Affirmative Action in Medical School: A Comparative Exploration

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Abstract: A significant body of evidence shows that law schools and many elite colleges use large admissions preferences based on race, and other evidence strongly suggests that large preferences can undermine student achievement in law school and undergraduate science majors, thus producing highly counterproductive effects. This article draws on available evidence to examine the use of racial preferences in medical school admissions, and finds strong reasons for concern about the effects and effectiveness of current affirmative action efforts. The author calls for better data and careful investigation of several identified patterns.

My home state of California is one of the most liberal states in America — Democrats have supermajorities in both houses of the legislature — but was, ironically enough, the first to ban the use of racial preferences in state programs. That happened when voters passed Proposition 209, by a 55-45 margin, in 1996; bans like this exist today in only eight other states.[1] In June 2020, the California legislature voted to put a measure, Proposition 16, on the November ballot that would repeal Prop 209 and reinstate the ability of state officials to use racial preferences.[2] A few weeks before the election, I came across a nonpartisan guide to the November ballot measures; the guide had a little icon to summarize each measure. For Prop 16, the icon showed a white hand reaching down from the top of the picture and clasping a black hand reaching up from the bottom. This nicely captures the classic conception of affirmative action — a gesture of interracial fellowship to provide a "helping hand" to people at a disadvantaged, lower level.

In this article, I hope to show that although there are forms of affirmative action that may be as simple, straightforward, and fundamentally good as this helping hand, affirmative action in higher education predominantly takes the form of large racial preferences in admissions, and these are another matter indeed. Heavy racial preferences not only involve aggressive discrimination against some disfavored group (increasingly, another minority group),[3] but often backfire in multiple ways, and can end up caus-

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ing problems far more insidious and intractable than those they are intended to solve.

This article examines affirmative action in medical schools, but at the outset let me offer a general disclaimer. I am a law professor, not a medical school professional. I have done a good deal of original research and writing on the operation and effects of racial preferences upon law students and upon the broader patterns and consequences of affirmative action in higher education.[4] My knowledge of medical school and the use of race in medical school admissions is limited and largely second-hand, but I have been interested for some time in how my findings from legal education might translate to the medical-school context, since the two have both important similarities and striking differences. I was therefore grateful for the invitation to participate in this symposium. In this essay, I consider various dimensions of affirmative action, explain some of the key findings from the existing research on law schools or undergraduate education, and then compare these patterns with what I have been able to learn about medical schools. I identify throughout some important issues that I think should be further investigated in the medical academy; but at this early stage of investigation, I view my findings as suggestive, not definitive, and I hope they will be taken in the spirit of comments from a friendly outsider.

I. The Size of Racial Preferences

Absent special intervention, Black students and Hispanic students will be underrepresented in highly competitive colleges and graduate programs not because those institutions invidiously discriminate against them, but because there are large performance gaps between racial groups. Admissions based on objective academic standards will produce underrepresentation of Blacks, Hispanics, and American Indians, which is why universities refer to those groups as "underrepresented minorities" ("URMs"). The performance gap is most widely documented at the high school level. The National Assessment of Educational Progress, which uses a variety of tests to assess learning among large samples of students in K-12 schools, finds that the median educational achievement of whites in high school is about four years ahead of Blacks, and about three years ahead of Hispanics.[5] These gaps are mirrored in high school performance on the SAT, where average Black scores are about one standard deviation below white scores.[6] The racial gap in high school GPA is smaller but still substantial.

Why do such large academic gaps exist, for Blacks in particular? Partly because housing segregation relegates Black students to lower-quality (though not necessarily lower-funded) elementary and secondary schools;[7] partly because lower average socioeconomic status and lower-quality medical care translate into lower birthweights for Blacks (which on average harms cognitive function) and less robust diets in early childhood; partly because there are racial disparities in parenting practices — propensities to keep books around the house, to use a wide variety of words in speaking to young children, to enforce regular bedtimes and limits on television — which disfavor Blacks and undermine their cognitive development.[8] In short, there are many causes, none of which reflect genetic differences in racial capacity (thus, a racial performance gap is not "intrinsic") but which are complex and require multilayered strategies to address.

Unfortunately, in recent years, and especially in the past year, it has become common to "explain" the racial academic achievement gap as a result of "systemic racism" or "structural racism." This has shown up even in the literature on medical education.[9] The problem with this approach is that it consigns the achievement gap to some vague, unknowable, and unsolvable void of endemic inequality, when there are in fact some highly specific problems — such as housing segregation and inadequate prenatal medical care — that

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Table 1

Credential gaps, and the distribution of applications and matriculations AAMC medical schools, entering 2020-2021 cohort.

Racial group	Group gap in mean applicant scores, measured in standard deviations from the white mean:		Each group's proportion of:	
	MCAT total	Science UGPA	Applicants	Matriculants
American Indians	-.96	-.59	0.14%	0.16%
Asian-Americans	+.11	-.11	21.2%	21.6%
Blacks	-1.07	-.94	8.2%	8.0%
Hispanics	-.75	-.61	6.3%	6.8%
Whites	(reference group)	(reference group)	43.2%	44.7%

Source: AAMC Table A-18. Standard deviation gaps are measured by averaging the white SD and the specific race SD, and dividing this into the mean score gap between the group and whites. Percentages in the columns do not add to 100% because 21% of applicants are non-U.S. citizens, multiracial, or of other races, *available at* <https://www.aamc.org/media/6066/download> (last visited March 26, 2021).

can be specifically identified and addressed.[10] In any case, because of the large performance gap among 12th-graders, using strictly academic indicators for college admission would lead to substantial underrepresentation of Blacks and, to a lesser extent, Hispanics. Roughly speaking, Blacks made up 13% of American 18-year-olds in 2013, but only 5% of those with grades and test scores that put them in the top third of high school seniors in academic achievement, and only 2% of those in the top tenth. Even very elite colleges, of course, admit based on other than academic factors, and some use socioeconomic preferences — all of which reduce the Black-White gap in "admissibility." However, such measures (as currently used) only make up a fraction of the racial gap. The recent Harvard litigation, for example, revealed that with no consideration of race, African-Americans would constitute fewer than 3% of Harvard freshmen.[11]

At Harvard and most elite undergraduate colleges, administrators seek to create an admitted class that roughly mirrors the racial makeup of applicants, so large racial preferences are used to bridge the gap. At Harvard, African-Americans made up about 14% of applicants, and about 14% of admittees, more than four times the number that would be admitted if race were not factored in.[12] In the suit against Harvard, the plaintiff's expert, Peter Arcidiacono, analyzed the probability of an applicant's admission if, on the various qualities considered by Harvard, the applicant ranked close to the median of admitted students, and one varied only the student's race. He found that an Asian-American applicant with these characteristics had a 25% chance of admission, compared to a 36% chance for an otherwise-similar white applicant, and a 95% chance for an otherwise-similar Black applicant.[13] Arcidiacono's finding is consistent with my own analysis of the data, and implies that Harvard uses quite substantial racial preferences. Moreover, once Tier 1 schools (like Harvard) implement racial preferences, they absorb not only the "Tier 1" Black students who would qualify on race-neutral grounds, but all those who would qualify for Tier 2 schools as well. Tier 2 schools thus start their admissions process with little hope of recruiting either "Tier 1" or "Tier 2" Blacks and must consequently use even larger preferences than the Tier 1 schools. This "cascade effect" means that the preferences are usually more conspicuous at selective and moderately-elite schools than at the very top schools.[14]

These patterns exist at law schools as well, often in even more rigid and stark forms. Among law school applicants, the Black-White gap in average LSAT scores is about one standard deviation; the gap in college GPAs (undergraduate grade-point-average, or "UGPA") is nearly that large. Undergraduate colleges often give significant weight to non-academic factors, such as athletic prowess, leadership skills, good essays, strong letters of recommendation, and yes, often legacy status. Law schools focus heavily on the academic numbers; they are able to achieve enrollments that are about as racially diverse as their applicant pools by essentially race-norming LSATs and UGPAs, and thus admitting equivalent top shares from each racial group. Because law school applicants place great weight on the US News ranking of law schools[15] (e.g., students apply to many schools and tend to enroll in the most highly-ranked school that admits them), the cascade effect operates at law schools as well. Thus, Tier 2 and Tier 3 schools use even larger preferences than those in Tier 1. These factors combined mean that there is very little racial overlap at most law schools in credentials; the 90th percentile of Black students at a

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given school often have credentials that are lower than the 10th percentile of their white classmates.

Medical schools share some features of these patterns but are also different in important ways. The Association of American Medical Schools ("AAMC") gathers a variety of data on medical school admissions, and its data on the admissions cycle for 2020 matriculants allows us to measure the credential gap and admissions rate of American medical school applicants, by race (Table 1).

Table 1 illustrates two things. First, there are very large credential gaps among applicants to medical school of different races, similar to those we observe among high school seniors applying to college and college seniors applying to law school. But second, each racial group is represented among medical school applicants in numbers that closely approximate racial representation in the applicant pool. Data from individual schools tends to show these patterns, too, so the large credential gaps we see in the overall applicant pool are probably replicated at individual schools.

This necessarily means that medical schools are using quite large racial preferences — largest for Blacks, a little smaller for American Indians, and more moderate, but still substantial, for at least some Hispanic subgroups. It would therefore not be surprising to see large performance gaps across racial lines at medical schools, too.

However, medical school admissions are different from law school admissions in two key respects. First, medical schools give substantial weight to factors other than test scores and grades. They invest significantly more time and effort (including faculty time and effort) in the admissions process, often (or, as I am told, always) interviewing a large share of applicants and a very large share of those actually admitted. Second, medical schools that are part of state university systems tend to give substantial weight to whether an applicant is an in-state resident — a preference that in some cases is comparable to the school's racial preferences. Both of these factors imply that academic credentials will not be as starkly aligned with race in many (perhaps most) medical schools as it is in almost all law schools.

I illustrate this tangibly with data from two state graduate programs: the University of Michigan Law School and the University of Wisconsin Medical School, both of which are highly-ranked public-school programs.[16] The academic indices used in these two comparisons are of my own construction, but they are based on analogous combinations of test scores and grades as weighted by the respective schools. (The academic index scales from 0 to 1000, with test scores [LSAT or MCAT] given up to 600 points, and college GPAs given up to 400 points.) Table 2 and Table 3 are thus "calibrated" in a way that allows general comparisons of the admissions rate by academic index.

There are two striking similarities between the law school and medical school patterns: Blacks have much higher admission probabilities than whites within any

Table 2

Comparative Admissions Rates at the University of Michigan Law School, 1999 By Academic "Index" and Race

Admissions Rate for White Applicants		Admissions Rate for Black Applicants	
850 and above	97%	710 and above	96%
830-849	91%		
810-829	70%		
790-809	44%		
750-789	16%		
710-749	5%		
Under 710	2%	690-709	90%
		670-689	72%
		650-669	38%
		610-649	22%
		570-609	11%
		Under 570	0%

Source: Sander, "Why Strict Scrutiny Requires Transparency," in Kevin McGuire, ed., New Directions in Judicial Politics (2012), p. 288, Table 15.2.

Table 3

Comparative Admissions Rates at the University of Wisconsin Medical School, 2013 By Academic "Index" and Race

Admissions Rate for White Applicants		Admissions Rate for Black Applicants	
Over 950	67%	Over 800	67%
900-950	16%		
850-900	15%		
800-850	12%		
750-800	7%	750-800	50%
700-750	4%	700-750	29%
600-700	2%	600-700	14%
500-600	1%	500-600	4%
Under 500	0%	Under 500	0%

Source: Author's analysis of database provided by UW, 2013

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particular index range; and admission probabilities rise steadily with higher academic indices. In other words, academic credentials matter a lot, and racial preferences are large. However, there are two very striking *differences* as well. First, the racial discrepancies across particular levels of academic index are much less extreme at the medical school. Second, modest rises in academic index do not have, at the medical school, the dramatic effect upon admissions that they have at the law school. At the law school, for example, fairly high index levels essentially guarantee admission; at the medical school, even extremely high scores provide no such guarantee. And at the medical school, the heavy in-state preference means that some whites with quite modest academic credentials will be admitted.

The upshot of these differences is that there is significantly more racial overlap in objective credentials at medical schools than at law schools. We should therefore expect to see less extreme performance differences at medical schools as well.

A third factor which appears to distinguish medical schools from law schools and undergraduate colleges is the lesser emphasis placed upon school ranking (eliteness). In law schools, credentials that would put one near the top of the class at the University of North Carolina (ranked around #30 by US News) would put one near the bottom of the class at the University of Virginia (ranked around #9). Correspondingly, credentials that would put one near the bottom of the class at UNC would put one near the top of the class at the University of New Mexico (ranked around #79).[17] As I noted earlier, students place great (arguably excessive) emphasis on attending a more elite law school, probably because more elite schools have, to some degree, better access to the "big firm" jobs that pay much higher salaries than other entry-level legal jobs. Medical schools appear to be significantly less hierarchical; the academic qualifications of students attending mid-ranked schools overlap more with those at top-ranked schools and indeed, there are medical schools ranked below the 30th position that have *median* student credentials higher than some schools in top ten.[18] This means, among other things, that the "cascade effect" I've described is less likely, in the medical school context, to aggravate the problem of racial credential disparities. Here, as elsewhere, analysis of data collected by national organizations like AAMC could tell us definitively whether my inferences from somewhat fragmentary data hold up.

There is still genuine debate about the degree to which racial preferences in undergraduate admissions reduce Black graduation rates. That is because preferences clearly have both a positive and a negative effect upon college graduation. The positive effect occurs because preferences lift students into colleges where graduation is the norm; once admitted, it is hard *not* to graduate from Harvard, but easy not to graduate from Oregon State. The negative effect occurs because, at a school where graduation is far from assured, large preferences increase the chance of failure. My own institution (UCLA) used very large racial preferences in the early-and-mid 1990s, before Prop 209 made them illegal, and produced terrible outcomes for Black students; only 13.5% of its Black matriculants graduated with a B.A. "on time" (i.e., in four years), and fewer than half ever graduated.

II. The "Mismatch Effect" and the Pipeline to Medical School

Blacks make up at about 14.5% of US undergraduates, but only 10.5% of college graduates and 8% of medical school applicants.[19] Why does the Black share decline as we move through the higher education pipeline? One likely factor is affirmative action itself — in particular, the type of affirmative action that takes the form of very large admissions preferences. What I refer to as the "mismatch hypothesis" has generated a large literature among both economists (who refer to it as a "peer effects" hypothesis), psychologists and sociologists (who sometimes refer to it as the "frog pond" hypothesis).[20] These hypotheses suppose that when a student is placed in an environment where the bulk of her peers (the other students) have stronger academic preparation, that student is likely to learn

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less, or compete less effectively, than in an environment without preferences, where the student's peers have comparable levels of academic preparation.

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There is much less doubt about the phenomenon of "science mismatch." A series of careful studies by psychologists and economists published in top journals over the past twenty-five years have consistently found that students receiving large preferences are less likely to persist in the sciences than they would have at a school where they did not receive a preference.[24] A student aspiring to become a chemist (for example) who receives a large preference into college, will almost certainly find herself surrounded by students with stronger credentials and more extensive science preparation. Her grades and learning will suffer, and she is likely to either switch to a less competitive major or drop out of college altogether. Importantly, most of the research in this field finds that race per se has little effect; white students who receive preferences (say, through legacy considerations) experience the effects of science mismatch to the same degree as Blacks and Hispanics.[25]

One symptom of the "science mismatch" phenomenon is that although Blacks are as likely as whites to express interest in a science career when they are high school seniors, they are much less likely to graduate with science degrees and still less likely to complete a science doctorate. In 2017-18, Blacks accounted for 10.5% of college graduates, but only 7.3% of bachelor's degrees in STEM fields, and only 4.6% of doctoral degrees in STEM fields.[26]

This contributes to a real problem for diversity in medical education. In the first instance, the pool of minority students with enough science preparation to seriously consider medical school is eroded because mismatch increases attrition rates, as students struggling in science courses transfer to less-demanding majors. In the second instance, those minority undergraduates who do apply to medical school may well have weakened science backgrounds because mismatch has lowered their rates of learning in science courses. Among medical school applicants, the black-white gap in undergraduate science grades is twice as large as the GPA gap in non-science courses. Part of the "preference" likely given by many medical schools involves overlooking so-so science backgrounds from underrepresented minority ("URM") applicants. It is likely that many URM students consequently struggle in the basic science courses that fill much of the first year of medical school, which in turn leads to the question of whether mismatch becomes a serious problem in medical school itself.

III. Does "Mismatch" Operate within Medical Education?

In legal education, there is a well-known racial gap in bar passage rates. A national study in 1997 found that Black graduates of ABA-approved law schools had a 38% chance of failing their first bar exam, compared to a 8% rate for whites.[27] Contemporaneous state data — which is rarely public — showed similar disparities. The obvious explanation for the lower black bar passage rate was that Blacks, on average, entered law school with weaker credentials than whites. But when one controlled for LSAT scores and college grades, about half of the black-white gap in bar passage remained. Why was this?

One theory was that bar exams did not fairly assess some people's knowledge — including Blacks to a disproportionate degree. But then Stephen Klein, a psychometrician at RAND and for many years the nation's leading expert on bar exams, showed that when one controlled for *law school* grades (as well as LSAT and college grades), the unexplained black performance deficit on the bar exam disappeared.[28] Why, then, were black law school grades so low? In 2004, I advanced the argument that blacks received low law school grades simply because of large preferences, which systematically placed them in schools where they were at a competitive disadvantage. The extra penalty Blacks experienced in bar performance could be entirely explained by the effect of admissions preferences.[29]

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Given the size of racial preferences used by many (and probably most) medical schools, it would not be surprising if the mismatch effect also hurt the learning process and educational outcomes of URM medical students. This would be particularly plausible during the first half of medical school, where students traditionally spend most of their days in large classes covering an immense quantity of challenging, technical material. In such an environment (still the norm in the first half of law school) professors tend to aim their lectures, materials and assignments at the middle of the class; in medical school, a student with weaker credentials or less science preparation than her classmates would be at a disadvantage, sometimes stimulated by and rising to the challenge, but often falling behind and learning less than she would have at a less elite medical school.

In recent decades, medical schools have introduced more varied teaching methods into those first two years. Some professors use online material and textbooks to convey the core material, and then meet with students in smaller groups to discuss it. Laboratory instruction is likely to be more individualized. Such factors might make medical education less subject to mismatch, because students are more able to set their own pace and ask their own questions.[30] The University of Texas Medical Branch undertook a particularly ambitious curricular reform in the late 1990s and early 2000s, which introduced more experiential learning to early medical courses, emphasizing applied problem-solving and the early development of clinical skills. Importantly, the school found that its reforms became more effective — i.e., producing better learning outcomes, even as measured by national board exams — when the examination process was reformed as well to better match what students were now being taught.[31]

Halfway through medical school, students take their first national board exams (the "Step I Boards"), which focus on the scientific subjects students study during the first and second year of school. In general, passage rates are high — well over 90% in recent years. The administering body, the National Board of Medical Examiners ("NBME"), does not report outcomes by race, but periodic studies based on large samples of students have consistently found a large racial gap in pass rates. One of the earliest studies, which analyzed data from ten thousand students taking the Step 1 Boards between 1986 and 1988, found large racial and gender disparities in outcomes. The scores of women were, on average, about 1/3 of a standard deviation lower than men; the scores of Hispanics were about ½ of an SD lower than whites, and the scores of Blacks were a full SD lower than those of whites. Pass rates varied accordingly: 88% of white takers passed, compared to 66% for Hispanics and 49% for Blacks. The gender gap in pass rates was much smaller, about five points separating white men and women.[32] Later studies of the "Step 1" exam — including the most recent, published in 2019 — have shown gradually rising pass rates, but very similar racial and gender disparities.[33]

Medical students must pass two further "Step" exams to obtain a license for general practice. The "Step 2" exam, which students generally take at the end of the fourth year of medical school, examines clinical skills that are taught in the hospital rotations students complete in their third and fourth years of school. The "Step 3" exam assesses comprehensive medical knowledge and its application to specific patient-care situations. Pass rates on these exams tend to be higher than on the Step 1 exam, and notably, women tend to slightly outperform men on both Step 2 and Step 3. Black and Hispanic test scores and pass rates, however, are much lower than white rates on both Step 2 and Step 3, and the magnitudes of the differences are similar and stable over time.[34]

As with the bar exam, we would expect that much of the racial gap in the medical board exams is explained by the racial disparities in distribution of academic achievement — UGPAs and MCAT scores — among entering medical students. And indeed, nearly all of the research shows that these two factors do highly correlate with "Step" scores and that these explain much of the racial gap. They also consistently find, however, that even after controlling for those factors, some racial gap remains.[35] We would expect this sort of residual gap if mismatch were occurring. For example, if large preferences put many Black students in schools where they are at a learning disadvantage relative to their peers, we would expect them to underperform on the Step exams relative to their academic potential as estimated by UGPA and MCAT scores. If this were so, it would be easy to test: an analysis predicting performance on a Step exam should add a control for cumulative medical school grades or, even better, a control for each student's "relative position" within their medical school class. If mismatch is occurring, these controls should make the residual racial gap disappear or at least greatly diminish in a regression predicting Step scores.

But although the "residual racial gap" in the literature on Step scores certainly implies that mismatch may be a problem in medical schools, the gap is different in two important ways from what we observe in analyses of bar scores. First, it is smaller in the Step analyses: it generally seems to account for one-fourth to one-third of the Black-White gap in Step scores,

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whereas it accounts for 40%, 50%, or even more of the Black-White gap in bar scores. Second, Asian-American medical students — and in some analyses, women — also show an unexplained residual gap, even though neither of those groups are receiving large admissions preferences.

An important feature of medical education is that the first board examinations are taken relatively early — after the second year of medical school. If a student fails the Step I Boards, she is still in school and can presumably take remedial courses that improve the chances of passing on a second attempt. Indeed, many medical schools offer programs directly aimed at providing academic support both to help students prepare for the Step I Boards, and (especially) to assist those who fail them, even stretching out the time that students take to graduate in order to give them a strong grounding in the science fundamentals. This is very different from the situation in law schools, where the bar exam comes after graduation, and graduates who fail the bar neither receive nor expect any assistance from their alma mater in turning their performance around. A law graduate who fails a bar exam is often studying for a subsequent attempt while also dealing with unemployment or a law job in jeopardy from the initial failure. In other words, there is at least an institutional design in medical education that makes the school "own" bad student outcomes in a way that law schools (or undergraduate colleges) do not.

I have not found any systematic evaluation of these third-year academic support programs, though apparently many deans invest significant resources in the programs and believe they are helpful. One related study by Winston and others of academic support at Ross University is valuable and revealing. Ross, presumably like many medical schools, requires students who fail any courses to re-take the course and obtain a satisfactory grade. The authors found that if students simply re-enroll in a large course (say, re-enroll in biochemistry as a second-year after failing the course as a first-year student), the outcomes are not very good — students still have significant difficulty. But if the students enroll in a mandatory course targeted at those having academic difficulty, outcomes improve dramatically. One explanation of these findings is that the mandatory course, by creating a peer group of students having similar academic difficulties, and by teaching learning skills as well as substantive material, is addressing and largely solving the mismatch problem.[36]

It would be quite valuable to know more about what medical schools do to help students who fail Step 1 exams. Clearly, simply stretching out the time permitted to graduate is not enough; URMs who have difficulty on Step 1 exams often have difficulty on Step 2 exams,[37] and there are substantial racial gaps in medical school graduation rates. Eventual graduation rates for non-blacks over the 2007 to 2014 graduation cycles were approximately 95%; for Blacks, the rate is approximately 85%, which means the rate of non-graduation is three times higher for Blacks than non-Blacks.[38]

Moreover, some types of mismatch effect may become evident only after students complete medical school. A 1987 RAND study of early medical school programs in affirmative action provides strong, though indirect, evidence of a mismatch effect in board certification. The three authors gathered data on all "minorities" who completed medical school in 1975, along with a sample of "nonminorities."[39] The authors were generally sympathetic to the goals of affirmative action, and positive about its effects — documenting, for example, the high incidence of same-race relationships between minority physicians and their patients. However, they noted the high rate at which minority physicians did not become board-certified: 49% of minority physicians were board-certified in a specialty, compared to 80% of non-minority physicians.[40] Of particular relevance to the "mismatch" question is the following table:[41]

Table 4

Specialty Board Certification Rate by Undergraduate Performance Index

Performance Index	% Minorities Certified	% Nonminorities Certified
300-399	32	54
400-449	47	71
450-499	56	79
500-549	75	84
550-650	83	89
Overall	49	80

Source: S. Keith, R. Bell, and A. Williams, Assessing the Outcome of Affirmative Action in Medical Schools (1984).

The "performance index" here is a measure combining information on student MCAT scores and undergraduate grades. Keith et al. calculated the performance index using a methodology developed by NBME staff to predict scores on what was, in the 1970s, the "Part II" board examination. In other words, they weighed MCAT scores and college science GPAs into a combined index that optimized prediction of board scores.[42]

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It seems clear from Table 4 that a student's performance index was a strong predictor of whether she achieved board certification; the certification rate for both minorities and non-minorities rises sharply and monotonically with performance index. However, it is also clear that after controlling for performance index, a large racial gap remains, which is conceptually the same thing as the "racial residual gap" I discussed earlier. The data in Table 4 implies that less than half of the overall difference in certification rates between minorities and whites is due to the lower average performance index of minorities entering medical school.[43] The rest could well be due to mismatch.

Compare, for example, this table from my 2005 analysis of law school data:

Table 5

First-time Bar Passage Rates by Undergraduate Academic Index

Academic Index	% Blacks Passing	%Whites Passing
400-460	29	48
460-520	45	66
520-580	53	74
580-640	66	81
640-700	74	87
700-760	88	91
760-820	88	95
Full population	61	90

Data computed from R. Sander, 'A Systemic Analysis of Affirmative Action in American Law Schools,' Stanford Law Review 57, No. 2 (2004), pp. 367-484, at Table 6.2, p. 446..

Tables 4 and 5 show remarkably similar patterns, and in the case of Table 5 we have a great deal of external evidence suggesting that the horizontal gaps between Black and white bar passage rates are due to mismatch. Law school mismatch, it seems, has roughly the same effect upon one's chances of bar passage as subtracting 120 points from one's academic index. In Table 4, minorities appear to have about the same chance of board certification as non-minorities with performance indices about 80 points lower. If this effect, too, is driven by mismatch, then large admissions preferences are greatly compounding an initial problem of preparation disparities by putting minority students in schools where their learning is compromised.

So far as I can tell, the "mismatch" issue has never been specifically studied in a medical school context, and there is not even readily-available data to duplicate the RAND study for recent physician cohorts. It seems likely that the problem is less severe today, because the size of racial preferences in the 1970s was almost certainly larger than the preferences used today. Moreover, Table 4 is not, by itself, definitive proof that mismatch existed even in 1975. It is conceivable, for example, that minorities had lower board certification rates because, race aside, they came from lower SES backgrounds (see next section) or were generally different in some way that correlated with race. By far the best way to test for mismatch (when limited to observational data, rather than an actual experiment) is, in any case, not to use a racial surrogate, but to measure how far each student differs from the mean preparation level of her classmates and use that "mismatch" variable as one of several alternate predictors of outcomes, to see whether it has independent power.[44]

Nonetheless, even the modest evidence I have reviewed here — on NBME Step I pass disparities, on graduation disparities, and on specialty board certification rates — suggest that mismatch is quite plausibly a major issue undermining both individual careers and the profession's half-century-old effort to diversify. So far as I can tell, academic medicine has not given any consideration to mismatch as a plausible explanation of why Blacks have, for many years, made up 8% of matriculating medical students, but only 5% of young doctors.

A key question about medical school mismatch is whether, to the extent it exists, it can be rectified by simply lowering the size of preferences used by at least some medical schools, without shrinking the number of minority matriculants in medical schools as a whole. This goes back to a question I raised in Part II, about the less hierarchical pattern of medical school admissions compared to law school admissions. Within the legal academy, if the top forty law schools greatly scaled back their use of racial preferences, the Blacks and Hispanics denied seats they would have received under the preference regime would still be highly competitive at many lower-ranked schools, so there is no intrinsic reason why the number of blacks entering law school would decline. Similarly, within the University of California, the end of racial preferences in 1998 produced mainly a reshuffling of Blacks and Hispanics across UC undergraduate campuses rather than a drop in overall URM enrollment (and even the small drop that occurred, as we shall see, was quickly offset by improved outreach). Whether the diversity of admissions standards across medical schools is great enough to similarly adjust to lower preferences without the loss of promising students is a question that could be answered with the sort of data collected by AAMC.

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One of the challenges in addressing the mismatch problem — or even seriously investigating and discussing its possible existence — is the tendency of established interests to "shoot the messenger." In the 1990s, the racial disparity in bar passage rates was considered an urgent and important problem; once the plausible idea was introduced that preferential admissions policies were in large part causing and seriously exacerbating the problem, discussion of the racial gap faltered, and releases of relevant data largely ground to a halt. Instead, pressure arose to ease grading curves and bar passage requirements, which were characterized as arbitrary barriers to diversity efforts.[45] My sense, as an outside observer, is that similar pressures are operating — and indeed increasing — in the medical academy. A dramatic recent example is Norman Wang, a cardiologist at the University of Pittsburgh who published an article in the *Journal of the American Heart Association* in early 2020, analyzing affirmative action in medical schools (and in cardiology in particular). Although his article was apparently peer-reviewed and carefully researched, intense pressure arose for JAHA to retract the article – apparently solely for ideological reasons – which it did in August 2020. The University of Pittsburgh went a step further, removing Wang from an administrative position.[46]

Over the past five years, there has been a perceptible shift in the literature from articles documenting racial gaps on "step" exams and other measures of proficiency, to articles instead questioning the legitimacy of the "step" exams and other metrics of merit themselves, and questioning their utilization in such matters as selecting residents.[47] The recent move to change the Step I Boards to pass/fail grading, apparently motivated by arguments that scoring the boards undermined diversity efforts, exemplifies this shift in thinking.[48]

Of course, reducing underrepresentation by throwing away information is not a good solution. In the short term, it makes it more difficult to target academic support to those who performed badly on Step exams.[49] In the longer term, it undermines efforts to identify and remedy the sources of test score disparities, and to build better pipelines to medical school for underrepresented students. I agree with the critics of Step exams that the medical academy should do a better job of studying what factors or types of knowledge best predict high quality doctors, but that is a call for developing more and better information, not for censoring the information we currently have.

IV. The Conflict Between Race-Based Preferences and Socioeconomic Preferences

Most of the common rationales behind affirmative action concern its ability to "level the playing field," to better represent the underrepresented, or to take into account individual hardship and obstacles overcome in assembling an incoming class. All of these rationales would seem better met by preferences based on socioeconomic status ("SES") rather than race.[50] As Barack Obama aptly put it in 2007, there was no good reason why his daughters should receive special preferences in college admissions.[51] Using individual-level assessments of the circumstances applicants have actually faced in their lives makes more sense than using an intrinsic trait, like race, that embraces people who are advantaged as well as disadvantaged.

Several years ago, I analyzed data on parental education and occupation to assign SES scores to a nationally representative sample of young lawyers.[52] I found that two-thirds of the lawyers came from households in the top quartile of SES, including 39% who came from households in the top tenth. Only 5% came from households in the bottom SES quartile. The share of top-quartile versus bottom-quartile lawyers was highest among whites (69% versus 4%), but it was high among all racial groups (for example, 53% versus 7% for Black lawyers). I also found that while the vast majority of law schools used racial preferences, almost none of the schools used SES preferences or even gathered systematic SES data from applicants; if anything, low SES appeared to be a disadvantage in the admissions process.[53]

What of medical schools? I have not found an attempt to create an "SES metric" for medical students or doctors, comparable to those used in my research and in many sociological studies, but the AAMC does collect systematic data on student backgrounds and has issued occasional reports.[54] The data suggest that medical students come from even more privileged backgrounds than law students. Among medical students matriculating In 2008, 80% of the fathers had at least a bachelor degree, as did 76% of the mothers.[55] By comparison, among lawyers who graduated from law school in 2000, 62% of the fathers and 50% of the mothers had at least a bachelor's degree.[56] As with Black lawyers, Black medical students were, on average, from less privileged backgrounds than white medical students, but nonetheless still mostly had upper-middle-class origins: 63% of their fathers, and 66% of their mothers, had at least a college degree.[57]

In terms of income, 55% of medical students matriculating in 2006 had parents whose incomes placed them in the top quintile of American families. Only 4% came from families in the bottom quintile.[58]

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From the standpoint of diversity, people from low-SES backgrounds are clearly less represented among the ranks of medical students (and hence, physicians) than are people who are racial minorities. While Blacks and Hispanics are underrepresented among the ranks of new physicians, relative to their numbers in the general population, by a factor of 2 or 2.5, people from low-SES backgrounds are underrepresented by a factor of 5 or more.[59] Yet while nearly all medical schools collect data on the SES background of applicants, most do not appear to confer any significant SES preference. The only exceptions I have found are schools — like those in the UC system — that are legally enjoined from considering race.[60] As with law schools, racial preferences are not only much larger and more pervasive than class preferences; they also seem to deter schools from seriously considering class.

Given my discussion of the possible mismatch problem in medical education, the reader may wonder why I am implicitly suggesting here that medical schools consider affirmative action based on socioeconomic status. Two distinctions are important here. First, a good deal of research suggests that relatively modest socioeconomic preferences can substantially increase SES diversity; and (compared to very large preferences) modest preferences produce much less mismatch, or none at all.[61] Second, efforts to "build the pipeline," such as I describe in the final section of this article, can expand diversity without the use of preferences at all — one focuses on expanding the pool of qualified students, rather than applying differential admissions standards to an existing pool.

V. Race is an Increasingly Misleading Phenotype

As has been often noted, race itself is more a social construct than a genetic characteristic. Yet in 1970, around when racial preferences were adopted by many institutions of American higher education, it was at least a meaningful construct in the sense that "non-whites" in America had widely experienced powerful disadvantages related to their assigned race. The black students who received preferences had, predominantly, two black parents and four black grandparents, and were highly likely to have ancestors who had been slaves in 19th century America.

That is far less true today. Since 1980, the number of foreign-born Blacks in the United States has quadrupled, and their share of the Black population has risen from 3.1% to 8.7%.[62] The share of Blacks who are the children of immigrants has, of course, risen correspondingly. The number of children born of parents of different races has also increased sharply; "multiracial" persons constitute the fastest growing racial group in the United States.[63] And because both nonnative Blacks and multiracial Blacks have, on average higher test scores and stronger educational credentials than other Blacks, they make up a disproportionate share of the Blacks receiving preferential treatment. An analysis of Harvard Law School students in 2003 found that only about 30% of Black admittees were the children of two African-American parents.[64]

The issue has been compounded, of course, by the transition of the United States from a "two-race" society to a truly "multiracial" one. "Hispanics" — if they are considered to be a single racial group — now significantly outnumber Blacks by any measure. Yet the case for using preferences to achieve diversity varies widely across different ethnicities within the Hispanic umbrella, and indeed varies within specific ethnicities depending on lineage.

The point is that race has always been a problematic concept from a genotypic perspective; today in America it is becoming problematic from even a phenotypic perspective. The correlation between descriptive racial categories and whatever we think we are trying to achieve through preferences is highly, and increasingly, artificial.

VI. The Paradox Implicit in Pursuing "Educational Diversity" Benefits Through Large Preferences

My focus in this essay has been on the reasons why racial preferences are so difficult to implement in a fair and benign way. Implicitly, I have left on the table the presumed validity of the usual rationales given for affirmative action. But it is worth pointing out, briefly, that many of these are quite contestable.

For example, scholars at Duke University studied patterns of friendship at Duke over the four years of undergraduate education.[65] At the beginning of freshman year, they found, students struck up friendships with a wide variety of people, mirroring to a significant degree the racial diversity at Duke. But over time, students' friendship networks became more and more strongly associated with their academic performance at Duke; the stronger students made more durable friendships with other high-performing students, and weaker students made durable friendships with other weak-performing students. This was not in itself problematic; but since Duke used large racial preferences, the academic sorting produced racial sorting as well, so that by the senior year, Black students were socially segregated.

Though the authors did not examine the consequences of this academic-to-racial segregation, some plausible problems could easily follow. Blacks who in the first instance experience academic difficulty (not

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realizing how much the odds are stacked against them by large preferences), and in the second instance find that many of their Black friends are also struggling, and that friendships across racial lines become less common, could readily conclude that their college is systemically racist in some way. Whites, for their part, may well notice that Blacks they know, or observe in class, are disproportionately struggling, which could lead them to draw generalizations indistinguishable from racial stereotyping. In short, the use of large preferences can have precisely the *opposite* social and attitudinal effects that inspired affirmative action in the first place. It seems obvious that such counterproductive effects are much less likely to occur in the absence of large racial preferences.

would have a salutary effect upon transparency within the field and would make it at least possible to have concrete conversations about programs and tradeoffs. Such steps would be consistent with the scientific spirit that is a touchstone of medical education.

I close, as I began, with the example of California's Prop 209 and Prop 16, which illustrate both the challenges and potential for reform. In 1996, when voters passed Prop 209, many parts of the University of California system had been using very large racial admissions preferences. Year after year, Berkeley and UCLA (in particular) admitted very similar numbers of Black and Hispanic freshmen. Numerical goals for the entering class were achieved, but the pool of competitive candidates was stagnant rather than dynamic,

The Prop 209/Prop 16 saga offers three lessons. First, we should be mindful that racial preferences are not a substitute for other forms of affirmative action, and that we often ignore those other forms when the seemingly easy route of racial preferences is open to us. Second, a focus on building pipelines, reducing science mismatch, and improving outcomes can be — as the UC experience unequivocally demonstrates — far more effective and healthier than a reliance on admissions preferences. But third, a great many educational leaders have a strong attachment to racial preferences, and a remarkable tendency to ignore (and discourage examination of) underlying data, so much so that they often represent the biggest single obstacle in the path of reform and racial progress.

VII. Conclusion: The Lessons of Prop 209 and Prop 16

As I stated at the outset, my goal in this article is not to judge affirmative action in medical school, but to identify some of the dynamics and plausible concerns that medical educators should understand, consider, and in a number of cases, investigate. What I know from the legal academy is that while it is easy to slip into a regime of racial preferences that soon develops significant downsides, it is hard to confront these downsides and even harder to reform them.

I think my findings do at least suggest the desirability of one of the national bodies of medical education (e.g., AAMC or NBME), or an informal association of several medical school deans, making an effort to generate a significant longitudinal database of medical school outcomes. This database would trace applicants through medical school, residency, board examinations. Ideally, this consortium would also create a modest fund to encourage research with this data. This

and the outcomes for admitted URMs were generally dismal.

Prop 209 forced UC administrators to reconceive what they were doing. By 1998, the university had undertaken a massive and more traditional affirmative action effort. It invested many tens of millions of dollars in outreach to students in poor-performing schools, making students more familiar with UC's admissions requirements (i.e., the specific high school courses required for admission), tutoring promising students, and creating partnerships between individual campuses and high schools. UC also undertook a broader use of socioeconomic preferences in admissions, though these remained far more modest than the earlier racial preferences.

The cumulative effect of these reforms was rapid and dramatic. Applications from Black — high school students in California, which had been flat from 1989 to 1997, tripled from 1997 to 2007. Hispanic applications rose even faster. Both groups were much better

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represented at UC, in both absolute and relative terms, by 2008 than at any time in the era of racial preferences. With URM students attending campuses where their credentials more closely matched their peers, mismatch effects declined sharply. Four-year graduation rates for URMs had doubled within a few years, and the number of URMs completing science degrees tripled. On nearly every metric, Black and Hispanic students at UC were better off in the race-neutral era. And UC achieved, in the process, an extraordinary level of socioeconomic diversity, with over a third of its students at many campuses receiving Pell Grants (which are roughly available to students whose parents are in the bottom half of the income distribution); no other top-ranked school has a Pell Grant rate higher than 22%.[66]

In this rosy picture, the UC system's major and ironic failing was its unwillingness — perhaps even inability — to recognize and embrace the success of its own race-neutral affirmative action. Under pressure from Hispanic and Black state legislators and its own activist students to achieve fully proportional racial representation, UC administrators portrayed Prop 209 as a harmful impediment to their diversity efforts, and connived at changes to admissions processes that, often not very subtly, reintroduced racial preferences. When state legislators proposed Prop 16 (to repeal Prop 209), the UC Regents unanimously endorsed it.[67]

As someone who had done a lot of research on affirmative action in general, and on the UC experience in particular, I was regularly asked during the debate over Prop 16 to discuss the measure, debate university officials, and participate in town halls. I was struck by an extraordinary disconnect. Senior UC officials were disturbingly uninformed about how URM enrollment, graduation, grades, and STEM completion had risen after Prop 209; they seemed shocked by the statistics on UC's own website. But regular voters got it; many of them had actually experienced the university's outreach programs or had noticed the rise in graduation rates. Although Prop 16 was almost universally endorsed by establishment institutions, including the state's major newspapers, and although the "yes" campaign had sixteen times the funding of the "no" campaign, it was emphatically rejected at the polls, losing by more than two million votes (42.8% to 57.2%). Strikingly, the vote was not particularly polarized across racial lines; opinion surveys indicated that a majority of Hispanics, and more than a third of Blacks, voted against Prop 16.

The Prop 209/Prop 16 saga offers three lessons. First, we should be mindful that racial preferences are not a substitute for other forms of affirmative action, and that we often ignore those other forms when the seemingly easy route of racial preferences is open to us. Second, a focus on building pipelines, reducing science mismatch, and improving outcomes can be — as the UC experience unequivocally demonstrates — far more effective and healthier than a reliance on admissions preferences. But third, a great many educational leaders have a strong attachment to racial preferences, and a remarkable tendency to ignore (and discourage examination of) underlying data, so much so that they often represent the biggest single obstacle in the path of reform and racial progress.

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1. These other states are Washington, Florida, Michigan, Nebraska, Arizona, New Hampshire, Oklahoma, and most recently, Idaho. *See* H. Potter, "What Can We Learn from States That Ban Affirmative Action?" The Century Foundation, June 26, 2014, *available at* <https://tcf.org/content/commentary/what-can-we-learn-from-states-that-ban-affirmative-action/?agreed=1/> (last visited March 29, 2021). Idaho was the most recent state to ban affirmative action. See "Idaho Governor Signs Affirmative Action Ban into Law," Associated Press, March 31, 2020, *available at* <https://apnews.com/article/bbe0f81d2b4ef63102d749879c045a10> (last visited March 29, 2021).
2. In the conclusion, I return to Prop 16.
3. In the current litigation against Harvard and Yale, the principal alleged victims of discrimination in the admissions process are Asian-Americans. See Justice Department Finds Yale Illegally Discriminates Against Asians and Whites in Undergraduate Admissions in Violation of Federal Civil-Rights Laws, United States Department of Justice, Aug. 13, 2020, *available at* <https://www.justice.gov/opa/pr/justice-department-finds-yale-illegally-discriminates-against-asians-and-whites-undergraduate> (last visited March 30, 2021) (stating that the Department of Justice "notified Yale University…that Yale discriminates against Asian American and white applicants in its undergraduate admissions process" after a two-year investigation "in response to a complaint by Asian American groups."); Justice Department Files Amicus Brief Explaining that Harvard's Race-Based Admissions Process Violates Federal Civil-Rights Law, United States Department of Justice, Feb. 25, 2020, *available at* <https://www.justice.gov/opa/pr/justice-department-files-amicus-brief-explaining-harvard-s-race-based-admissions-process> (last visited March 30, 2021) (stating that "Students for Fair Admissions, an organization of students and parents, alleged that Harvard College intentionally discriminates against Asian-American applicants when making admissions decisions…").
4. Many of these works are cited *infra*, such as the note to Table 2, and notes 15, 16, 17, 21, 30, 47, and 54.
5. National Center for Education Statistics, NAEP 2012: Trends in Academic Progress, pp. 18, 39.
6. NCES, Table 226.10, *available at* <https://nces.ed.gov/programs/digest/d15/tables/dt15_226.10.asp> (last visited March 30, 2021) reports SAT means by race over a twenty-year

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period (ending in 2014-15, when the SAT was reconfigured), and shows Black verbal SAT scores at consistently slightly less than 100 points below white scores, while Black math SAT scores are consistently slightly more than 100 points below white scores (both exams are scaled to have standard deviations of approximately 100 points).

7. Racial disparities in school funding are small or nonexistent in most states today, and a vast body of literature has found little correlation between school funding levels in the U.S. and test scores. E. Hanushe and A. Lindset, *Schoolhouses, Courthouses, and Statehouses: Solving the Funding-Achievement Puzzle in America's Public Schools* (Princeton N.J., Princeton, University Press, 2009).
8. R. Fryer and S. Levitt, "Understanding the Black-White Test Score Gap in the First Two Years of School," *Review of Economics and Statistics* 86, no. 2 (2004): 447-464.
9. See, e.g., Lucey and Saguil, "The Consequences of Structural Racism on MCAT Scores and Medical School Admissions: The Past is Prologue," *Academic Medicine* 95, no. 3 (2020): 351-356.
10. I have written extensively about how we can powerfully redress racial inequality through straightforward strategies reducing racial housing segregation, in R. Sander, Y. Kucheva, and J. Zasloff, *Moving Toward Integration* (Harvard, 2018).
11. In 2013, Harvard's Office of Instructional Research conducted an analysis of undergraduate admissions, and found that, absent the inclusion of "demographic factors," Blacks would constitute only 2.4% of a freshman class. The memo surfaced from discovery conducted by Students for Fair Admissions ("SFFA") in its suit against Harvard.
12. Indeed, in the admissions cycles for 2016-2018, the proportion of African-American domestic applicants admitted was equal, to within a hundredth of a percentage point, to the proportion of non-African-Americans domestic applicants admitted. See P. Arcidiacono, "Expert Report 1," *Students for Fair Admissions v. Harvard* (available from the author).
13. First Expert Report of P. S. Arcidiacono, *Students for Fair Admissions, Inc. v. Harvard* (2018), p. 3.
14. For a more detailed discussion and illustrations of the cascade effect, see R. Sander and S. Taylor, *Mismatch* (New York: Basic Books, 2012), chapter two.
15. In the world of law schools, so much emphasis is given to these rankings that students, professors, and practicing lawyers alike tend to refer "elite" versus "non-elite" law schools, and place schools in "tiers" of ranking. See Sander and Bambauer, "The Secret of My Success: How Status, Eliteness, and School Performance Shape Legal Careers," *Journal of Empirical Legal Studies* 9 (2012): at 895-98.
16. The law school data shown here is from an earlier period (1999) than the medical school data (2013). I have a good deal of more recent law school data that shows similar patterns, but the 1999 Michigan data is significant because this was the admissions year at the University of Michigan Law School that was the subject of a major affirmative action case: *Grutter v. Bollinger*, 539 U.S. 306 (2003), which laid down several key, but vague, rules about how universities using racial preferences could stay within constitutional bounds. I explore the jurisprudence of *Grutter*, and its lack of meaningful effects upon law school admissions patterns, in Sander, "Why Strict Scrutiny Requires Transparency," chapter 15 in K. T. McGuire, ed., *New Directions in Judicial Politics* (New York: Routledge, 2012).
17. See Sander and Bambauer, *id*., at 897. The US News rankings, which are discussed further in the article, come from that publication's 2012 rankings of law schools.
18. See M. Butterick, "A Comparative Survey of Affirmative Action Among Business, Medical, and Law Schools," unpublished paper on file with the author, December 2005. Butterick used US News rankings and data to compute an "index" (similar to those I use in Section 1) for ranked law schools and medical schools. Plotting school median index by school rank, it is obvious that the medical schools are less hierarchical. For example, in Butterick's analysis the median academic index of the top ten law schools was about 860; the median for law schools ranked between 50th and 60th place was about 740 — a 120 point gap. At the top ten medical schools, the median academic index was about 825, while at schools ranked between 50th and 60th place, the median index was about 765. Butterick at pp. 43-44.
19. In 2014, the NCES reported 2.426 million Black undergraduates our of a total population of 16.26 million domestic undergraduates. Statistical Abstract of the United States: 2017, at 191. In 2016-17, Blacks accounted for 10.5% of bachelor's degrees conferred on U.S. and permanent domestic residents made up 10.5% of domestic 2018 NCES Digest of Education Statistics at 336.
20. Sander and Taylor, *supra* note 14, surveys much of the literature, though a great deal of important work has appeared since 2012. In other work, I have pointed out that there are several distinct types of mismatch effects: "learning" mismatch, where the disparity in credentials directly undermines learning in and out of the classroom; "competition" mismatch, where — learning effects aside — very difficult competition leads to lower grades and withdrawal from rigorous majors; and "social" mismatch, where large academic disparities have harmful social effects. See Arcidiacono, Espenshade, Hawkins, and Sander, "A Conversation on the Nature, Effects, and Future of Affirmative Action in Higher Education Admissions," *Journal of Constitutional Law* 17 (2014) 715-717 .
21. Taylor and I discuss this debate in Chapter Six of *Mismatch*, *supra* note 14; the notes to those pages provide references to several works of scholarship with diverse findings on the issue.
22. Harvard has an undergraduate graduation rate of close to 100%, while most large state universities have graduation rates between 60% and 80%. *C.f.* "What is Harvard's Graduation Rate," Harvard College, *available at* <https://college.harvard.edu/resources/faq/what-harvards-graduation-rate> (last accessed on Nov. 16, 2020) (stating that Harvard College's graduation rate "is normally 98%, among the highest at American colleges and universities) with Retention and Graduation Rates of First-time, Full-Time Degree Seeking Freshmen, Oregon State University, *available at* <https://institutionalresearch.oregonstate.edu/sites/institutionalresearch.oregonstate.edu/files/retention_graduation_report_2019-20.pdf> (last accessed on Nov. 16, 2020) (showing that the 6 year graduation rate of their cohorts has largely stayed below 70%); Retention and Graduation Rates for First-Time Full-Time Freshmen-Metropolitan Campuses, Arizona State University (last accessed on Nov. 16, 2020), *available at* <https://www.asu.edu/facts/#/facts/retention/freshman> (last visited March 31, 2021) (showing that the 6-year graduation rate is usually below 70%, often below 60%); Graduation Rate, Michigan State University (last accessed on Nov. 16, 2020), *available at* <https://msu.edu/state-transparency-reporting/Section245FY17_2c> (showing that Michigan State University's graduation rate is generally near 80%, but is consistently 71% for Pell Grant Recipients).
23. See Sander, "Fifteen Questions About Prop 16 and Prop 209, University of Chicago Law Review online, 10/30/2020; for years after 2000, data on UC graduation rates by campus and race, *available at* <https://www.universityofcalifornia.edu/infocenter/ug-outcomes> (last visited March 31, 2021).
24. E. Aucejo and V. Joseph Hotz, "University Differences in the Graduation of Minorities in STEM Fields: Evidence from California"*American Economic Review* 106, no. 3 (2016), 525-562; F.L. Smyth and J. J. McArdle, "Ethnic and Gender Differences in Science Graduation at Selective Colleges with Implications for Admission Policy and College Choice," *Research in Higher Education* 45, no. 4 (2004): 353-381; R. Elliott, A. Christopher Strenta, R. Adair, M. Matier, and J. Scott, "The Role of Ethnicity in Choosing and Leaving Science in Highly Selective Institutions," *Research in Higher Education* 37, no. 6 (1996): 681-709.
25. See in particular Smyth and McArdle, *id*.

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26. *Available at* <https://nces.ed.gov/programs/digest/d19/tables/dt19_318.45.asp> (last visited April 1, 2021).
27. Author's calculations from the Bar Passage Study database.
28. S. P. Klein and R. Bolus, "The Size and Source of Differences in Bar Exam Passing Rates among Racial and Ethnic Groups," *Bar Examiner* (1997): 8-16; S. P. Klein, "Law School Admissions, LSATs, and the Bar," *Academic Questions* (2001-02): 33-38.
29. R. Sander, "A Systemic Analysis of Affirmative Action at American Law Schools," *Stanford Law Review* 57, no. 2 (2004): 367-483; see tables at 428, 439, 444 and accompanying text. This is not to say that the racial gap in bar passage would vanish; across all bar-takers, the credentials of Black bar-takers would still be lower and thus their pass rate would be lower. But the very large "unexplained" gap in bar passage would disappear.
30. *See* J. R. Gross, "Trends in Medical School Curricula," *Independent Educational Consultants Association* <https://www.iecaonline.com/quick-links/parents-students/graduate-professional-school-advising/trends-in-medical-school-curricula/> (last accessed on Nov. 16, 2020), (describing how medical schools have started clinical trainings earlier, eliminating earlier science coursework, have added more interdisciplinary work, and creating more individualized options for students); *Effective Use of Educational Technology in Medical Education*, AAMC Institute for Improving Medical Education, March 2007, *available at* <https://store.aamc.org/downloadable/download/sample/sample_id/111/> (last visited April 1, 2021) (emphasizing that adopting educational technologies in medical schools can create much more "individualized learning" experiences).
31. G. Asimakis, M. Ainsworth, J. Aronson, A. Frye, S. Liberman, and J. Rabek, "Evolution of Student Assessment Following Implementation of an Integrated Medical Curriculum: Contribution Improved Educational Outcomes," *Medical Science Education* 21, no. 2 (2011): 181-189.
32. B. Dawson, C. Iwamoto, L. Ross, R. Nungester, and D. Swanson, "Performance on the National Board of Medical Examiners Part I: Examination by Men and Women of Different Race and Ethnicity," *JAMA* 272, no. 9 (1994): 674-679.
33. J. Rubright, M. Jordoin, and M. Barone, "Examining Demographics, Prior Academic Performance, and United States Medical Licensing Examination Scores," *Academic Medicine* 94, no. 3 (2019): 364-370.
34. *Id.* at Tables 3 and 4; see also S. Case, D. Swanson, and D. Ripkey, "Performance of the Class of 1994 in the New Era of USMLE," *USMLE Report* 71, no. 10 (1996): 591-593; D. Andriole and D. Jeffe, "Prematriculation Variables Associated with Suboptimal Outcomes for the 1994-1999 Cohort of US Medical School Matriculants," *JAMA* 304, no. 11 (2010): 1212-1219.
35. See the studies cited in note 26, *supra*.
36. K. Winston, C. Van der Vlueten, and A. Scherpbier, "An investigation into the design and effectiveness of a mandatory cognitive skills programme for at-risk medical students," *Medical Teacher* 32 (2010): 236-243.
37. D. Ripkey, D. Swanson, and S. Case, "Identifying Students At-Risk for Poor Performance on SUMLE Step 2," *Academic Medicine* 74, no. 10 (2000): 545-548.
38. I could not find cohort-tracked data on graduation rates by race, but the AAMC does provide annual data on matriculants and graduate, *available at* <https://www.aamcdiversityfactsandfigures2016.org/report-section/applicants-enrollment/> (last visited April 1, 2021). By combining data over eight cohorts, I obtained the estimates given here.
39. S. Keith, R. Bell, and A. Williams, "Assessing the Outcome of Affirmative Action in Medical Schools," RAND Report R-3481-CWF (1987).
40. While a couple of generations ago, many physicians did not seek certification because they were general practitioners, "general practice" has now been largely displaced by "family practice" or internal medicine, both of which are specialties that involve residency training and specialized board certifications. See also S. Schneid, A. Apperson, N. Laiken, J. Mande, C. Kelly, and K. Brandl, *A Summer Prematriculation Program to Help Students Succeed in Medical School*, Advances in Health Science Education, 2018; this article describes a summer program at UC San Diego that gathers "academically disadvantaged" students for a rigorous, seven-week program before the first year of medical school begins, and which documents substantial, positive effects from the program on student academic outcomes.
41. *Id.* at 36 (Table 27).
42. See J. Rolph, A. Williams, and A. Laniear, "Predicting Minority and Majority Medical Student Performance on the National Board Exams," The RAND Corporation, 1978.
43. Keith et al. report the distribution of minority and non-minority performance indices in Table 1 of their report. If minorities had achieved certification at the rate of non-minorities with the same performance index, their certification rate would have been about 69% — far higher than their actual rate of 49%. From this I infer that less than half of the racial gap in certification rates is explained by differences in performance indices.
44. In the law school context, it has been extraordinarily difficult to extract from reluctant administrators the relatively simple data needed to conduct this sort of test, but my colleagues and I have obtained such data from a few law schools and have applied the method described here in "Mismatch and Bar Passage: A School Specific Analysis," working paper available from the author. This shows larger and stronger mismatch effects than the indirect tests used in, for example, my Systemic Analysis paper.
45. The legal profession regulates entry at the state level, with each state deciding on the necessary qualifications for admission to the bar. Nearly all states rely in part on a national exam, but many add state-level components and all states set their own "pass" thresholds. California was the most recent state to lower its passing threshold, and the rationale was generally thought to have been largely based on a desire to increase the racial diversity of the bar. See M. Dolan, "California is easing its bar exam score, which critics argue fails to measure ability," *Los Angeles Times*, July 26, 2020, *available at* <https://www.latimes.com/california/story/2020-07-26/california-lowers-bar-exam-score-coronavirus> (last visited April 1, 2021).
46. See <https://www.cir-usa.org/cases/norman-wang-v-university-of-pittsburgh-et-al/> (last visited May 11, 2021).
47. See, e.g., A. Teherani, K. Hauer, A. Fernandez, T. King, and C. Lucey, "How Small Differences in Assessed Clinical Performance Amplify to Large Differences in Grades and Awards: A cascade with Serious Consequences for Students Underrepresented in Medicine," *Academic Medicine* 93, no. 9 (2018): 1286-1292; D. Boatright, D. Ross, P. O'Connor, E. Moore, M. Nunez-Smith, "Racial Disparities in Medical Student Membership in the Alpha Omega Alpha Honor Society," *JAMA Internal Medicine* 177, no. 5 (2017): 659-665.
48. See A. Jones, A. Nichols, C. McNicholas, and F. Stanford, "Admissions is not Enough: The Racial Achievement Gap in Medical Education," *Academic Medicine* (in press, 2021), which provides a very helpful overview of the problem and current critiques of medical training from a diversity point of view.
49. A. Makhoul, M. Pontell, N. Kumar, and B. Drolet, "Objective Measures Needed: Program Directors' Perspectives on a Pass/Fail USMLE Step I," *New England Journal of Medicine* 382 (2020): 2389-2392.
50. Socioeconomic status is generally measured by educational achievement, occupational prestige, and/or income; it is intended to measure the degree of privilege, or disadvantage, one experiences within the social or class structure of society.
51. See "Obama's Take on Affirmative Action," *Seattle Times*, May 15, 2007.
52. See R. Sander, "Class in American Legal Education," *Denver University Law Review* 88, no. 4 (2011): 631-682 (including detailed methodological appendices). The data on young

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lawyers quoted here comes from Table 1 and Table 8, pp. 631 and 639. My analysis used data from the After the J.D. study, a unique attempt to study in depth a representative sample of lawyers near the outset of their careers. The over four thousand participants completed a questionnaire in 2003-04 that, among other things, asked about the level of educational achievement and the occupation of each parent. I then converted the occupations to scores based on sociological research on occupational eliteness, and then compared both educational and occupational attainment to census microdata on adults in the same age ranges as the resondents' parents would have been in 2000. I could thus assign an overall percentile capturing the parents' SES percentile. The methodology is described in detail at pp. 670-78.

53. *Id.* at 656-658.
54. As part of the medical school application process, the AMCAS (Ameerican Medical College Application Service) Program collects some socioeconomic status information and also allows some students to indicate if they believe they are disadvantaged. 2020 AMCAS Applicant Guide, American Medical College Application Service, AT 25,70, *available at* <https://aamc-orange.global.ssl.fastly.net/production/media/filer_public/b2/23/b223c482-8ba3-44dd-bb1c-8835ac84f3e6/2020amcasapplicantguide-060419.pdf> (last visited April 1, 2021). This gives applicants a chance to explain why they believe they are disadvantaged, *id.* at 25, and allows the AMCAS application process to review one's parental education to assess a separate indicator of being disadvantaged, *id.* at 70.
55. D. Guric, G. Garrison, and P. Jolly, "Diversity of U.S. Medical Students by Parental Education," *Analysis in Brief* 9, no. 10 (2010), *available at* <https://www.aamc.org/media/5871/download> (last visited April 1, 2021).
56. Author's tabulation of AJD data (the raw data sources used in Sander, supra note 18).
57. Guric et al., *supra* note 54, at 2 (finding that in 2008, that for African American medical students, 26% of the fathers had at least a bachelor's degree, 33% of the mothers had at least a bachelor's degree, 37% of the fathers had a graduate degree, and 33% of the mother's had a graduate degree. *See also* "Student and Resident Letters to the Editor: Professional Identity and Diversity and Inclusion," and H. Le, "The Socioeconomic Diversity Gap in Medical Education," *Academic Medicine* 92, no. 8 (2017), (two letters to the editor describing the reason for lack of socioeconomic diversity, such as the high cost of medical school and the need for socioeconomic diversity, such as serving underrepresented communicates more effectively).
58. J. Youngclaus and L. Roskovensky, "An Updated Look at the Economic Diversity of U.S. Medical Students," *AAMC Analysis in Brief* 18, no. 5 (2018): 1-3, *available at* <https://www.aamc.org/media/9596/download> (last visited April 1, 2021).
59. For example, compare the 20% of Americans in the lowest income quintile with the 4% of medical students whose parents are in the lowest income quintile.
60. A recent AAMC study found that medical school admissions officers weigh both SES and race/ethnicity as equally of "Medium Importance" in admissions decisions. "Using MCAT Data in 2001 Medical Student Selection," Association of American Medical Colleges, at 15 (2020), *available at* <https://www.aamc.org/media/18901/download> (last visited April 1, 2021). However, as I discussed in Part 1, it's clear that in fact, medical schools place great weight on race in admissions. In contrast, in my regression analyses of schools the disclosed individual credential, race, and SES data on applicants and admits, I found that SES was given little or no weight — except, as noted in the text, University of California schools, which are legally barred from considering race. Even here, the weight given to race appeared to be larger than the weight given to SES. For an argument that the problem lies in the difficulty of accurately assessing SES, see D. Grbric, D. Jones, et. al., "The Role of Socioeconomic Status in Medical School Admissions: Validation of a Socioeconomic Indicator for Use in Medical School Admissions," *Academic Medicine* 90, no. 7 (2015): 953-960.
61. After the passage of Prop 209 prohibited the use of racial preferences at the University of California, I helped to launch an experiment at UCLA's law school that gathered information on the SES background of applicants and used that to administer modest SES preferences. This initiative dramatically increased SES diversity at the law school; the average size of the preference used was a fraction of the size of earlier racial preferences; and the admitted class had the highest bar passage rate in the school's history. See Sander, "Experimenting with Class-Based Affirmative Action," *Journal of Legal Education* 47, no. 4 (1997): 472-503. See also W. Bowen, M. Kurzwell, and E. Tobin, *Equity and Excellence in Higher Education* (Charlottesville, VA: Univeristy of Virginia Press, 2006), which discusses the lack of SES diversity in colleges and lays out the case for class-based affirmative action.
62. M. Anderson, "A Rising Share of the U.S. Black Population is Foreign Born," Pew Research Center (2015), *available at* <https://www.pewsocialtrends.org/2015/04/09/a-rising-share-of-the-u-s-black-population-is-foreign-born/> (last visited April 1, 2021).
63. According to the 2017 Statistical Abstract of the United States (Table 61), multiracial marriages including a Black partner have risen from about 201,000 in 1980 to about 749,000 in 2015. My estimate is that about a tenth of all marriages involving a Black person are now with a partner of another race.
64. S. Rimer and K.W. Arenson, "Top Colleges Take More Blacks but which Ones?" *New York Times*, June 24, 2004, *available at* <https://www.nytimes.com/2004/06/24/us/top-colleges-take-more-blacks-but-which-ones.html> (last visited April 1, 2021).
65. P. Arcidiacono, E. Aucejo, A. Hussey, and K. Spenner, "Racial Segregation Patterns in Selective Universities," *Journal of Law and Economics* 65, no. 4 (2013): 1039-1060.
66. See, for example, "Economic Diversity Among the Top 25 National Universities," *available at* <https://www.usnews.com/best-colleges/rankings/national-universities/economic-diversity-among-top-ranked-schools> (last visited April 1, 2021).
67. The UC Board of Regents unanimously endorsed ACA 5, repeal of Prop. 209, UC Office of the President, June 15, 2020, *available at* <https://www.universityofcalifornia.edu/press-room/uc-board-regents-endorses-aca-5-repeal-prop-209> (last visited April 1, 2021) (stating that the UC Board of Regents unanimously endorsed ACA 5 [i.e., Prop. 16 as it as originally introduced and called in the California legislature] and the repeal of Prop. 209, calling Prop. 209 "'a stain'" that has "challenged the University's ardent efforts to be equitable and inclusive." *Id.*

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