

The Opportunity Cost of Admission Preferences at Elite Universities*

Thomas J. Espenshade, *Princeton University*

Chang Y. Chung, *Princeton University*

Objective. This study examines how preferences for different types of applicants for admission to elite universities influence the number and composition of admitted students. *Methods.* Previous research with these NSCE data employed logistic regression analysis to link information on the admission decision for 124,374 applications to applicants' SAT scores, race, athletic ability, and legacy status, among other variables. Here we use micro simulations to illustrate what the effects might be if one were to withdraw preferences for different student groups. *Results.* Eliminating affirmative action would substantially reduce the share of African Americans and Hispanics among admitted students. Preferences for athletes and legacies, however, only mildly displace members of minority groups. *Conclusions.* Elite colleges and universities extend preferences to many types of students, yet affirmative action is the one most surrounded by controversy.

In an earlier article in this journal, Espenshade, Chung, and Walling (2004) examined the strength of admission preferences for underrepresented minority students, athletes, and alumni children at three highly selective private research universities in the United States. Using data from the National Study of College Experience on 124,374 applications for admission during the 1980s and the fall semesters of 1993 and 1997, they found that elite universities give extra weight in admissions to candidates whose SAT scores are above 1500, who are African American, and who are student athletes. A smaller, but nevertheless important, preference is extended to Hispanic and legacy applicants. African-American applicants receive the equivalent of 230 extra SAT points (on a 1600-point scale), and being Hispanic is worth an additional 185 SAT points. Other things equal, recruited athletes gain an admission bonus worth 200 points, while the preference for legacy candidates is worth 160 points. Asian-American applicants

*Direct correspondence to Thomas J. Espenshade, Office of Population Research, 249 Wallace Hall, Princeton University, Princeton, NJ 08544-2091 (tje@Princeton.Edu). Support for this research has been provided by grants from the Andrew W. Mellon Foundation and the National Institute of Child Health and Human Development Center Core Grant P30 HD32030. We are grateful to Elana Broch, James Snow, Kristen Turner, and Chengzhi Wang for bibliographic assistance. Kalena Cortes, Sara Curran, Bonnie Ghosh-Dastidar, Lauren Hale, Stephen LeMenager, Germán Rodríguez, Christopher Weiss, Charles Westoff, and, especially, Joyce Jacobsen and Mark Long contributed many useful suggestions.

face a loss equivalent to 50 SAT points. The underrepresented minority advantage is greatest for African-American and Hispanic applicants whose SAT scores are in the 1200–1300 range, and not for applicants near the lower end of the SAT distribution as some have suggested (cf. Dugan et al., 1996). Finally, the advantage that athletes have over nonathletes in elite university admissions has been growing, whereas the strength of the minority student advantage, especially for Hispanic candidates, has been waning.

An important but unanswered question has to do with the opportunity cost of these admission preferences. Who are the beneficiaries and, by extension, who loses a seat at academically selective universities because some students are favored over others in the admission process?

The Opportunity Cost of Preferences

The admission process at academically selective colleges and universities inevitably entails opportunity costs (Bowen and Levin, 2003; Shulman and Bowen, 2001). A decision to admit one student involves a choice not to admit someone else. When preferences enter into the mix, applicants who are denied admission often feel that they would have been next in line to be accepted had preferences not played a part (Kane, 2003). In this article, using the same data, we extend the work of Espenshade, Chung, and Walling (2004) and ask two questions. First, what is the impact of affirmative action on the profile of students admitted to elite universities? In other words, who gains and who loses as a result of admission preferences for underrepresented minority students? And, second, to what extent do preferences for athletes and legacies, both of whom are disproportionately white, offset the effects of affirmative action?

Answering these questions is inherently difficult. One reason is that the selection process at elite private institutions is typically more nuanced and subjective than the explicit point systems formerly relied on by undergraduate admission officers at the University of Michigan and other large public universities (University of Michigan, 2002; Zwick, 2002:39). With a more numerical approach, it would be relatively straightforward to see how applicants' comparative rankings would be reordered as points were removed for being a minority applicant, an athlete, or a legacy (Kane, 2003).

More importantly, many of the factors affecting the makeup of the first-year class are themselves endogenous to the choice of a particular preference regime.¹ Eliminating racial and ethnic preferences, for example, could

¹The interdependent nature of the decision-making process was observed by economist Robert Klitgaard (1985:78) nearly two decades ago: "The existence of incentive effects transforms the selection problem from a static to a dynamic framework. The classic selection problem is static—given an applicant pool with certain characteristics, choose those most likely to succeed along certain criteria of later performance. The dynamic problem is richer. The choice of this particular class of students must take account of the effects of the choice on

discourage applications from members of minority student groups (Bowen and Bok, 1998; Conrad, 1999; Klitgaard, 1985).² The proportion of admitted students who eventually enroll (the so-called yield rate) might also be adversely affected if minority students would be less likely to matriculate at campuses where there are relatively few members of their own group (Bowen and Bok, 1998; Conrad, 1999) or if financial aid is more restricted at less academically selective schools to which minority students might be more likely to apply in the absence of affirmative action (Dugan et al., 1996). Finally, institutions that are no longer able to consider an applicant's race or ethnicity may still try to meet representational goals by altering the weights assigned to other factors in the selection process. Fryer, Loury, and Yuret (2003) predict that schools will "flatten" the function that relates test scores and other measures of academic performance to the probability of admission and give greater emphasis to socioeconomic background and other personal factors. Indeed, in response to the Board of Regents' 1995 decision to end affirmative action at the University of California, the Berkeley law school faculty voted to reduce the importance of LSAT scores and other numerical indicators from "greatest" to "substantial" weight (Guerrero, 2002:91–92).

One way to gauge the effect of admission preferences on the composition of entering classes is to consult expert opinion. In 1976–1977 all U.S. law schools were asked how many minority students they had in their first-year classes and how many of these would have been admitted if it had been impossible to detect the racial background of applicants. Respondents believed the number of African-American students would have declined by 82 percent. Only 27 percent as many Chicano students would have been accepted. Just 28 percent of all minority students, including Asians, would have been admitted under a race-blind procedure (Klitgaard, 1985:155).

A more satisfactory approach is to rely on a quantitative analysis of how individual applicants' probabilities of being admitted change depending on

applicant pools in the future . . .” Further evidence that today's students respond quickly to altered incentives is provided by the effect of changes in admission policies at several elite universities. Yale and Stanford, both of which changed last year from a binding early decision admission program to nonbinding “single-choice” early action, saw applications for the 2004 entering class increase by 42 and 62 percent, respectively. Early applications to Harvard fell 47 percent in response to a switch from nonbinding early action, where students could apply early to several institutions, to single-choice early action—a plan that prohibits students from applying early to any other institution. Princeton, which made no changes in its admission policies, saw a 23 percent decline in its early applications (Arenson, 2003).

²The magnitude of this effect has been estimated separately by Long (2004a) and Card and Krueger (2004), with somewhat different results. Long finds that underrepresented minority students in California and Texas are predicted to send fewer SAT-score reports to top-tier in-state public colleges and universities after the elimination of affirmative action, while white and Asian-American students are predicted to send more. Card and Krueger find no change in the propensity of highly qualified African-American and Hispanic students to send their SAT scores to the most selective public institutions in either California or Texas. Eliminating affirmative action also left other features of the application process unaffected, including the number of schools to which scores were sent and the lower bound on the quality of such institutions.

which preferences are in effect. In the remainder of this article we present the results of several micro-simulation exercises aimed at illustrating how the profile of students admitted to our three elite universities would differ depending on whether a candidate's racial background was considered in the admission decision and whether preferences were granted to athletes and to legacies. We combine athlete and legacy preferences because athletes and legacies comprise a relatively small proportion of the applicant pool and because both student groups are largely white. Our analysis is based on the 1997 cohort of applicants to reflect recent conditions, and we assume that satisfactory answers to who loses and who gains under different preference structures can be obtained by turning selected preferences on and off and ignoring second-round effects.

More specifically, our simulations are based on the logistic regression model for the 1997 cohort in Table 7 in Espenshade, Chung, and Walling (2004). This equation is used to predict a probability of admission (at the institution to which the application was sent) for each of the 45,549 applicants in the 1997 cohort. Predictor variables include sex, citizenship status, SAT score, race/ethnicity, recruited athlete, and legacy status. Following a procedure suggested by Kohn, Manski, and Mundel (1976), we also generated a random proportion on the uniform distribution between 0 and 1 for each applicant. An applicant was assumed to be accepted if the random proportion was less than or equal to the predicted probability of admission; otherwise they were put in the rejected category. The effect of removing race from consideration was captured by setting all regression coefficients on racial background to zero or, equivalently, by assuming that all applicants are white (the reference category). We eliminate preferences for athletes and legacies by setting the athlete and legacy coefficients to zero.³

Before examining the effects of withdrawing preferences for selected groups of students, we first want to ask how well our simulation methodology reproduces the actual distribution of students admitted in 1997. The results are shown in Table 1. There is remarkably good agreement between the number and distribution of students actually admitted and those in the simulation. For example, 899 African-American candidates were accepted from the 2,671 who applied, in contrast to 910 who were expected to be admitted in the simulation. The overall acceptance rate for African-American applicants was simulated to be 34.1 percent in contrast to an actual rate of 33.7 percent. This high degree of correspondence between the actual and expected profiles of admitted students adds credibility to the simulations we discuss next.

Table 2 shows the actual profile of admitted students in 1997 and the micro-simulation results of removing racial/ethnic admission preferences while keeping those for athletes and legacies (Simulation 1), retaining preferences for underrepresented minority students but eliminating them for

³Long (2004b) uses a comparable micro simulation to evaluate the effect of eliminating affirmative action.

TABLE 1

Number of Applicants in the 1997 Entering Cohort, Number Admitted, and Simulated Number Admitted

| Group | All Applicants | | Actual Admitted | | | Simulated Admitted | | |
|--------------------|----------------|-------|-----------------|-------|------------|--------------------|-------|------------|
| | <i>N</i> | % | <i>N</i> | % | % Admitted | <i>N</i> | % | % Admitted |
| <i>Total</i> | 45,549 | 100.0 | 9,988 | 100.0 | 21.9 | 9,983 | 100.0 | 21.9 |
| <i>Sex</i> | | | | | | | | |
| Male | 23,713 | 52.1 | 5,015 | 50.2 | 21.1 | 5,026 | 50.3 | 21.2 |
| Female | 21,836 | 47.9 | 4,973 | 49.8 | 22.8 | 4,957 | 49.7 | 22.7 |
| <i>Citizenship</i> | | | | | | | | |
| U.S. | 38,216 | 83.9 | 8,875 | 88.9 | 23.2 | 8,825 | 88.4 | 23.1 |
| Non-U.S. | 7,333 | 16.1 | 1,113 | 11.1 | 15.2 | 1,158 | 11.6 | 15.8 |
| <i>SAT Score</i> | | | | | | | | |
| <1000 | 825 | 1.8 | 16 | 0.2 | 1.9 | 26 | 0.3 | 3.2 |
| 1000–1099 | 1,638 | 3.6 | 86 | 0.9 | 5.3 | 102 | 1.0 | 6.2 |
| 1100–1199 | 3,812 | 8.4 | 409 | 4.1 | 10.7 | 403 | 4.0 | 10.6 |
| 1200–1299 | 7,674 | 16.8 | 1,239 | 12.4 | 16.1 | 1,212 | 12.1 | 15.8 |
| 1300–1399 | 11,821 | 26.0 | 2,385 | 23.9 | 20.2 | 2,415 | 24.2 | 20.4 |
| 1400–1499 | 11,942 | 26.2 | 3,239 | 32.4 | 27.1 | 3,225 | 32.3 | 27.0 |
| 1500–1600 | 5,981 | 13.1 | 2,452 | 24.5 | 41.0 | 2,431 | 24.4 | 40.6 |
| Unknown | 1,856 | 4.1 | 162 | 1.6 | 8.7 | 169 | 1.7 | 9.1 |
| (Mean SAT) | (1345) | | (1405) | | | (1399) | | |
| <i>Race</i> | | | | | | | | |
| White | 21,606 | 47.4 | 5,134 | 51.4 | 23.8 | 5,156 | 51.6 | 23.9 |
| Black | 2,671 | 5.9 | 899 | 9.0 | 33.7 | 910 | 9.1 | 34.1 |
| Hispanic | 2,959 | 6.5 | 792 | 7.9 | 26.8 | 804 | 8.1 | 27.2 |
| Asian | 13,431 | 29.5 | 2,369 | 23.7 | 17.6 | 2,343 | 23.5 | 17.4 |
| Other | 4,882 | 10.7 | 794 | 7.9 | 16.3 | 770 | 7.7 | 15.8 |
| <i>Athlete</i> | | | | | | | | |
| No | 43,478 | 95.5 | 8,967 | 89.8 | 20.6 | 8,949 | 89.6 | 20.6 |
| Yes | 2,071 | 4.5 | 1,021 | 10.2 | 49.3 | 1,034 | 10.4 | 49.9 |
| <i>Legacy</i> | | | | | | | | |
| No | 44,150 | 96.9 | 9,338 | 93.5 | 21.2 | 9,344 | 93.6 | 21.2 |
| Yes | 1,399 | 3.1 | 650 | 6.5 | 46.5 | 639 | 6.4 | 45.7 |

NOTE: Simulations are based on the model for the 1997 entering cohort in Table 7 of Espenshade, Chung, and Walling (2004).

SOURCE: National Study of College Experience.

athletes and legacies (Simulation 2), and removing preferences for both minority students and for athletes/legacies (Simulation 3).⁴ To understand the impact of affirmative action, we compare the actual distribution of

⁴In the simulation reported in Table 1, the average of the predicted admission probabilities for the 45,549 applicants was 0.219280, exactly the same as the actual proportion of applicants accepted (9,988/45,549). In the simulations described in Table 2, removing preferences for particular student groups has the effect of lowering the average predicted admission probability below 0.219280. In these cases, the intercept of the logistic regression for the 1997 cohort in Table 7 in Espenshade, Chung, and Walling (2004) was adjusted

students with Simulation 1, which ignores applicants' race or ethnicity. The result of eliminating admission bonuses for African-American and Hispanic applicants would be dramatic. Acceptance rates for African-American candidates would fall from 33.7 percent to 12.2 percent, a decline of almost two-thirds, and the proportion of African-American students in the admitted class would drop from 9.0 to 3.3 percent. The acceptance rate for Hispanic applicants would be cut in half—from 26.8 percent to 12.9 percent, and Hispanics would comprise just 3.8 of all admitted students versus an actual proportion of 7.9 percent. If admitting such small numbers of qualified African-American and Hispanic students reduced applications and the yield from minority candidates in subsequent years, the effect of eliminating affirmative action at elite universities on the racial and ethnic composition of enrolled students would be magnified beyond the results presented here.

White plaintiffs in *Gratz v. Bollinger* (2003) and *Grutter v. Bollinger* (2003) argued that they were unfairly denied admission while some less qualified minority students were accepted. Our results show that removing consideration of race would have a minimal effect on white applicants to elite universities. The number of accepted white students would increase by 2.4 percent, and the white acceptance rate would rise by just 0.5 percentage points—from 23.8 to 24.3 percent. Many rejected white applicants may feel they would have been accepted had it not been for affirmative action, but such perceptions probably exaggerate the reality. It would be difficult to tell from the share of white students on campus whether or not the admission office was engaged in affirmative action.

Asian applicants are the biggest winners if race is no longer considered in admissions. Nearly four out of every five places in the admitted class not taken by African-American and Hispanic students would be filled by Asians. We noted earlier that Asian candidates are at a disadvantage in admission compared to their white, African-American, and Hispanic counterparts. Removing this disadvantage at the same time preferences for African Americans and Hispanics are eliminated results in a significant gain in the acceptance rate for Asian students—from 17.6 percent to 23.4 percent. Asians, who comprised 29.5 percent of total applicants in 1997, would make up 31.5 percent of accepted students in the simulation, compared with an actual proportion of 23.7 percent. Other aspects of admitted students, including the distribution of SAT scores and, especially, the proportions of students who are athletes or legacies, are hardly affected by affirmative action.

The remaining question is the extent to which athlete and legacy preferences offset preferences for underrepresented minority applicants. White students comprise fewer than half of all applicants in 1997, yet they account for three-quarters of athletes (73.3 percent) and a similar proportion of

upward by enough in each simulation so that the average of the predicted admission probabilities equaled 0.219280.

TABLE 2

Number and Characteristics of Admitted Students Simulated Under Alternative Preference Scenarios, 1997 Entering Cohort

| Group | Actual Admitted | | | Simulation 1 | | | Simulation 2 | | | Simulation 3 | | |
|------------------|-----------------|-------|------------|------------------------------|-------|------------|------------------------------|-------|------------|------------------------------|-------|------------|
| | N | % | % Admitted | Race—N, Athlete/ Legacy—Y | | | Race—Y, Athlete/ Legacy—N | | | Race—N, Athlete/ Legacy—N | | |
| | | | | N | % | % Admitted | N | % | % Admitted | N | % | % Admitted |
| <i>Total</i> | 9,988 | 100.0 | 21.9 | 9,956 | 100.0 | 21.9 | 10,009 | 100.0 | 22.0 | 9,998 | 100.0 | 21.9 |
| <i>SAT Score</i> | | | | | | | | | | | | |
| < 1000 | 16 | 0.2 | 1.9 | 13 | 0.1 | 1.6 | 25 | 0.2 | 3.0 | 13 | 0.1 | 1.6 |
| 1000–1099 | 86 | 0.9 | 5.3 | 52 | 0.5 | 3.2 | 89 | 0.9 | 5.4 | 46 | 0.5 | 2.8 |
| 1100–1199 | 409 | 4.1 | 10.7 | 295 | 3.0 | 7.7 | 365 | 3.6 | 9.6 | 257 | 2.6 | 6.7 |
| 1200–1299 | 1,239 | 12.4 | 16.1 | 1,046 | 10.5 | 13.6 | 1,138 | 11.4 | 14.8 | 962 | 9.6 | 12.5 |
| 1300–1399 | 2,385 | 23.9 | 20.2 | 2,333 | 23.4 | 19.7 | 2,334 | 23.3 | 19.7 | 2,288 | 22.9 | 19.4 |
| 1400–1499 | 3,239 | 32.4 | 27.1 | 3,433 | 34.5 | 28.7 | 3,343 | 33.4 | 28.0 | 3,534 | 35.3 | 29.6 |
| 1500–1600 | 2,452 | 24.5 | 41.0 | 2,647 | 26.6 | 44.3 | 2,555 | 25.5 | 42.7 | 2,776 | 27.8 | 46.4 |
| Unknown | 162 | 1.6 | 8.7 | 137 | 1.4 | 7.4 | 160 | 1.6 | 8.6 | 122 | 1.2 | 6.6 |
| (Mean SAT) | (1405) | | | (1412) | | | (1405) | | | (1417) | | |
| <i>Race</i> | | | | | | | | | | | | |
| White | 5,134 | 51.4 | 23.8 | 5,256 | 52.8 | 24.3 | 4,959 | 49.5 | 23.0 | 5,082 | 50.8 | 23.5 |
| Black | 899 | 9.0 | 33.7 | 326 | 3.3 | 12.2 | 922 | 9.2 | 34.5 | 330 | 3.3 | 12.4 |
| Hispanic | 792 | 7.9 | 26.8 | 381 | 3.8 | 12.9 | 832 | 8.3 | 28.1 | 384 | 3.8 | 13.0 |
| Asian | 2,369 | 23.7 | 17.6 | 3,141 | 31.5 | 23.4 | 2,511 | 25.1 | 18.7 | 3,331 | 33.3 | 24.8 |
| Other | 794 | 7.9 | 16.3 | 852 | 8.6 | 17.5 | 785 | 7.8 | 16.1 | 871 | 8.7 | 17.8 |
| <i>Athlete</i> | | | | | | | | | | | | |
| No | 8,967 | 89.8 | 20.6 | 8,943 | 89.8 | 20.6 | 9,570 | 95.6 | 22.0 | 9,566 | 95.7 | 22.0 |
| Yes | 1,021 | 10.2 | 49.3 | 1,013 | 10.2 | 48.9 | 439 | 4.4 | 21.2 | 432 | 4.3 | 20.9 |

Continued

TABLE 2—Continued

| Group | Actual Admitted | | | Simulation 1 | | | Simulation 2 | | | Simulation 3 | | |
|---------------|-----------------|------|------------|------------------------------|------|------------|------------------------------|------|------------|------------------------------|------|------------|
| | N | % | % Admitted | Race—N, Athlete/ Legacy—Y | | | Race—Y, Athlete/ Legacy—N | | | Race—N, Athlete/ Legacy—N | | |
| | | | | N | % | % Admitted | N | % | % Admitted | N | % | % Admitted |
| <i>Legacy</i> | | | | | | | | | | | | |
| No | 9,338 | 93.5 | 21.2 | 9,321 | 93.6 | 21.1 | 9,620 | 96.1 | 21.8 | 9,608 | 96.1 | 21.8 |
| Yes | 650 | 6.5 | 46.5 | 635 | 6.4 | 45.4 | 389 | 3.9 | 27.8 | 390 | 3.9 | 27.9 |

NOTES: Simulations are based on the model for the 1997 entering cohort in Table 7 of Espenshade, Chung, and Walling (2004). “N” means the indicated preference is not in force; “Y” means that it is.

SOURCE: National Study of College Experience.

legacies (75.6 percent). This fact alone suggests that preferences for athletes and legacies are likely to boost the proportion of whites among admitted students. We return to the simulation results to see the magnitude of these effects. Suppose we begin with a situation where admission officers give no extra consideration to minority applicants, athletes, or legacies (see Simulation 3). Now introduce race consciousness into the decision making (Simulation 2). The effect of affirmative action for African Americans and Hispanics and of what some might term “disaffirmative action” for Asians is a substantial increase in the African-American and Hispanic shares of admitted students and a sharp decline in the Asian proportion. The combined African-American and Hispanic proportion increases from just over 7 percent to 17.5 percent, while the Asian share falls from one-third to one-quarter. Acceptance rates for these groups move in the same direction.

Next, comparing Simulation 2 with the actual distribution of accepted students is equivalent to adding athlete-legacy bonuses on top of those for underrepresented minority applicants. With the inclusion of preferences for athletes and legacies, the proportion of admitted students who are white rises somewhat (from 49.5 to 51.4 percent) as does the acceptance rate for white applicants. Minority student effects go in the opposite direction, but they are not large. The African-American share among admitted students declines modestly from 9.2 to 9.0 percent, the Hispanic share falls from 8.3 to 7.9 percent, and Asians now account for 23.7 percent of all admitted students instead of 25.1 percent. Acceptance rates for each minority student group also decline, but the changes here are mostly small as well. The impacts would be greater either if the athlete and legacy bonuses were larger or if athletes and legacies accounted for more than a small share of all applicants. If the time trends detected earlier in Espenshade, Chung, and Walling (2004) persist, there may come a time when the rising preference for athletes in combination with a relatively stable bonus for legacies is sufficient to fully offset the weakening preferences for underrepresented minority applicants. Not surprisingly, the proportions of athletes and legacies among admitted students increase when admission officers give these characteristics more weight in admission decisions.⁵

⁵We prepared an alternate simulation by ranking applicants on the basis of their SAT scores and admitting students having the top 9,988 scores (the actual number of students accepted). This is the closest that any of our simulations comes to choosing a class solely on the basis of academic merit. Applicants in this simulation average 1512 on their SATs. Compared to students who were actually admitted, the shares of most student groups decline in the simulation—from 51.4 percent to 47.7 for whites, from 9.0 to 0.9 for African Americans, from 7.9 to 2.2 for Hispanics, from 10.2 to 1.9 for athletes, and from 6.5 to 3.2 for legacies. Only the share of Asians increases when SAT scores dominate—from 23.7 to 38.7 percent. These results are qualitatively similar to effects reported by Klitgaard (1985:29) had Harvard’s Class of 1975 been chosen on the basis of SAT verbal scores alone. The percentage of admitted students who were alumni sons would have declined from 13.6 to 6.1, of athletes from 23.6 to 4.5, and of African Americans from 7.1 to 1.1. The proportion of scholarship students would have remained unchanged at 55 percent.

No other research of which we are aware has examined the potential for athlete and legacy preferences to counteract admission bonuses for underrepresented minority applicants. Our findings on the effects of affirmative action are consistent with results reported elsewhere. For example, Kane (1998:432) contends that: "The proportion of minority students at [elite colleges and universities] would be extremely low if admissions committees ignored the race or ethnicity of applicants." Bowen and Bok (1998:31) estimate the effect of "race-neutral" admissions policies in the 1989 entering student cohort by assuming that "black applicants, grouped by SAT ranges, would have the same probability of being admitted as white applicants in those same ranges." At the five academically selective schools for which they have admission data, acceptance rates for African-American applicants would fall from 42 to 13 percent if the race of applicants were ignored, while the proportion of white applicants admitted would only increase from 25 to 26.5 percent (assuming that whites filled all the seats created by accepting fewer African-American applicants). The impact on African-American enrollment would be equally dramatic. The share of African-American students in the first-year class would be expected to fall from 7.1 to 2.1 percent. Using a nationwide sample from the National Education Longitudinal Study, Long (2004b) finds that eliminating affirmative action at all colleges and universities would reduce the underrepresented minority share of students accepted from 16.1 to 15.5 percent across all four-year institutions and from 10.6 to 7.8 percent at the highest quality 10 percent of schools.

Dugan et al. (1996) estimate the effect of eliminating affirmative action on graduate management education programs. Using data on a sample of all applicants in the early 1990s, they find that failing to consider a candidate's minority status in admission would reduce the probability of acceptance for African Americans from 70 percent (the actual figure) to 52 percent. The rate for Hispanics would decline from 78 to 60 percent. However, the acceptance rate for Asians, who experience a disadvantage in admission, would increase slightly from 53 to 57 percent. Similar results are obtained from an analysis of more than 90,000 applications to law school in the 1990–1991 application year. Wightman (1997:15–16) shows that of 3,435 African-American applicants who were accepted by at least one law school, just 687 or one-fifth as many would have been accepted if admission decisions were based solely on LSAT scores and undergraduate GPAs. If instead admission determinations were based exclusively on undergraduate GPAs, more than 60 percent of African-American candidates who were originally accepted by at least one law school would still be completely shut out. Wightman finds similar patterns for other racial and ethnic minority groups, but the impacts are most severe for African-American students.

A final test comes from a real-world "natural experiment." The Board of Regents for the University of California system voted in 1995 to eliminate affirmative action in higher education. This decision was reinforced in November 1996 by a statewide vote in favor of Proposition 209. Impacts on

graduate programs took effect with the fall of 1997 entering classes. Effects on admission to undergraduate programs were delayed until the fall of 1998. The impacts are striking. Compared to the fall of 1996, the number of underrepresented minority students admitted to the University of California–Berkeley Boalt Hall Law School for the fall of 1997 dropped 66 percent from 162 to 55 (Guerrero, 2002). African-American applicants were particularly affected as their admission numbers declined by 81 percent from 75 to 14, but acceptances of Hispanics also fell by 50 percent. None of the 14 admitted African-American students chose to enroll. Of the 55 minority students admitted, only seven enrolled in the fall of 1997, a falloff that had the effect of reducing the underrepresented minority share in the first-year class to 5 percent in 1997 compared with 26 percent in 1994 (Guerrero, 2002:159). Similar impacts were felt at law schools at UCLA and UC–Davis.

Numbers at the undergraduate level mirrored those in graduate programs. At UC–Berkeley, just 10 percent of all undergraduate students admitted for the fall of 1998 were underrepresented minority students compared with 23 percent admitted in the previous year (Guerrero, 2002:146). The largest declines occurred among African Americans, whose admission numbers fell by 66 percent between 1997 and 1998. Admission to the undergraduate College of Letters and Science at UCLA was similarly affected (Committee on Undergraduate Admissions and Relations with Schools, 1999). Acceptance rates for African Americans fell from 57 percent in 1997 to 31 percent in 1998. Those for Hispanics (including Latino Americans and Chicanos/Mexican Americans) declined from 51 to 30 percent. These declines were offset by small increases in admission rates for Asian Americans. In general, our simulation results are in very good agreement with the California experience.⁶

Conclusions

Critics of affirmative action in American higher education often overlook the fact that elite universities give added weight in the admissions process to many different types of student characteristics. In this article, we use micro-simulation analysis to investigate the effect on the profile of admitted students of eliminating preferences for one or more categories of students. Data for the 1997 entering class indicate that eliminating affirmative action would reduce acceptance rates for African-American and Hispanic applicants by as much as one-half to two-thirds and have an equivalent impact on the proportion of underrepresented minority students in the admitted class. White

⁶The effects of rescinding affirmative action were not limited to California. Voters in the State of Washington passed a referendum forbidding affirmative action at the state university. In 1998 at the University of Washington, 1 in 11 students in the first-year class was a member of a minority group. By the fall of 1999, when the new law had taken effect, the ratio fell to 1 out of 18 students (Sullivan, 2003).

applicants would benefit very little by removing racial and ethnic preferences; the white acceptance rate would increase by roughly 0.5 percentage points. Asian applicants would gain the most. They would occupy four out of every five seats created by accepting fewer African-American and Hispanic students. The acceptance rate for Asian applicants would rise by one-third from nearly 18 percent to more than 23 percent. We also show that, even though athlete and legacy applicants are disproportionately white and despite the fact that athlete and alumni children admission bonuses are substantial, preferences for athletes and legacies do little to displace minority applicants, largely because athletes and legacies make up a small share of all applicants to highly selective universities.

REFERENCES

- Arenson, Karen W. 2003. "Change on Early Admission Produces Application Shifts." *New York Times* November 13.
- Bowen, William G., and Derek Bok. 1998. *The Shape of the River: Long-Term Consequences of Considering Race in College and University Admissions*. Princeton, NJ: Princeton University Press.
- Bowen, William G., and Sarah A. Levin. 2003. *Reclaiming the Game: College Sports and Educational Values*. Princeton, NJ: Princeton University Press.
- Card, David, and Alan B. Krueger. 2004. *Would the Elimination of Affirmative Action Affect Highly Qualified Minority Applicants? Evidence from California and Texas*. NBER Working Paper 10366, March. Cambridge, MA: National Bureau of Economic Research.
- Committee on Undergraduate Admissions and Relations with Schools (CUARS). 1999. *1998–1999 Report to the Academic Senate at UCLA*. Los Angeles, CA: CUARS.
- Conrad, Cecilia A. 1999. "Affirmative Action and Admission to the University of California." Pp. 171–96 in Paul Ong, ed., *Impacts of Affirmative Action: Policies and Consequences in California*. Walnut Creek, CA: AltaMira Press.
- Dugan, Mary Kay, Nazli Baydar, William R. Grady, and Terry R. Johnson. 1996. "Affirmative Action: Does it Exist in Graduate Business Schools?" *Selections* Winter: 11–18.
- Espenshade, Thomas J., Chang Y. Chung, and Joan L. Walling. 2004. "Admission Preferences for Minority Students, Athletes, and Legacies at Elite Universities." *Social Science Quarterly* 85(5):1422–46.
- Fryer Jr., Roland G., Glenn C. Loury, and Tolga Yuret. 2003. *Color-Blind Affirmative Action*. Unpublished manuscript, Harvard Society of Fellows and NBER.
- Gratz v. Bollinger* (decided June 23, 2003). 123 S. Ct. 2411.
- Gutter v. Bollinger* (decided June 23, 2003). 123 S. Ct. 2325.
- Guerrero, Andrea. 2002. *Silence at Boalt Hall: The Dismantling of Affirmative Action*. Berkeley, CA: University of California Press.
- Kane, Thomas J. 1998. "Racial and Ethnic Preferences in College Admissions." Pp. 431–56 in Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap*. Washington, DC: Brookings Institution Press.

———. 2003. “The Long Road to Race-Blindness.” *Science* 302:571–73.

Klitgaard, Robert E. 1985. *Choosing Elites*. New York: Basic Books, Inc.

Kohn, Meir G., Charles F. Manski, and David S. Mundel. 1976. “An Empirical Investigation of Factors Which Influence College-Going Behavior.” *Annals of Economic and Social Measurement* 5(4):391–419.

Long, Mark C. 2004a. “College Applications and the Effect of Affirmative Action.” *Journal of Econometrics* 121(1–2):319–42.

———. 2004b. “Race and College Admissions: An Alternative to Affirmative Action?” *Review of Economics and Statistics* 86(4):1020–33.

Shulman, James L., and William G. Bowen. 2001. *The Game of Life: College Sports and Educational Values*. Princeton, NJ: Princeton University Press.

Sullivan, John. 2003. “At Rutgers, Weathering an Ordeal.” *New York Times* November 30: Section 14, p. 1.

University of Michigan. 2002. *Description of University of Michigan Undergraduate Admissions Policy*. Ann Arbor, MI: University of Michigan.

Wightman, Linda F. 1997. “The Threat to Diversity in Legal Education: An Empirical Analysis of the Consequences of Abandoning Race as a Factor in Law School Admission Decisions.” *New York University Law Review* 72(1):1–53.

Zwick, Rebecca. 2002. *Fair Game? The Use of Standardized Admissions Tests in Higher Education*. New York: RoutledgeFalmer.