



ACADEMIC ACCOMPLISHMENT AND RIGOR

## Exploring a New Framework for Sorting Applicants

Building on a history of partnering with higher education thought leaders, the College Board has launched the Future Admissions Tools and Models Initiative to study and improve the practice of admission, with a special focus on holistic and individualized review, in order to expand student access and success. Developed and structured as a partnership with member institutions, the initiative brings together practitioners from a wide range of colleges and universities, along with expert researchers, to identify, extend, and scale innovative and promising practices through the development of research-based frameworks and tools.

### Executive Summary

This work provides an initial outline of a new conceptual segmentation model, supported by an empirically based methodology that can help colleges seeking to enhance or adopt individualized review. A research study examining the model will be published as results are finalized. This model involves developing a method of identifying a student's academic risk based on standard measures like GPA and SAT® scores that can segment students optimally into categories of similar academic risk.

#### Key Takeaways

- Empirical data can help define groups of students in a way that maximizes differences in predicted outcomes between groups and minimizes differences within groups. This gives each segment of students a unique combination of predictors to determine academic risk.
- Once sorted, the individualized review for each group is tailored to the level of academic risk. This tailoring can include the number of reviewers, the depth of the review, and the relative considerations that are applied.
- This allows for individualized review of students for whom the risks of academic success are within the acceptable range, but for whom the ultimate decision will be significantly influenced by nonacademic factors and accomplishments, personal qualities, environmental context, and other student-level characteristics that meet the institutional mission and priorities.

# About Sorting Applicants

The question of “who gets admitted to college and why” traces its origin to 1966, when B. Alden Thresher wrote *College Admissions and the Public Interest*. Thresher coined the term “The Great Sorting” to describe how the admission profession functioned to apportion access to a college education among an increasingly diversified set of educational options and institutions, each with limited capacity.

Today, many colleges face a new type of resource limitation, one that emerges from the clash of two competing trends:

- The move toward holistic admission and individualized review results in substantially greater effort and cost of evaluating each applicant.
- Facilitated by online application tools, the number of applications received by many institutions has more than doubled.

This confluence threatens to overwhelm institutional resources and undermine the guiding principles of individualized review.

## **A Possible Way Forward: Sorting and Segmentation**

While standardized test scores and high school GPA are strong predictors of college grades, retention, and ultimately completion, many institutions rely on more than standard measures of academic preparation in the admission process. Institutions and admission professionals must decide where to draw the line, below which the student’s likelihood of academic success is too low to justify admission.

For colleges adopting a holistic approach to admission or those seeking greater efficiency, one solution that has worked effectively is to apply Thresher’s great sorting, not just across colleges, but within a college’s own applicant pool. By segmenting the applicant pool on risk of success prior to applicant evaluation, colleges can use their limited reader time and resources on the students whose admission decisions are the least clear. Under this approach, all student applications continue to receive individual review, but the review process follows this sequence:

- Applicants are sorted into review groups, based primarily on academic considerations.
- Once sorted, the individualized review for each group is tailored to the level of academic risk. This tailoring can include the number of reviewers, the depth of the review, and the relative considerations that are applied.
- Students for whom the risks of academic success are within the acceptable range, but for whom the ultimate decision will be swayed by personal qualities, environmental context, and other student-level characteristics that meet the institutional mission and priorities.

While sorting of applicants is not new to college admission, doing so systematically based on technical as well as functional considerations is not widespread. In order to highlight this distinction, we use the term “segmenting,” rather than “sorting,” to describe our evolving methodology for efficiently grouping applicants for individualized review using a systematic and empirical approach.

## Goals of Segmentation Modeling

Each college's applicant pool is unique, as are the institutional challenges and mission-based priorities. Therefore, a single solution and set of criteria cannot fit all colleges.

Instead, our goal is to outline a conceptual framework, along with an empirically based methodology, that will guide colleges seeking to adopt such an approach. This framework involves developing a method of identifying a student's academic risk based on standard measures like GPA and SAT scores that will segment students optimally into categories of similar academic risk.

## Typical Segmentation Model

To provide a concrete example of how of the segmentation described above might work in practice, consider a hypothetical college, Typical Selective University (TSU) with the following characteristics:

- TSU is a selective university with more applicants than it can accept.
- For the most recent class, TSU received **15,610** applicants, and admitted **4,432** for an overall admission rate of 28 percent.
- In the fall, **1,600** first-year students enrolled, for a yield rate of 37 percent.

After applying the segmentation analyses to TSU, we identified five groups of students with roughly comparable risks of academic success. Based on a student's academic profile, including such factors as high school GPA and SAT scores, the segmentation first estimates a student's predicted GPA in college and then groups students together based on a similar level of academic risk.

Students in the lowest category are classified as high-risk applicants because their predicted GPAs and historical retention outcomes warn of possible struggles to maintain good academic standing at TSU. At the other end of the spectrum are exceptionally qualified students. These students have the highest academic credentials and standardized test scores — well above the average among matriculants.

## Building a Class Through Academic Risk Assessment and Holistic Review

Risk Assessment — Predicted College GPA /Likelihood of Retention/Graduation

Retention/Grad Rate	High	Moderate	Average	Low	Very Low
Pred. Freshman GPA	Below 2.00	2.20–2.80	2.80–3.20	3.20–3.80	3.80–4.00
	<b>High Risk</b>	<b>Somewhat Qualified</b>	<b>Qualified</b>	<b>Highly Qualified</b>	<b>Exceptionally Qualified</b>
	3000 Applicants Admit Rate 4% Yield 82% Melt 15% 84 ENROLLED	4500 Applicants Admit Rate 10% Yield 70% Melt 4% 302 ENROLLED	4070 Applicants Admit Rate 36% Yield 47% Melt 2% 675 ENROLLED	3280 Applicants Admit Rate 55% Yield 25% Melt 3% 437 ENROLLED	760 Applicants Admit Rate 78% Yield 18% Melt 5% 101 ENROLLED
Review Process Cost/Intensity	LOW	LOW/HIGH	VERY HIGH	MODEST	LOW
Emphasis on Nonacademic Factors	HIGH	VERY HIGH	HIGH	MODERATE	LOW
Admit Rate	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
	← LOW — ACADEMIC STRENGTH (SAT/HSGPA/AP/CURRICULUM) — HIGH →				
Folder Review Groups and Admission Considerations	<b>Special Cases</b> Academic credentials are not suggestive of success, high risk. Single reader review with Deny action unless attributes aligned institutional priorities justifies risk.	<b>Hidden Gems</b> Inconsistent/ marginal test score or HS record, at risk academically. Bias to deny, unless flagged by detailed holistic review for notable circumstances, exceptional talent or Inst. priority.	<b>Core of Class</b> Acceptable test scores and HS record, predicted to succeed. Detailed multiple reader holistic review emphasizing nonacademic attributes valued by the institutional mission.	<b>High performers</b> Very good test scores and HS record. Single reader holistic review for notable situational/ personal qualities with fit, major distribution, and school review key considerations.	<b>Academic Stars</b> Excellent test scores and HS record. Single reader review for any counter-indicating factors. Admit unless review reveals a reason to deny.

Each of these five groups typically contributes some number of students to the incoming class. TSU is committed to thoroughly reading all applications at least once, and the segmentation approach provides guidance as to which applicants require the most reader time and resources in the decision process. Students in each of these groups are assessed based on a set of holistic criteria that are evaluated and weighted in a way that is appropriate to the group’s overall academic risk level. For some risk groups, academic considerations predominate. For others, academic attributes are taken into account but nonacademic factors carry more influence.

# Using Segmentation in Admission Review

Below we describe how admission staff might evaluate students in each of the five categories from the segmentation model outlined above.

## Exceptionally Qualified Students

These students have standardized test scores and other academic markers that exceed those of the typical enrolled student at TSU. Typically, only a few students from this group are denied admission, and overall they have the highest admit rate of any of the five segments. Competition for these students is fierce; they are highly sought after by many other highly selective colleges. Low yield rates for these students means that they constitute a small, but highly desirable, part of the incoming class.

### PRACTICES OF INTEREST

- ✓ In most cases, these applicants can be reviewed by a single reader, and are generally recommended for admission based on their academic excellence.
- ✓ Readers evaluating these “academic stars” will recommend denial only if the application presents unusual circumstances, which might include red flags that the student will be a disruptive or negative presence on campus.

## Highly Qualified Applicants

These students have high test scores and have demonstrated impressive academic potential through high GPAs and rigorous course work in high school, though the academic accomplishments of students in this category are somewhat less impressive than those of students from the *exceptionally qualified* category. The admission risk is low for these high-performing students, but the nonacademic expectations for admission are greater than for applicants in the top segmentation category.

### PRACTICES OF INTEREST

- ✓ Evaluation is more in depth and time consuming for students in this group, and second readers are frequently called upon to add perspective on cases where admission decisions are uncertain.
- ✓ Holistic review is used for many applicants that fall into this category, with an emphasis on personal qualities, institutionally defined priorities (adversity, low income, first generation, multicultural), or extracurricular accomplishments beyond grades and test scores to warrant admission.
- ✓ Students who are denied in this risk group tend to be studious, but not involved, and lack any spark in either accomplishment or personal narrative that draws the admission officer’s attention.
- ✓ The intensity/cost of the initial holistic evaluation is moderate and nonacademic factors as well as institutional priorities also play a modest role.

### **Qualified Applicants**

These applicants represent the core of the class, receive the most intense review, and are also the group for whom readers are most likely to debate admission decisions. These students have academic credentials suggesting a low risk of academic failure, but they are also not predicted to distinguish themselves academically. Many, perhaps a majority, of these applicants will be denied.

#### **PRACTICES OF INTEREST**

- ✔ Applications submitted by these students are closely scrutinized with multiple holistic reads and are often brought to committee by an advocate who argues their cases.
- ✔ Students admitted from this group must show promise of bringing something extraordinary to campus, beyond their grades and test scores. Even those who contribute to the institutional priorities must typically have distinguished themselves outside the classroom.
- ✔ The level of effort put into reviewing these applications is very high; nonacademic factors play a critical role, and institutional priorities are often a determining factor.

### **Somewhat Qualified Applicants**

These applicants have test scores and a record of high school performance suggesting a nontrivial probability of academic failure. Though some of these students may perform satisfactorily at TSU, readers are predisposed toward rejecting these applicants.

#### **PRACTICES OF INTEREST**

- ✔ Students are occasionally brought to committees if they are expected to make significant contributions to the college community outside the classroom or if there are markers that the student is a "hidden gem."
- ✔ Such hidden gems may have low test scores due to circumstances beyond their control, including adverse educational or home environments, or have other markers that suggest significant unrealized potential.

## High-Risk Applicants

These applicants have a marginal likelihood of succeeding academically without extra support, tutoring, and perhaps even remediation. The students who are ultimately admitted from this group are often those who meet key institutional priorities or who otherwise represent "Special Cases." Examples might include development cases and students who have distinguished themselves nationally in athletics or the arts.

## PRACTICES OF INTEREST

- ✓ Readers will generally decide to reject these applicants after a cursory review of the students' academic qualifications.
- ✓ A small number of students from this group may be referred for a more in-depth review based on unusual circumstances, or because they match a very important institutional priority that might justify taking on the additional risk, along with an institutional willingness to provide the extra academic support the students may require.
- ✓ For the few applicants from this group who meet specific criteria, the admission committee will determine whether the benefits of enrolling these students offsets the modest to high likelihood that the students will struggle academically and may require remediation.

## Segmentation Methodology

The segmentation approach described above can be well suited for all colleges faced with challenging decisions about whom to admit, and what level of nonacademic accomplishment might be persuasive. Many colleges with selective admission typically have quantitative models establishing a student's likelihood of academic success, where such success may be defined broadly as achieving certain college GPAs or graduating on time. These models often rely on linear regression methods in which a single statistical relationship between student-level characteristics at college entry, such as high school GPA and standardized test scores, is used to predict college outcomes.

This type of linear regression conceals the fact that relationships between college success and student inputs like high school GPA and standardized test scores may differ for students at different points of the academic ability spectrum. **In other words, relationships for the exceptionally qualified students may differ markedly from those found among the high-risk applicants.**

### About the Segmentation Approach

In segmentation, the goal is not to make the best average prediction, but rather to parse applicants into optimal groups, each with their own unique algorithm for evaluating risk.

Using quantile regression, we define groups of students in a way that maximizes differences in predicted outcomes between groups and minimizes differences within groups. This gives each segment of students a unique combination of predictors to determine academic risk.

As readers evaluate applications within segments, they might focus on the predictors of success that are strongest for that particular segment. For example, it may be the case that high school GPA is strongly related to the probability of completion among students in the *Qualified Applicants* segment at TSU, but not related to the probability of completion among students in the *Highly Qualified* category. In this scenario, readers should carefully consider high school GPA when reviewing holistically applicants in the *Qualified* category. By contrast, readers might put relatively little weight on high school GPA when making admission decisions for students in the *Highly Qualified* category.

## **Next Steps: Testing This Approach**

To test this approach, we took the high school grades and test scores for students who enrolled at over 80 colleges and universities in 2011 and 2012. We grouped colleges together, based on the size and quality of the applicant pool, the college's admit rate, and its yield. We then applied a quantile regression to the data and identified five applicant segments, similar to those in Figure 1.

**The results of these analyses will be explored in a more comprehensive research paper that addresses questions such as:**

- How do the segmentation cutoffs vary by college type and by colleges within a type?
- How does the optimal combination of factors vary by segment level (1–5), and are there similarities in optimal combination within college groups?
- Does the importance of context in evaluating risk vary by segment level (1–5), and are there similarities across or within college groups?
- Moving beyond enrolled students, if we apply the segmentation to a full applicant class, does the importance of context and other nonacademic factors influence the admission decision and, if so, is the effect differential across segments (1–5)?

During the coming academic year we will expand our efforts to work with partner colleges to apply the segmentation methodologies to current applicant pools and evaluate the possible impact on both the efficacy and the efficiency of admission decision making.