to a third of tested students exhibit some degree of mismatch between their grades and their test scores." Within this group, approximately half of them have high school grades that are higher than what the tests would predict. Across the studies cited, the range appears to be between 11% and 18% of the sample population (Sanchez & Mattern [Making the Case for Standardized Testing] in Buckley, 2018).

Another related study identified the students most likely to have strong HSGPAs and low testing: women, First-Generation to college, low income students, and students who speak a second language at home. Furthermore, those most likely to be discordant with weaker HSGPAs and stronger testing are males, whites, and those of higher income (Sanchez and Edmunds, 2015).

We would emphasize that the results only include those students who took the tests. It is quite plausible that there are other students who might have succeeded in college, had they been encouraged, found the right mentor, or were not so discouraged by the costs. If so, the real "discrepancies" may be even higher.

And it is worth noting the parallels between the proportions noted in the above studies and the median percentage (23%) of students choosing to be Non-Submitters at the institutions in this study. Does TOP indeed serve this "discrepant" population of students? Does it reduce admission barriers for underserved populations? The following study design continues with the full list of research questions and explains how we went about answering them.

STUDY DESIGN

We began this study by reviewing the FairTest list of 1000 colleges and universites with one form or another of optional testing. In contrast to our 2014 study, we eliminated any highly-specialized institutions (e.g., art institutes). We tried to achieve a balance of institutional types, sizes, selectivity, and geography, as well as to have representation from institutions with different approaches to TOP. We approached about one hundred institutions to discuss whether they would consider joining the study. We launched the study with 28 interested institutions that felt they could provide reliable data for the multiple cohorts needed for the study.

To give us context, we interviewed the Dean of Admissions or Enrollment VP at each institution in the study about their rationale for adopting a test-optional admission policy as well as commentary about how well they felt it was working at their institutions. In many instances, the current dean had not been at the institution at the time of adoption, so they relayed their best understanding of the circumstances at the time of adoption.

We received a large set of data: from the 28 colleges and universities, we received 955,744 student records, with up to 40 data items in each student record. With any dataset of this size, there will be elements that require careful examination and decisions about clarity and reliability. However, all data in this study comes from participating colleges and universities or from IPEDS. All data was carefully checked and cleaned for consistency and accuracy, leading in almost every case to clarifying follow-up communications with Institutional Research or Admissions research directors. In some instances, new coding schema or changes in computer systems interfered with the institution's abililty to provide comprehensive information across the span of the study.

We use commonly accepted statistical methologies (descriptive statistics, t-tests, chi-squares, Cohen's d) to present data and highlight statistical significance, but we have avoided highly complex "semi-experimental" statistical methodologies. Rather, we try to present the data in a straightforward fashion: Which students were drawn to being Non-Submitters of testing? How did Submitters and Non-Submitters compare in high school achievement, and subsequently in college performance? Did adoption of a TOP have an impact on the institution's applicant pool or enrolled classes? Did these institutions treat Submitters and Non-Submitters differently in their admission and aid policies?

The study was not designed to come to a single conclusion about the use of test-optional admission policies, but to explore as many dimensions around the policy as possible. We began by conducting individual case-study analyses for the 28 public and private colleges and universities. They have all been guaranteed anonymity, so this report uses aggregated data from subsets of institutions and avoids institutionally-identifiable information. Below each chart or diagram is a description of the number of institutions and records included, along with a brief profile. In every case we have included all the institutions that had reliable data for the analysis being presented. This report is a series of observations, rather than a series of parallel findings on a single set of data.

What are the principal research questions?

In an effort to shed additional light on the impact of a test-optional admission policy, this report explores several pertinent questions about test-optional admission:

- If an institution adopts a test-optional admission policy, does it reduce admission barriers, thereby encouraging more students to apply?
- Does adopting a test-optional admission policy help an institution attract and enroll more traditionally under-represented minority (URM), first-generation-to-college, and low-SES students?
- How do institutions "treat" students who have chosen to withhold their scores from the admission process – in both their admission decisions and their aid decisions?
- Are there institutional financial implications to adopting a test-optional admission policy?
- Who are the Non-Submitters -- the students who use a test-optional policy? How do they perform academically in college compared to students who do not use the policy? This portion of the study is a re-testing of the findings from "Defining Promise", with a largely different group of institutions, but a parallel methodology.

We are conscious of, and accept, the responsibility to have this study examine both the ethical issues like access and diversity, and the strategic issues of yields, changing classes and potential financial impact on the institution.

What types of institutions and policies are represented in this study?

We focused our participant recruitment on 4-year, degree-granting, IPEDS-submitting, public and private not-for-profit institutions in the United States. We then investigated the breadth of test-optional (TOP) policy types employed by institutions in the U.S. There is no standard definition of "test-optional admission," leaving institutions to define and implement a variety of policies. We organized the various versions of the policy in common categories, and we found, in approximate numbers, the primary types of TOP used by institutions (in rank order of frequency they were observed): *Academic Threshold, Optional for All, Optional Plus, Optional for Some,* and *Test Flexible*. The most commonly used policies—Optional for All and Academic Threshold—were of particular interest, as was the Optional Plus policy. Institutions with Test Blind and Test Flexible policies were not considered for inclusion in this study. While considered, no Optional for Some institutions were included in the study due to small numbers of Non-Submitters. Figure 1, below, describes each policy in more detail, estimates the proportion of that policy type represented in the U.S., and then counts those represented in the present study.

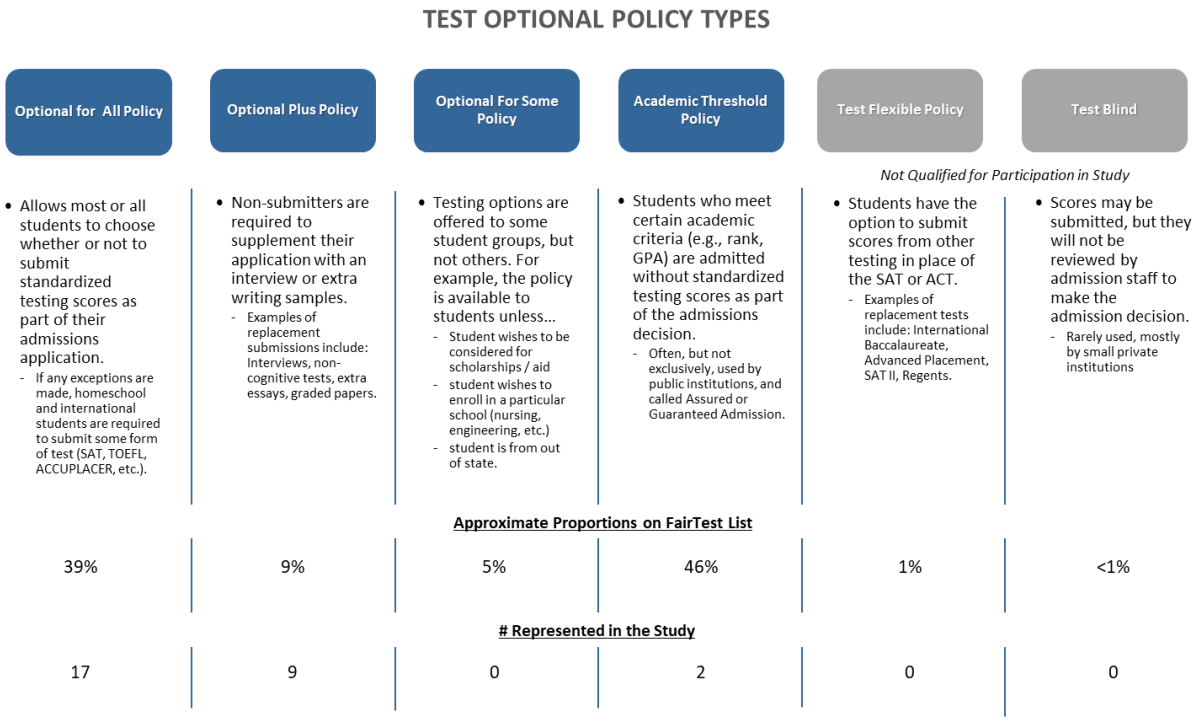


Figure 1. Test-Optional Policy Types, as of Spring 2016
This investigation and categorization focused on IPEDS Reporting, Degree granting, 4-year Public and Private Not-for-Profit Institutions on the FairTest List.

Some institutions (including many public universities) have a required HSGPA or class rank for Non-Submitters, often a requirement from a state education agency or the legislature. We have referred to this form of TOP as "academic threshold," in that the students must meet the required HSGPA for automatic admission. Shaped largely by the ability of particular threshold institutions to provide data, our research in the 2014 study had more of these "threshold" public institutions than this 2018 study. The best known of these are the Texas "Top 10%" policy at all Texas public universities, and the GPA requirement at the California State University system. Those requirements often become a self-fulfilling prophecy of student success in college. While sometimes contentious, a number of these policies have been in place for many years and seem to work successfully to open these public universities to a wider pool of applicants.

It should be noted that some institutions could fit the definitions of a couple of categories and/or have migrated from one to another. For instance, some institutions require that a student exceed a particular HSGPA to be eligible to be a Non-Submitter, but don't guarantee admission to those students, whereas others guarantee admission (without regard to test scores) to anyone above a particular GPA. The latter would clearly be considered an Academic Threshold policy, whereas the former could be considered either Academic Threshold or Optional for Some. In addition, some institutions shift from one version of the policy to another—often from the more restrictive "Optional Plus" to the less restrictive "Optional for All"—as they get comfortable with the use and implementation of the policy.

Also note that we included only a small representation of Academic Threshold institutions. As described above, at most Academic Threshold institutions students above a particular HSGPA or class rank are automatically considered without

regard to their test scores, but the applicants don't actually make a decision about whether or not to submit their test scores. Therefore, the charts in which we compare "Submitters" to "Non-Submitters" we have typically excluded the Academic Threshold institutions because those students don't actively choose to be Non-Submitters.

For this study, we sought to include institutions of a variety of sizes, levels of selectivity, and geographical locations. We sent initial inquiries to the deans of admission at about 100 TOP institutions, and followed up with those who responded to our initial inquiry. Not all that wanted to participate were able to provide the volume of data we were requesting of them. However, as outlined below, the 28 institutions that are included in our study represent a diverse group of institutions.

Category	Count of Institutions
Control	
Private not-for-profit	24
Public	4
Institution Size Category*	
1,000 - 4,999	17
5,000 - 9,999	7
10,000 - 19,999	1
20,000 and above	3
Carnegie Classification: Basic	
Baccalaureate Colleges	14
Master's Colleges & Universities	7
Doctoral Universities	7
Selectivity	
<30%	4
30%-50%	10
51%-70%	9
>70%	5
Endowment per FTE	
<$20,000	6
$20,001-$50,000	5
$50,001-$100,000	4
$100,001-$200,000	9
>$200,000	4
Geography	
Far West	2
Great Lakes	3
Mid East	8
New England	12
Plains & Southeast	3
URM Enrollment	
<10%	4
10%-20%	15
21%-30%	7
31%-40%	2
US News "National" or "Regional" Ranking	
National	20
Regional	8

Figure 2. Participating Institution Profile. The first seven sections of data drawn from ***IPEDS data 2016***. The last section from USNWR rankings, 2018. *Note, the institutional sizes here reflect total enrollments, including graduate programs, whereas the sizes referred to in our report refer solely to undergraduates.

Among our participating institutions, the proportion of Non-Submitters at each institution ranges widely —from 2% to 52%. Excluding the Academic Threshold institutions, the mean is 21.5% and the median Non-Submitter rate is about 23%.

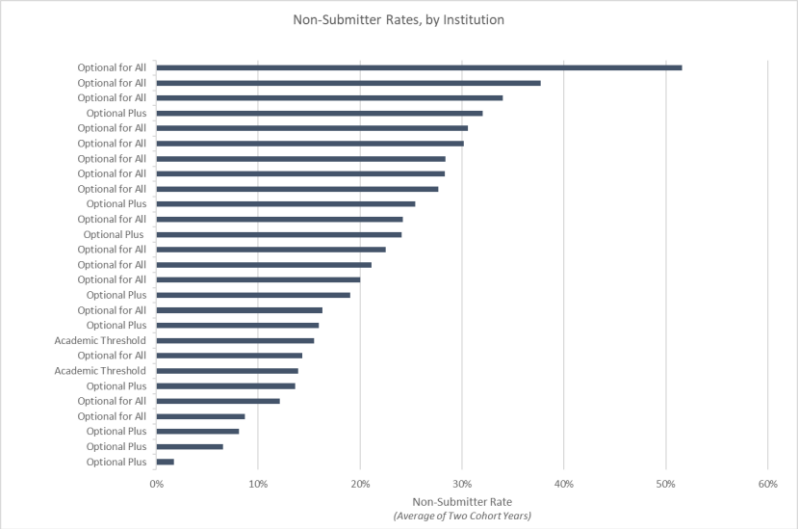


Figure 3. Two-Year Average Applicant Non-Submitter Rate, by Institution.
Exclusion: One institution that did not have Non-Submitter proportions
27[2] institutions **|** 103,088 Non-Submitters | 395,043 Submitters
Enrollment = 1,500-20,000 (2,400 M[3]) **|** Endowment per FTE = $5,000-$800,000 ($65,000 M) **|** Admit Rate = 15%-90% (43% M)

What data was collected and how was it used?

To allow us to assess changes in the admission funnel beginning with the applicant pools, from each institution we received record-level data, consisting of 40 variables (see appendix for detailed list of data definitions) for every applicant from two cohort years prior to adoption of their test-optional policy and two cohort years after adoption of the policy. The exceptions to this form of data gathering were the four institutions that had adopted a TOP prior to 2004 and were unable to submit data from years prior to their adoption of TOPs, and three of the five most recent adopters that could provide data for only one cohort subsequent to their adoption of a TOP.

All data for the study was submitted on a "blind crosswalk" basis, where the institution created a random record ID number for each student record, and only the institution kept that "cross-walk." The study received no identifiable individual information, and we guaranteed confidentiality and anonymity to the institutions in the study, as they shared a great deal of data with us. At the conclusion and publication of this study, each institution can decide if they wish to announce that they were participants.

The following subsections summarize each important area of data collected, and how it was transformed for analysis.

[2] Upon receipt of the data, we learned that one of the "Optional for All" institutions in the study was not able to accurately identify Submitters of testing versus Non-Submitters of testing. Therefore they have been excluded from the analyses in places where those student groups are compared.
[3] The capital "M" stands for Median

A primary focus is on exploring the impact of adoption of a test-optional admission policy on the size and composition of a college's admission funnel – from applicant pool, through admitted students, to enrolled students. Additionally, we have explored the differences between the Non-Submitters and Submitters at each stage of the funnel. This conceptual framework underpinned our approach to gathering, organizing and analyzing the data.

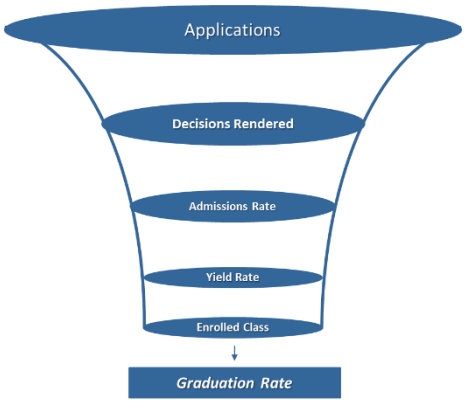


Figure 4. The Admission Funnel Framework. For the purposes of this study the Admission Funnel has been expanded to include a category of **Decisions Rendered** and concludes with a category of **Graduation Rate (**as a measure of student success).

The traditional admission funnel includes prospects, inquirers, applicants, admitted students, and matriculants. For the purposes of this study we collected data beginning with Applicants and added a layer of assessment we have labeled "Decision Rendered" (abbreviated as "DR"), asking the institutions to identify each candidate for whom they actually rendered a decision (admit, deny, waitlist). Thus, the number of DR applicants excludes applicants who remained incomplete and those who withdrew their applications prior to receiving a decision (e.g., made an Early Decision commitment elsewhere). This gave us insight into the inner workings of the policy, for instance, identifying whether Non-Submitters were completing applications at rates equivalent to Submitters.

In addition to the funnel data, institutions provided the following categories of information on each student (details available in the appendix, page 73):

- **Racial and Ethnic Student Identification:** IPEDS-defined categories of racial/ethnic identification.
- **High School GPA Data:** HSGPAs were reported to us as recorded by the institution's Admissions or Institutional Research offices. We did an extensive individual analysis of the GPAs reported by each of the 28 institutions in the study, using whatever scales that institution provided, and allowing for the GPA scales to exceed the traditional 4-point scale. No imputations were used in analysis. For the analyses in this combined report, we truncated all HSGPAs at 4.0.
- **Standardized Test Score Data:** ACT and/or SAT scores were gathered and a concordance table (College Board, 2009) used to convert ACT scores to SAT scores. For simplicity, all references in the report refer to them simply as SATs. The new SAT had not been taken by most[4] of the student cohorts in this study (College Board, 2016). 27% of all Non-Submitter records contained a test score.
- **Financial Aid Data:** The data was categorized into segments (details in the Appendix) using the following financial aid numbers:

[4] Only one institution submitted a few ACT test scores from students post 2016. For this institution, the more recently adopted concordance table was used (though its validity has been disputed by ACT).

- Expected Family Contribution (EFC) – At some institutions this was the federal EFC, and at others it was an institutionally-determined EFC. Because we were attempting to assess aid award differences between Submitters and Non-Submitters at the individual institution, we sought whatever EFC they used to determine the need for aid.
- Total Gift Aid – We requested the total gift aid (from any source) received by the student.
- Pell Grant Recipients – We asked institutions simply to identify any student receiving a Pell Grant, but did not ask for the specific amount of the Pell Grant.
- Merit Aid Recipients – We asked them to identify any student to whom they had awarded non-need-based, "merit" gift aid.

- **Academic Outcome Data:** First-year college GPA (FYGPA), most recent (or final) CumGPA, major designation, a current student enrollment status, and an up-to-date same-school graduation status for all students who enrolled. We used graduation status as our ultimate measure of student academic success. The data was collected in 2016.
- **Test Requiring Institutions, Peer Data:** IPEDS data for both the TOP institutions and their Test Required Policy Peers (TRP Peers) for each of the matched cohorts of students. (For more detail on the selection of Peer institutions, see pages 19 and 76.)

What is the sample size and composition?

We gathered information from 28 institutions, four public and 24 private, of various sizes and levels of selectivity. Of our 28 participating institutions, 20 were new to our research and 8 were repeats from the 2014 study, but with new class cohorts of data. Their undergraduate enrollments ranged from about 1,500 to 20,000, and their admit rates (in their TOP cohort years) range from 15%-90% (15%-80% among the privates, with a median of 43%).

We wanted to examine data from institutions that had varying years of experience with the policy, so there is a range of policy adoption timeframes represented in the study. Four institutions adopted their policies prior to 2004, five adopted their policies very recently, and the remaining institutions adopted the policy between 2004 and 2014. With the exception of the earliest adopters, each of them provided data for two cohorts just prior to adoption of their policies, and two cohorts post policy adoption.

We asked institutions to submit the first cohort *after* they adopted the policy, to allow for a full cycle of trial before starting the policy analysis. Seven submitted Post-TOP data beginning the first cohort immediately *after* they adopted the policy, and the other institutions submitted data ranging from two to six years after adoption to align data for a 4-5 year graduation rate comparison. Out of necessity, our subset of most recent adopters provided data beginning with the year they adopted the policy.

How was the data analyzed and summarized?

We have a large set of data with many different facets. As noted above, this study was designed not to reach a single conclusion, but to examine and share a wide range of findings. Initially, we did an extensive analysis of the data for each institution individually, searching for common patterns and themes, as well as identifying any apparent inconsistencies that might require clarification by the institution. After these conversations, it was sometimes determined that there was simply missing data or, due to changes in computer systems at the institution, there was

inconsistent data across their cohorts. In these instances, we decided to eliminate that particular data element and to exclude the institution from comparisons that were dependent upon that data.

At the institutional level we focused on the differences between Submitters and Non-Submitters at various stages in the funnel. To give an illustrative example of the data gathered, the following chart outlines the funnel activity by the numbers.

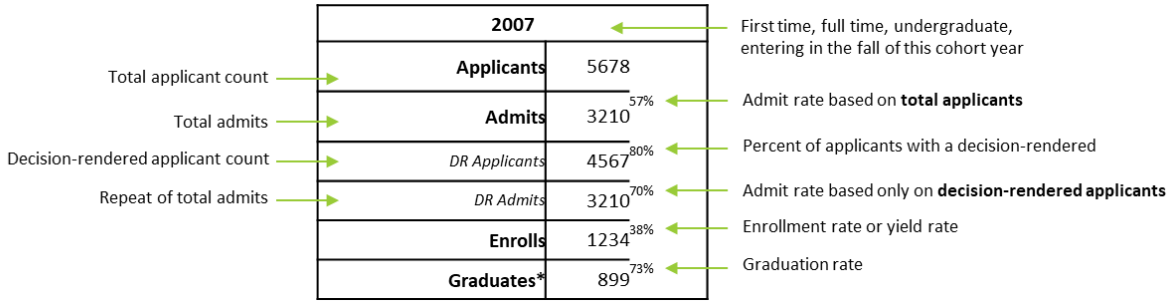


Figure 5. The Admission Funnel – Illustrative Example of Tables. Data requested of the 28 institutions in the study.
**For "Graduates", participating institutions submitted an updated status on all students as of June 2016.*

This table was summarized for each institution for each cohort year submitted, then averaged across pre-policy years, and across post-policy years. It was then filtered by the demographic and admission behavior data we collected, for instance: gender, race/ethnicity, athletic participation, high school type, Early Decision usage, family financial status, and first-generation-to-college status.

In this report, whenever there is a single data point provided for an institution (e.g., admit rate, percentage of URM students, proportion of Non-Submitters, etc.), it represents an average of two cohort years of data (i.e., the two pre-adoption cohorts or the two post-adoption cohorts) whenever that data is available. In some charts, the averages represent averages at each individual institution, whereas in other charts we present the pooled student data using individual records across a subset of institutions (e.g., the graduation rate for Submitters is derived by pooling the number of all the graduates for that set of institutions and dividing it by the total number of students who enrolled in those same cohorts). We have tried to present the data in whichever format provides the clearest meaning for the reader, and in some cases we have provided more than one format.

What are the research limitations?

To summarize, this study is a case study exploration into the role of testing in college admissions. Its very strength is in the attention paid to unique scenarios at each institution, following through to detailed understanding of admission and enrollment patterns. However, these are the limitations that come along with this case study-based approach:

- While we were able to recruit a wide range of institutions to volunteer participation in the study, and we learned quite a bit about each one, the sample size was not large enough to be considered definitively representative of institution or policy type.
- Each institution in the study maintained different record keeping practices, data definitions, and data governance policies. Our very detailed data request form and data transformation approach mitigated many of these differences. However we rarely received identically comprehensive datasets from any two

participating institutions. This led us to declare certain aspects of some data submissions as unavailable, unreliable, or irreconcilable. We have made notes in each Figure description to this effect.

- Working with historical data meant that there were sometimes inconsistencies across cohorts at individual institutions due to changes in computer systems or data coding schema. Similarly, the current staff were often not those who were at the helm during the time of policy adoption. Therefore our understanding of context surrounding the policy (e.g., motivation for adoption, concurrent initiatives, financial aid packaging strategies, and so on) was not always clear.
- The nature of our study inherently dealt with self-selection bias, both at the institution level (e.g., each institution made the decision to adopt TOP) and at the student level (e.g., all but two of the institutions – those with threshold policies -- had policies that allowed students to choose to withhold test scores in the admission process). There are a number of underlying motivations, and demographic and psychographic elements that we cannot account for in this study, rendering the determination of *causation* more difficult.

PRINCIPAL FINDINGS

We open our findings with an homage to the variability of institutions. We present two case studies of institutions that effectively realized the goals they set for their Test-Optional Policy. While trying to provide a clear picture of the institutions, in order to protect their anonymity, we have kept some of the descriptive information broad.

Institution A

Large, urban, private, not-for-profit

This institution described TOP as a means of formalizing what they had been doing all along, to *"Give students a choice about how they might want to present themselves."*

They described the process of transitioning to TOP as largely uneventful, requiring a few more temporary readers to aid the transition because without testing *"you typically need to look more closely at the high school record, the rigor of the curriculum, and the school profile for context."*

After adopting TOP, our data revealed that the new policy drew a smaller than average proportion of students who did not submit testing (9% vs 23%). And, although they increased applications, they grew proportionately more slowly than their matched TRP Peer.

It was a different story for URM students. They enrolled substantially more of these students (***15 percentage points*** more) than they did prior to adopting TOP which was proportionately a 76% greater gain than their TRP Peer. So, in spite of having their applicant pool grow at a slower pace than their TRP Peer, they were able to make substantially greater gains in enrolling URM students (and to a slightly lesser extent with Pell recipients and First-Generation students).

As compared to the pre-policy cohorts, the enrolled TOP cohorts saw a ***12 percentage point rise in the proportion of students with need***, and although this institution did not submit data on gift aid, it likely had to increase aid commitments to support this growth.

Once enrolled, Submitters had a marginally higher CumGPA than Non-Submitters, but both the overall population and the URM population **graduated at virtually identical rates**.

Institution B

Small, suburban, private, not-for-profit

This institution was motivated to adopt TOP because they thought the test-requirement was preventing some students from applying.

After adopting TOP, the applicant pool grew proportionately faster than the TRP Peer (proportionately 40% more growth), with Non-Submitters comprising 19% of the overall pool – a slightly lower proportion than the majority of the institutions in the study.

Their percentage of enrolled URM students *was **17 points higher*** after they adopted a TOP, which was proportionately a 75% greater gain than their TRP Peer. As with most of our institutions, they admitted Non-Submitters at a substantially lower rate than Submitters (15 percentage points lower), and the Non-Submitters enrolled at a substantially higher rate (23 percentage points higher).

At this institution, the post-policy cohorts included a lower proportion of students with need (11 percentage points lower), than the pre-policy cohorts, but ***Non-Submitters were, on average, $4,000 needier***. To the detriment of higher need students, though, this institution seemed to favor low and no-need students in its awarding strategy.

Once enrolled, Submitters had a marginally higher FYGPA and CumGPA (+0.09 and +0.07 respectively) than Non-Submitters. There are mixed results from the two graduating cohorts, with ***Non-Submitters graduating at a higher four-year rate*** (8 points higher) than Submitters, but **lower from the earlier cohort with a five-year graduation rate** (4 points lower). We offer no speculation on the difference other than that perhaps as they refined their review process for Non-Submitters – they got better at it! For both the four-year and five-year cohorts, the ***URM Non-Submitters graduated at a consistently higher rate*** (7 points higher) than the URM Submitters.

DOES A TEST-OPTIONAL POLICY…

Encourage more students to apply?

All institutions saw an application increase, but just over half saw application growth greater than that of a matched test-requiring peer (TRP Peer).

We interviewed the admissions dean at each of the 28 participating institutions about the impetus and the goals behind their institution's adoption of a TOP. They had not all been in their roles at the time the policy was adopted, but the recurring theme was that a major goal had been to increase applications, particularly among underrepresented student groups.

Not surprisingly, our data reveals that participating institutions saw application increases after policy adoption. The overall average increase in applications was 1,926 (and a median of 1,234), with an average increase of 29% at the private institutions in the study and 11% at the public institutions. Note these application increases represent various spans of time from the date an institution adopted a TOP to the date of the latest cohort they submitted for the study. These time spans range from one year to six years, collected during the period of 2004-2016.

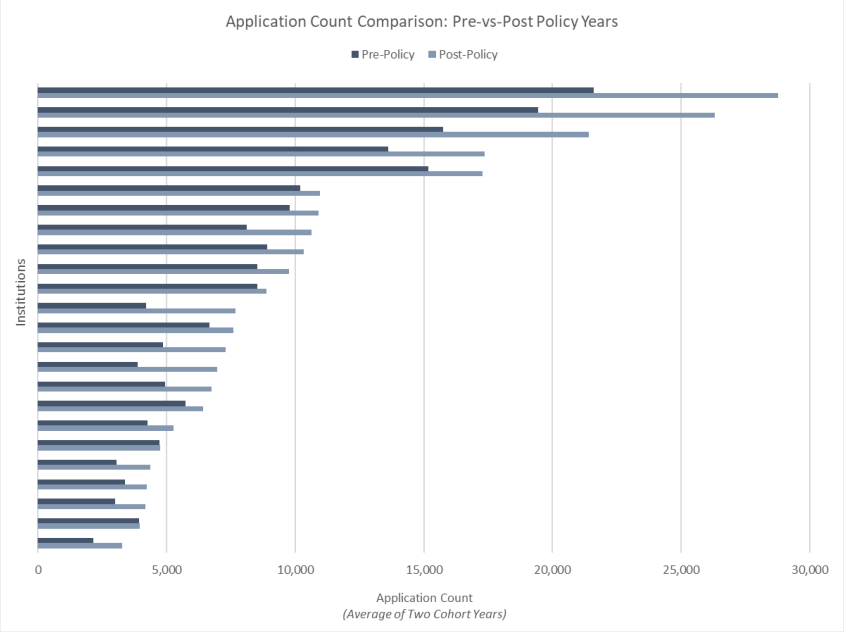


Figure 6. Pre-Policy vs. Post-Policy Comparison of Average *Application* Counts, by Institution.
Exclusions: Four policy early adopters
24 Institutions | 888,021 Records
Enrollment = 1,500-20,000 (3,000 M[5]) **|** Endowment per FTE = $4,000-$500,000 ($63,000 M) **|** Admit Rate = 20%-80% (50% M)

These universal increases are not surprising, as most institutions posted gains during this period. The critical question is whether our TOP institutions fared better or worse than peer institutions that still required standardized tests of

[5] Going forward, "M" represents the Median

their applicants. A 2015 study out of the University of Georgia (Belasco, 2014) sought to answer this question and concluded that, in the aggregate, selective liberal arts colleges that adopted a TOP (in comparison with those that continued to require SAT or ACT scores) had not increased their enrollment of URM students or Pell recipients. But in focusing on the averaged outcomes, that study may not have been able to discern impact at the institutional level.

Recognizing that there is great variation among institutions in selectivity, size, financial resources and geographical markets, and that not all test-optional admission policies are the same, nor pursued with the same vigor, it seemed appropriate to apply a more institutionally-focused approach to answering this question. As noted earlier, we asked the admissions dean from each of our participating institutions to identify their top three "peer competitors" – the institutions they felt were most like their institution, and that were in most direct competition for their students (i.e., not an "aspirational" institution, but one with which they had a fairly even win-loss ratio with students admitted to both institutions). Then we identified institutional match criteria to finalize the selection of the single, most comparable, Test-Required Policy (TRP) Peer match[6] for use in our analysis.

Comparisons are made using data from the same cohort years for the Test-Required Peer as were submitted to us by the Test-Optional institution, but for these comparisons, all data for both institutions was drawn from IPEDS to ensure consistency in the comparison.

The following chart illustrates whether each TOP institution experienced a greater or lesser percentage gain in applications than their Test-Required Peer institution. We analyzed the application growth by using percentage growth (rather than raw numbers) to compensate for the varying sizes of institutions (enrollments range from approximately 1,500 to about 20,000[7]). Thus, an applicant pool of 1,000 that increases to 1,100 would be represented as having growth of 10%, and so would an applicant pool of 10,000 that increases to 11,000). The differences represented below are the proportionate differences between the percentage growth of each TOP institution and its Test-Required Peer. If a TOP institution experienced growth of 22% and its TR Peer experienced growth of 20%, the proportionate difference represented below would be 10% (22%/20%) greater proportionate growth for the TOP institution.

In this chart we observe that 13 of 23 (57%) of the TOP institutions in our study experienced greater proportionate growth in overall applications than their TRP Peers during the same time period, while only six (26%) of them experienced less application growth than their TRP Peers. Four experienced essentially the same level of growth (within +/- 3%).

[6] Data was pulled from IPEDS Data Center. The following criteria was used to select (from the list of peer-competitors identified by the dean) the best possible Test-Required Peer: 1) Control type - Public or Private, 2) Similar URM proportion during the TOP pre-policy cohort years, 3) Similar Pell proportion, or if unavailable, similar federal aid award proportion, during the TOP pre-policy cohort year, 4) Similar application pool size, 5) Same general geography, 6) Carnegie Classification: Size and Setting.

[7] IPEDS enrollment data on undergraduates entering Fall 2016.

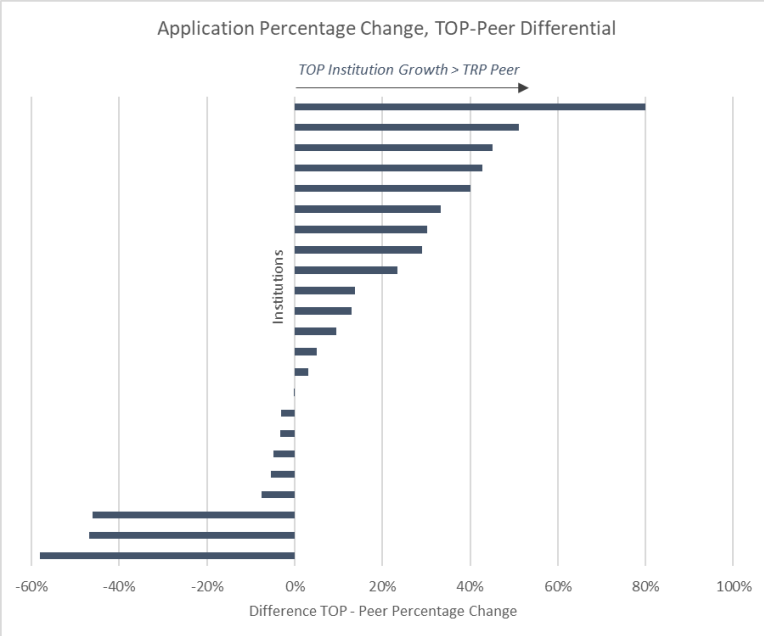


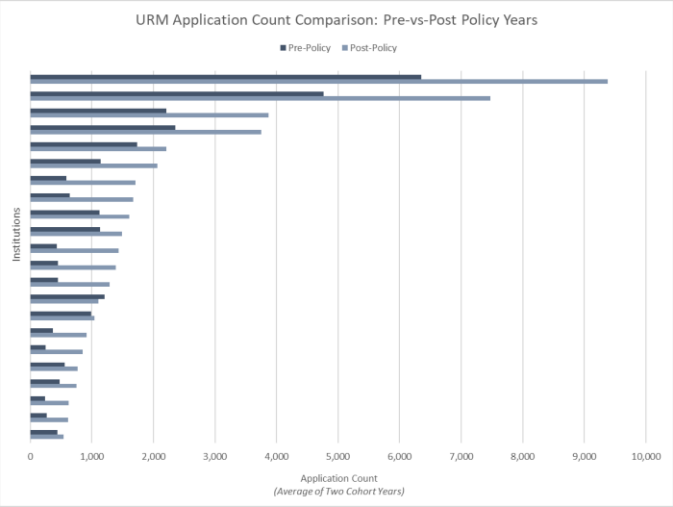
Figure 7. Application Change Differential, TOP Institution versus TRP Peer During Pre-and Post-Policy Cohort Years. IPEDS data on corresponding, averaged, pre-policy and post-policy cohort year data on FTFT degree-seeking undergraduates.
Exclusions: Four TOP institutions and respective matches were excluded due to lack of data available prior to TOP adoption (i.e., policy early adopters), and one additional TOP was eliminated due to lack of a well-matched TRP Peer.
23 TOP participants and matching TRP peers (N=46) | 1,164,546 Applicant Records

> *"The policy has worked, though it is not nearly as popular (widely used) as we thought it would be…maybe most of the students who would traditionally have been attracted to TOP were already applying without being overly concerned if their test scores didn't represent them well"*
>
> *Dean from large private university*

Does a TOP help institutions enroll more traditionally URM and low-SES students?

For the majority of our TOP institutions, yes. Almost all institutions saw a rise in URM applications after TOP, and two-thirds of them saw that rise correspond to URM enrollment growth above that seen by a matched TRP peer institution. Half experienced Pell enrollment growth above a TRP peer.

Based solely on the raw counts of URM applicants and enrollees, the data shows that ***all but one*** of our TOP institutions experienced an increase in URM applications after TOP adoption. The overall average increase in application count was 835, with a slightly higher median of 938. Similarly, all but three of them increased their enrollment of URM students after adoption of a TOP.



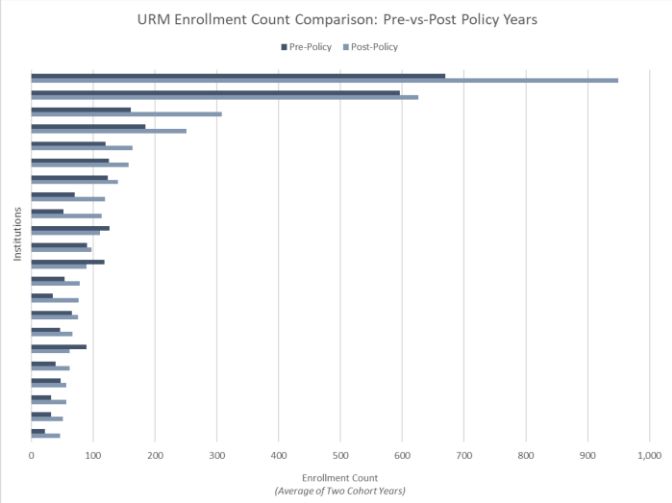
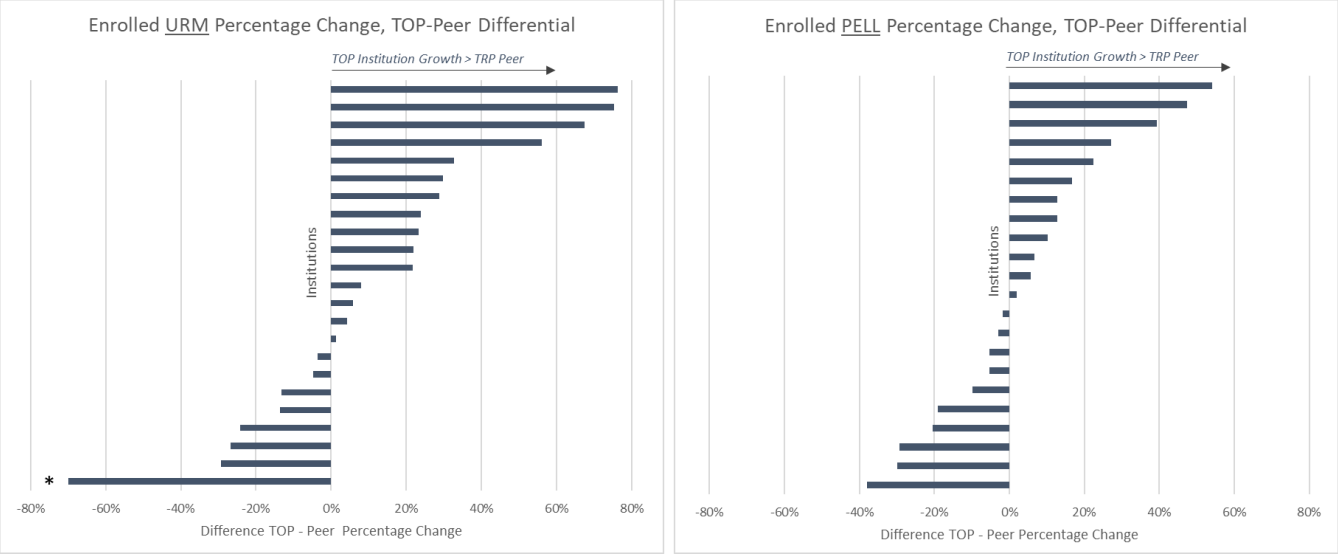


Figure 8. Pre-Policy vs. Post-Policy Comparison of Average URM *Application* and *Enrollment* Counts, by Institution.
Exclusions: Four policy early adopters and two institutions with unreliable URM data
22 Institutions **|** 74,770 URM Applicants **|** 13,613 URM Enrolled
Enrollment = 1,500-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$500,000 ($60,000 M) **|** Admit Rate = 20%-80% (46% M)

> *"I looked at the average test scores of colleges, and if my scores didn't fit that range, I just nixed them. That was the first time that I was presented with the idea that SATs could be optional; I didn't know. I would never have thought to apply to liberal arts schools in the Northeast."*
>
> *Hispanic female from rural Texas*
> *in "The Test and the Art of Thinking" (Davis, 2018)*

It is important to try to assess whether offering the option to apply as a Non-Submitter actually increased the proportion of underrepresented students who chose to apply and enroll at an institution, or did it simply shuffle the deck, having no real impact on the composition of the class? Given that this timeframe coincided with a period of rapid growth in the diversity of college applicants, we used the matched TRP Peers to assess any true differences. The differences in proportions in the enrolling classes are represented below in a manner parallel to Figure 9.

There were 14 of 23 (61%) of the TOP institutions that achieved proportionately greater increases in enrollment of URM students than their TRP Peers; one was essentially the same (within +/- 3%); and eight (35%) fared less well than their TRP Peers. Enrollment of Pell Recipients was more evenly split, with 11 of 22 (50%) of the TOP institutions increasing the proportion of Pell recipients more than their TRP Peers, three enrolling roughly the same proportions and eight (36%) losing ground in comparison with their TRP Peers.



**This matched pair was the only one in which the URM proportions for all reported classes for both the TOP and TRP Peer were 7% or less, so this representation should be viewed with caution as the numbers are small.*

Figure 9. Enrolled URM and Pell Proportion Change Differentials, TOP Institution versus TRP Peer During Pre-and Post-Policy Cohort Years. IPEDS data on corresponding, averaged, pre-policy and post-policy cohort year data on FTFT degree-seeking undergraduates. Institutions are not aligned across the two charts.
23 TOP participants and matching TRP peers (N=46)[8]

Finally, to summarize the pre-to-post policy analysis, we completed a statistical test to compare the institutional averages between our TOP institutions and their TRP Peers. This statistical testing, as outlined below, indicates that our TOP institutions experienced greater application and URM enrollment growth than their matched peer institutions. As seen below, using a statistical measure of effect size (Cohen's d) we find a *medium effect size* between the proportionate differences in the mean application growth and the mean URM enrollment growth for the TOP institutions vs their matched TRP Peers. There is only a small effect size seen for Pell recipient enrollment proportions. (Because the data was drawn from IPEDS, we could not compare growth in the enrollment of First Gen students.)

[8] Note: In the Pell comparison, one additional TOP and its match were excluded because policy adoption occurred too recently for IPEDS financial aid data to be available. Prior to 2007 when Pell proportions were not available in IPEDS, proportion of "students awarded federal grant aid" was used.

TOP INSTITUTION VS TRP PEER – COHEN'S D STATISTICAL COMPARISON OF MEANS				
		N	Mean	Cohen's d
APPLICATION % CHANGE	TOP Institution	23	.285	Medium Difference (.4)
	TRP Peer	23	.179	
URM PROPORTION ENROLL % CHANGE	TOP Institution	23	.344	Medium Difference (.4)
	TRP Peer	23	.217	
PELL PROPORTION ENROLL % CHANGE	TOP Institution	22	.253	Small Difference (.1)
	TRP Peer	22	.210	

Color Key	
No Difference	< 0.1
Small Difference	0.1 - 0.3
Medium Difference	0.3 - 0.5
Large Difference	> 0.5

Figure 10. Effect Size TOP vs TRP Policy Comparison for **Overall Applicant**, **Enrolled URM**, and **Enrolled Pell**. TOP Institution versus TRP Peer During Pre-and Post-Policy Cohort Years. IPEDS data on corresponding, two-year average, pre-policy and post-policy cohort year data on FTFT degree-seeking undergraduates.
23 TOP participants and matching TRP peers (N=46)

As a reminder – the charts above are measuring the difference (between the TOP institution and its TRP Peer) in the amount of "improvement" on each characteristic. But as indicated above, all the TOP institutions had increases in the actual number of applications. All but one received an increased number of applications from URM students. All but two enrolled more URM students. And all but one enrolled more Pell recipients. So, the institutions at the bottom of each chart didn't fall behind, they just didn't advance as much as their TRP Peer institution.

Some additional observations in the comparisons above caught our interest:

- The institution that had the least growth (in comparison to its TRP Peer) in applications, also had the least growth in Pell recipients, but had among the strongest growth in URM enrollment, suggesting that this institution many have focused its recruitment and enrollment efforts on this population.
- In a similar flip-flop, the institution with the lowest comparative growth in URM enrollment had among the highest comparative growth in applications overall.
- Three of the four public institutions in the study were included above, and it is interesting to note that all three of them were among the eight that increased *less than* their TR Peers in enrolling URM students.

Worth noting, a small subset of institutions repeatedly appeared as outliers "in the negative" compared to their TRP peer in the above charts. A later section of the report (p. 46) will provide some additional perspective on these cases.

So it is clear that, in comparison to their TRP Peer institutions, TOP institutions have varied outcomes relative to the characteristics we assessed. However, the overall comparison suggests a positive relationship between TOP policy adoption and application growth, URM enrollment growth, and slightly less so, Pell enrollment growth.

Does a TOP negatively impact the patterns seen in admissions, from selectivity to enrollment rates?

The answer is no. All of the institutions that provided consecutive cohort years pre-policy to post-policy data saw overall application growth, and all but one saw URM application growth. A few institutions saw an increase in selectivity.

A major concern about making a significant change in an admission policy is whether doing so will in some way have a negative impact on the quantity, quality, or composition of the applicant pool and, ultimately, on the enrolled student body.

The final four charts in this section include information from the 13 institutions that submitted data from the cohorts immediately preceding and immediately following their adoption of a TOP. While we cannot isolate the impact of the adoption of the policy from the impact of other changes occurring concurrently, by limiting this comparison to these institutions, we were able to observe the changes that were synchronous with the policy adoption.

At the applicant stage we see that all of these TOP institutions had increases in the number of applications ranging from trivial to a doubling of apps in the five-year period. And all but one of them experienced substantive gains in the number of applications submitted by URM students.

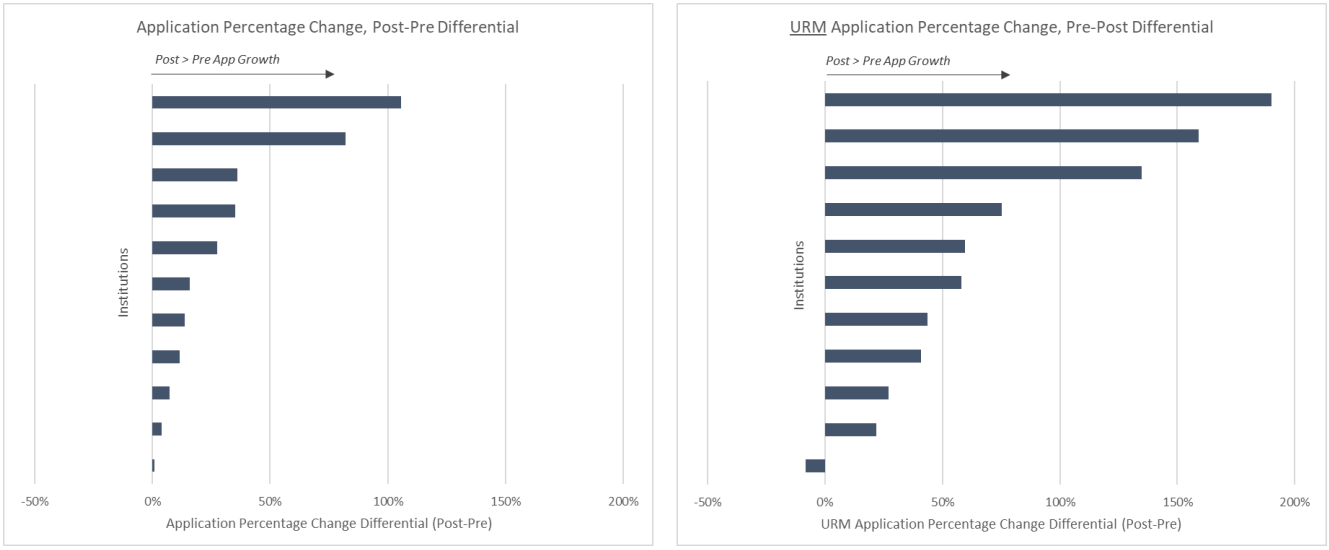


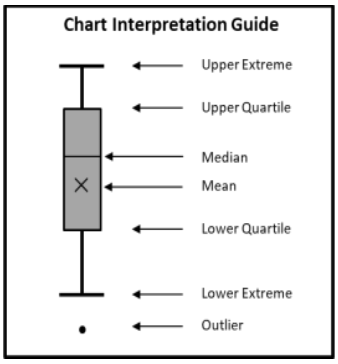
Figure 11. Pre-Policy to Post-Policy Growth of URM Applications, by Institution. The institutions represented include thirteen public and private TOP institutions in the study that provided cohorts *immediately preceding and immediately following their adoption of a TOP*.
Exclusions: Four policy early adopters and two institutions with unreliable URM data
All Applicants: 13 Institutions **|** 656,491 Records
URM Applicants: 13 Institutions**|** 138,482 URM Records
Enrollment = 2,000-10,000 (4,000 M) **|** Endowment per FTE = $4,000-$250,000 ($60,000 M) **|** Admit Rate = 20%-80% (45% M)

"After several years of essentially no growth in African-American enrollments, our first year of TOP had a dramatic increase in African-American, Hispanic, and International apps."

Dean from large private university

Although it is impossible to know what would have happened if these colleges had not adopted a Test-Optional admission policy, the charts below suggest that their applicant pools have not suffered subsequent to adopting the policy. The first chart compares aspects of the funnel for all students in the cohorts during the pre-policy (Test-Required) years against those of the ensuing post-policy (Test-Optional) cohorts.

Thus, it appears that for this group of colleges, the decision to adopt a TOP has not had a negative impact on their admission funnels. To illustrate the impact, we chose a "box and whiskers" style of chart for a number of comparisons as it provides a multi-dimensional visual representation that allows the reader to simultaneously view the complete range, the middle 50%, the mean and the mode, as well as any outliers, thereby illustrating the sometimes-wide variation between institutions and their experiences with TOP. The following outlines a brief guide to interpretation of the subsequent charts:



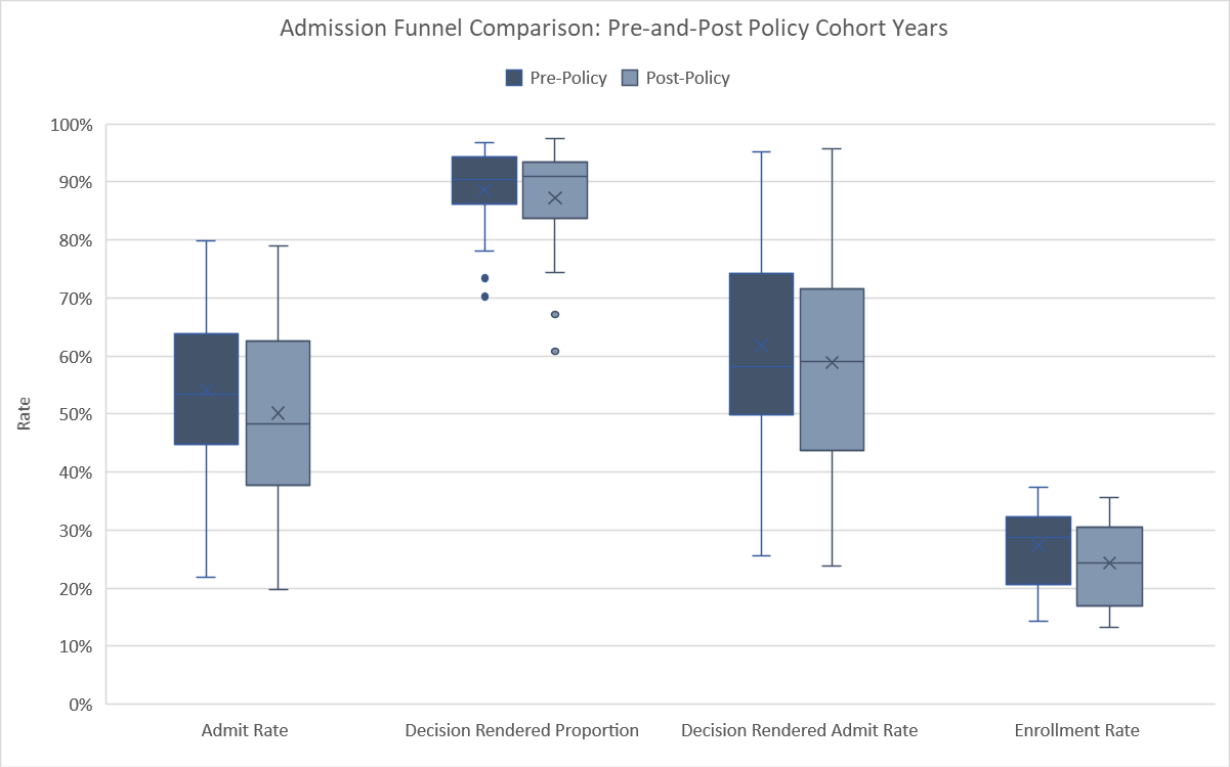


Figure 12. Pre-Post Policy Funnel Overview. Cohort Years 2008-2016. The institutions represented include thirteen public and private TOP institutions in the study that provided cohorts immediately preceding and immediately following their adoption of a TOP.
Exclusions: Four policy early adopters
13 Institutions **|** 656,491 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$250,000 ($60,000 M) **|** Admit Rate = 20%-80% (50% M)

The funnel patterns of the Pre-Policy cohort years are very similar to the Post-Policy cohort years. The mean and median Admit Rates are marginally lower, as are the Enrollment Rates (yield). But as applicant pools increase in size, it is not unusual for the institutions to become somewhat more selective. Similarly, yield rates at colleges have tended to decline over the past couple of decades as students, on average, have applied to an increasing number of colleges.

One study offered the opinion that colleges were becoming test-optional, not to increase diversity, but to appear more selective (Belasco, 2014). As readers will see later, the admit rate for Non-Submitters is modestly lower, but in the chart above the modest overall differences in admit rates from pre-to-post TOP do not offer much credence to the argument that colleges are recruiting Non-Submitters only to turn them down.

The next view of the funnel—focusing exclusively on URM students—displays similar, but more exaggerated patterns. The median Admit Rate and the quartile span during the test-optional years is lower and wider —from 16% to almost 60% -- compared to the test-required years. The Decision Rendered proportion is equivalent, but with some significantly lower institution outliers. However, the enrollment rate quartile range has a distinctly wider span, indicating that some institutions saw a significant rise in yield, while others experienced a drop.

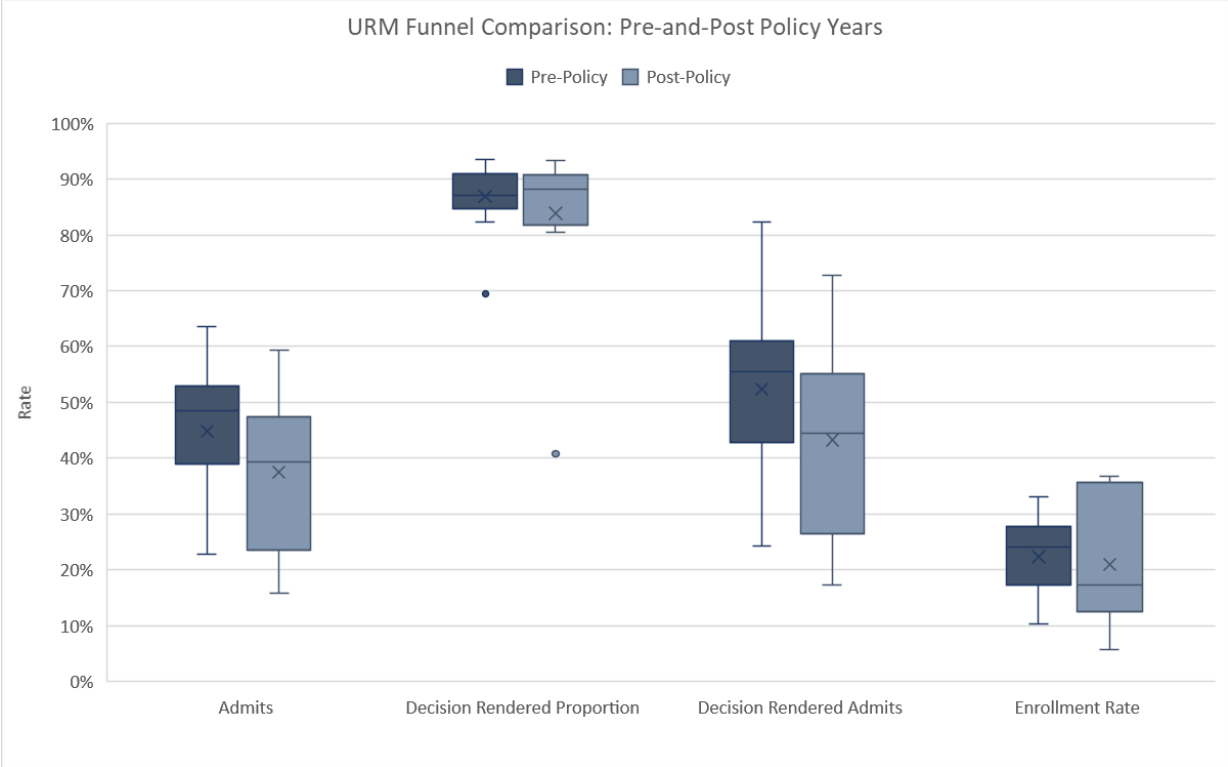


Figure 13. Pre-Post URM Admission Funnel. Cohort Years 2008-2016. The institutions represented include thirteen public and private TOP institutions in the study that provided cohorts immediately preceding and immediately following their adoption of a TOP.
Exclusions: Four policy early adopters, and two that did not have reliable URM data
13 Institutions **|** 138,482 URM Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$250,000 ($60,000 M) **|** Admit Rate = 20%-80% (45% M)

In summary, as noted elsewhere, there is great variation among the experiences of colleges that have adopted test-optional admission policies. And while it is seductive to believe one can make a single pronouncement about the impact of adopting a TOP – much of that impact varies based upon the specific institution, its competitive position in the world of higher education, and the implementation and promotion of the test-optional policy. Our participating TOP institutions varied in size (~1,500 to ~20,000) and selectivity (with admit rates ranging from ~15% to ~90%). But the experiences of this particular batch of colleges suggests that the adoption of a well-promoted and well-executed test-optional admission policy can reasonably lead to an increase in overall applications as well as an increase in the URM representation (both numeric and proportionate) within the freshman class. As such, a TOP policy can provide one tool to assist a college in attracting and enrolling a larger contingent of URM students.

NON-SUBMITTER PROFILE

Do Non-Submitters and Submitters exhibit different funnel patterns?

The answer is yes. Non-Submitters are admitted at lower rates, but enroll at significantly higher rates than Submitters. Non-Submitters go on to graduate at rates equivalent to Submitters.

In addition to assessing the broad impact of a Test-Optional admission policy on an institution's applicant pool and enrolled classes, this study sought to identify any differences between the funnel patterns of the students who submitted test results (Submitters) and those who chose not to submit test results (Non-Submitters) in the admission process. The chart below illustrates the differences between these two groups at the various stages of the admission funnel.

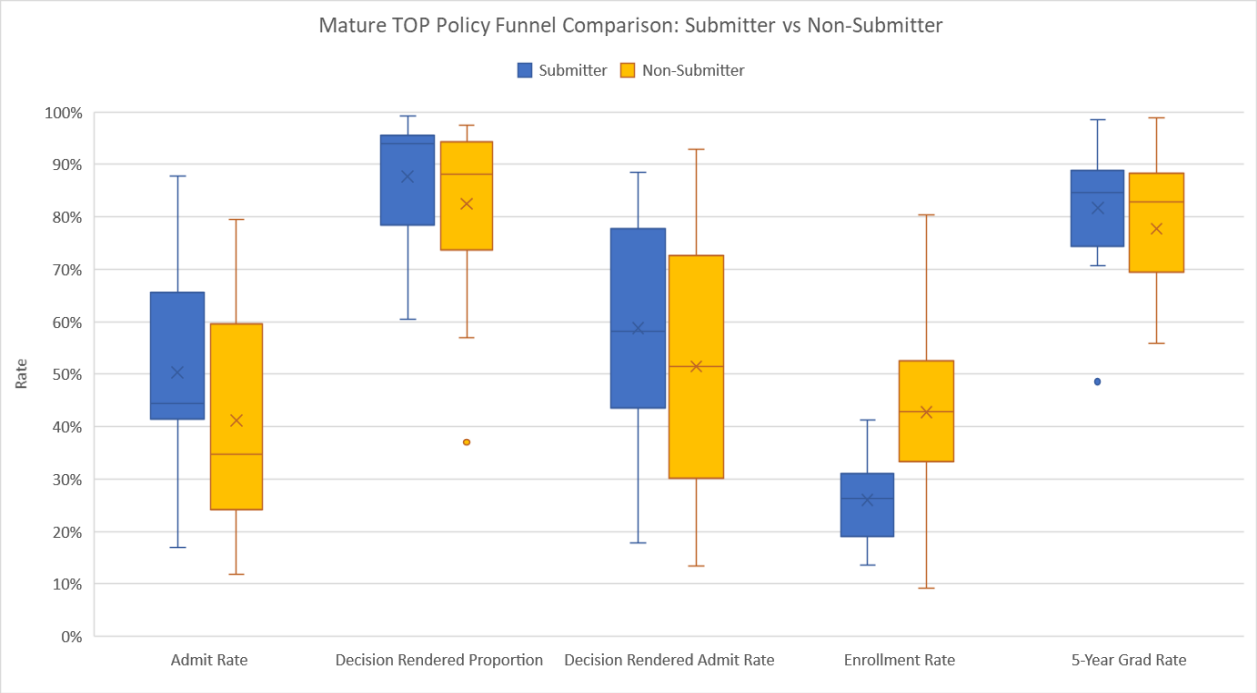


Figure 14. Mature TOP Policy Admission Funnel, Submitter vs. Non-Submitter Comparison, with 5-Year Graduation Rates. Data represents 14 public and private institutions in the study for which we had 5+year graduation data.
Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions
14 Institutions | 166,561 Records
Enrollment = 1,500-5,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-80% (45% M)

There are several notable differences, but perhaps the most significant are that, on average the 14 institutions in the chart above (those that had at least 5-yr graduation rates available) admitted Non-Submitters at lower rates than Submitters, and, on average, those Non-Submitters enrolled (yielded) at substantially higher rates, and went on to graduate at similar rates. The graduation rates from Non-Submitters at these mature TOP institutions have a wider range and lower mean than seen among Submitters, however the differences between the two groups' averages and medians are within 3-4 percentage points. It is important to note that this data represents *institution averages*. As we will illustrate later, pooled student data on average graduation rates shows a comparable, but slightly different picture.

Using the same lens, the chart below focuses on the admission funnel for underrepresented minority (URM) students (N.B. the chart below excludes two institutions that were not able to present reliable URM data at the admit stage.) The URM funnel mimics the patterns seen in the All Student funnel -- institutions admitted URM Non-Submitters at lower rates than URM Submitters, but the URM Non-Submitters enrolled at significantly higher rates— an average of 14 percentage points higher than Submitters. URM graduation rates are harder to reliably interpret, because graduated Non-Submitter URM counts are low, but the URM 5-year graduation rates show equivalence between the two groups.

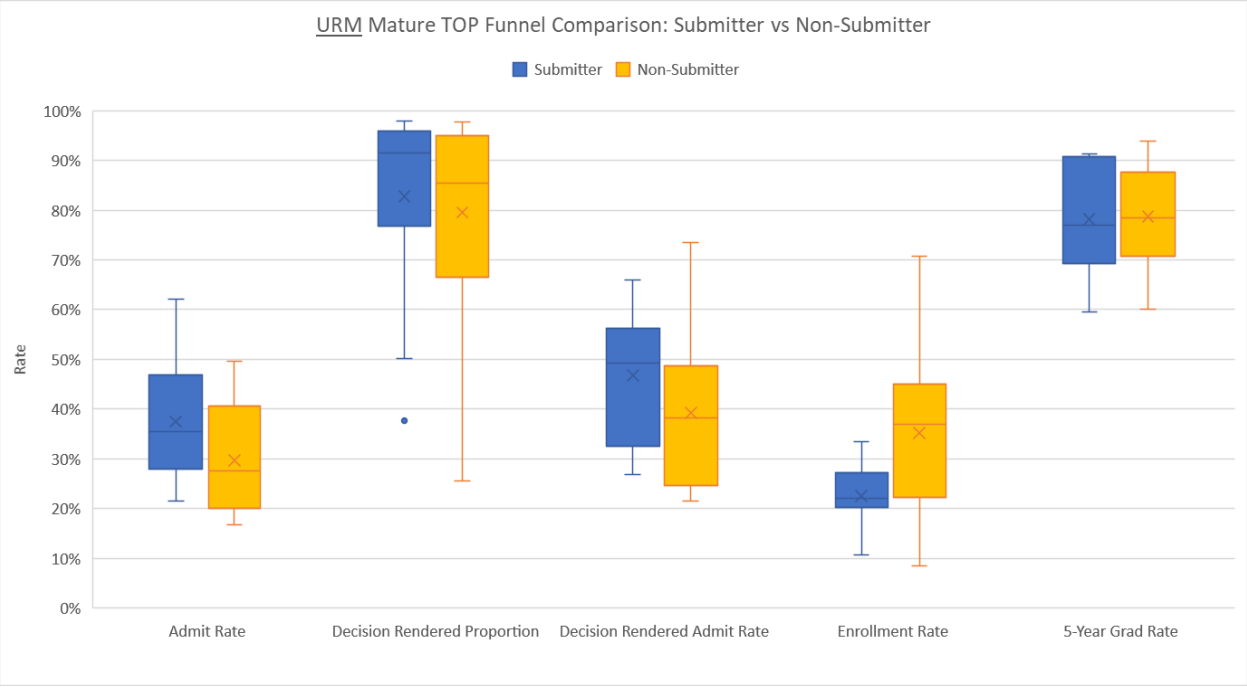


Figure 15. Mature TOP Policy *URM* Funnel, Submitter vs. Non-Submitter Comparison, with 5-Year Graduation Rates. Data represents 12 private TOP institutions with reliable URM data for Submitters and Non-Submitters and 5+Year graduation rates.
Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions, and two that did not have reliable URM data. No public institutions had reliable data for this assessment.
12 Institutions | 26,245 URM Applicant Records
Enrollment = 1,500-5,000 (2,500 M) **|** Endowment per FTE = $44,000-$800,000 ($150,000 M) **|** Admit Rate = 15%-70% (40% M)

The chart below includes the 8 institutions that adopted TOPs more recently, and thus do not yet have graduation rates to report. But the patterns are similar – they admitted Non-Submitters at markedly lower rates, and Non-Submitters enrolled at higher rates.

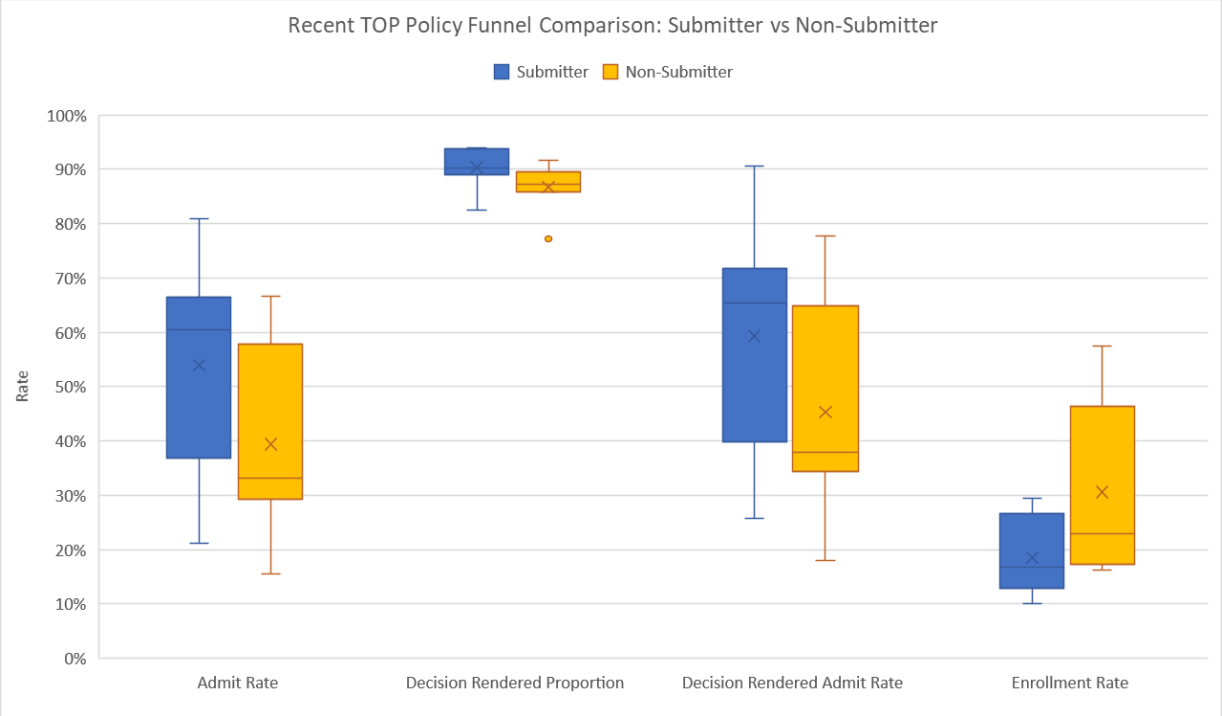


Figure 16. Recent TOP Policy Admission Funnel, Submitter vs. Non-Submitter Comparison, with 5-Year Graduation Rates. Data for chart represents 8 public and private institutions that adopted a policy between 2013 and 2016, and therefore do not have graduation rates to report. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
8 Institutions | 246,565 Applicant Records
Enrollment = 2,000-20,000 (3,000 M) **|** Endowment per FTE = $15,000-$250,000 ($70,000 M) **|** Admit Rate = 20%-80% (50% M)

Figure 17 below, an institution-by-institution comparison of differentials, shows that the majority of these institutions (21 out of 25) admitted Non-Submitters at lower rates than Submitters. However, all but one of these institutions (24 of 25) saw Non-Submitters enrolling at higher rates than Submitters.

Note that shaded bars identify the public institutions.

Figure 17. Institution Admit and Enrollment Rate Differentials: Non-Submitter vs. Submitter. 25 public and private institutions with reliable Non-Submitter data. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
25 Institutions | 396,921 Decision Rendered Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($70,000 M) **|** Admit Rate = 15%-80% (40% M)

In a few instances, colleges identified as "Optional Plus" that placed additional requirements on Non-Submitters (e.g., a required interview or written responses to additional questions) may have increased their gross number of Non-Submitter applicants, but had a lower average completion rate, thereby depressing the number of their Decision Rendered (DR) Non-Submitters. In a couple of cases, after adopting a TOP, an increase in URM apps did not carry through to an increase in the number admitted, because there was a large tail-off in the number of URM that received a decision (which we assume was due to lack of completed apps). As illustrated below, a lower proportion of the applicants to "Optional Plus" institutions than to "Optional for All" institutions (78% vs 90%) actually received a decision.

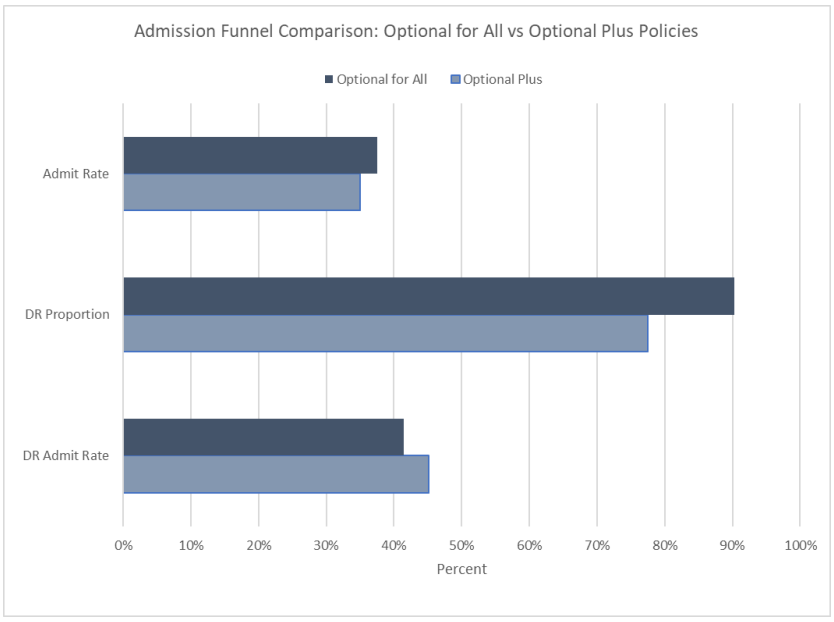


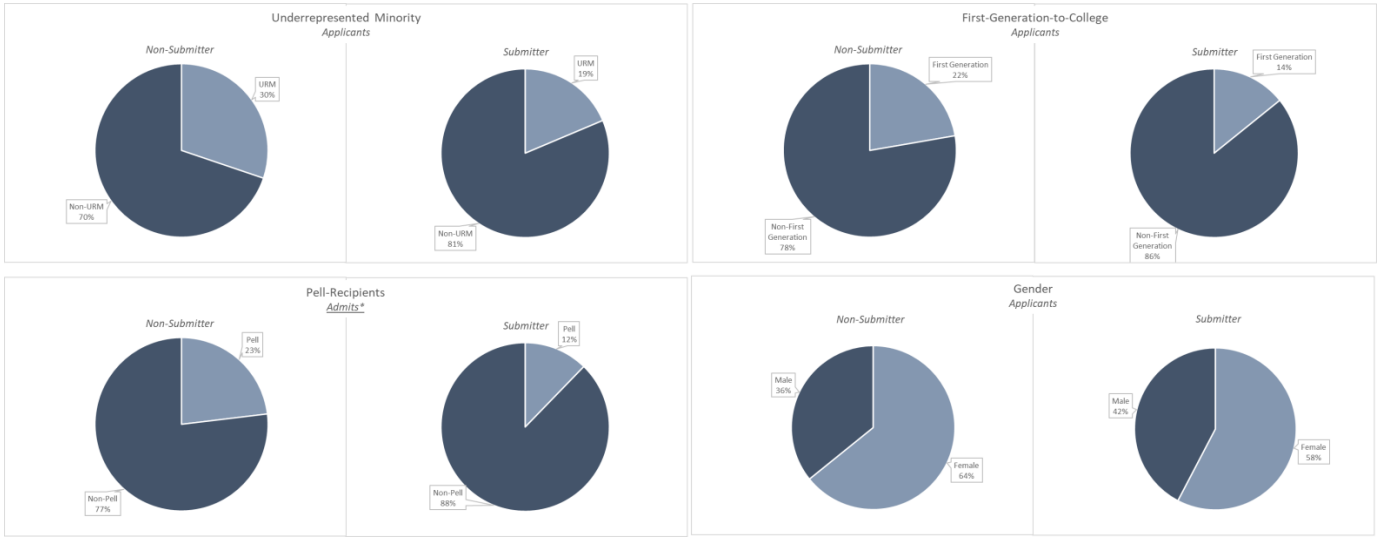
Figure 18. Policy Comparison, by Phase of the Funnel. **Pooled Student Data.** The chart represents data from the 25 public and private TOP institutions with the appropriate policies. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions
25 Institutions **|** 479,008 Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($70,000 M) **|** Admit Rate = 15%-80% (40% M)

Who are Non-Submitters of testing?

As in the 2014 "Defining Promise" study, underrepresented minorities, First-Generation students, women and Pell Recipients are more strongly represented among Non-Submitters*. Black/African-Americans chose to be Non-Submitters at higher rates than other racial/ethnic groups.*

When given the opportunity, who chooses to be a Non-Submitter? Based on just under 500,000 records of students applying to these 24 colleges under a test-optional policy, we found that some important subgroups of students stood out as using the policy at higher rates than other student subgroups.

As found in our prior study, "Defining Promise," the Non-Submitter student group included larger proportions of URM students, First-Generation students, and Pell Recipients than seen in the Submitter group. Similarly, women chose to be Non-Submitters at higher rates than men.



**Please note that Pell data is not available at the Applicant stage, so this proportion represents Admits.*

Figure 19. Percentage of Select Student Demographic Segments, Non-Submitter vs. Submitter Comparison. **Pooled Student Data.** Each set of charts represent data from a subset of institutions that provided reliable data. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
URM: 24 Institutions **|** 470,273 Records (of which 99,298 are URM)
First-Generation-to-College: 22 Institutions **|** 384,703 Records (of which 62,626 are First Gen)
Pell: 16 Institutions **|** 110,901 Records (of which 16,016 are Pell Admits)
Gender: 23 Institutions[9] **|** 379,605 Records (of which 224,975 are Female)
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $6,500-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (50% M)

[9] Note that two of our larger institutions did not submit gender data, bringing our count down to 23. An "other" gender category was offered, but there was very limited data to represent, with the exception of one institution where virtually all students were recorded as "other." That institution has also been excluded from this average.

The pie charts above compare the proportions of the Non-Submitters and Submitters that were members of each of the designated subgroups. The table below displays the distribution of the applicants based on racial and ethnic status. Although Whites have the largest representation among both Submitters and Non-Submitters, we can see here that Hispanic and Black students both had substantially higher proportionate representation among the Non-Submitters than among the Submitters.

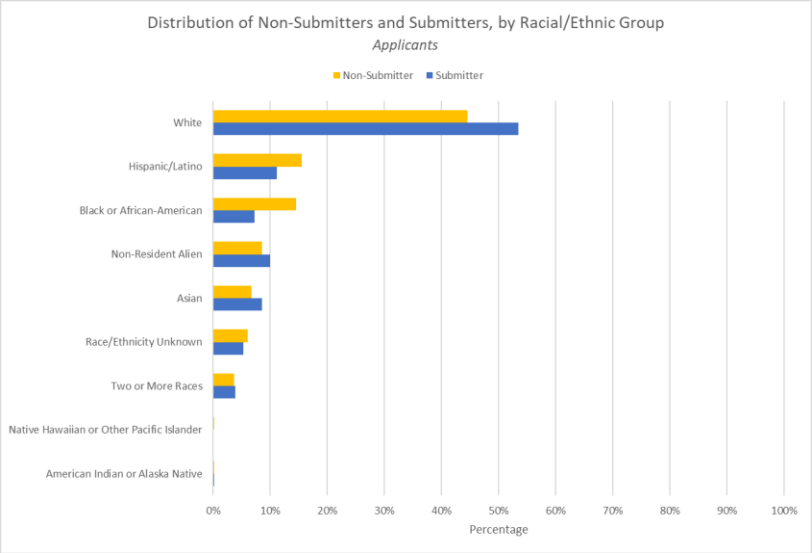


Figure 20. Distribution of Non-Submitters and Submitters by IPEDS Racial/Ethnic Student Group. **Pooled Student Data.** Twenty-four institutions provided reliable Submitter and Non-Submitter URM data.
Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions, and two with unreliable URM data.
24 Institutions **|** 470,273 Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $6,500-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (50% M)

As illustrated in Fig 20 above, the cadre of students choosing to apply as Non-Submitters has disproportionate representation from the Black and Hispanic groups. However, the reader should recall that it is not the case that Non-Submitters comprise a majority of any of these groups. So, for instance, while a larger proportion of the Non-Submitters are Black students, among all the Black students, 38% applied as Non-Submitters, as seen below in Fig 21.

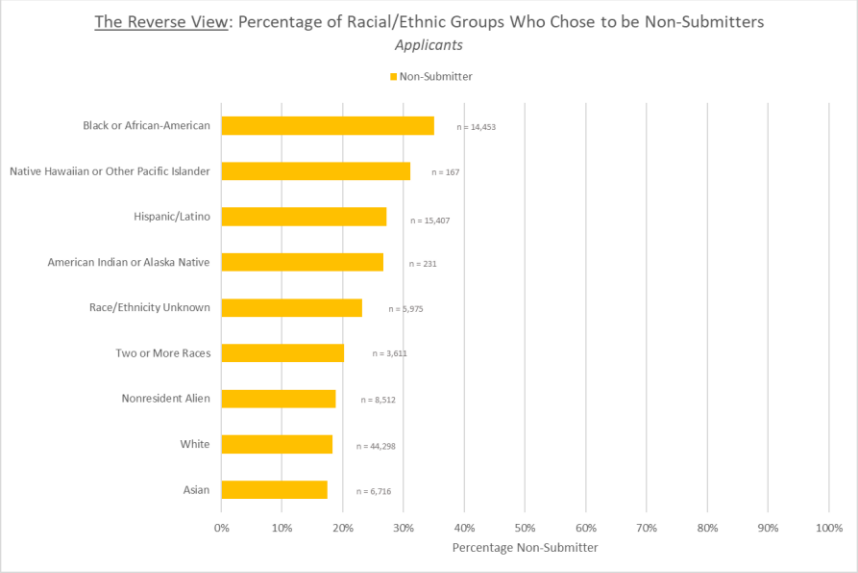


Figure 21. Percentage of Applicants Who Chose to be Non-Submitters by IPEDS Racial/Ethnic Student Groups. **Pooled Student Data.** Twenty-four institutions represented with reliable Submitter and Non-Submitter Racial/Ethnic applicant data.
Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions, and two with unreliable URM data.
24 Institutions **|** 99,370 Non-Submitter Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $6,500-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (50% M)

In the figure above, we were somewhat surprised to find almost 20% of non-resident aliens listed as Non-Submitters. In the early years of TOP, almost all non-resident aliens were required to submit testing, on the (perhaps flawed) assumption that institutions needed these tests as evidence of English fluency. It does appear that some international students are now being permitted to apply as Non-Submitters, perhaps from schools with English as the language of instruction, or because American international admissions officers know schools abroad far better, or perhaps some of these are undocumented students. But we are not completely confident of this Non-Submitter statistic for internationals. It may be that some students are submitting TOEFLS, IBs or other tests which are not being recorded along with SATs and ACTs in college data files.

In the chart below, note the higher proportions of students from parochial and independent schools who chose to be Non-Submitters. It is perhaps a bit counterintuitive, given the proportional preference of underrepresented minorities and first-generation students to be Non-Submitters. But recognizing the average ratios of school counselor-to-students in these three types of high schools, we might imagine that students in public schools are getting less on-point advice about how to use a TOP to their advantage. Jerome Lucido comments on this issue in his recent essay on optional testing, positing that the gaps in TOP use by high school type may reflect wildly uneven college counseling resources (Lucido, 2018).

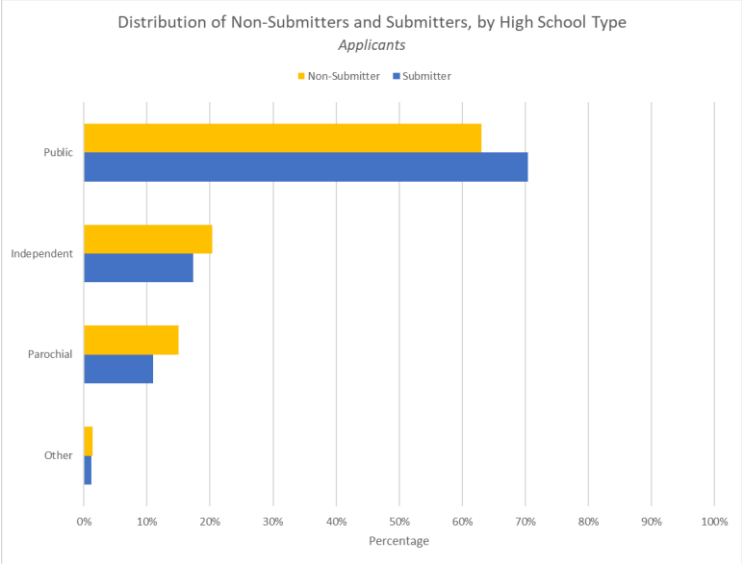


Figure 22. Distribution of Non-Submitters and Submitters by High School Type. **Pooled Student Data.** Seventeen institutions represented with reliable Submitter and Non-Submitter data on High School Type. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
17 Institutions **|** 335,904 Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $10,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-80% (43% M)

We are not surprised to see TOPs also being steadily used by students with excellent access to college counseling. It is a descriptive rather than judgmental comment that some Non-Submitters appear to be "accurately playing the corners" in their college applications, helped by advice from college counselors. These students largely do not have high testing in their favor, but they will have an accumulation of other attributes, starting with solid to spectacular transcripts, but often including evaluations for athletics, the arts, leadership, legacy status, geography, language or cultural backgrounds, and service commitments. In this respect, as in so many others, this policy turns out to be a helpful tool for complex and varied pools of students.

Because standardized tests often present special challenges for students with Learning Differences, both this study and the 2014 study attempted to ascertain whether LD students gravitated toward being Non-Submitters. Most of our institutions did not systematically collect this information during the application process, and even after students were enrolled, it was not systematically stored as retrievable data. We were, however, able to gather a small pool of information from nine institutions in the study.

As in "Defining Promise," we found LD students represented a higher portion of the Non-Submitters than the Submitters (7% versus 4%). However, the pool of data is limited, so can only suggest broader trends. As with other facets of TOP efforts, LD student access is a research project with potentially very high rewards, waiting to be done.

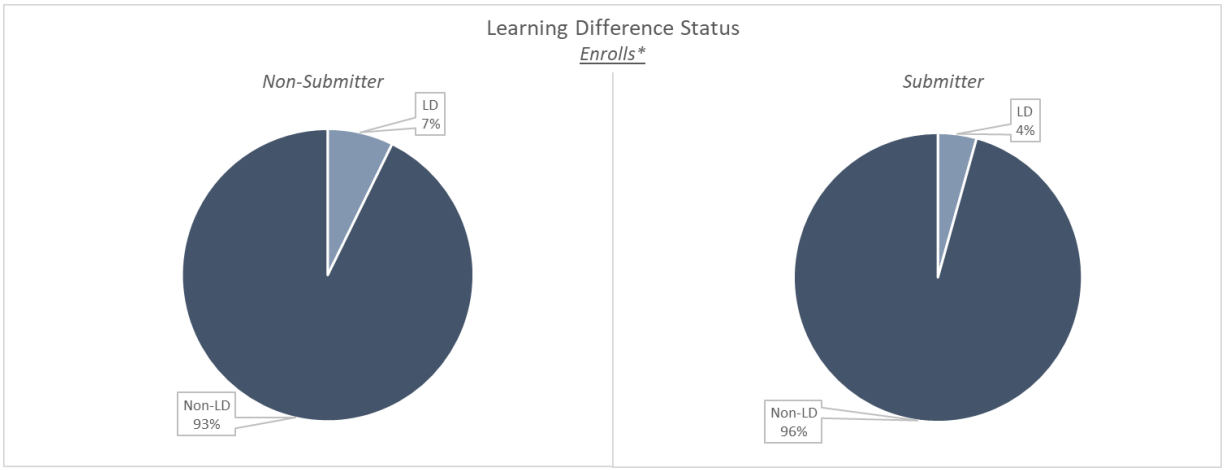


Figure 23. Percentage of Enrolled Students with Learning Differences (LD), Non-Submitter vs. Submitter Comparison. **Pooled Student Data.** Note that LD identification from institutions was provided at the enrolled student level. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
9 Institutions **|** 19,018 Records (of which 972 are LD)
Enrollment = 1,500-20,000 (2,000 M) **|** Endowment per FTE = $10,000-$800,000 ($40,000 M) **|** Admit Rate = 15%-65% (40% M)

We also noted equivalent proportions of athletes choosing to be Non-Submitters and Submitters which, in the aggregate, we suspect may be a cross-current of opposites. While Division I athletes are required by NCAA regulations to submit testing as part of their applications, a good many of the institutions in the study have teams at the D-III levels and their coaches have demonstrated a proclivity to actively encourage lower-testing athletic recruits to apply as Non-Submitters.

Similarly, we found equivalent rates of Early Decision or Early Action use among Submitters and Non-Submitters of testing, both at roughly a quarter of the applicants. So these "Early" plans seem to have equal appeal to either group.

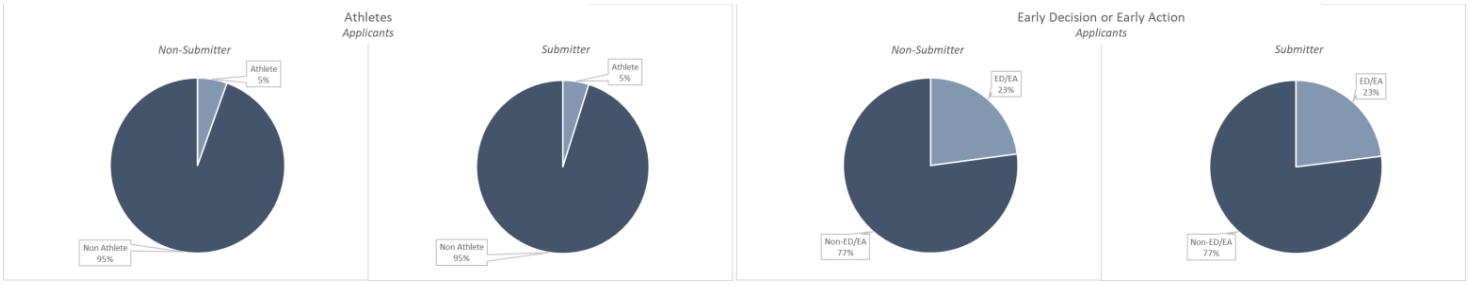


Figure 24. Percentage of Athletes and Early Decision/Early Action Applicants, Non-Submitter vs. Submitter Comparison. **Pooled Student Data.** Each set of charts represents data from a subset of institutions that provided reliable data on Athletes, and institutions that offered either an ED or EA program. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
Athlete: 16 Institutions **|** 261,047 Records
ED/EA: 22 Institutions **|** 437,318 Records
Enrollment = 1,500-10,000 (2,500 M) **|** Endowment per FTE = $10,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-80% (40% M)

An exploration of the use of TOP based on student home geography revealed a higher share of Non-Submitters in this study from the Middle Atlantic and New England states, but this may be partially explained by the distribution of TOP institutions. While our study includes institutions from 14 states, 20 of our 28 institutions are located in New England or the Mid-Atlantic. And of the 21 that provided data for this geographical comparison, 16 were in those two regions. There are higher concentrations of TOP colleges and universities on the East Coast and Non-Submitters appear to be

somewhat more likely to apply regionally than nationally. According to FairTest's admittedly inclusive listings, there are now TOP institutions in 49 states, D.C. and most US territories. As TOPs are adopted by more institutions around the country, one would expect the geographic distribution of Non-Submitters to expand.

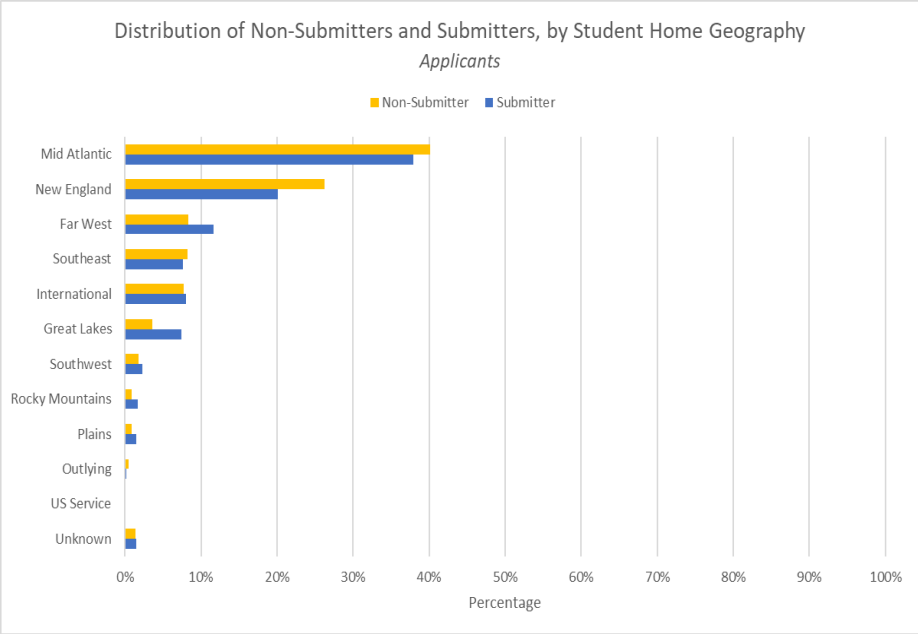


Figure 25. Distribution of Non-Submitters and Submitters by Student Home Geography. Pooled Student Data. IPEDS geography categories. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
21 Institutions **|** 343,621 Records
Enrollment = 1,500-10,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($70,000 M) **|** Admit Rate = 15%-90% (40% M)

How is "Expanded Diversity" represented among Non-Submitters?

Non-Submitters include higher proportions of students representing any combination of First-Generation, Pell, and URM students (i.e., each student counted only once): 42% of the enrolled Non-Submitters versus 32% of the Submitters. These results cast a new light on the attractiveness of a TOP for these underserved students and the opportunity for colleges to use this policy to attract and enroll more of them.

In recent decades, colleges and universities have put a great deal of effort into increasing the diversity of their campus communities. Correctly cited are ethical considerations to have colleges and universities serve social needs and offer access to underserved populations.

There are a multitude of characteristics currently identified in discussions of the "diversity" of a student population, and most center around the educational and developmental values associated with differences in perspective that result from differences in life experience. There is increasing concern and discussion about whether the use of standardized tests (specifically SAT and ACT) unnecessarily limits the admission of otherwise well-qualified students and tends to replicate the status quo in social class and opportunity in our American society.

> *…test scores appear to calcify differences based on class, race/ethnicity, and parental educational attainment. To come to some resolution, the Commission agrees that without confusing correlation with causation, admission offices must remain aware that test score differences persist among already under-served populations. Part of the public mission of colleges and universities is to ensure that differences that are not attributable to a student's ability to succeed academically at an institution are mitigated in the admission process. (NACAC Commission on the Use of Standardized Tests in Undergraduate Admission, 2008)*

We highlight three identifiable populations that have traditionally been under-represented in American higher education: First-Generation College Bound, students from lower SES backgrounds (using Pell Grant recipients as an easily-identifiable proxy), and students from racial and ethnic groups that have traditionally been underrepresented in college populations (URM). Often these are discussed as three distinct populations, failing to account for the overlap or intersectionality of the three. Thus, we offer the construct of "Expanded Diversity" in which we have included any student identified with any of these three groups.

Although we had a limited pool of seven institutions that were able to provide comprehensive data on URM, Pell recipients, and First-Generation students at the admit stage as well as at the enrolled stage, we offer the charts below to provide a visual representation of the richly more diverse opportunity presented by the pools of Non-Submitters admitted by these seven TOP institutions.

The first pie chart compares the Non-Submitters and Submitters that were offered admission by these seven institutions, and the second illustrates the students who actually enrolled from the same cohorts. In the admitted and the enrolled populations, just under **40% of Non-Submitters identify with one or a combination of these categories**, as compared to roughly **a quarter of Submitters**.

While we've already shown that each of the three subgroups (URM, First Gen, and Pell recipients) are more strongly represented among Non-Submitters, we draw your attention here to the sizable difference in representation of those students who are representatives of a **combination of all three** of those groups -- 9% of the enrolled Non-Submitters versus 3% of the enrolled Submitters. This serves to emphasize the attractiveness of a TOP for these underserved students and the opportunity for colleges to use this policy to attract and enroll more of them.

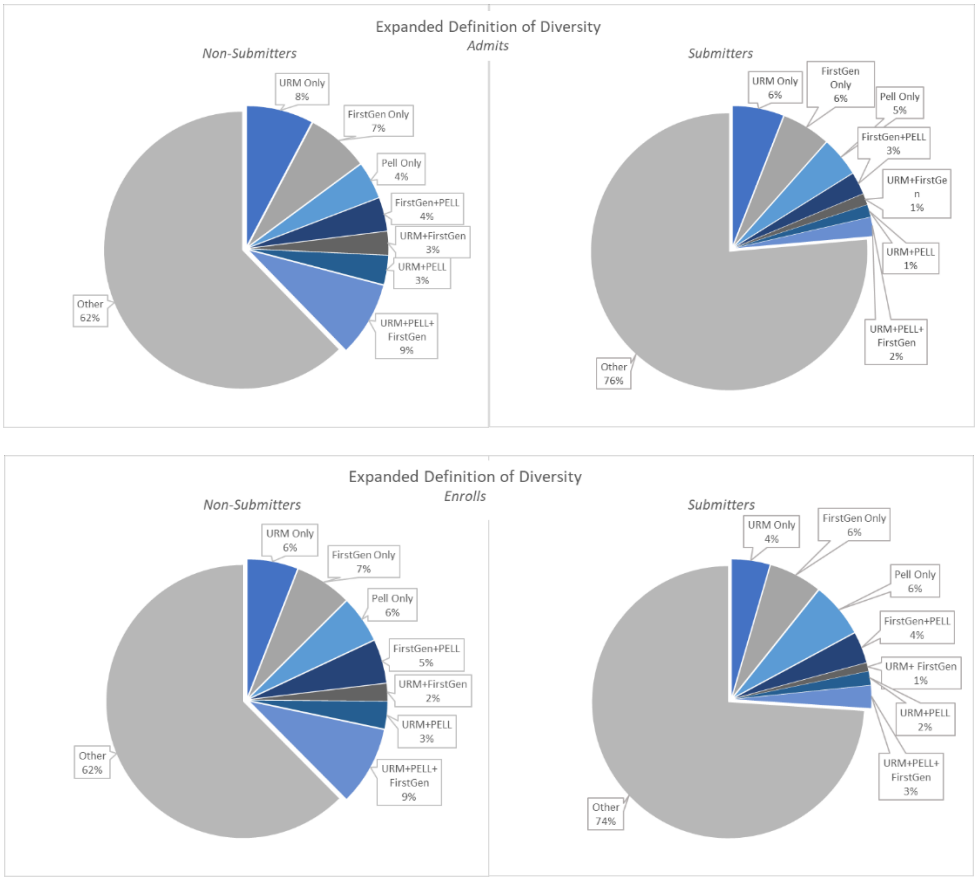


Figure 26. Defining Diversity Percentages at the Admit and Enroll Stages, Non-Submitter vs. Submitter Comparison. Pooled Student Data.
Enrolled students at the 7 public and private institutions that submitted reliable URM, First-Generation to College, and Pell-Recipients. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
Admits: 7 institutions **|** 39,047 Records (of which 10,262 are "Expanded Diversity" Records)
Enrolls 7 institutions **|** 9,755 Records (of which 2,788 are "Expanded Diversity" Records)
Enrollment = 2,000-4,000 (2,500 M) **|** Endowment per FTE = $60,000-$500,000 ($150,000 M) **|** Admit Rate = 20%-70% (40% M)

Although only seven institutions provided all of the requisite data at the admit stage, there were 21 institutions in our study that provided reliable data on all three of these groups at the enrolled stage, so we've included the additional 14 institutions in the following representation. In this larger pool of enrolled students, 42% of Non-Submitters identify with one or a combination of these categories, as compared to about a third (32%) of Submitters.

And, though not represented in this chart, the differences between are even more pronounced at the individual institutional level. There, we see that Non-Submitters hold higher proportions of *total* Expanded Diversity, with the median institution at 43% for Non-Submitters vs 27% for Submitters. We also see that Non-Submitters comprise larger proportions of students who identify with more than one underrepresented group.[10] Amongst these institutions, the median is 19% for Non-Submitters vs 9% for Submitters.

[10] Combined total proportion of students who identify as URM+FirstGen, URM+Pell, FirstGen+Pell and URM+FirstGen+Pell

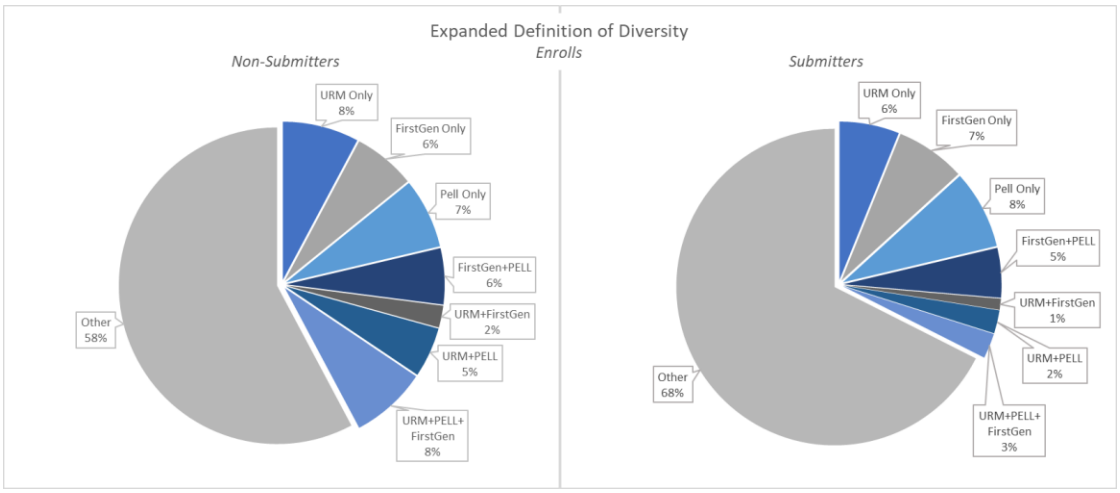


Figure 27. Expanded Diversity Enroll Percentages, Non-Submitter vs. Submitter Comparison. Pooled Student Data. Enrolled students at the 21 public and private institutions that submitted reliable URM, First-Generation to College, and Pell-Recipients. Exclusions: Two institutions with Academic Threshold policies, one that did not have Non-Submitter proportions.
21 institutions **|** 36,034 Records (of which 12,579 are "Expanded Diversity")
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $7,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (40% M)

ACADEMIC OUTCOMES

Does adopting a Test-Optional Policy lower the academic quality of the enrolled student body?

In a word, no. Applicant average High school grades and SAT scores increased from pre-policy to post-policy at all but one of our institutions.

We sought to answer this question by comparing the average high school GPA and SAT scores from "pre" and the "post" policy years. While we could identify no reasonable way to compare these characteristics for TRP Peer institutions, and, in the context of rising grade inflation, we cannot confidently attribute these increases to the adoption of a TOP, we thought it worth sharing the experience of these 13 TOP institutions (those with cohorts from immediately preceding and following adoption of a TOP). While these institutions experienced only modest gains, all but one of the institutions experienced an increase in the average HSGPA of their applicants and again all but one saw an increase in their average SAT scores (though presumably the latter may be the result of some of the applicants with lower SAT scores choosing to apply as Non-Submitters).

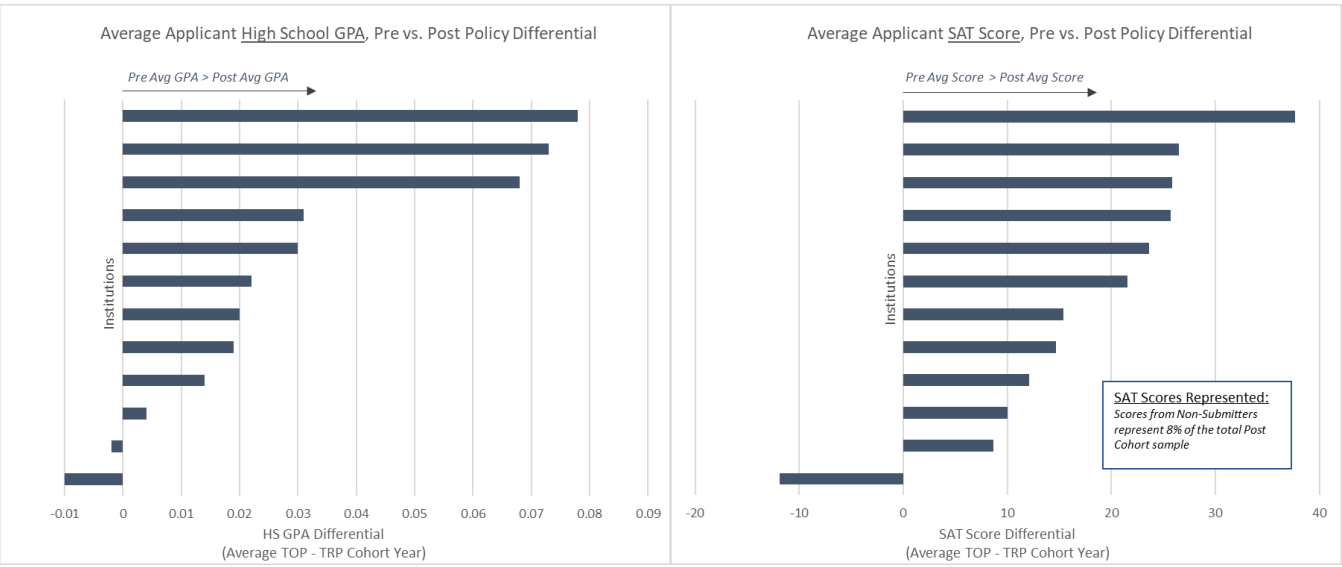


Figure 28. Average Applicant High School GPA and SAT Score Differentials: Pre-Policy vs. Post-Policy. The institutions represented include thirteen public and private TOP institutions in the study that provided reliable HSGPA and test scores for cohorts immediately preceding and immediately following their adoption of a TOP.
Exclusions: Two institutions with Academic Threshold policies and four early adopters.
13 Institutions **|** HS GPA = 536,011 Records **|** SAT = 560,016 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$250,000 ($60,000 M) **|** Admit Rate = 20%-80% (50% M)

How do Non-Submitters and Submitters compare academically at each stage of the funnel?

In comparison with Submitters, the Non-Submitters showed slightly lower high school grades (-0.12), academic ratings, and college first year GPAs (-0.17). And, the Non-Submitters for whom we had scores had a significantly lower SAT average score. Once enrolled, Non-Submitters were less likely to designate a STEM major than Submitters.

With academic data pooled from virtually all of our participating institutions, the table below illustrates that the Non-Submitters had HSGPAs that were marginally lower at all three stages (applicant -0.12, admit -0.09, enroll -0.05) and, for those with SAT scores (26%, 31%, 35%, respectively, of Non-Submitters), they were lower than the Submitters by just under 200 points (185, 192, and 168 respectively). The only college statistic available at all 25 of these institutions was the FYGPA and here we see that the Non-Submitters lagged behind the Submitters by 0.17, consistent with the difference in their HSGPAs.

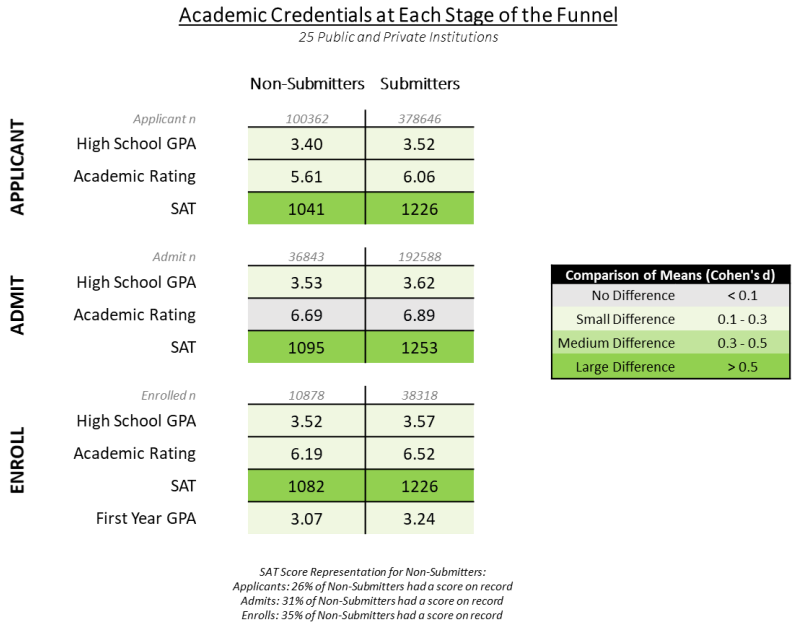


Figure 29. Academic Profile of Non-Submitters vs. Submitters at Each Stage of the Funnel. Pooled Student Data.
Academic Rating: 20 of the 25 institutions in this analysis submitted Academic Ratings. They each submitted their own scales, but for comparison purposes we converted all to a 10-point scale, where 10 is the highest rating.
Exclusions: Two with Academic Threshold policies and one that did not have Non-Submitter proportions.
25 Institutions **|** 479,008 Records
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $6,000-$800,000 ($70,000 M) **|** Admit Rate = 15%-90% (40% M)

> *"From faculty anecdotal feedback, this may be the best class we have seen, in terms of student curiosity, involvement, etc. The Admissions staff is pleased by the access and inclusion we see in the class."*
>
> *Dean from small private university*

Next, we considered differences between Non-Submitters and Submitters in choice of majors. Consistent with earlier studies, Non-Submitters were more likely than Submitters to declare majors in: Humanities and Liberal Arts, Social Science, and Psychology and Social Work. And Submitters were more likely than Non-Submitters to select Business, Biology and Life Science, Computers and Mathematics, and Education.

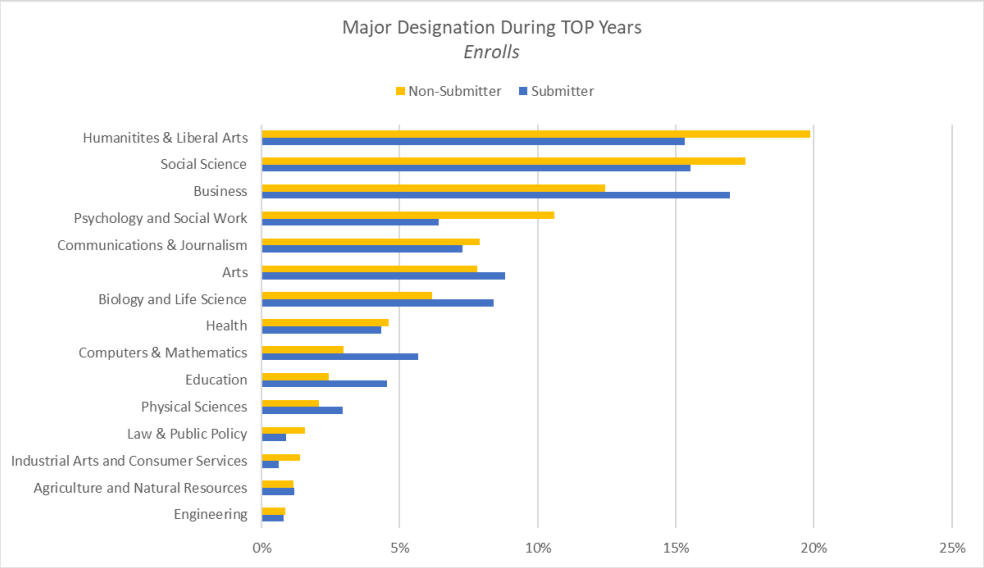


Figure 30. Academic Outcomes: Major Designation. Pooled Student Data. Enrolled students at 20 public and private institutions with at least two years of a TOP policy in place in order to have declared majors (CIP codes 2010). CIP codes were converted to major categories designated by the Center for Education and the Workforce, Georgetown.
Exclusions: Two with Academic Threshold policies and one that did not have Non-Submitter proportions.
20 institutions **|** 31,692 Records
Enrollment = 1,500-10,000 (2,500 M) **|** Endowment per FTE = $6,000-$800,000 ($60,000 M) **|** Admit Rate = 15%-90% (43% M)

The chart above illustrates that Submitters were more likely to have chosen STEM disciplines than Non-Submitters, 23% vs 18%, respectively. So, are Non-Submitters selecting higher-grading disciplines, thereby lifting the overall average GPA for the group?

To answer this question, we identified STEM majors and Non-STEM majors to assess the impact on the Cumulative GPAs of Submitters and Non-Submitters. The chart below, indicates that for this group of 31,000 students there is not a dramatic difference between the GPAs achieved by those majoring in STEM fields versus those in non-STEM fields. So, for this sample, the choice of major does not appear to have had a significant influence on the Cumulative GPAs of either group.

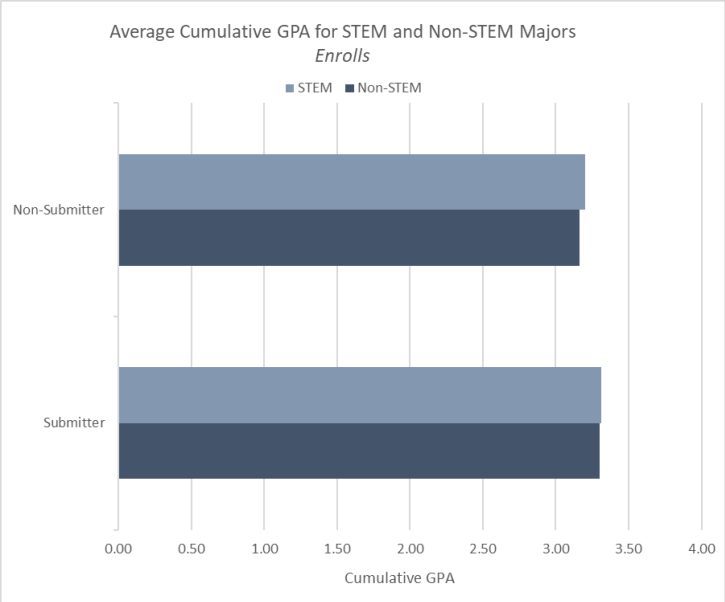


Figure 31. Average Cumulative GPA of STEM Majors and Non-STEM Majors, Non-Submitter vs. Submitter Comparison. Pooled Student Data.
Enrolled students at **20** public and private institutions with at least two years of a TOP policy in place in order to have declared majors (CIP codes 2010). STEM majors were identified using Department of Education's Classification of Instructional Programs[11]
Exclusions: Academic Threshold, Institutions with very recent TOP Policies
20 institutions **|** 31,692 Records
Enrollment = 1,500-10,000 (2,500 M) **|** Endowment per FTE = $6,000-$800,000 ($60,000 M) **|** Admit Rate = 15%-90% (43% M)

How do the academic outcomes compare with those of "Defining Promise"?

In short, Non-Submitters performed quite well in both studies. While their college First Year GPAs and Cumulative GPAs were marginally lower than Submitters, both this study and the 2014 study confirmed they graduated at rates equivalent to or slightly above Submitters.

Reflected below are parallel data points from the 2014 "Defining Promise" study, which included only enrolled students. To allow us to better compare the outcomes in the two studies, we included only the 13 institutions from "Defining Access" that provided 4- **and** 5-year graduation rates. Because this chart includes only about half of the institutions from Fig 31 above, for reference, we have included the applicant pool data for these students. The HSGPAs are slightly higher for this group than the larger group above (0.13 for Non-Submitters and 0.09 for Submitters), as are the SATs.

A major finding of the earlier study was that were no significant differences in the First Year GPA, Cumulative GPA or graduation rates between Submitters and Non-Submitters. We analyzed the 2018 data in the same manner and found that the results were strikingly similar.

[11] STEM has been defined as the Department of Education's Classification of Instructional Programs taxonomy within the two-digit CIP series containing engineering, biological sciences, mathematics, and physical sciences, or a related field. These fields represent research, innovation, or development of new technologies using engineering, mathematics, computer science, or natural sciences (including physical, biological, and agricultural sciences).

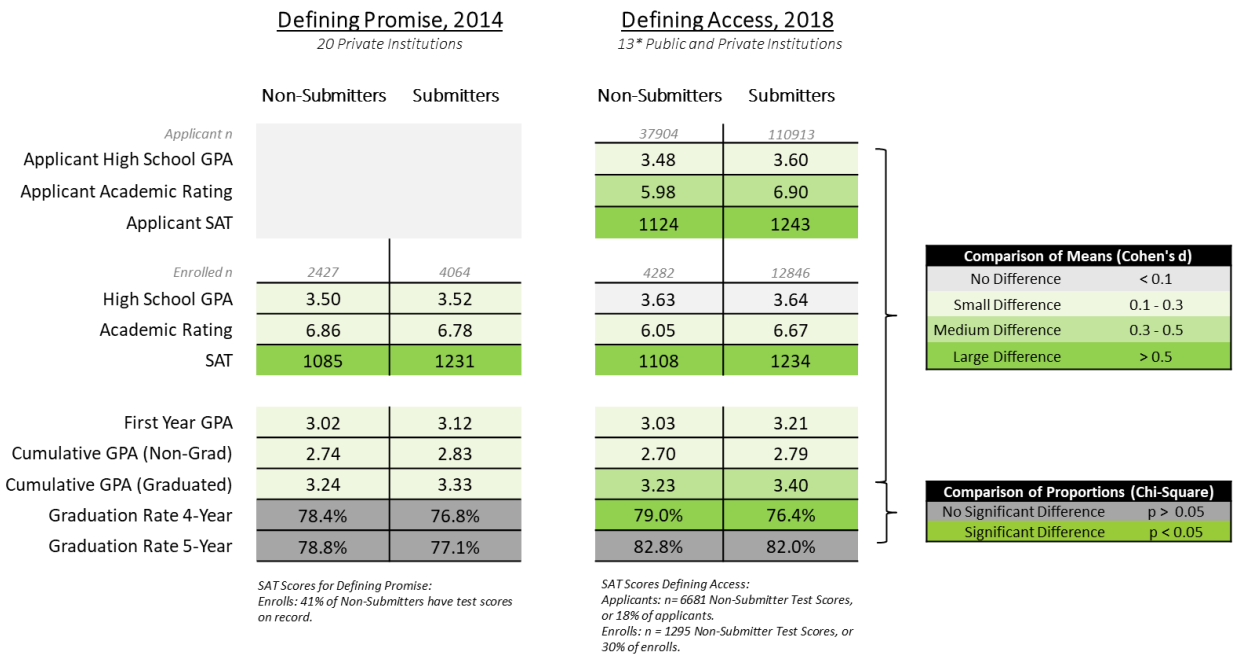


Figure 32. Two Study Comparison[12]: Academic Profile of Non-Submitters vs. Submitters. Pooled Student Data.
Defining Promise: 20 private institutions (no minority serving or arts institutions represented) that submitted 4-**and** 5-year graduation rates (students entering cohort 2008 for 4-year; students entering 2007 for 5-year)[13]
Defining Access: 13 (*12 private and 1 public) institutions that submitted 4-and 5-year graduation rates (cohorts entering 2012 for 4-year **and** 2011 for 5-year). Exclusions from both studies: Academic Threshold policies
Academic Rating: All institutions submitted their respective scales, but for comparison purposes we converted all to a 10 point scale, where 10 is the highest rating.
Enrollment = 1,500-5,000 (2,000 M) **|** Endowment per FTE = $6,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (40% M)

The HSGPAs were equivalent between Submitters and Non-Submitters, but there was a significant difference in the SAT scores.[14] The Non-Submitter average was lower by 146 points in the 2014 study and 126 points in the current study.

In college, the Non-Submitters started their college careers with FYGPAs that were lower than Submitters by 0.10 to 0.18, a GPA pattern that persisted through to graduation. In both studies, both Non-Submitters and Submitters that graduated earned college Cumulative GPAs over 3.20, and those that did not graduate (from that institution) posted Cumulative GPAs in the 2.7-2.8 range. But in spite of having slightly lower GPAs, both studies found Non-Submitters graduating at marginally higher rates than Submitters.

Because the above data is pooled data from the included colleges, we also examined the comparative Submitter and Non-Submitter graduation rates *at the institution level*. While the bulk of the colleges reported the same result as the pooled averages above—little difference between Submitter and Non-Submitter graduation rates—there were four private institutions that experienced significantly lower rates among Non-Submitters. It is important to note that two of these four were identified earlier in the report as having also experienced lower application growth, lower URM

[12] Six institutions in this subset participated in both studies. However, there is ***no cohort overlap***. Each study represents a different set of students.
[13] Please note that based on the way the data was submitted, the 4 year and the 5 year graduation rates reflect two separate cohorts of students from the same set of institutions.
[14] The scores for enrolled Non-Submitters represent only 41% and 30% of the Non-Submitters, respectively, though it can be argued that it is unlikely that Non-Submitters with higher scores would disproportionately choose not to share them. As more institutions have become comfortable with TOP, fewer of them seem to feel compelled to collect test scores from matriculating students to allow them to conduct research – hence the lower proportion of test scores available for Non-Submitters in 2018.

enrollment growth, and lower Pell enrollment growth compared to their matched TRP Peers. Looking back into the institutional analyses and interview notes done for each institution in our study, we found some common patterns at these schools:

- Very high levels of self-help in financial aid packages for High-Need students.
- Variability in graduation rates from one cohort to the next, with one of the two cohort years showing disparately poor graduation rates for Non-Submitters.
- Larger than average gaps in HSGPA (.3) between Non-Submitters and Submitters.

In the chart below we've isolated the graduation rates of students who were identified as part of the Expanded Diversity group (URM, First Gen, and/or Pell). Here we note that Non-Submitters graduated at a rate 6%-7% higher than Submitters. The students represented in the "Other" category show more equivalence between Submitters and Non-Submitters.

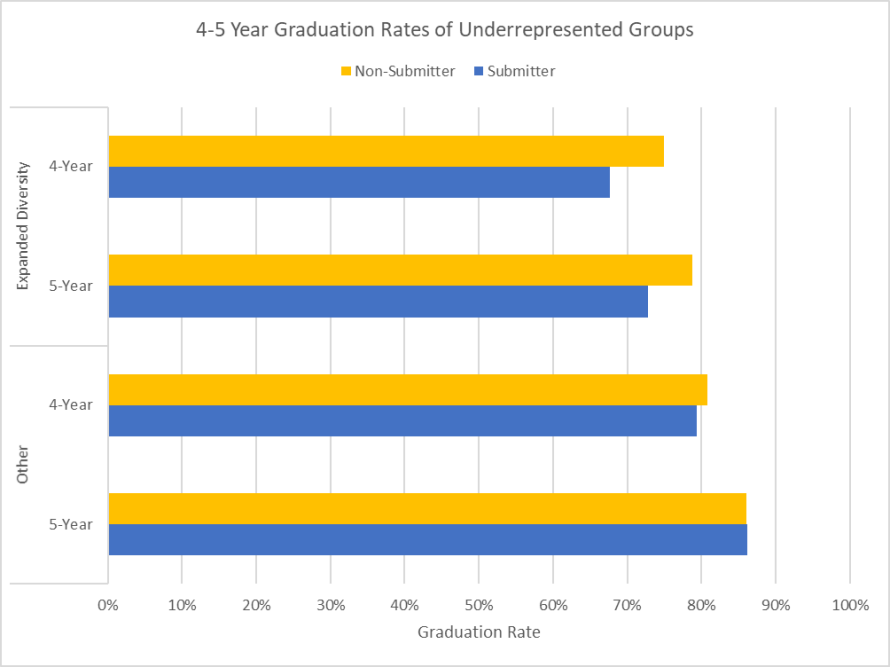


Figure 33. Four to Five Year Graduation Rates, Expanded Diversity: Non-Submitter vs. Submitter Comparison. Pooled Student Data. Enrolled students at public and private institutions with mature TOP policies, as to have 4 **or** 5 year graduation rates, and reliable data on each underrepresented group.
13 Institutions **|** Expanded Diversity: 3814 Records **|** Other: 8696 Records
Enrollment = 1,500-7,000 (2,000 M) **|** Endowment per FTE = $6,000-$800,000 ($125,000 M) **|** Admit Rate = 15%-90% (43% M)

Under TOP, how well did the High School GPA correlate with college success?

High school GPA had a strong positive linear correlation with college cumulative GPA, and it had a stronger relationship with both GPA and graduation rate than the SAT/ACT score. The test scores showed stronger correlation with Submitter outcomes than Non-Submitter outcomes. They also had very strong correlation with EFC.

We pitted the available admission academic markers—high school GPA and SAT scores—against our college success markers, college GPAs and graduation rates. The scatterplots below have been constructed to illustrate these

relationships side by side, using averaged percentiles[15] of student records containing both sets of data points. To be clear, charts with SAT scores include all the students for whom we have a test score, but while the chart accurately portrays the information for the two groups, the Non-Submitter group represents only about a third of all the Non-Submitters. We therefore offer these comparisons not as definitive but simply observational.

Intuition would suggest that those Non-Submitters with higher scores would be more likely to share them than those with lower scores, but there is no way to validate that hypothesis. At the eight institutions in the study that submitted test scores for more than 50% of Non-Submitters, however, we found the patterns to be identical.

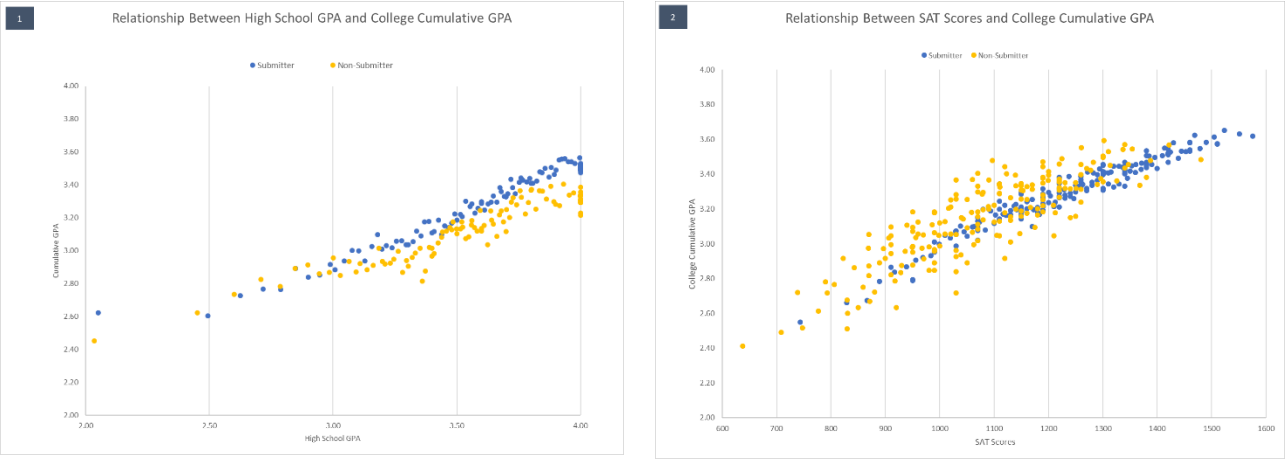


Figure 34. Relationships Between HSGPA, SAT and *Cumulative GPA* Under TOP Cohort Years, Submitter vs. Non-Submitter Comparisons.
1. HSGPA vs. CumGPA - Enrolled students at 20 public and private institutions. 41,320 Records
2. SAT vs. CumGPA - Enrolled students at 20 public and private institutions. 36,378 Records

Exclusions: Academic Threshold policies and very recent policy adopters.
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($50,000 M) **|** Admit Rate = 15%-80% (43% M)

In Fig 34, Chart 1, there is a positive linear relationship between HSGPA and college Cum GPA, with a clear visual pattern of Submitters having modestly higher college Cum GPAs than their Non-Submitter classmates who had similar HSGPAs. This difference averages out to approximately the 0.17 of a GPA point that we cited earlier in this study, the difference between 3.23 and 3.40.

In the SAT to Cum GPA comparison (Chart 2), the relationship is also positive and linear. However, Non-Submitter score averages ranged lower than Submitters and were more scattered in their college GPAs at any given test score, and were more likely to have achieved higher college GPAs than Submitters with the same test scores. When making any interpretations of this particular chart, the reader must remember that the test scores here represent only 33% of the Non-Submitters.

[15] The points in the scatterplots were calculated using Analytics software, by Rapid Insights. The points represent records that contained both academic measures. The data was calculated into percentiles, then averaged for each cluster. For example, in the case of HSGPA vs CumGPA, each Submitter point is represented by 300 data points or 3% of the data.

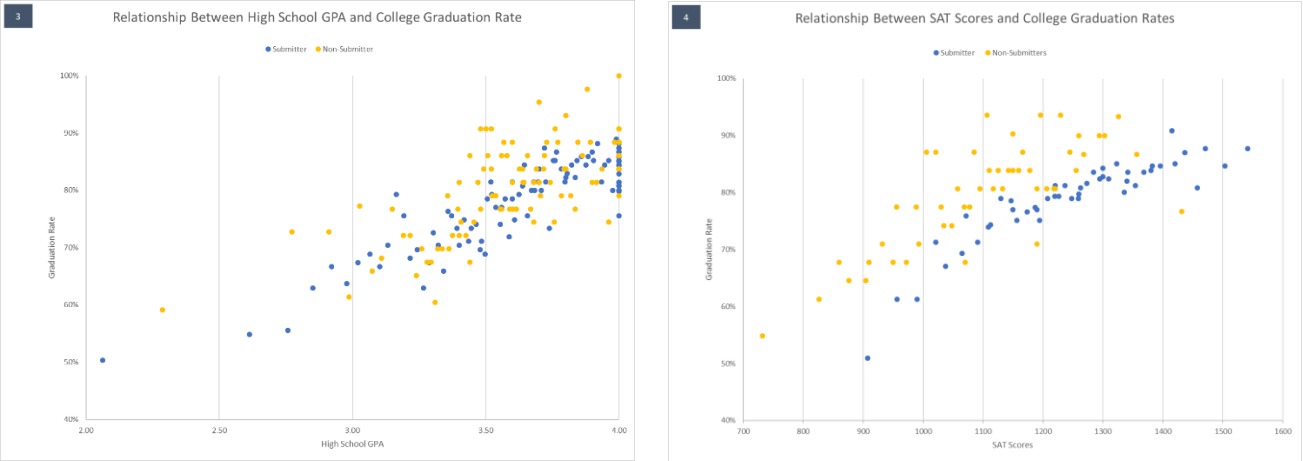


Figure 35. Relationships Between HSGPA, SAT and *Graduation Rate* Under TOP Cohort Years, Submitter vs. Non-Submitter Comparisons.
3. HSGPA vs. Grad Status – Enrolled students 17 public and private institutions with 4 or 5 year graduation rates. 17,798 Records
4. SAT vs. Grad Status – Enrolled students 17 public and private institutions with 4 or 5 year graduation rates graduation rates. 14,593 Records
Exclusions: Academic Threshold policies and recent policy adopters.
Enrollment = 1,500-7,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-80% (40% M)

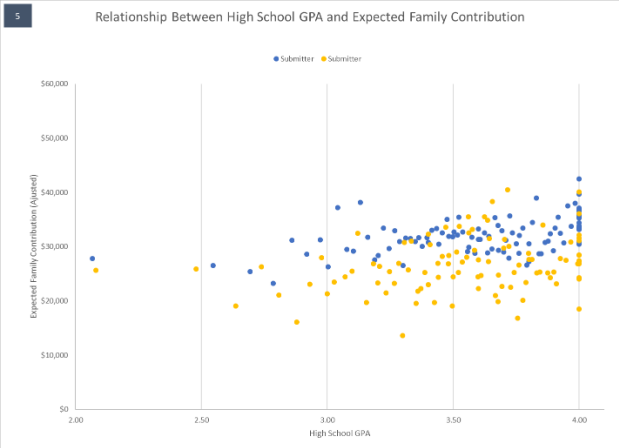
In Fig 35, Chart 3 we have plotted HSGPA against graduation rates. (N.B. All graduation rates in this study represent only same-school graduation rates.) While the relationship is not as strong as in Fig 34, Chart 1, as would be expected there is a general upward trend correlating higher high school grades with higher college graduation rates. Chart 4, plotting SAT scores against graduation rates, reveals a modestly different pattern. Submitters show a tighter, more linear correlation between SAT scores and graduation rates, but a majority of the Non-Submitters graduated at higher rates than Submitters with comparable SAT scores. Note that the number of Non-Submitter test scores is less than 1,600, so this is a small sample size, and represents only about 31% of the Non-Submitters at these institutions. Also note that virtually none of the Non-Submitters have scores in the highest ranges.

Chart 5 and 6 below in Fig 36 are somewhat limited because they include only students who applied for financial aid, and thereby miss the upper portions of the income ladder. Nonetheless, Chart 5 illustrates the ***lack of*** relationship between high school grades and EFC. But the chart reveals what all of the data to date has shown: that Non-Submitters will tend to be from lower-income families, but many of them have fine high school records.

Chart 6 is in stark contrast. We see a strong correlation between SAT scores and family affluence (in this case using EFC as a proxy for other family financial data). The relationship with Non-Submitter scores is mildly more diffuse, which actually aligns well with these students' sense that the test scores do not represent them well[16].

Also note that the EFC ranges appear different between the two charts. This is due to the relative strength of correlation between GPA and EFC versus SAT and EFC. Each data point on the chart represents a cluster of students. In chart 5, any clustering has students with both high and low EFCs causing their means to trend toward the middle of the overall range (i.e., for any particular GPA, there are students with a wide range of EFCs). The opposite effect can be seen in chart 6, where the correlation is much stronger and upper end of the averages remain high representing a lack of lower EFC students achieving those higher SAT scores.

[16] Remember that the SAT and EFC charts represent test scores from approximately a third of the Non-Submitters, and also do not include the upper part of the income ladder, since it only captures students who filed a financial aid application.



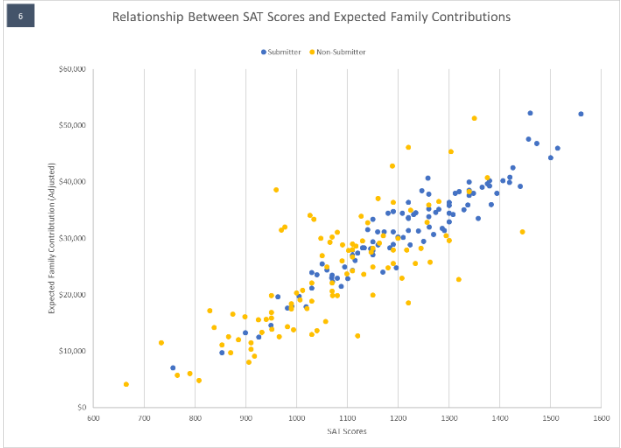
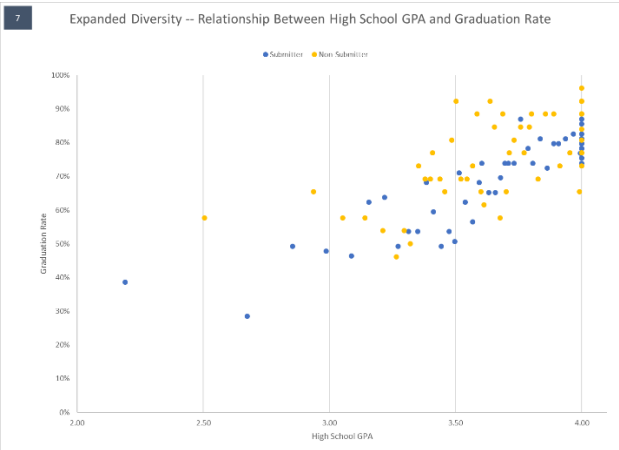


Figure 36. Relationships Between High School GPA, SAT and *Expected Family Contribution* Under TOP Cohort Years, Submitter vs. Non-Submitter Comparisons.

5. HSGPA vs. EFC – Enrolled students at 20 public and private institutions with reliable HSGPA and EFC data. 25,257 Records
6. SAT vs. EFC – Enrolled students at 20 public and private institutions with reliable SAT and EFC data. 21,333 Records

Exclusions: Academic Threshold policies.
Enrollment = 1,500-20,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($70,000 M) **|** Admit Rate = 15%-90% (43% M)



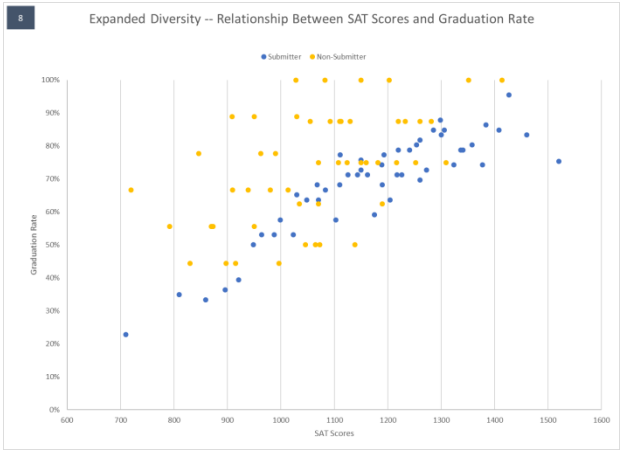


Figure 37. Focus on Expanded Diversity -- Relationships Between High School GPA, SAT and *Graduation Rate* Among this Student Group, Submitter vs. Non-Submitter Comparisons.

7. HSGPA vs. Grad Status – Enrolled students at 13 institutions with reliable expanded diversity data, and 4 or 5 year graduation rates. 4,751 Records
8. SAT vs. Grad Status – Enrolled students at 13 institutions with reliable expanded diversity data, and 4 or 5 year graduation rates. 3,719 Records

Exclusions: Academic Threshold policies.
Enrollment = 1,500-7,000 (2,500 M) **|** Endowment per FTE = $5,000-$800,000 ($130,000 M) **|** Admit Rate = 15%-90% (43% M)

In Fig 37, charts 7 and 8, we have again used our construct of "Expanded Diversity" to explore, for this set of students, the correlations between graduation rates and either HSGPA or SAT scores. In Chart 7, graphing HSGPA against graduation rate, we see more or less equivalent positive relationships for Submitters and Non-Submitters, with a marginally tighter relationship for Submitters than for Non-Submitters, and with Non-Submitters more often clustered above the Submitters in graduation rate for students with a given HSGPA.

In chart 8, graphing SATs against graduation rate, the differences are more pronounced: a positive relationship for these underrepresented student (Expanded Diversity) Submitters, but a scattershot of graduation rates for Non-Submitters, mostly on the upper portion of the graph, suggesting that they were more promising students than their SATs would have suggested. (N.B. There are only 420 Non-Submitters represented in Chart 8, so this is observational, not conclusive.)

So, at least for this limited sample of Non-Submitters, high school GPA correlated more strongly than the SAT, with success in college, in terms of both college cumulative GPA and graduation rate. The SAT, while showing solid correlations with cumulative GPA for Submitters, continues to most strongly correlate with family affluence.

THE FINANCIAL SIDE OF THE POLICY

The following section includes some of the most complex analyses in the study. Herein, in addition to comparing differences between pre- and post-adoption cohorts, Non-Submitter and Submitter groups, aspects of diversity, and graduation rates, we have introduced information about the financial need and aid awards of students. Adding another level of interpretative complexity, we were not able to ascertain whether institutions were need-blind or need-aware at any (or all) points in the data of the study. Some (particularly more selective, more affluent) institutions utilize a need-aware admission policy to carefully regulate their commitment to financial aid. This, obviously, would find expression in the admit rates (particularly of high-need students) as well as in the aid offers made to students. Thus, what follows is a representation of the data we had available, without any effort to overlay these factors into our observations.

Additionally, institutions use different protocols in the awarding of aid to international students – some create an EFC, some award aid to international students but record EFCs only for domestic students, etc. -- so for the comparisons on aid, we have excluded all students identified as non-resident aliens (international students). By doing so, we hope the observations about need-based aid will be clearer.

Do TOPs place greater financial aid demands on the institution?

Our data limits drawing conclusions, but our findings suggest yes. High need students choose to be Non-Submitters at higher rates, and Gift Aid per Capita increased pre-to-post policy adoption.

The chart below on the left compares the proportion of students with a qualified need[17] in the pre-policy and post-policy years for the 12 institutions[18] that provided data from the years immediately preceding and immediately following adoption of the policy. Among these 12 institutions, the changes in proportion of needy students were roughly evenly split, with five institutions experiencing an *increase* in the proportion of enrolled needy students, four experiencing a decrease, and three enrolling essentially the same proportion (within +/- 2%). As noted above, some of this may have been the result of need-aware admission policies.

However, the chart below on the right, shows that while the proportion of enrolled needy students did not necessarily increase with the adoption of a TOP, the average financial need[19] of the needy students did tend to increase at modest levels (corrected for inflation).

[17] The proportion of students who demonstrated a need for financial aid (Demonstrated Need > 0)

[18] Three of our institutions provided data for only post-adoption cohorts; there were several years of separation between the pre- and post-adoption cohorts for some of our other institutions; and still others were unable to provide reliable financial aid data for all their cohorts.

[19] Demonstrated Need was calculated as: Total Cost of Attendance, adjusted – EFC, adjusted.

Figure 38. Qualified Need Proportions and Demonstrated Need Differentials: Pre-Policy vs. Post-Policy. Data from the 12 private and public institutions with EFC data submitted immediately pre- and immediately post-policy adoption.
Bars in LEFT and RIGHT charts do not align to reflect same institution. Note that all financial data has been adjusted to 2016-dollar standards.
Exclusions: Early adopters and Non-Resident Aliens
12 institutions **|** 36,912 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$230,000 ($65,000 M) **|** Admit Rate = 20%-80% (53% M)

Expanding beyond the need of the enrolled students, we attempted to assess the actual financial impact on an institution by generating estimates of Gift Aid per Capita[20] for *all enrolled students*. Below we have compared the cohorts immediately preceding and following the policy adoption. We see that per capita costs rose during the TOP cohort years at all but one of these ten institutions. The smallest increase was $728 per capita, and the largest almost $4,000 per capita.

[20] Gift Aid per Capita was calculated as: Sum of Total Gift Aid-Adjusted / Total Enrollment.

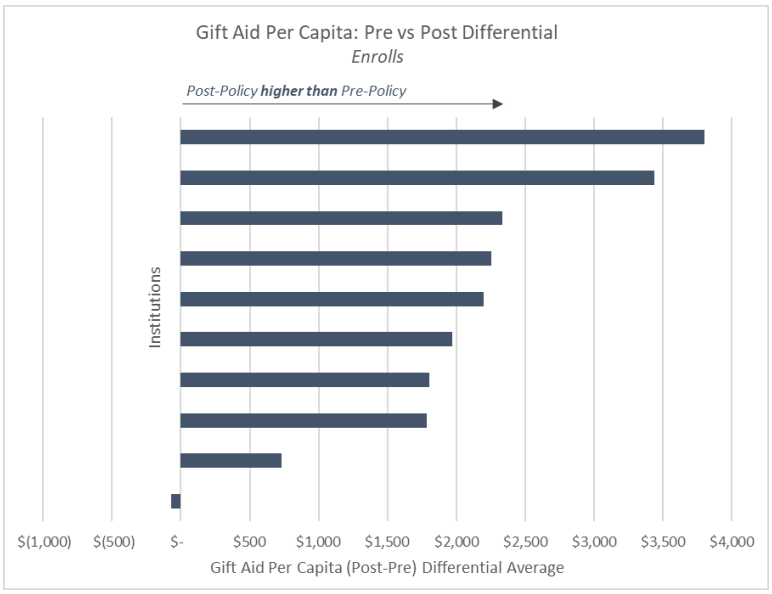


Figure 39. Gift Aid Per Capita Differential: Pre-Policy vs. Post-Policy. Data from the 10 private and public institutions with gift aid submitted immediately pre- and immediately post-policy adoption.
Exclusions: Early adopters and Non-Resident Aliens
Note that all financial data has been adjusted to 2016-dollar standards.
10 institutions | 56,564 Records
Enrollment = 2,000-20,000 (4,000 M) | Endowment per FTE = $4,000-$230,000 ($65,000 M) | Admit Rate = 20%-80% (53% M)

To what extent is this rise in investment a result of the policy? Although we cannot answer this question directly, we investigated the financial need of the incoming Non-Submitters for an indication. We divided students into the following segments to by subtracting the adjusted EFC from the Total Cost of Attendance. (A more detailed description of segments and this methodology can be found on page 75.)

High Demonstrated Need
(HNEED)
Students who need 75%-100% of Total Cost of Attendance

Moderate Demonstrated Need
(MNEED)
Students who need 25%-74% of Total Cost of Attendance

Low Demonstrated Need
(LNEED)
Students who need 2%-24% of Total Cost of Attendance

No Need
(NNEED)
Students who did not request financial aid, or needed less than 2% of Total Cost of Attendance.

Using these segments, the following Figure contrasts the pooled data for enrolled Non-Submitters and Submitters at the broader set of 21 institutions with reliable data at the enrolled stage. As might be expected, due to the attractiveness of the test-optional policy to lower SES students, the Non-Submitters had a higher proportion of High-Need students than Submitters (36% vs. 28%). However, on the other end of the financial spectrum, both Non-Submitters and Submitters had substantial proportions (34% and 38%) of No-Need students.

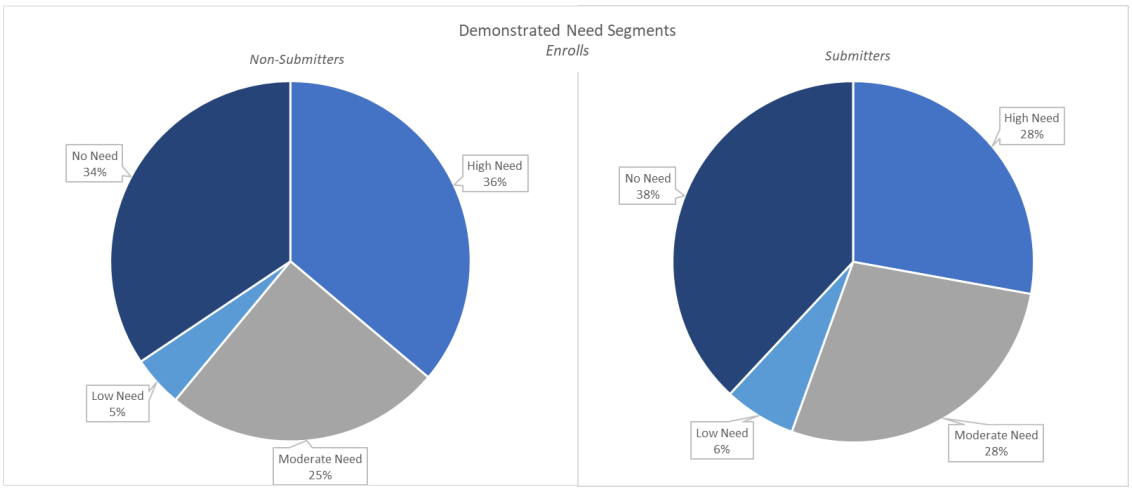


Figure 40. Demonstrated Need Segment Proportion Profiles: Non-Submitter vs. Submitter Comparison. Data from 21 private and public institutions with reliable financial aid data at the enroll stage of the funnel. Pooled Student Data.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
21 institutions **|** 34,305 Records
Enrollment = 1,500-20,000 (2,400 M) **|** Endowment per FTE = $6,000-$800,000 ($52,000 M) **|** Admit Rate = 15%-90% (43% M)

The next chart provides an institution-by-institution comparison of the difference between the demonstrated need of the needy Submitters and Non-Submitters enrolling at the same 21 institutions. At every one of these institutions, the enrolled needy Non-Submitters had a higher average demonstrated need than the needy Submitters, with the median differential being approximately $4,000.

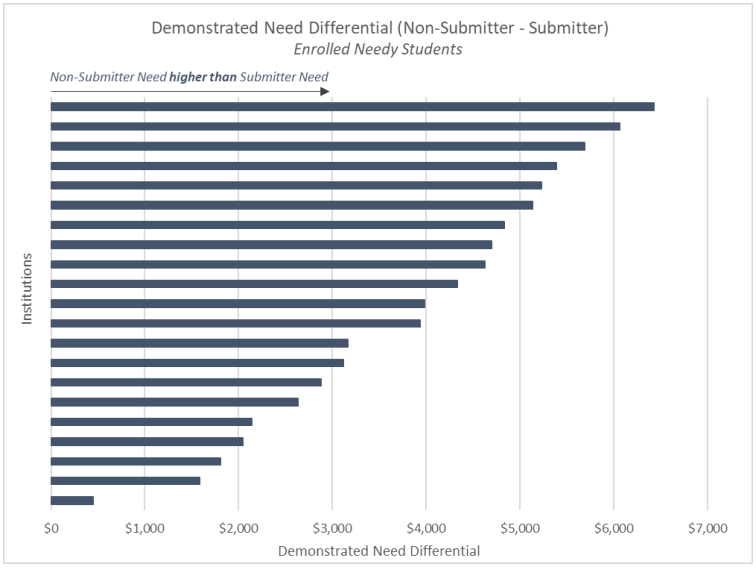


Figure 41. Average Enrolled Student Demonstrated Need Differential: Non-Submitter vs. Submitter. Private and public institutions with reliable EFC data on enrolled students with a qualified need.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
21 institutions **|** 21,564 Records
Enrollment = 1,500-20,000 (2,400 M) **|** Endowment per FTE = $6,000-$800,000 ($52,000 M) **|** Admit Rate = 15%-90% (43% M)

Do institutions aid Non-Submitters differently than Submitters?

There were substantial differences in awarding strategies between institutions, with the majority having provided less generous (gift) aid packages to both their needy and no-need Non-Submitters than to their Submitters.

As described in detail in the Appendix on page 75, we approached this analysis by clustering student financial support in five "Need Met with Gift" Segments. Traditionally, an institution "meets need" with a combination of gift aid (grants and scholarships), student loans, and work-study. However in this study, we evaluated whether demonstrated need has been met solely with gift aid. Thus, in these clusters, many of the High-Need students (and even Moderate-Need students) will fall into our category of "Need Not Met with Gift." In some instances these students may have been "gapped," but the reader also should not conclude that students in this category didn't have their need met under the more traditional definition. It should also be noted that some institutions required test scores to be considered for scholarships which would tend to mildly skew some of these outcomes, particularly in the category of No-Need + Gift.

Using this framework, the following pair of charts uses pooled data and represents the "average" experience of a Submitter or Non-Submitter. It offers a comparison of the distributions at the admit stage and at the enrolled stage. At both stages of the funnel we see that Non-Submitters have *higher* proportions of Need-Not-Met-With-Gift-Aid (and No-Need, No-Aid), and *lower* proportions of No-Need students who received "merit" aid. The gap closes slightly between the admit and enrolled stages of the funnel.

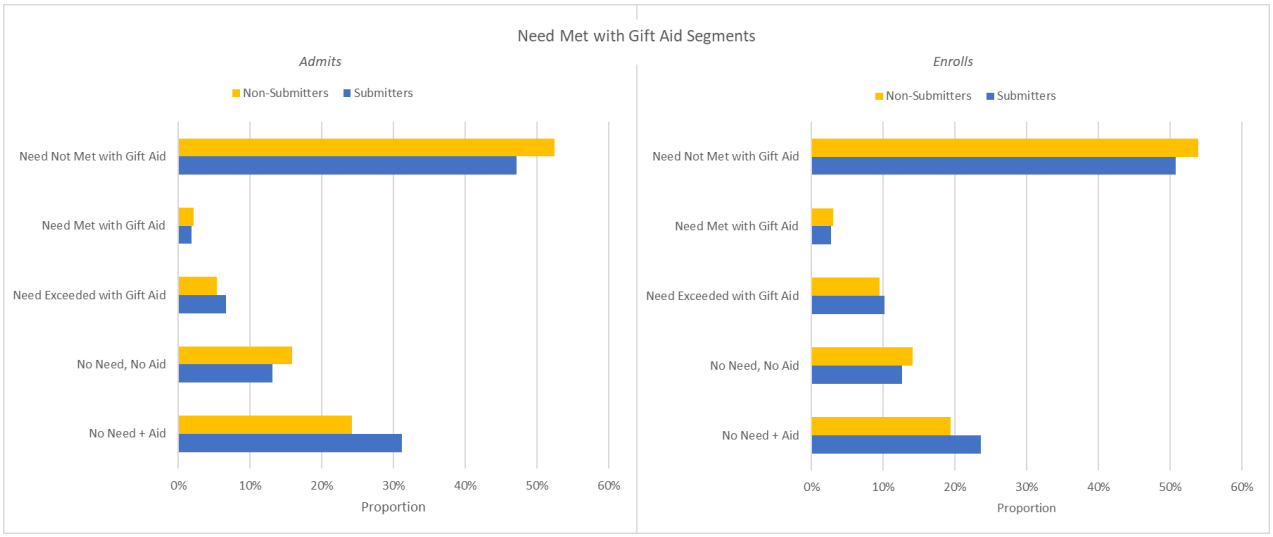


Figure 42. Need Met Segment Proportions by Phase of the Funnel and Submitter Status. Pooled Student Data. Subset of institutions selected based on availability of data at both the admit and enroll level, offering merit aid programs.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens. No public institutions provided data at the admit level.
Admits: 10 Institutions **|** 77,888 Records (59,126 Submitters and 18,762 Non-Submitters)
Enrolls: 10 Institutions **|** 14,681 Records (10,578 Submitters and 4,103 Non-Submitters)
Enrollment = 1,500-7,000 (2,400 M) **|** Endowment per FTE = $40,000-$500,000 ($63,000 M) **|** Admit Rate = 30%-70% (50% M)

These charts were limited to the ten institutions that were able to provide the data at both the admit and enrolled stage. The next chart, illustrates the same comparison solely at the enrollee stage, but includes 15 institutions. Note that the pattern is virtually identical with 5 more institutions.

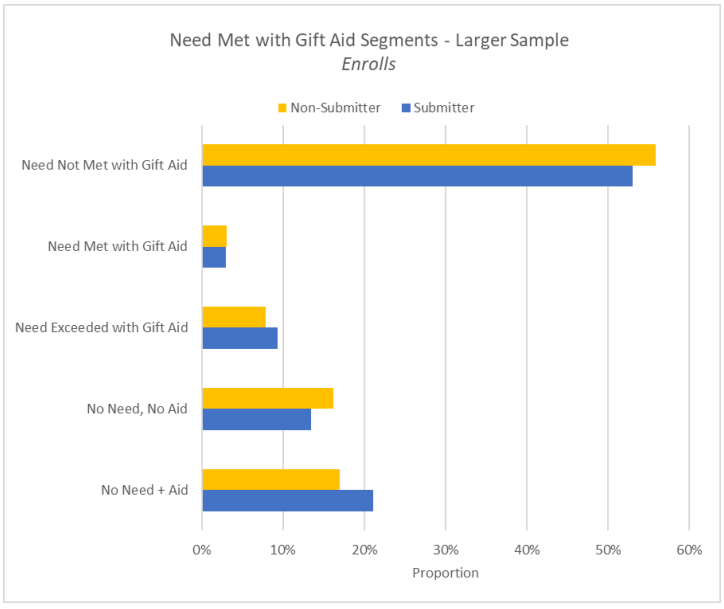


Figure 43. Need Met with Gift Aid, Enrolled Student Proportions by Submitter Status. Pooled Student Data. Private and public institutions selected based on availability of data the enroll level, offering merit aid programs.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
15 institutions **|** 25,798 Records
Enrollment = 1,500-20,000 (2,400 M) **|** Endowment per FTE = $6,000-$800,000 ($52,000 M) **|** Admit Rate = 15%-90% (43% M)

The next pair of charts (Fig 44) contrasts these same distributions for the enrolled students at a set of highly selective institutions in comparison with some less selective institutions. Note, at the less selective institutions, the larger proportion of Non-Submitters whose need was not fully met with Gift Aid, and on the other end of the spectrum, the larger proportion of No-Need Submitters that received Gift Aid. Also note on these charts that truly "full pay" students (No-Need, No Aid) that are less than 10% of the enrollees at the less selective institutions, comprise roughly 30% of the enrollees at the highly selective institutions. We do not know the policies that generate these results, but there are at least two reasonable hypotheses. First, the less selective institutions are not competitive enough to enroll many truly full-pay students, so they utilize "merit" scholarships more extensively (for both Submitters and Non-Submitters) to attract those affluent students. And second, the less selective institutions may have treated Submitters more generously Non-Submitters in the No-Need Plus Gift Aid, Need Exceeded, and Need Not Met With Gift Aid categories because they were pursuing profile-enhancing test scores in each of those cohorts, which obviously were not available for the Non-Submitters.

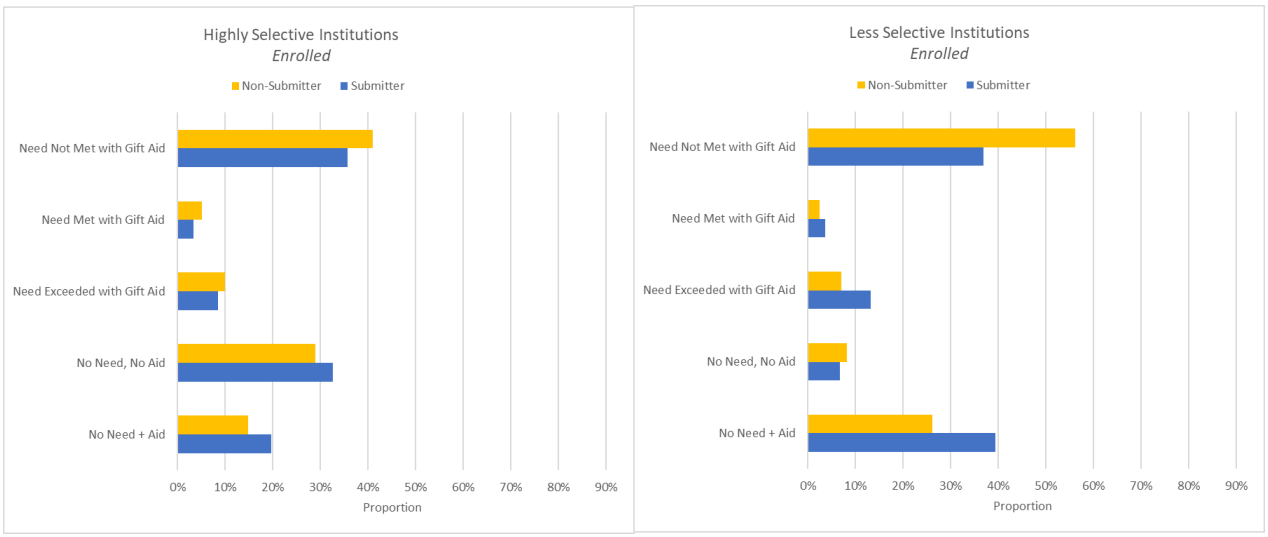


Figure 44. Need Met with Gift Aid, Enrolled Student Proportions by Submitter Status: Highly Selectivity vs. Less Selective. Pooled Student Data.
Highly Selective: Institutions with < 40% Admit Rate and reliable EFC and Gift Aid data at the Enroll level, offering merit aid programs.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
5 Institutions **|** 8,313 Records
Enrollment = 2,000-5,000 (3,000 M) **|** Endowment per FTE = $10,000-$230,000 ($180,000 M) **|** Admit Rate = 20%-40% (34% M)
Less Selective: Institutions with > 60% Admit Rate and reliable EFC and Gift Aid data at the Enroll level, offering merit aid programs.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
5 Institutions **|** 13,445 Records
Enrollment = 1,500-10,000 (4,000 M) **|** Endowment per FTE = $20,000-$60,000 ($38,000 M) **|** Admit Rate = 60%-70% (64% M)

An interesting side note is that very few of our participating institutions currently require test scores of merit scholarship candidates, whereas a number of them did in earlier years (perhaps including the cohorts for which there is data in this study). As institutions become more comfortable with their use of TOP, it may be that they feel less compelled to require test scores for merit scholarship consideration.

Are NEEDY Non-Submitters treated differently than Submitters in gift aid allocation?

There were substantial differences in awarding strategies between institutions, with the majority having provided less generous (gift) aid packages to their <u>needy</u> Non-Submitters than to their <u>needy</u> Submitters.

The chart below provides comparisons of the financial aid treatment of Submitters versus Non-Submitters. All the data are averages, so they do not account for differences that may have occurred in the awarding of high-need versus low-need students, but they do suggest that only a couple of institutions appear (on average) to have been more generous with Non-Submitters than with Submitters, while the majority of these institutions appear to have treated Submitters more favorably.

	Expected Family Contribution (EFC) *Federal or Institutional Definition*		Family Financial Contribution (FFC) *Total Cost of Attendance - Gift Aid*		DELTA			SUMMARY
Institution	Non-Submitter	Submitter	Non-Submitter	Submitter	Non-Submitter Delta *EFC-FFC*	Submitter Delta *EFC-FFC*	DIFF *NS-S*	
Private, Less Selective	$ 9,653	$ 13,652	$ 26,680	$ 23,392	$ (17,027)	$ (9,740)	$ (7,287)	>>Non-Submitters treated less favorably than Submitters
Private, Less Selective	$ 7,511	$ 13,217	$ 15,155	$ 15,852	$ (7,644)	$ (2,636)	$ (5,008)	
Private, Less Selective	$ 19,111	$ 23,737	$ 37,624	$ 37,943	$ (18,513)	$ (14,206)	$ (4,307)	
Private, More Selective	$ 16,123	$ 22,670	$ 19,089	$ 22,639	$ (2,966)	$ 31	$ (2,997)	
Private, More Selectivity	$ 19,087	$ 24,198	$ 27,810	$ 30,011	$ (8,724)	$ (5,814)	$ (2,910)	
Private, Moderately Selective	$ 15,100	$ 18,064	$ 22,463	$ 22,839	$ (7,363)	$ (4,775)	$ (2,588)	
Public, Less Selective	$ 6,825	$ 9,603	$ 21,060	$ 21,447	$ (14,235)	$ (11,844)	$ (2,391)	
Private, Less Selective	$ 7,391	$ 12,123	$ 21,238	$ 23,745	$ (13,847)	$ (11,622)	$ (2,226)	
Public, Less Selective	$ 4,323	$ 5,691	$ 16,684	$ 15,834	$ (12,361)	$ (10,143)	$ (2,219)	
Private, Less Selective	$ 17,005	$ 22,671	$ 28,946	$ 32,492	$ (11,941)	$ (9,821)	$ (2,120)	
Private, More Selective	$ 18,565	$ 19,017	$ 36,657	$ 35,580	$ (18,092)	$ (16,564)	$ (1,528)	
Private, More Selective	$ 18,544	$ 22,837	$ 27,096	$ 30,183	$ (8,552)	$ (7,346)	$ (1,206)	
Private, Moderate Selectivity	$ 17,369	$ 19,388	$ 25,447	$ 26,287	$ (8,077)	$ (6,900)	$ (1,177)	
Private, Less Selective	$ 22,487	$ 24,299	$ 39,303	$ 40,158	$ (16,816)	$ (15,859)	$ (957)	>>Equivalent treatment of Submitters and Non-Submitters
Private, Moderate Selectivity	$ 12,975	$ 18,303	$ 23,092	$ 27,966	$ (10,117)	$ (9,663)	$ (454)	
Private, More Selective	$ 15,422	$ 19,381	$ 21,313	$ 25,799	$ (5,891)	$ (6,418)	$ 527	
Private, More Selective	$ 18,719	$ 20,851	$ 19,945	$ 22,939	$ (1,225)	$ (2,088)	$ 862	
Private, More Selective	$ 21,236	$ 23,998	$ 25,607	$ 30,318	$ (4,372)	$ (6,321)	$ 1,949	>>Non-Submitters treated more favorably
Private, More Selective	$ 15,168	$ 20,574	$ 21,049	$ 28,470	$ (5,881)	$ (7,895)	$ 2,014	

Color Key	
No Difference	< 0.1
Small Difference	0.1 - 0.3
Medium Difference	0.3 - 0.5
Large Difference	> 0.5

Figure 45. Average Demonstrated Need Differential: Non-Submitter vs. Submitter. Private and public institutions with reliable EFC and Gift Aid data on enrolled students with a qualified need.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
19 institutions **|** 19,307 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$230,000 ($60,000 M) **|** Admit Rate = 20%-80% (50% M)

Are NO-NEED Non-Submitters treated differently than Submitters in gift aid allocation?

In short, yes. Potentially exacerbated by the policy at some institutions to require test scores for scholarship consideration, we found that no-need Non-Submitters were awarded gift aid at lower rates than no-need Submitters. And yet these Non-Submitters graduated at modestly higher rates than their Submitter counterparts.

Considering only the Admitted, No-Need students, the next table compares the proportions of the Non-Submitters and Submitters that received gift aid. In this chart, as in others, we use the term "merit" broadly to refer to gift aid that does not appear to have been awarded based upon financial need. As noted elsewhere, a small percentage of these students may actually have received (for instance) non-institutional grants (e.g., Pell) based upon the federal methodology, but have been deemed "no-need" based upon institutional methodology. Our data did not allow us to distinguish these differences. In the pooled data from these 10 institutions, No-Need Submitters were awarded gift aid at a higher rate (70%) than their Non-Submitter counterparts (60%). As noted above, for the cohorts included in this study, some of these institutions may have required test scores of anyone seeking consideration for a merit scholarship, and if so, it would have contributed to this disparity.

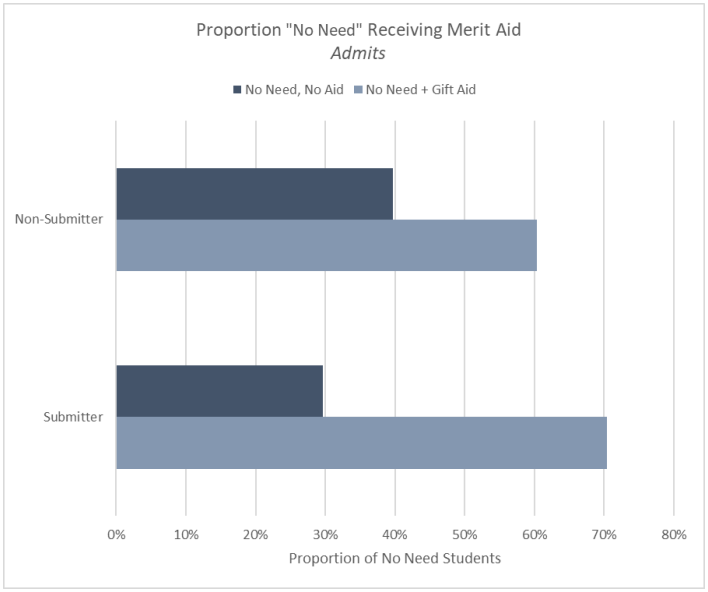


Figure 46. Focus on Admitted "No Need" Segments. Pooled Student Data. Institutions with admit level data, merit aid programs, reliable financial data. Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens. No public institutions provided data at the admit level.
10 Institutions **|** 33,718 Records (students with "No Need")
Enrollment = 1,500-7,000 (2,400 M) **|** Endowment per FTE = $40,000-$500,000 ($63,000 M) **|** Admit Rate = 30%-70% (50% M)

As with many of our comparisons, the pooled data is helpfully augmented by seeing the disaggregated data presented by individual institutions. For the same data as in Fig 46 above, the chart below illustrates the difference, at the institution level, between the proportions of No-Need Non-Submitters and Submitters who received non-need-based grants or scholarships, with each bar representing a separate institution. One institution appears to have treated No Need Non-Submitters more favorably, but the bulk of the institutions appear to have favored Submitters when granting grants and scholarships to Non-Need students. Virtually the same pattern is replicated within the enrolled students.

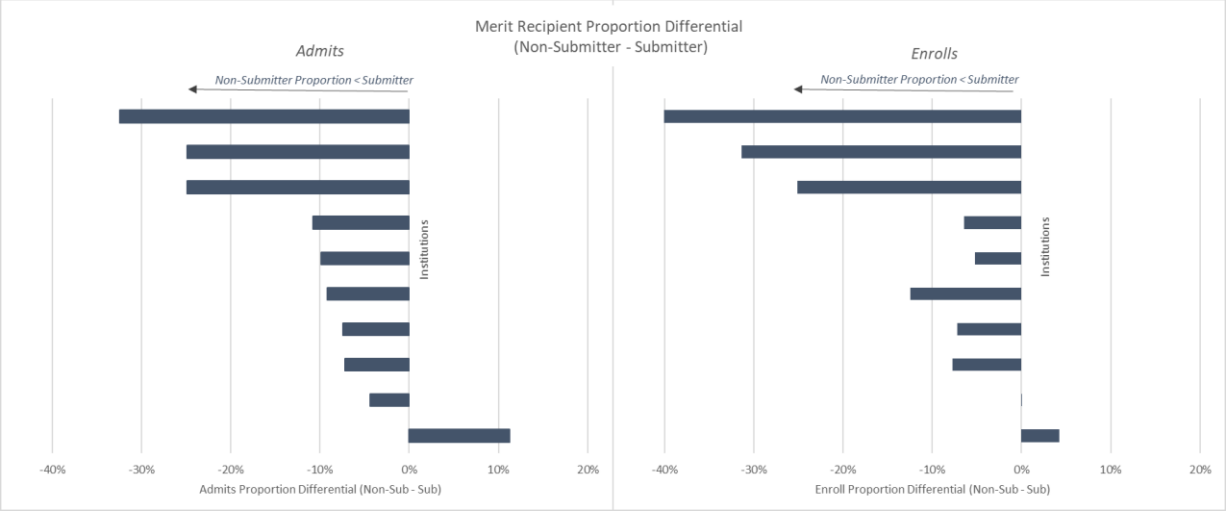


Figure 47. "No Need" or Merit Recipient Proportions Differentials: Non-Submitter vs. Submitter. Subset of institutions selected based on availability of data at the admit level and enroll levels, and institutions with merit aid programs. *Institutions <u>are</u> aligned in the two tables.* Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens. No public institutions provided data at the admit level.
10 Institutions **|** 33,718 Admit Records **|** 5,205 Enroll Records (students with "No Need")
Enrollment = 1,500-7,000 (2,400 M) **|** Endowment per FTE = $40,000-$500,000 ($63,000 M) **|** Admit Rate = 30%-70% (50% M)

As noted above, these no-need or "merit" awards may be given for a variety of reasons, from the desire to enhance the institutional profile by enrolling high test-score students (implicitly excluding Non-Submitters) to a tacit acknowledgement that the institution cannot enroll the right mix of needy and full-pay students at their published price, and therefore need to discount that price for some no-need students. The situation for the Non-Submitters is exacerbated at the institutions that specifically require the submission of test scores to receive consideration for their merit scholarship programs. But the effect is the same: the families of higher need students (including a higher proportion of Non-Submitters), are carrying more "self-help" and smaller grants relative to their need, while no-need students (including a higher proportion of Submitters) are given merit awards to reduce the price to the family. At some institutions, the net financial expectations for families with no need and high need were within a few thousand dollars of each other, because of the combinations of merit awards and high levels of self-help packaging. But, to summarize, with regard to aid awards at these institutions, on average, Non-Submitters didn't fare as well as Submitters.

How does aid allocation relate to graduation rates?

*With respect to graduation rates, we found that No-Need, Non-Submitters were **less likely** to receive gift awards, but they graduated at marginally higher rates than the No-Need Submitters.*

The chart below presents the graduation rates at the 14 institutions that have sufficient aid data and have been TOP long enough to have graduation rates. At least within this small sample, it appears that the lowest graduation rates were achieved by students whose need was <u>not</u> met fully with gift aid – not surprising, as they were likely the students facing the greatest financial challenges to completing their degrees. Non-Submitters whose need was fully met with Gift aid and those who were no-need and received no aid, graduated at modestly lower rates than their

Submitter counterparts. However, No-Need Non-Submitters who were awarded gift aid graduated at a modestly higher rate than No-Need Submitters. And yet the institutions favored the Submitters in granting this aid, which may be a counter-productive strategy.

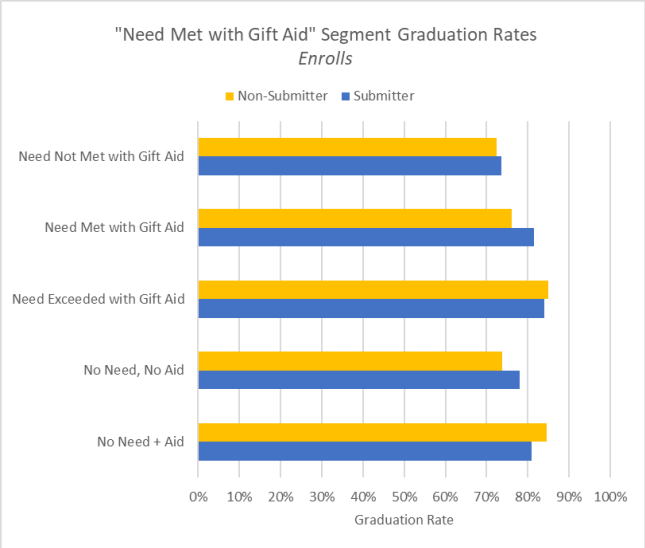


Figure 48. Need Met Segment Graduation Rates, Submitter vs. Non-Submitter. Pooled Student Data. Public and private of institutions selected based on availability of Gift Aid data at the enroll level, and institutions with 4-5 Year graduated TOP cohorts.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens.
14 Institutions **|** 17,436 Records
Enrollment = 1,500-5,000 (2,400 M) **|** Endowment per FTE = $6,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (40% M)

Figure 49 below provides another optic, examining the graduates and non-graduates of 17 institutions with 4 or 5 year graduation rates. The non-graduate Submitters and Non-Submitters appear to be similar in both their high school profiles and in their college academic records – modestly but not dramatically weaker than their graduating peers. On average it does not appear that they were required to leave for academic reasons. The non-graduates have higher representations of URM, First Gen, and Pell recipients. But we note a painful reality: comparing the four categories of graduates and non-grads, Non-Submitters and Submitters, the graduate Submitters have both the *lowest* demonstrated need and the *lowest* Family Financial Contribution. In contrast, the non-graduate Non-Submitters have both the *highest* demonstrated need and the *highest* Family Financial Contribution. And supporting the observation in the preceding chart, the Need-Not-Met students comprise a substantially larger share of the non-graduates than of the graduates. These higher financial expectations suggest that these students may be facing additional challenges to successfully navigating their college careers.

	Graduates		Non-Graduates	
	All graduated students that entered under TOP policy cohort years 2011, 2012		All non-graduated students that entered under TOP policy cohort years 2011, 2012. (This group of students has had 4-5 years to graduate, but have either withdrawn or are still enrolled.)	
	Non-Submitters	**Submitters**	**Non-Submitters**	**Submitters**
n	4311	12525	1377	4021
High School GPA	3.62	3.66	3.42	3.48
Academic Rating	6.05	6.69	5.65	6.04
SAT	1115	1249	1057	1177
First Year GPA	3.11	3.29	2.82	2.90
Cum GPA	3.25	3.40	2.85	2.89
URM	17%	10%	19%	13%
First Generation	15%	11%	20%	14%
Gender (Female)	63%	59%	61%	53%
STEM	23%	32%	12%	16%
Pell	21%	17%	31%	26%
Demonstrated Need	$40,026	$35,576	$41,692	$36,533
Family Financial Contribution	$37,528	$36,450	$39,002	$37,420
	In order to view proportions related to gift aid allocation, the rows below represent a subset of 11 institutions with graduating TOP cohorts and merit aid programs.			
n	2818	8400	992	2666
Exceed Need	10%	11%	6%	7%
No Need + Aid	17%	21%	19%	21%
No Need, No Aid	23%	20%	17%	14%
Need Not Met	46%	45%	55%	55%
Need Met	4%	3%	3%	2%

Academic Rating: All institutions submitted their respective scales, but for comparison purposes we converted all to a 10 point scale, where 10 is the highest rating.

SAT Submissions for Graduates: 10,747 *Submitters*
1,243 *Non-Submitters*

SAT Submissions for Non-Graduates: 3,660 *Submitters*
340 *Non-Submitters*

Figure 49. Academic Outcomes and Financial Contributors: Graduates vs. Non-Graduates. Enrolled students at **17** institutions with either 4 or 5 year graduation rates. Please note that the analysis is valid in comparing the Submitters versus the Non-Submitters for each line item, but each variable represents a different combination of institutions and students.
Exclusions: Two with Academic Threshold policies, one that did not have Non-Submitter proportions, and Non-Resident Aliens (excluded from the bottom section).
17 institutions **|** 22,234 Records
Enrollment = 1,500-5,000 (2,400 M) **|** Endowment per FTE = $6,000-$800,000 ($100,000 M) **|** Admit Rate = 15%-90% (40% M)

How does aid allocation relate to any gains in diversity?

With respect to diversity, to achieve the goal of serving more traditionally-underserved populations, we found that institutions will likely need to make additional financial aid commitments.

With the adoption of a TOP, the bulk of the schools in this study appear to have increased their enrollment of students from traditionally underrepresented (and generally needier) groups. We examined the financial impact that may have been required to secure these gains. In this section we have aligned financial aid averages against the proportions and growth of the three identifiable populations we have used earlier: First-Generation College Bound, students from lower SES backgrounds (using Pell Grant recipients as an easily identifiable proxy), and students from racial and ethnic groups that have traditionally been underrepresented in college populations (URM). Discussing them as three unique populations fails to account for the overlap or intersectionality of the three. Thus, as we did earlier, we have utilized the construct of "Expanded Diversity" in which we have included any student identified with any of these three groups.

In the study we collected only the total gift aid awarded to students and an indication of whether or not they had received a Pell Grant. Because it was too difficult for institutions to supply the specific breakdown of institutional gift aid, we are unable to draw solid conclusions about the financial impact of the policy on the institution. However, we

devised an approximation by summing the Total Gift Aid for every enrolled student (regardless of whether it was need-based or merit) and then dividing that by the total number of enrolled students (whether or not they received aid) to arrive at the "Gift Aid Per Capita." Obviously, some of this gift aid was not institutional gift aid (e.g., Pell Grants, State grants, and outside scholarships), but it does allow for a very rough assessment of the relative financial investment made to the pre- and post-policy-adoption cohorts.

We reviewed detailed information about the 12 institutions that were able to submit reliable financial aid data immediately pre-and post-policy-adoption in Figure 50 below.

			Private 1	Private 2	Private 3	Private 4	Private 5	Private 6	Private 7	Public 1	Public 2	Private 8	Private 9	Private 10
FINANCIAL AID DATA	**Qualified Need Proportions** *Enrolled*	PRE	44%	34%	41%	74%	44%	52%	69%	81%	75%	77%	64%	76%
		POST	56%	37%	51%	74%	48%	56%	67%	81%	75%	67%	61%	68%
		DIFF	12%	3%	9%	0%	5%	4%	-2%	0%	-1%	-10%	-4%	-8%
	Average Demonstrated Need --Needy Students-- *Enrolled*	PRE	$ 29,071	$ 34,177	$ 37,106	$ 39,464	$ 45,431	$ 41,853	$ 35,598	$ 24,180	$ 21,389	$ 35,372	$ 28,716	$ 42,942
		POST	$ 34,812	$ 38,786	$ 39,503	$ 45,602	$ 48,784	$ 41,582	$ 37,974	$ 25,582	$ 22,731	$ 34,836	$ 30,414	$ 40,308
		DIFF	$ 5,740	$ 4,609	$ 2,397	$ 6,138	$ 3,352	$ (272)	$ 2,376	$ 1,401	$ 1,343	$ (536)	$ 1,698	$ (2,634)
	Gift Aid *Per Capita* --All Students-- *Enrolled*	PRE	*No Data Submitted to Study*	$ 11,306	$ 14,082	$ 25,127	$ 17,367	*No Data Submitted to Study*	$ 19,102	$ 10,704	$ 5,106	$ 20,850	$ 10,477	$ 15,436
		POST		$ 13,505	$ 17,884	$ 27,461	$ 19,620		$ 22,539	$ 11,432	$ 6,894	$ 22,819	$ 10,407	$ 17,238
		DIFF		$ 2,199	$ 3,802	$ 2,334	$ 2,253		$ 3,437	$ 728	$ 1,788	$ 1,969	$ (71)	$ 1,803
	Average Gift Aid -- Needy Students -- *Enrolled*	PRE	*No Data Submitted to Study*	$ 27,526	$ 33,451	$ 28,171	$ 41,654	*No Data Submitted to Study*	$ 24,601	$ 12,544	$ 6,953	$ 25,197	$ 13,308	$ 26,753
		POST		$ 32,316	$ 36,297	$ 30,734	$ 44,486		$ 28,027	$ 13,901	$ 7,769	$ 29,288	$ 13,599	$ 24,752
		DIFF		$ 4,790	$ 2,846	$ 2,563	$ 2,832		$ 3,426	$ 1,357	$ 815	$ 4,091	$ 291	$ (2,001)
DIVERSITY OUTCOMES	**URM** *Enrolled Proportions*	PRE	10%	11%	9%	13%	16%	10%	12%	16%	6%	10%	8%	13%
		POST	19%	13%	14%	16%	18%	11%	15%	19%	4%	13%	6%	9%
		DIFF	*9%*	*2%*	*5%*	*3%*	*2%*	*1%*	*3%*	*3%*	*-1%*	*3%*	*-3%*	*-4%*
		% Change	*85%*	*17%*	*48%*	*23%*	*12%*	*13%*	*29%*	*19%*	*-22%*	*36%*	*-34%*	*-29%*
	Pell *Enrolled Proportions*	PRE	11%	7%	9%	27%	16%	15%	21%	28%	30%	24%	18%	14%
		POST	19%	10%	15%	32%	18%	17%	20%	28%	31%	22%	13%	13%
		DIFF	*7%*	*3%*	*5%*	*5%*	*2%*	*1%*	*-1%*	*0%*	*1%*	*-2%*	*-4%*	*0%*
		% Change	*65%*	*42%*	*56%*	*18%*	*11%*	*9%*	*-3%*	*0%*	*2%*	*-8%*	*-25%*	*-1%*
	First-Generation-to-College *Enrolled Proportions*	PRE	5%	5%	12%	24%	14%	13%	12%	34%	22%	23%	*No Data Submitted to Study*	21%
		POST	10%	7%	14%	31%	16%	15%	11%	36%	21%	21%		17%
		DIFF	*6%*	*2%*	*2%*	*8%*	*2%*	*2%*	*-1%*	*2%*	*-1%*	*-1%*		*-3%*
		% Change	*117%*	*31%*	*21%*	*33%*	*11%*	*16%*	*-8%*	*5%*	*-3%*	*-6%*		*-17%*
	Diversity, Expanded *Enrolled URM, Pell and or FG-- each student counted once*	PRE	21%	19%	18%	43%	29%	29%	31%	51%	43%	39%	*22%*	32%
		POST	35%	22%	25%	48%	31%	30%	32%	52%	44%	38%	*15%*	29%
		DIFF	*14%*	*3%*	*7%*	*5%*	*2%*	*1%*	*0%*	*1%*	*0%*	*-1%*	*-7%*	*-2%*
		% Change	*67%*	*19%*	*38%*	*12%*	*6%*	*4%*	*1%*	*2%*	*1%*	*-1%*	*-30%*	*-7%*

Figure 50. Table of Financial Aid Variables Pre-Post Policy, for Enrolled Students. Data from 12 private and public institutions with reliable financial aid data at the enroll level, submitted immediately pre- and immediately post-policy adoption.
Exclusions: Early adopters and Non-Resident Aliens
12 institutions **|** 38,047 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$230,000 ($65,000 M) **|** Admit Rate = 20%-80% (53% M)

We offer three example case studies of the interplay between financial investment and growth in diversity.

Case Study 1 - This private institution achieved a 48% growth in the proportion of enrolled URM students (going from 9% to 14%, an increase of 5 percentage points), and also had one of the highest percentage increases in the proportion of needy students (going from 43% to 51%). The average need rose $1,868 and it appears they may have become more generous in their aid award policy, as the Gift Aid Per Capita increased by $3,802. They also had substantive increases in Pell recipients and First-Generation students, resulting in one of the largest increases on our "Expanded Diversity" measure (increase of 7 percentage points – which for them represented a 38% increase in the proportion of these populations). So, they appear to have made a substantive financial commitment, in addition to adopting a TOP, and have achieved a substantial increase in the diversity of their class.

Case Study 2 – On the other end of the spectrum is a private institution that posted a decline in the proportion of needy students and actually lowered its Gift Aid Per Capita a slight amount. But in doing so it suffered substantive declines in the proportions of both URM and Pell recipients.

Case Study 3 – More in the "middle of the pack," is another private, with roughly the same proportion of needy students pre- and post-adoption. The average need of their enrolled students increased by about $3,900 and their Gift Aid Per Capita increased by about $2,200, but they also increased the proportion of their URM students by 3 percentage points, their First Gen students by 8 percentage points and their Pell Recipients by 5 percentage points resulting in a proportional increase of 12% (5 percentage points) in their Expanded Diversity score. So, subsequent to adopting a TOP, they invested more resources in aid and substantially increased the diversity of their student body, particularly in terms of serving First-Generation students.

> *"Apps increased but we didn't back it up with a strong enough financial aid program. We recently strengthened our commitment to aid so it's working better now."*
>
> *Dean from small private college*

The chart below provides a visual summary of the conceptual ROI (Return On Investment). The higher an institution is on the vertical axis, the more proportional gain it has made in the diversity of its freshman class (based on our "Expanded Diversity" rating). And the further to the right it is on the horizontal axis, the more it has increased its investment in financial aid. (N.B. The dollars expressed on the horizontal axis should be interpreted as providing relative order of magnitude rather than precise numbers, as we do not have specific institutional gift aid available.)

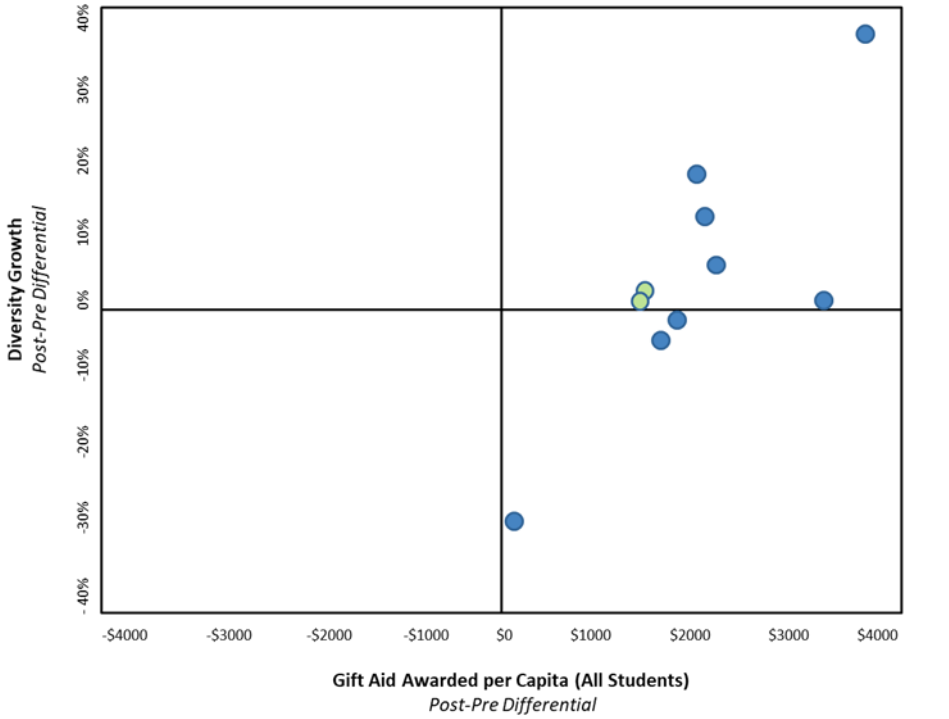


Figure 51. Investment-Outcome Matrix, Pre-Post Differentials of Expanded Diversity Percent Change and Gift Aid per Capita (All Students). Data from 10 private and public institutions with reliable gift aid data submitted immediately pre- and immediately post-policy adoption. Exclusions: Early adopters and Non-Resident Aliens
Points in green are public institutions.
10 institutions **|** 41,429 Records
Enrollment = 2,000-20,000 (4,000 M) **|** Endowment per FTE = $4,000-$230,000 ($65,000 M) **|** Admit Rate = 20%-80% (53% M)

So, while it is not possible (based upon this small sample of ten institutions) to arrive at definitive conclusions, it is reasonable to state that if an institution is interested in increasing its diversity, a test-optional admission policy can provide a valuable tool, but, unsurprisingly, to achieve the goal of serving more traditionally-underserved populations, the institution will likely need to make additional financial aid commitments.

SUMMARY AND IMPLICATIONS

What can we summarize about the workings of a Test-Optional Policy?

No research can provide definitive answers to the questions we have explored about the use of a test-optional admission policy, and we do not claim to have done so. Every institution has a slightly different experience. We are not presumptuous enough to believe we can identify any single outcome (nor even strong tendency) that should be expected by every institution adopting a TOP. There is simply too much variation between institutions in commitment to mission, location in the educational marketplace, student population being served, affluence, and institutional goals. Instead, we have provided as many perspectives on the possibilities that a TOP may help an individual institution to achieve.

Thus qualified, our findings suggest that a TOP works well at a variety of institutions. Almost all institutions in our study increased enrollment of underserved populations, with many showing proportionate increases exceeding those found at test-requiring peer institutions. And, the policy transition occurred without any signs of academic slide: GPAs and graduation rates didn't suffer, and according to reports from the Deans many faculty were very pleased with the quality and character of the incoming classes.

This success, however, appears to come with some degree of additional financial investment. The proportion of needy students rose at roughly half of our TOP institutions. Almost all the institutions saw an increase in the average demonstrated need from the pre-policy to the post-policy cohort years and increased the gift aid per capita. Most of our participating institutions appear to have provided less generous gift aid packages to Non-Submitters (both needy and no-need) than to their Submitters.

The institutions in our study appeared to treat Non-Submitters differently than Submitters, admitting them at a lower rate and, on average, treating them a little less generously in the financial aid process, particularly with merit scholarships. The admitted Non-Submitters, however, enrolled at higher rates at virtually all of our institutions.

These Non-Submitters comprised significantly larger proportions of Underrepresented Minorities, First-Generation-to-College, Pell recipients, and women than did Submitters. As a group, Non-Submitters showed slightly lower academic performance both in high school and college, but graduated from college at equivalent, or in some cases, higher rates than Submitters. The largest distinguishing academic difference we found was the lower test scores for the Non-Submitters (though we had test scores for only about a third of them).

Furthermore, this study helps to punctuate the question of what is meant when we refer to "success in college," a phrase frequently used to argue for the predictive value of the SAT and ACT. There is general agreement that those tests, when used in conjunction with high school grades, do a marginally better job than high school grades alone of predicting the First Year College GPA of students. However, whether they predict evenly across populations of students has been widely debated. And an increasing number of voices are challenging the notion that predicting whether a student is likely to achieve, say a 3.3 GPA versus a 3.2 at the end of their first year in college is synonymous with predicting "success in college," and are rejecting that phrase as an obfuscation of the actually limited value of the tests. Quoting again from the NACAC Commission on the Use of Standardized Tests in College Admission:

> *Commission members unanimously agreed that college success is a term of sufficient breadth that it includes degree attainment, a wide range of GPAs, and the acquisition of experiences and skills that will propel a student into the workforce, graduate education, or responsible citizenship.* (NACAC, 2008)

We also found that this group of Non-Submitters represented approximately a quarter of the applicant pool, a finding that highlights an interesting intersection between findings published by the testing agencies. Their meta-analysis of studies also found a quarter to a third of all students with "discrepant performance," either students with high HSGPAs and low testing, or the reverse: modest HSGPAs but high testing (Sanchez & Mattern [Making the Case for Standardized Testing] in Buckley, 2018). Within this group, approximately half of them have high school grades that are higher than what the tests would predict. And it is worth noting the parallels between the proportions noted in the above studies and the median percentage (23%) of students choosing to be Non-Submitters at the institutions in this study.

We also agree with characterizations of the most likely students to have strong HSGPAs and low testing: women, First-Generation to college, low income students, and students who speak a second language at home.[21] Furthermore, those most likely to be discordant with weaker HSGPAs and stronger testing are males, whites, and those of higher income (Sanchez and Edmunds, 2015).

We would suggest another, largely parallel language for thinking of these students. Many researchers, especially in medical fields, will speak of "false negatives" and "false positives." A false negative occurs when the test suggests that something will not happen, but it does. A false positive suggests that something will happen, but it doesn't. We assert that most TOP Non-Submitters are "false negatives": the SAT and ACT tests suggest that they will not perform well in college, but these students perform fine, and graduate at equal or higher rates than the Submitters.

Finally, this study also confirmed that the SAT and ACT do have a positive correlation with college cumulative GPA for some students, more commonly Submitters -- the students who made an informed decision that their testing represented their ability. We do not argue that institutions should entirely eliminate consideration of the ACT and SAT for all their students. We do not promote the simplistic notion that these tests are either "all bad" or "all good."

The argument from the testing agencies that colleges should want every piece of significant information to make their decisions misses a key point. A student's decision to apply to TOP colleges, and not to have test scores considered in the admissions decisions, <u>is</u> significant information, often profoundly important for both student and institution. The students have made a key decision, saying to the Admissions offices, "I am a better student and potential citizen than these tests would suggest." The research findings from this study and others cited suggest that the students are right.

[21] Hiss and Doria, 2010. A 25-year study of optional testing at Bates found a thick band of Non-Submitters whose homes ran across the top of ME, NH and VT. Often American citizens for several generations, they were of French Canadian backgrounds. Being close to the border, they had kept up cultural and linguistic ties, with students speaking French at home and learning English at school.

What did TOP deans say about their experience with the policy?

At the start of the study, we interviewed each participating Dean of Admission about their experience with TOP. Then, we reviewed their comments in light of the data submission, which was subject to a thorough analysis. Pulling apart some of these unique findings from each institution enabled us to see patterns in similar experiences.

- The motivations cited for adopting a test-optional policy were fairly consistent across the institutions in the study, relating primarily to **improving the access of underserved students**:
    - *"TOP arose from the decision to pursue access to higher education among underrepresented groups."*
    - *"It was important to our commitment to access, in particular to First-Generation students and students from under-resourced schools. Also felt it might help us reach students who might previously not have considered."*
- The adoption of the policy was also described as way to simply **formalize what they had been doing in practice all along**. *"We never weighted testing heavily – always weighted classroom performance more heavily"* or another institution *"We always pitched that the scores were not given much weight."*
- While the policies varied in terms of specifics, most employed an **Optional for All** policy with a few exceptions, for example, requiring test scores from international students, homeschooled students, or students applying to specialty programs. Some had started with an Academic Threshold or Optional Plus policy, and then migrated to the more open variation of the policy, Optional for All, indicating an increased comfort level with making sound admission decisions without testing.
- The group that employed some form of an **Optional Plus policy had mixed reviews**. A few seemed pleased with their interviews, essay questions or other formats designed to solicit information from students on non-cognitive skills. However, others felt that it was too time consuming and did not yield the results they wanted, *"The [additional requirement] added very little to our reading or prediction, and took up big shares of time."* These institutions are actively considering eliminating the additional admission materials and migrating to an Optional for All policy.
- Most of the institutions **had not employed a marketing campaign** to promote their new policy. Many claimed to simply *"Put out a press release and some FAQs on website"* or *"launched it by notifying on the Common App and on the website, and included it in a counselor update newsletter."*
- A few institutions **launched TOP as part of a larger initiative** "*TOP was a component of a substantive shift of the institution as more hands-on skill building, and felt standardized tests did not fit well with this shift."*
- Most described the policy buy-in process as taking some time and effort, particularly with faculty members. Yet, many claimed that after TOP adoption **constituents reported being satisfied with it**. As one dean claimed *"We are very happy with the policy and there is no discussion of rolling it back. We also listen heavily to the comments of faculty about their students and hear no concerns."*
- Many described the process of transitioning to TOP as largely painless, just requiring an additional step in the direction of **focusing greater attention on the rigor of the coursework in the context of the quality of the high school**. One noted, *"a little more training with our readers, and it has increased our focus on the rigor of the high school curriculum."*
- Some institutions mentioned adding interviewers or temporary readers to handle the application increase. One of the institutions, as highlighted in the introductory case study, hired **additional temporary readers** because of the increased volume of applications, and the additional time required for Non-Submitter applications. *"When you have a test score that is consistent with the academic record and other documents, it gives you confidence to spend less time on the application. When there's no test score as 'confirming' evidence, you'll typically look more closely at the high school record, the rigor of the curriculum, and the school profile for context."*

- Most of the Deans described their **policy experience in glowing terms** as a success in achieving admission goals:
    - *"We are attracting more Students-of-Color due to the policy."*
    - *"We are seeing lots of kids who have done everything right except have high tests."*
    - *"It has absolutely worked. First year academic performance and freshman-sophomore retention have improved. We've seen a steady increase in ethnic diversity."*
- A few had more limited success, and had to make some adjustments to the policy over time:
    - *"Only issue that did not play out as well as we had hoped with students of color, First Gen, and working-class kids. But we have fixed the financial aid budget now."*
    - *"It has worked, though it is not nearly as popular (widely used) as we thought it would be…maybe most of the students who would traditionally have been attracted to TOP were already applying without being overly concerned if their test scores didn't represent them well."*

What are the authors' ideas for future research?

This study has provided many insights into the use of a test-optional policy. However, while our study is both broad and detailed, we identified numerous related topics that reasonably could be addressed in future research, including in no particular order of priority or importance:

- Our study focused on analyzing data from student records provided by institutions, and did not delve into the nature and behavior of Non-Submitters. Qualitative research techniques, such as interviews and focus groups with prospective students and enrolled Non-Submitters, would be an insightful follow-up to this study.
- While graduation rates were a pivotal feature of this study, the specifics of student retention were not investigated. Much could also be learned about the success of the policy in light of the on-campus learning and social environment that receives Non-Submitters.
- We received test scores for a limited proportion of Non-Submitters. A more comprehensive collection of test scores from Non-Submitters would allow a more definitive assessment on the alignment of HSGPA and test scores with college outcomes.
- LD student access to higher education is a future research project with potentially very high rewards, given the growing understanding and identification of this population of students.
- While we elicited complex findings on financial aid, there is much room for additional investigation, including the review of the policy in light of institutional aid numbers.
- Academic Threshold policies offer a degree of lessened reliance on testing, but are a very different breed of policy when compared against the Optional for All model, whereby students have the free will to choose their admission credentials. There is much room to learn more about the ins and outs of this type of policy.
- The concept we introduced of "Expanded Diversity," whereby each student is considered in terms of all the rich diversity he or she brings to campus life and learning, could be used to underpin a substantial rethinking about how we as researchers understand diversity in higher education. This concept has potential to encompass an even broader range of students than we did in this study, for instance, those with learning differences, non-traditional students, international students, and non-native speakers.

APPENDIX

CO-AUTHORS

Steve Syverson, Co-Author and Principal Investigator

Steve Syverson graduated from Pomona College, and worked in Admissions at Pomona (1978-1983), culminating as the Director. For 28 years until 2011 he served as the Dean of Admissions and Financial Aid at Lawrence University, substantially increasing the proportion of students-of-color and international students. He has designed and programmed admissions and financial aid computer systems for Pomona, Claremont McKenna, and Lawrence. In 2016, after a short stint as a retiree, in southern California, he accepted an appointment as the Assistant Vice Chancellor for Enrollment Management at the University of Washington Bothell.

Active in professional organizations, Steve has variously served on the NACAC Board of Directors (2011-2014), as NACAC Vice President for Admission Practices (1988-91), and on the NACAC Commission on the Use of Standardized Testing in Undergraduate Admissions which issued its highly influential report in 2008. He chaired the NACAC Media, Marketing and Technology Committee, and served on the faculties of the NACAC Guiding the Way to Inclusion and NACAC Tools of the Trade professional training workshops. He also was the President of Wisconsin ACAC and served on the ACT Executive Council of Wisconsin.

A frequent author and speaker on admissions and financial aid topics, he has published articles on “Basics of Standardized Testing in the Admissions Process,” “The Role of Standardized Tests in College Admissions—Test Optional Admissions,” “Ethics and Sensitivity to Students.”

Outside of admissions, he has a particular interest in Habitat for Humanity and has worked extensively with the American Institute of Certified Educational Planners advancing the Certified Educational Planner (CEP) credential for independent educational consultants and school-based college counselors. He also has been a long-time member of the advisory board of Cappex.com.

Valerie W. Franks, Co-Author and Study Manager

Valerie Franks brings over twenty years of experience in research. In 2007, she founded her own firm to provide consulting and analysis to educational institutions. She has spent the past eight years researching Test-Optional Policies, first as Lead Researcher and co-author of the first study on Test-Optional Policy "Defining Promise” and now serving the same role in “Defining Access.”

Prior to that, she was a former Assistant Dean of Admissions at Bates, where she recruited students, read applications and enrolled students in the context of a Test-Optional policy. Alongside this role, she also acted as admissions analyst, working closely with the Director of Institutional Research and the Dean of Admissions to examine admission funnel patterns, as well as report data to IPEDS.

Valerie's roots in research started in the business world. She spent two years as project executive in Prague for an international research firm, surveying the Central European market to identify market opportunities for international companies, with primary responsibilities for data analysis and formation of market strategy. She then spent five years as research manager for a New York strategy consulting firm, designing and managing national qualitative and quantitative research studies on brand equity, customer preference, competitor positioning and messaging resonance, brand identity, and positioning and creative / tactical execution plans.

She earned her BA in Psychology from Bates, and speaks fluent French and proficient Czech.

William C. Hiss, Co-Author and Advisory Committee Chair

Bill Hiss served Bates College for 35 years as Dean of Admissions and Financial Aid, a vice president supervising alumni relations, career services and communications, a senior leadership gifts officer, and a Lecturer in Asian Studies. His "Literature through Cataclysm" course studied the modern fiction and film of five societies that endured a 20th century cataclysm: Russia, Japan, Vietnam, India/Pakistan and Somalia.

Bill took his B.A. in English from Bates, an M.T.S. in ethics and American church history at Harvard Divinity School, and an M.A and Ph.D. at Tufts in American literature, religion and intellectual history. He taught in JHS 120 in the South Bronx, at Tufts as a graduate student and at Hebron Academy, as well as Bates. He served on the Federal Advisory Committee on Student Financial Assistance, which advises the Congress and Secretary of Education on national financial aid policy. He established and led the advisory committee of deans at USNews on guidebook and ranking issues.

In 1984 the Bates faculty made standardized testing optional for admissions. For over 35 years, Bill has researched and written on optional standardized testing, including a 25-year look-back study of the Bates optional testing policy with co-author Kate Doria. In February of 2014, Bill and his co-author Valerie Franks published the first national, peer-reviewed study, "Defining Promise," of optional testing at 33 private and public institutions. This study found only trivial differences between Submitters and Non-Submitters of testing in both Cum GPA's and graduation rates.

A retiree beekeeper, soccer referee, crew on sail and power boats, and lay UCC pastor, he recently spent a month in Ho Chi Minh City helping to design the Admission and Financial Aid offices for Fulbright University Vietnam, Vietnam's first liberal arts institution, and perhaps Asia's first TOP institution.

Lidia Ortiz assisted the research team in the data preparation and analysis. A graduate of Smith College with a bachelor's degree in Economics and Psychology, Lidia has previously collaborated with the University of Illinois at Chicago and the University of Southern Georgia Psychology department working on health disparities research. In addition, she has worked with Smith's College of Office of Institutional Research to enable data-driven decision making.

Members of the Advisory Committee

David Hawkins is the Executive Director for Educational Content and Policy at the National Association of College Admissions Counseling, where he has served for 18 years. He received his MA in Government from William and Mary.

Brian Prescott is the Associate Vice President at the National Center for Higher Education Management Systems. He has previously served a term as an appointed member of the NACAC Board of Directors and, while at the Western Interstate Commission for Higher Education, authored or co-authored two editions of WICHE's widely used projections of high school graduates, *Knocking at The Door*. He received his undergraduate degree from William and Mary, his M.A. from the University of Iowa, and his Ph.D. from the University of Virginia.

Kevin Rask has been College Research Professor of Economics at Colorado College since 2011. Before that he was Professor of Economics at Wake Forest University and Colgate University for 20 years. He received his undergraduate degree from Haverford and his Ph.D. from Duke, both in Economics. He has frequently published on higher education issues, including research on optional testing at Wake Forest as an essay in *SAT Wars: The Case for Optional Testing in Admissions.*

Cate Rowan is the Executive Director of Institutional Research at Smith College, where she has served since 2005. Previously, she was the Director of Research at Mt. Holyoke College for 8 years. She received her undergraduate degree from Smith, and her MBA from the Isenberg School of Management at the University of Massachusetts, Amherst.

DATA FIELDS DEFINED

Racial and Ethnic Student Identification Data

We used IPEDS-defined categories of racial/ethnic identification. For research purposes, we requested that institutions submit data using the hierarchical method of identification that counts each student only once. Some of our data spans the US Census and 2010 IPEDS change in the way race/ethnicity was recorded. We had no way to "correct for" that change, so Hispanic numbers, in particular, may have been confounded in comparisons that span those years, but in most instances we believe that including them in the overall Underrepresented Minority (URM) count reduces or eliminates the impact of the coding change. After much consideration, we did not include the IPEDS "Two or more races" categorization in our overall Underrepresented Minority grouping.

Instead, we found it helpful to design some analyses which looked at the overlap of various racial and ethnic groups. A genuine step of "forward motion" in college and university admissions in recent years has been the increasingly common practice of including data on First-Generation-to-College and Pell Grant recipients in presenting a class profile. We have followed that practice and tried to show the overlap between the various racial, ethnic, educational attainment, and income level groups. But we also have experimented a bit, creating some information on what we've termed "Expanded Diversity."

High School GPA Data

HSGPA data presented one of several interesting challenges as we attempted to use consistent data across the institutions in our study. As with all our data, HSGPAs were reported to us as recorded by the institution's Admissions or Institutional Research offices. Some colleges simply record whatever GPA the high school has supplied, whether weighted or unweighted, and whether or not it is a traditional 4-point scale. Other institutions follow internal protocols for converting HSGPAs to a common 4.0 scale. Many high schools record GPAs that exceed 4.0 as part of a weighting schema for honors, IB or AP classes, whereas other high schools do not weight their grades. Some colleges simply truncate anything above a 4.0 to a 4.0 and account for the rigor of the curriculum elsewhere in their process. So there is great variability in the treatment of HSGPAs both among the high schools and among the colleges, prompting us to wonder how other studies have attempted to normalize the treatment of HSGPAs. Studies that are internal to single institutions (e.g., regression analyses of the predictive value of grades or test scores) eliminate one layer of variability, but multi-college studies are particularly challenged.

We did an extensive individual analysis of the GPAs reported by each of the 28 institutions in the study, using whatever protocol that institution used, and allowing for the GPA scales to exceed the traditional 4-point scale. We also created a second HSGPA data element in which we truncated the GPA at 4.0 for each record. In the end, because many colleges and high schools did not report GPAs higher than 4.0, and there was no way to "unbundle" what was originally reported to the institutions by the high schools, we have used the truncated 4.0 methodology for our comparisons.

Standardized Test Score Data

We requested test scores on all student records. We received at most one set of ACT and/or SAT scores for any individual student. For simplicity of comparison and discussion, we used a concordance table[22] to convert ACT scores to SAT scores, and all references in the report refer to them simply as SATs. The new SAT had not been taken by most of the student cohorts in this study.[23]

We found that institutions either still received (or requested upon admission) test scores from students who chose to omit testing from their application, but at much lower rates than the 2014 study. Four institutions did not have scores on record for their Non-Submitters, and among the remaining 24 institutions, 27% of Non-Submitter applicant records contained a test score. At the enrolled student level, 36% of the non-submitter records had test scores, with a range of enrolled student Non-Submitter test submission across institutions of 7% to 82%. We represent and use this subset of scores with caution, as it does not represent the full range of scores from this student segment.

To test our findings at institutions with a higher rate of data collection, we conducted parallel analyses at 8 of our institutions that had SAT/ACT scores for at least 50% of their enrolling Non-Submitters, and found the same results as when we used all the institutions. It would seem to defy common sense to think that the scores which were not submitted were dramatically *higher* than those which the institutions did collect. If anything, one might assume that that the scores that were not collected, on average, would be lower. Yet with or without a collected test score, the Cum GPAs and graduation rates of the Non-Submitters speak to their ability to succeed in college and university curricula.

Financial Aid Data

We collected four principal data elements from the participating institutions:

- Expected Family Contribution (EFC) – At some institutions this was the federal EFC, and at others it was an institutionally-determined EFC. Because we were attempting to assess aid award differences between Submitters and Non-Submitters at the individual institution, we sought whatever EFC they used to determine the need for aid.
- Total Gift Aid – We asked only for the total gift aid (from any source) received by the student.
- Pell Grant Recipients – We asked institutions simply to identify any student receiving a Pell Grant, but did not ask for the specific amount of the Pell Grant.
- Merit Aid Recipients – We asked them to identify any student to whom they had awarded non-need-based, "merit" gift aid.

All financial aid values and institutional Costs-of-Attendance were adjusted into 2016 dollar equivalents[24] to be able to compare the values over time. We created a series of internal validity checks of data and, in a handful of cases, eliminated some institutions from certain analyses due to incomplete or irreconcilably inconsistent data. These cases are identified as they occur throughout the report. It should be noted that all financial aid data was at the point of admission. Although financial circumstances change over time -- other than adjusting all dollars into 2016 dollar

[22] College Board, "ACT and SAT Concordance Tables," 2009, <https://research.collegeboard.org/sites/default/files/publications/2012/7/researchnote-2009-40-act-sat-concordance-tables.pdf>.

[23] Only institution submitted a few ACT test scores from students post 2016. For this institution, the more recently adopted concordance table was used (though its validity has been disputed by ACT): College Board, "New SAT to ACT Concordance Table" 2016 <https://collegereadiness.collegeboard.org/pdf/higher-ed-brief-sat-concordance.pdf>

[24] EFC, Gift Aid, and Total Cost of Attendance were adjusted using the St. Louis Fed's FRED II database urban consumer CPI (CPIAUCSL), base year 2016.

equivalents, we did not attempt to track any changes over time. Thus, for instance, when we discuss graduation rates or college GPAs in the context of financial need, it is based on the financial need or aid award at the time of admission.

Similar to HSGPAs above, we encountered a number of challenges in interpreting financial aid data, particularly with respect to merit aid. In some instances, the current staff at the institution were unable to affirm the protocols for recording certain financial aid data elements that were used in the earlier years. In some cases, merit aid was only defined as gift aid awarded to no-need students, whereas at other institutions, virtually every student receiving need-based aid has a portion of it labeled as a "merit" scholarship. Some institutions reported having no institutional merit scholarship program, and yet had a number of students flagged as merit scholarship recipients (leaving us to assume these may refer to externally awarded merit scholarships or to scholarships such as National Merit or Posse Foundation that are awarded by the institution, but to an externally-determined population). Thus we created a data element that identified students who received gift aid (from any source) that was in excess of their total demonstrated financial need. We primarily used this more consistent definition in place of institutional definitions of merit.

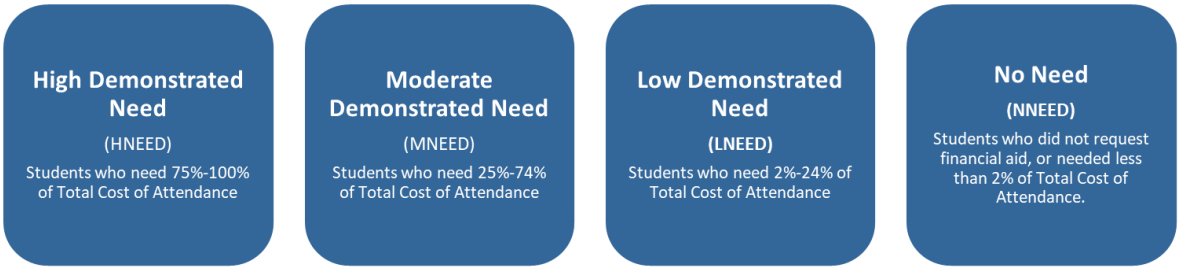
Ten institutions were able to provide information about financial aid awards made to admitted and enrolled students, five were able to provide reliable data only for students who enrolled, and six were unable to provide any financial award data. Pell grant recipients were identified by all but two institutions at the enrollee level, but less than half of them were also able to provide it at the admit level.

While conducting our analysis, we identified a number of students with apparent incongruities in the four financial data elements submitted. Two institutions had enough incongruities that we were compelled to exclude them from the analyses of financial aid. One significant incongruity didn't require exclusion of the data, but caused us to reconsider our interpretation of it. Specifically, of about 24,750 admits during the TOP cohort years identified as Pell recipients, we found slightly under 1,500 that had EFCs that were higher than would be Pell-eligible. Some of these records were actually No-Need, and the size of the Total Gift awarded appeared to be solely the Pell Grant. Such circumstances can occur when the federal EFC qualifies a student for a Pell Grant, but the institutionally-determined EFC takes into consideration additional resources, such as the income of the non-custodial parent. While most public institutions accept the federal EFC, many private institutions consider the additional resources when determining eligibility for institutional aid. We made the decision to assume that the records identified as Pell recipients were accurate, regardless of the EFC or Total Gift Aid reported, but it gave us a new appreciation for the potential nuances related to using "Pell recipients" as a proxy for low SES students.

The other major incongruity we discovered among our financial aid data points that we were unable to confidently decipher was the group of students who reportedly received gift aid in excess of the Total Cost of Attendance (COA) at their institution. These discrepancies ranged from a few dollars to many thousands of dollars. While we speculated that there were likely some students who received such extraordinary scholarships or combinations of scholarships that their total COA was indeed exceeded by their gift aid, the inclusion of these students had the potential to inappropriately distort some of our comparisons, so we have eliminated from our financial aid comparisons all students whose reported Total Gift Aid exceeded their COA by more than $1,000. A total of 927 students from 11 institutions (from a total of 765,087 records with reliable FA data) have been excluded from the FA comparisons for this reason.

Because of the varying costs at the participating institutions, rather than conduct our analyses based upon just the EFCs of the students, we instead focused on their ability to contribute to the institutions to which they had applied by assigning them to one of the four student segments outlined below. These segments are designed to be institutionally-specific. It is possible that if a student applied to more than one of the institutions in our study, and those institutions had substantially different COAs, the student may have been assigned to different segments for each of the institutions. This segmentation attempts to account for the financial circumstances of the family in direct relation to the costs of a particular institution, as well as to track institutional awarding strategies that are keyed to the institution's own costs.

The following segments were calculated by subtracting the adjusted EFC from the Total Cost of Attendance:



We then developed a systematic way of viewing student financial support in five "Need Met With Grant" Segments. The reader should note that for this purpose, we are evaluating whether need was met solely with gift aid. Traditionally, an institution "meets need" with a combination of gift aid (grants and scholarships), loans, and work-study – so, many of the high-need students (and even moderate need students) will fall into the category of "Need Not Met with Grant." In some instances these students may have been "gapped," but the reader also should not conclude that students in this category didn't have their need met under the more traditional definition.

Also, please note that students flagged as "No Need" (with or without gift aid) includes not only those whose EFC was greater than the COA, but also those for whom the college did not record an EFC. In some instances, this may represent a student who simply never completed the Need Analysis process at that college (they already enrolled elsewhere, or had received a large enough scholarship that they didn't need to be considered for need-based aid.) So this may mildly overstate the number of true No Need students.

Finally, to assist in our analysis, we created an attribute called "Family Financial Contribution," or FFC. This was used to determine the total amount the family was expected to pay at a specific institution, and was calculated as:

Family Financial Contribution = Total Cost of Attendance - Total Gift Aid

Although the way in which each family covered their FFC is unknown (i.e., family resources, loans, work-study, additional outside scholarships, or assistance from relatives or friends), this number provides a more consistent basis for comparison than the EFC, as it represents the entire amount the family needed to provide exclusive of the gift aid provided in the institution's aid award.

Academic Outcome Data

We requested the critical academic measures of college success, along with a few additional areas of interest. We collected: the first-year college GPA (FYGPA), most recent (or final) CumGPA, major designation, a current student enrollment status, and an up-to-date graduation status for all students who enrolled. We used graduation status as our ultimate measure of student academic success.

The data was collected in 2016, so for a cohort that enrolled in 2008, the graduation rate would reflect an eight-year graduation rate, whereas for a 2012 cohort, it would reflect only a four-year graduation rate. The graduation rate data for TOP policy years will focus on the 4- and 5-year graduation rates of student cohorts entering in 2012 and 2011, respectively. Our participants adopted the policy across a range of timespans, so we have a subset of only 12 that had the policy in effect long enough to show both of these rates.

The FYGPA is the most consistent and consistently available college academic indicator, as it was reported at the end of the first year of college regardless of which cohort the student was in. The Cum GPA represents the last recorded GPA at the institution. So, for students who graduated, it will represent their cumulative GPA at graduation, but for students who have not yet graduated or who have left the institution, it represents their final or most recent cumulative GPA, which may represent anything from one year to several years' worth of academic work.

The college academic performance data was used primarily to assess any potential differences between the performance outcomes of the Non-Submitters and the Submitters. To a lesser extent, we also attempted to explore whether there was any significant difference between the overall performance of the pre-TOP cohorts and the post-TOP cohorts at each institution, but it is difficult to isolate the effect of the TOP from the effects of other changes that may have been occurring at the institution.

Peer Data

For another stage of the study we attempted to assess how changes in the size and composition of the applicant pools for the participating TOP institutions compared with those of a matched sample of their competitive-overlap peer institutions. We asked each TOP institution to identify three institutions they viewed as "peer competitor" institutions – not aspirational institutions, but institutions with which they have large applicant overlap and have a roughly even "win-loss" record for admitted students. For that portion of the study, to ensure comparability of data, we collected IPEDS data for both the TOP institutions and their Test Required Peers for each of the matched cohorts of students. (For more detail on the selection of Peer institutions, see page 19.)

The participating institutions in the study were given a data request of approximately 40 variables. The following text describes the data definition.

I. Data type: Record-level data on students at the point of application and additional data on those who matriculated.

II. Population definition at point of application or entry to college: First-time, undergraduate, bachelor's degree seeking, full-time entering in the fall. Please exclude: transfer-in students, graduate students, part-time, non-degree seeking, associate's degree seeking, unclassified students, spring or summer entry students.

III. Years of data requested: In total, four cohorts requested based on the start date of the TOP policy on standardized testing in the admissions decision.
   a. Two cohort years ***leading up*** to the adoption of the test-optional policy.
   b. Two cohort years ***post*** adoption.

The following variables were requested of each participating institution:	
StudentID	Unique, blind
Cohort	Year of entry to college, full time, first time, fall entry students.
FirstContact	First point of contact between the student and the institution.
FirstContactDate	Date of the first contact.
AppDate	Date of the application receipt.
AppType	1 = Early Action or Early Decision 0 = Regular
ScoreConsid	Did the student apply with or without their standardized test score being considered as part of the Admissions decision? 1 = Test Score Considered (SAT I OR ACT reviewed in the admissions decision) 0 = Test Score Not Considered (No testing reviewed in the admissions decision) 2 = Alternative Test Considered (International Baccalaureate, TOEFL, or British A-Levels were submitted instead of SAT I, ACT)
AdmitStat	1 = Admitted (Include students who were pulled from the wait list and admitted) 0 = Denied/Wait List 2 = No Decision Rendered (Student withdrew prior to decision, or application incomplete)
StuDec	1 = Student Enrolled 0 = Student Did Not Enroll

	(Student Declined Offer of Admission or Withdrew Before Enrollment) 2 = Deferred
Zip	Student hometown five-digit zip code from admission record.
Gender	1 = Female 0 = Male 2 = Other
RaceEth_Instit	New IPEDS codes used for the cohorts after the IPEDS code change. Nonresident Alien Hispanic/Latino American Indian or Alaska Native Asian Black or African-American Native Hawaiian or Other Pacific Islander White Two or more races Race and ethnicity unknown
BirthYear	Birth year in 4 characters (YYYY).
CEEB	Student's graduating high school CEEB code.
HSType	Student's graduating high school type.
HSGPA	Cumulative High School GPA
HSGPAScale	Institution record of high school GPA.
SATCR	Score submitted for admission, scale 200-800
SATMath	Score submitted for admission, scale 200-800
SATWriting	Score submitted for admission, scale 200-800
ACTComp	Score submitted for admission, 2 digits
EFC	EFC used to award aid at the time of admission (from any formula: institutional, federal, etc.), dollar amount - 0 means no contribution - Null is no FAFSA submitted (no need) - 1.00 (or other single digit) means $1 required contribution

Pell	Did the student receive Pell grant aid at the time of admission? 1 or 0
NeedAid	Need-based grants received at the time of admission. 1 or 0 (Need-based scholarship or grant aid: Scholarships and grants from institutional, state, federal, or other sources for which a student must have financial need to qualify.)
MeritAid	Institutional merit scholarships/grants at the time of admission. 1 or 0
TGiftAid	Total packaged grant for all admitted students in their first cohort year, including any combined institutional, governmental and private aid.
PEAFather	1 = Middle school/Jr. high 2 = High school 3 = College or beyond 4 = Other/unknown
PEAMother	1 = Middle school/Jr. high 2 = High school 3 = College or beyond 4 = Other/unknown
FirstGen	Institutional record of "neither parent having received a four-year college degree"
Athlete	Recruited athlete in the admissions process.
EnrollStat	Current status as of Spring Term 2016 1 = Active (Please include institution-approved off-campus study) 2 = Leave of absence 3 = Withdrew before graduating (If recorded, please exclude known transfers and code them as “6”) 4 = Graduated 5 = Deceased 6 = Transferred-out 7 = Unknown 8 = Did Not Enroll
GradYear	Actual graduation year, if graduated, as of Spring Term 2016.
PrimaryCIP	Major code, Primary CIP, Undecided
SecondCIP	Second major code
FYGPA	Cumulative GPA at end of the first year (June), 0 – 4.0 point scale. (Note: If student withdrew before end of year, ending GPA)
CumGPA	Final Recorded Cumulative GPA on a 0 – 4.0 point scale. (Note: If student withdrew or graduated, ending GPA)

LD	Learning difference or learning disability, submit institutional codes and code definitions.
AR	The overall academic rating as decided by admissions staff during the application evaluation process, if your institution records such a summary code. If a holistic admission rating is used, please also include in a separate column.
PR	The overall personal rating as decided by admissions staff during the application evaluation process, if your institution records such a summary code.
AltEval	Include any alternative means of student evaluation, particularly any that were added at the time of testing de-emphasis. For example, interview rating scale, questionnaire score, portfolio rating, strength of curriculum, etc.
ESL	First or primary language is not English. (Common Application question regarding "First Language")
The following variables were transformed from the above list into those used in the analysis:	
FirstContact_Universal	Universal categories of first contact created for the study.
URM	1 = Hispanic/Latino, American Indian or Alaska Native, Black or African American, Native Hawaiian or Other Pacific Islander 0 = White, Asian, NonRes Aliens, Two or More Races
Diversity	1 = Hispanic/Latino, American Indian or Alaska Native, Black or African American, Native Hawaiian or Other Pacific Islander, Pell, First Gen 0 = White (all remaining cells), Non-Res Aliens, Two or More Races
Expanded Diversity	URM Only, URM+Pell, URM+Pell+FG, URM+FG, No layers
HSGPA_ConvertAll	- Converted all known *unique* scales to 4.0 scale using scales provided by institution, or if missing, consulted the proprietary HS GPA scale database - Converted all 100-point scales to 4.0 - Allowed all others to remain up to 5.99
HSGPA_Truncate	Change all GPAs >4.0 to a flat 4.0
SATConvertAll	Combined SAT CR+M and ACTConv into one comprehensive list. (No writing scores) If both SAT and ACT scores submitted, highest score was used.
EFC-AdjCPI	Adjusted for inflation using the St. Louis Fed's FRED II database urban consumer CPI (CPIAUCSL), base year 2016.
COA	IPEDS total cost of attendance for entering cohort year, accurate for in-state and out-state residents (living on campus not with family), if different

TGiftAid_Adj	Adjusted for inflation using the St. Louis Fed's FRED II database urban consumer CPI (CPIAUCSL), base year 2016.
FFC (Family Financial Contribution)	COA-Adj - Total Gift Aid-Adj
DemonstratedNeed	COA-Adj - EFC-Adj No negative or 0 values
PercentNeed	(DemonstratedNeed/COA-Adj)*100
NeedSeg	Segments derived from value in PercentNeed: 1-HNEED: 75-100% 2-MNEED: 25-74% 3-LNEED: 2-24% 4-NONEED: =<2% (up to <$1000 DemonstratedNeed and NULL EFC)
QualifiedNeed	1 = NeedSeg 1-HNEED, 2-MNEED, or 3-LNEED 0 = NeedSeg 4-NONeed
NeedMet_Seg	Full Pay No Aid = NeedSeg 4-NONEED and TGiftAid-Adj NULL Full Pay + Aid = NeedSeg 4-NONEED and TGiftAid-Adj value Dem Need Not Met = Aid-Need$$ < -$1,000 Dem Need Met = Aid-Need$$ -$1,000 through +$1,000 Dem Need Exceed = Aid-Need$$ > +$1,000
FirstGen_Binary	Combine the three columns. 1 = PEAFather 1,2 AND PEAMother 1,2 OR FirstGen 1 0 = PEAFather 3 AND PEAMother 3 OR FirstGen_Instit 0 Null = PEA 4 (for both mother and father)
Top15	(Based on CEW) 1 Agriculture and Natural Resources 2 Arts 3 Biology and Life Science 4 Business 5 Communications & Journalism 6 Computers & Mathematics 7 Education 8 Engineering 9 Health 10 Humanities & Liberal Arts 11 Industrial Arts and Consumer Services 12 Law & Public Policy 13 Physical Sciences 14 Psychology and Social Work 15 Social Science

STEM	STEM Designated Degree Program List Effective May 10, 2016 1 = ScienceTechnologyEngineeringMath 0 = Non-Stem Major
GPAIncrease	1 = CumGPA higher than FYGPA 0 = CumGPA is lower than FYGPA
AR_10	Converted to 10 point scale, where 10 is the highest and 1 is the lowest
PR_10	Converted to 10 point scale, where 10 is the highest and 1 is the lowest

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