



Matching All Students to Postsecondary Opportunities

How College Choice is Influenced by
Institutional, State, and Federal Policy

Enrollment Management and the Low-Income Student

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Low-income college students are having a moment in higher education, government, and the media.¹ A wide range of actors are taking notice that low-income students constitute less than 5 percent of the enrollment at our most selective institutions, a percentage that, despite a great deal of effort and policy reform, has remained virtually unchanged for decades.² Yet in the past two years, only 11 percent of selective colleges have increased their focus on socioeconomic diversity.³ Meanwhile, students at the upper-end of the income spectrum come from families whose wealth has accelerated during that time, leading to greater disparities on campus between the haves and have-nots.

Persistently low enrollment among low-income students is not due to a lack of qualified candidates. If we look at standardized test scores, for instance, there are thousands of graduates each year who earn scores that are typical of highly selective colleges.⁴ While estimates of undermatching vary widely depending on how it is measured, all of them find that a substantial number of low-income students attend colleges whose academic and admissions standards are significantly lower than others they would be eligible to attend.⁵

This problem is often seen as one of incentives and information. On one side, students do not understand the full range of available options, having weak college counseling and insufficient funds to apply to a large number of colleges. In addition, low-income students may not understand that for them, the “net price” of selective colleges—due to the schools’ superior financial resources and smaller numbers of low-income students—is often much lower than the price of less selective competitors.⁶ As a result, interventions that provide guidance on college options and nonfungible application fee waivers have been shown to be effective in changing students’ application behavior.⁷

Some of these low-income students are indeed successful in gaining admission to selective colleges and choose to enroll at one. Programs like QuestBridge and Posse produce genuinely heartwarming stories of students whose lives are changed by their college choices. These are more than just nice narratives; the returns to selective colleges among low-income students are undeniable, even in the most conservative models.⁸ In recent years, Colorado has conducted a fascinating experiment with indexes of disadvantage and overachievement to help assess applications in context.⁹ There are also significant initiatives from major institutions—such as the University of Chicago, the University of Michigan, and Washington University—to improve their record of enrolling low-income students.¹⁰

Commitments from individual institutions are commendable. The broader question, however, is what is happening on the institutional part of this equation—the supply side of undermatch? In as much as the literature deals with this problem, we again see a problem definition centered on information and incentives. Because students who do not apply are not visible, admissions officers believe that they do not exist or use search techniques that disadvantage the recruitment of low-income applicants.¹¹ Thus, the assumption is that if only we could induce low-income students to apply in greater numbers, these low-income students would be admitted on the strength of their academic credentials. If we spent slightly more on additional recruitment, application waivers, and information sharing, we would facilitate better matching, and a more equitable, meritocratic system of higher education admissions would emerge.

This may be true at a few institutions, such as Stanford and Princeton, where there are plenty of resources to support low-income students. But these assumptions do not

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reflect the reality of enrollment management at colleges that are selective but resource constrained—in other words, the vast majority of highly selective colleges. They do not reflect the competitive pressures that lead higher-income students to maintain a competitive advantage over lower-income students in every aspect of the college choice process. They do not reflect the complete picture of how applicants are admitted via a holistic review process—one that weighs many factors in addition to test scores. But more importantly, they do not reflect the pressures on enrollment managers—the people who generally oversee admissions personnel—to generate the tuition revenue needed from each incoming class.

Beyond revenue, there is also substantial pressure on enrollment managers to ensure the continued prestige and reputation of the institution. We now have strong evidence that college rankings, such as those published by *U.S. News & World Report*, have a significant influence on college applications. Even more than the real effect is the perceived effect of college rankings on applicants, funders, and other stakeholders. Admitting more low-income students is unlikely to serve these prestige-seeking goals among selective colleges. And sadly, while class-based affirmative action is discussed widely in policy circles, it has not yet been implemented in most colleges, and race-based affirmative action cannot serve multiple purposes.¹²

In this paper, I draw upon the existing literature on college admissions and enrollment management, as well as my own work in the field. Over a two-year period, I conducted fieldwork in two flagship university admissions offices, reading undergraduate applications and conducting 60 interviews with admissions officers and external

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readers.¹³ In addition, I have authored a number of recent papers on college admissions and stratification, as well as an experiment to assess admissions decision-making.¹⁴

Drawing upon this work, I review some of the institutional impediments—“supply-side factors”—to an equitable system of selective college admissions. I will explore what we know about the crucial factors that shape a student’s holistic review beyond the grades and standardized test scores used in most of the existing literature on undermatch. I will also examine what we know about how the drive for revenue and prestige determine decision-making, and result in intense pressures for enrollment managers to produce results that meet institutional targets. Finally, I will discuss how two important factors—*replacement* and *scale*—are likely to influence any future reduction in undermatching behavior.

HOLISTIC ADMISSIONS

Because of the nature of the available datasets, much of the literature on college undermatch relies upon simplified models of the admissions process, relying primarily (sometimes exclusively) on standardized test scores and grade point averages.¹⁵ Beyond dataset availability, there are also good, research-driven reasons to use simplified models. The existing research shows that standardized test scores are the most significant driver of admissions decision-making, with test scores playing a particularly strong role for low-socioeconomic status (SES), racial minority, and female applicants.¹⁶

However, in their simplicity, these models miss major factors outside of GPA and test scores that are an important part of holistic reviews. Here I discuss the most

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important missing pieces: advanced course-taking, extracurricular activities, and demonstrated interest.

Advanced Course-taking

The most important factor missing from simplified models of match is the pattern of advanced course-taking in high school. For nearly all highly selective colleges, advanced course-taking is a primary criterion for admission. A recent survey of admissions officers conducted by the National Association for College Admissions Counseling (NACAC) revealed that a student's strength of curriculum (defined as Advanced Placement, International Baccalaureate, dual enrollment, and other advanced/college-level coursework) was rated as "considerably important" by 75 percent of respondents at selective colleges.¹⁷

Under the philosophy of holistic review, an applicant who achieved high test scores and a 4.0 GPA is unlikely to be admitted to the most selective colleges unless those grades were earned in the most advanced courses offered by the high school. In practice, however, the returns to advanced coursework are more complicated. In general, "maxing out" the high school curriculum—when a student takes the most advanced courses available—is not a predictor of admission to selective colleges.¹⁸ In most states, maxing out is only a predictor when interacted with GPA, and does not lead to a significant increase in the probability of admission to the most selective colleges. In states with affirmative action bans, however, maxing out behavior is consistently related to admissions decisions, and leads to a significantly higher probability of admission—likely due to higher fidelity to holistic admissions practices in these states.

The data on maxing out behavior among low-income students who apply to top colleges should be most concerning to researchers and advocates focused on undermatching. Even among this highly select group, low-income students who apply are significantly less likely to max out their curricula in math and English than students in higher income quartiles.¹⁹ In mathematics, students from the lowest SES quartile were far less likely to max out their coursework—by nearly half a standard deviation—than those of the most affluent students. This disparity could easily be compounded by intersecting disadvantages, as underrepresented minority, urban, rural, and female applicants are also less likely to max out their curricula.

Maxing out on advanced courses is impossible for students that lack access to advanced coursework in the first place. The literature on access to advanced coursework in high schools is complex with respect to race, income, and geography. Researchers have found that the socioeconomic composition of a high school's student body is an independent predictor of advanced course offerings, and that students from low-income families are the least likely to have access.²⁰ Yet when controlling for SES or high school composition, racial diversity modestly increases the likelihood that a school offers advanced coursework.²¹ In Florida, schools serving a higher proportion of Black or Hispanic students are slightly more likely (and schools with a higher percentage of Asian students are much more likely) to offer advanced courses than those serving primarily White students.²² Consistently, though, lower-income students have less access.²³

Extracurricular Activities

At the most selective colleges, participation in extracurricular activities also plays a crucial role.²⁴ Applications to top colleges are remarkably self-selecting; for admissions readers, file after file contains near-4.0 GPAs, high test scores, and a slew of Advanced Placement courses. Among these applicants, extracurricular activities often become a distinguishing factor.²⁵ Obtaining access to a convincing set of extracurricular activities, and the ability to convey their importance in a holistic review, takes a great deal of social and cultural capital. The effects can be quite substantial. Athletes, for example, are four times more likely to be admitted to elite private institutions than non-athletes.²⁶

Unsurprisingly, athletic and extracurricular activity participation are highly stratified due to differences in high school opportunities, financial limitations, parenting styles, and safety issues, among other factors.²⁷ This is not a particularly deep area of research, but what has been done shows very consistent results. In North Carolina, for example, the percentage of students eligible for free or reduced price lunch was negatively associated with the number of activities available, particularly academic honors, service opportunities, and sports activities.²⁸ It is not uncommon for families of high-achieving students to be unaware of the importance of extracurricular activities, or even to discourage them as a distraction from academic endeavors.²⁹ Yet in a holistic review, a file with a high GPA, high test scores, and academic rigor is likely to be “qualified, but not admitted” without substantial evidence of extracurricular activities.

Demonstrated Interest

There are other factors as well, such as essays and recommendations, but these are crucial in only a small number of cases. What is often overlooked is the importance of demonstrated interest, or the degree to which applicants connect with the institution and express their likelihood to accept an offer of admission. Currently, 20 percent of admissions offices at selective colleges identify demonstrated interest as considerably important in their admissions process.³⁰ This is an increase from 7 percent in 2003, the first year the question was asked.

Legacy status can be one aspect of demonstrated interest. In the media, legacy status is often portrayed by admissions officers as of marginal importance, both in terms of the number of applicants it affects and the amount of consideration it receives in the admissions process. An eye-opening study by Michael Hurwitz demonstrates otherwise. Using data from 30 elite, highly competitive colleges, he finds that legacy applicants were more than three times more likely to be admitted, even conditional on all academic factors. At the most selective colleges in his sample, legacy applicants were more than five times more likely to be admitted. A primary legacy at these schools—someone whose father or mother attended the school as an undergraduate—was nearly *15 times* more likely to be admitted.³¹ Due to the history of elite universities, legacy applicants are undoubtedly whiter and wealthier than their non-legacy counterparts.³²

The holistic admissions process is undoubtedly complex, and it is often portrayed as a game that is relatively unpredictable. But the patterns are clear. When it comes to holistic review, low-income students are at a disadvantage in nearly every element of the process. Even elements designed to improve the odds for low-income applicants—

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contextualizing the student's course-taking in light of the opportunities available in their high school, for example—in the long run simply do not produce greater socioeconomic diversity.

Holistic review has clear implications for policy and practice as it relates to undermatch. When our research and interventions focus only on standardized test scores or grade point averages, we are missing many of the important elements in a holistic review process. Success in academics alone is not enough to get admitted, and that means that raising application rates will not solve the undermatch problem. The admissions office is a gatekeeper that cannot be ignored in this discussion.

MARKET COMPETITION: MAXIMIZING REVENUE AND PRESTIGE

Understanding undermatching behavior requires a description of the rapidly changing market for selective college admissions. The increase in college selectivity at the elite colleges is well documented, accompanied by improvements not just in the academic credentials of students accepted to elite colleges, but also of average students.³³ For example, low-income students have raised their math course-taking by a full year (essentially from Algebra 1 to Algebra 2) since 1982. However, math preparation increased by roughly the same amount across all SES quartiles, ensuring that higher-income students maintained their advantage in the competition for admission.

A similar phenomenon can be seen with respect to Advanced Placement courses. In *Daniel v. State of California*, a group of Inglewood parents sued the state over inequitable access to Advanced Placement courses, and the state responded by trying to

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increase access to such courses. Joshua Klugman shows how the attempt to increase Advanced Placement offerings was largely successful, with more low-income students enrolled. However, higher-income districts increased their offerings as well, ensuring that stratification of academic coursework remained.³⁴

Enrollment managers at selective colleges work in this market. For every low-income student with high academic qualifications, there are many more students with equivalent qualifications who are willing and able to pay tuition. Thus admitting low-income students depends not upon institutional self-interest, but on serving the public interest, which unfortunately waxes and wanes with slack resources. When resources are strong, enrollment managers have more flexibility to admit additional well-qualified low-income students. When resources become constrained, such as during The Great Recession, selective colleges become less socioeconomically diverse in response.

This phenomenon was demonstrated perhaps most dramatically in the rapid rise in out-of-state enrollment at public universities over the last decade. In response to sharp declines in state appropriations, public universities responded in part by increasing the share of out-of-state students they admitted, most of whom will pay tuition comparable to that at private institutions.³⁵ The impact on enrollment and equity was significant: A smaller proportion of students admitted were low-income, particularly in states with high poverty rates and at the most highly ranked institutions.³⁶

Why did institutions choose to increase out-of-state enrollment as a primary revenue strategy? For many public institutions—particularly highly-ranked public institutions—nonresident students can be added without admitting students who are less well prepared. Indeed, in some states, like North Carolina, Virginia, and Michigan, out-

of-state applicants have stronger academic profiles than the in-state students who were admitted under quotas set by formal or informal policies. Many flagship universities have experienced a surge in full-pay, international students who are eager to obtain an American undergraduate degree. The proportion of nonresident students is also relatively opaque, and therefore generates relatively little opposition on campus. And the decision often seems warranted when it is driven by declines in state support for incoming students.

These patterns are not simply the result of consumer choices. On the contrary, they reflect the work of sophisticated enrollment managers who are able to generate these results with regression-driven models and simulations that allow them to see how a shift in one input will impact other important variables. In particular, these models allow institutions to understand how shifts in merit aid and tuition discounting will shape enrollment and tuition revenue.³⁷ In general, although most studies of merit aid focus on state-level programs (like Georgia HOPE), institutional merit aid programs generally reduce the proportion of low-income students on campus.³⁸ Even National Merit Scholarships have been associated with lower enrollment among low-income students.³⁹ In the competitive world of college admissions, merit aid is a key tool for enrollment managers.

Enrollment models help to explain the persistence of early admissions and early action programs, despite strong, consistent evidence that these programs have negative effects on disadvantaged applicants.⁴⁰ Early admissions is essentially a form of demonstrated interest, because an early application signals that the applicant has designated the school as their first choice. Enrollment models demonstrate that early

admissions candidates are far more likely to enroll, are generally stronger academically, and need less financial aid than regular admission candidates. A low-income applicant who wants to see multiple financial aid awards, before making a decision, is less likely to submit an early application. Yet early application is correlated with a 20 to 30 point increase in the probability of admission.⁴¹ Unsurprisingly, despite the negative effects of these programs on low-income applicants, nascent attempts to eliminate them in the 2000s were generally unsuccessful.

The importance of college rankings also cannot be underestimated for the most highly selective institutions. There are significant effects of college rankings on college admissions indicators, such as applications and yield.⁴² Interestingly, most students do not report that rankings are a significant influence on their decision-making. However, the *perception* among institutions that the rankings are important to students is quite strong.⁴³ As a result, there are many examples of gaming among institutions and admissions offices to enhance their *U.S. News* rankings.⁴⁴

Unfortunately, prestige-seeking behaviors rarely benefit low-income students. To increase or maintain their ranking, institutions must focus on the specific indicators that are being used. Many of these require huge investments in resources, particularly increases in faculty resources and reducing class size.⁴⁵ Those investments must be funded, which at most institutions means increases in tuition, and low-income students are the most price-sensitive. A focus on admissions indicators has the same result—low-income students are less likely to have high standardized test scores and are less likely to yield if admitted.

An enrollment management perspective also helps to explain the rapid diffusion of test-optional admissions policies since the 1990s. The test-optional admissions movement was driven largely by a concern about the relationship between family income and standardized test scores. Andrew Belasco, Kelly Rosinger, & James Hearn recently investigated whether test-optional admissions increased racial and socioeconomic diversity at selective liberal arts colleges. Using a difference-in-differences strategy, the authors did not find any relationship between the implementation of a test-optional strategy and a more economically or racially diverse student body.⁴⁶

This finding is entirely contrary to the widespread claims made by test-optional advocates and somewhat surprising if only admissions and rankings are considered.⁴⁷ A test-optional strategy should allow institutions to produce classes that are more racially and socioeconomically diverse without suffering a decline in reputation or rankings. However, this ignores the question of revenue: every low-income student who enrolls is quite expensive to the institution, so a test-optional policy without concurrent investments in financial aid is unlikely to produce diverse classes.

From an enrollment management perspective, however, a test-optional strategy is still highly effective. The announcement of a test-free option generates positive publicity for the school, and applications increase significantly. Ironically, reported test scores—to *U.S. News & World Report*, for example—actually increase after a test-optional plan, as students with lower test scores choose not to send their scores to institutions that don't require them. Thus the strategy is win-win, providing positive publicity for the college, increased applications, and higher reported test scores. Meanwhile, schools that simply

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stop using test scores entirely, as Hampshire College recently did, are punished by going “unranked” by *U.S. News*.⁴⁸

An enrollment management perspective also helps to explain some of the “innovations” we have seen in college admissions practices over the past few years. The most admirable, by Bard College, allows applicants to submit four academic essays that are graded by college faculty; if students earn a B+ or better on each essay, they are admitted. Bennington College has implemented “dimensional admissions,” which allows students to apply for admission by submitting a portfolio rather than traditional application materials.

The most outlandish admissions scheme comes from Goucher College, which has implemented “transcript-free admissions,” which allows students to submit a two-minute video, “an example of your best work,” and a single graded writing assignment in lieu of evidence of academic achievement.⁴⁹ (“There’s no need to create anything new!”) Their own marketing video, which begins with a student ripping up a high school transcript, emphasizes how Goucher cares about each applicant as a “unique person” and assures them that at Goucher, “you are more than just a number.” (The fact that Goucher has been test optional for over five years goes unmentioned.) Thus the admissions application itself, which had been relatively standardized, has itself become a form of public relations and marketing.

Goucher and Bennington are thrilled with the results. Although very few applicants have used these options (less than 100 at each institution), regular applications have hit record highs. Early admissions applications were up 12 percent at Goucher and more than 60 percent at Bennington since implementation.⁵⁰ For small liberal arts

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colleges, we might expect that these sorts of public relations efforts will become more common as schools attempt to build a niche and expand enrollment in a sector that seems to be under serious threat. The case of Sweet Briar College will undoubtedly serve as a warning to many institutions that they ignore enrollment management strategies at their peril.

The pressures on enrollment managers to generate applications, yield a class, and generate revenue have become enormous. A recent article in *The Chronicle of Higher Education* discussed how dozens of enrollment managers have been fired by presidents in recent years, and others are quitting the profession due to stress and anxiety.⁵¹

Enrollment managers are often blamed for pursuing goals that are set by presidents and boards. College presidents can publicly claim that they want more racially and economically diverse incoming classes, while privately demanding that their chief enrollment officer increase revenues and prestige. Enrollment managers become the faceless, pragmatic technocrats of the institution, while everyone else gets to pretend that all enrollment goals can be pursued simultaneously.

Chief enrollment officers also make or break their own careers based on performance, which most often includes measures of marketing and reputation—increased applications, increased test scores, increased rankings—rather than measures of equity or diversity. When measures of diversity are examined, they are almost always about racial diversity, or in the cases of STEM-oriented institutions, gender diversity. Low-income students remain relatively invisible on campus, not just in person but also in performance metrics.

IMPLICATIONS FOR COLLEGE UNDERMATCH

To this point, this paper has made the case that understanding the nuances of holistic admissions, enrollment management, and the competitive higher education market is crucial to addressing undermatching among low-income students. Increasing application rates alone is not a panacea, and a single, low-cost intervention cannot compensate for equitable admissions and enrollment practices.

But there is an important contrary argument to consider. If interventions are shown to increase applications and enrollment, does that not reflect that colleges are willing and able to admit an increased number of low-income students? From my perspective, there are two problems with this argument. First, there is the *replacement* problem; there are a substantial number of low-income students who have been admitted to highly selective colleges who, when considered by predictive admissions models, have actually been *overmatched*. That is, colleges admitted these students with weaker academic credentials than are typical for that college. Given the existing set of applications, this admissions practice was necessary to produce even a modest level of socioeconomic diversity in the incoming class. However, if high-achieving, low-income students begin to apply in substantial numbers, these overmatched students can be replaced by higher-achieving students, improving match but not increasing the overall number of low-income students enrolled on campus.

The second problem is even more important—the question of *scale*. Adding a few additional low-income students is not existentially threatening to highly-resourced colleges. However, greater numbers of low-income students are associated with greater costs, and pressures will mount on enrollment managers to produce classes that generate

a specific revenue target and meet enrollment targets for legacies, athletes, racial and ethnic minorities, special talents, and other priorities. Given that enrollment is a zero-sum game—as highly selective colleges have shown no desire to grow enrollment—the solution to these problems is replacing overmatched low-income applicants with higher-achieving, better-matched low-income applicants.

Thus, increasing applications by low-income students is necessary but not sufficient. What should be done to intervene on the institutional side? The simplest answer is money—additional resources cover the cost of enrolling more low-income students. Institutions would be happy to admit more low-income students if they came with state and federal resources to support their education. Federal policy could be used to incentivize institutions to enroll low-income students by providing specific bonuses, and state policy could include low-income student enrollment and graduation in funding formulas. Thus, for each low-income student who enrolls and graduates, more state appropriations flow to the institution. That provides a specific and targeted incentive for institutions to change their behavior.

Unfortunately, the existing financial incentives often exacerbate undermatching behavior. Lower-status institutions often provide merit scholarships to higher-performing students, and low-income students are the most likely to respond to these incentives. Even state-level policies, like Tennessee Achieves, seem more likely to produce undermatching among low-income students.⁵² More broadly, the question of whether and how state financial aid programs drive undermatch is a fascinating and under-studied question that is at the center of the chapter by Josh Goodman, Michael Hurwitz, and Jonathan Smith in this volume.

We also need to investigate further the question of *fidelity*—to what degree do admissions offices use the holistic admissions practices they claim? In a recent study, 95 percent of admissions officers at selective colleges said they used holistic review.⁵³ In theory, the key to holistic admissions is contextualizing student performance within the opportunities available in that student’s family and high school. Ideally, this practice should yield improved results for disadvantaged students. However, the move to holistic review in selective college admissions offices has not yielded increases in representation among low-income students, and implementation does not seem to be pervasive.⁵⁴

One intriguing possibility is to design interventions focused on the decision-making process in admissions offices. In my fieldwork at flagship university admissions offices, I identified two cognitive biases that influence decision-making: anchoring bias and correspondence bias.⁵⁵ Anchoring bias, or the undue influence of even arbitrary numbers on the estimation of other quantities, potentially plays a role in the disproportionate influence of standardized test scores on admissions decisions. Correspondence bias, or our tendency to attribute decisions to dispositions rather than contexts, potentially plays a role in the discounting of high school and family context, even in holistic review processes.

These biases can be shaped in organizations, however, through the use of cognitive repairs.⁵⁶ Cognitive repairs seek to use organizational routines to shape normal human biases and heuristics. In my fieldwork, I found that one admissions office was very effective in using cognitive repairs, and the result was more equitable outcomes for low-income students.⁵⁷ These cognitive repairs influenced decision-making by monitoring the language used by admissions officers in discussing applications,

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preventing premature closure of decisions before all information was considered, and providing scoring data to readers so that they could identify outliers and self-correct scoring biases. Although these repairs varied in their effectiveness—and were often themselves subject to other biases—they give us a sense of what may be possible through future examination of decision-making processes.

Ultimately, the answer is not one thing; it is everything. We need interventions that encourage low-income students to examine all of their options, and we need to pave the way through counseling, recruitment, and incentives. Institutional leaders need to intervene in admissions, ensuring that low-income students are treated fairly in the process in light of the opportunities they have had to succeed. These interventions should be paired with targeted financial aid interventions at the federal, state, and institutional levels, so that low-income students can afford the education provided by selective institutions and institutions can afford to admit them.

Most likely, given the degree of overmatching we see in the data, we may well need forms of class-based affirmative action to bring low-income student enrollment anywhere close to their proportion among high school graduates.⁵⁸ Perfect matching is simply not adequate—in terms of increasing enrollment and in terms of increasing bachelor's degree attainment.⁵⁹ However, if selective institutions added more places for low-income students—if they did not treat their enrollments as fixed—we could increase low-income bachelor's degree attainment by about 3,500 students per year without declines in prestige or average academic achievement.⁶⁰ There are solutions; if we are serious about these issues, aggressive interventions will be necessary.

These are problems worth addressing. Undermatching is an important issue, not only for the students affected, but also for American public policy. By nearly every measure, low-income and underrepresented minority students benefit disproportionately from enrollment in selective colleges, and their communities benefit disproportionately as well.⁶¹ We are closer now than ever to having significant answers to these challenges, but they will require thoughtful reflection, sustained efforts, and significant financial investments.

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