Admission Preferences for Minority Students, Athletes, and Legacies at Elite Universities*

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Objective. This study examines how preferences for different types of applicants exercised by admission offices at elite universities influence the number and composition of admitted students. *Methods.* Logistic regression analysis is used to link information on the admission decision for 124,374 applications to applicants' SAT scores, race, athletic ability, and legacy status, among other variables. *Results.* Elite universities give added weight in admission decisions to applicants who have SAT scores above 1500, are African American, or are recruited athletes. A smaller, but still important, preference is shown to Hispanic students and to children of alumni. The athlete admission "advantage" has been growing, while the underrepresented minority advantage has declined. *Conclusions.* Elite colleges and universities extend preferences to many types of students, yet affirmative action—the only preference given to underrepresented minority applicants—is the one surrounded by the most controversy.

Admission to elite colleges and universities in the United States is not now and never has been based solely on academic merit. The debate leading up to the June 2003 U.S. Supreme Court rulings in the two University of Michigan affirmative action cases (*Gratz v. Bollinger*, 2003; *Grutter v. Bollinger*, 2003) focused national attention on the preference that most academically selective institutions give to members of underrepresented minority groups, including African-American and Hispanic, but not Asian, students. The Court's decisions legitimated the use of an applicant's self-described race or ethnicity as one among many factors that university officials may consider in a "highly individualized, holistic review" of each candidate's qualifications

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SOCIAL SCIENCE QUARTERLY, Volume 85, Number 5, December 2004

for admission (*Grutter v. Bollinger*, 2003:2343). Although underrepresented minority status may be one of the most conspicuous of the so-called bonus factors, undergraduate admission officers in assembling a first-year class that best meets institutional goals and values routinely give extra weight to numerous other student attributes, including athletic ability, musical talent, rural background, lower socioeconomic status, gender, alumni connections, leadership ability, geography, and unusual life experiences (Fetter, 1995; Freedman, 2003; Zwick, 2002).[1]

Admission preferences cause concern not just because they raise constitutional issues but also because the decision-making process at elite institutions is to a large extent subjective and therefore relatively opaque to outsiders (Bunzel, 1996; Paul, 1995). Perceived fairness is open to question under these circumstances, and candidates who are denied admission may be likely to attribute a rejection to preferential treatment for members of other groups (Kane, 2003). Alumni parents of children who are not offered admission frequently interpret the denials as a consequence of places being offered to minority students (Fetter, 1995). Allegations of discriminatory admission policies against Asian-American applicants at elite universities led to compliance reviews by the Department of Education's Office for Civil Rights in the late 1980s at Harvard and the University of California–Berkeley (U.S. Commission on Civil Rights, 1992). Rising proportions of Asian Americans in applicant pools were not fully reflected in the composition of admitted students, and there were concerns that Asian Americans were being squeezed out by preferences for African-American and Hispanic applicants, and for athletes and children of alumni, the majority of whom are white (Office for Civil Rights, 1991; U.S. Commission on Civil Rights, 1992).

This article looks more closely at the admission practices of elite universities. Preferences play the largest role at the most academically selective institutions (National Association for College Admission Counseling, 2003). Less selective colleges and universities, by definition, admit almost everyone who applies (Kane, 1998). Using data on all applicants to three highly selective private research universities for one entering class in the 1980s and two in the 1990s, we address the following research questions. First, what is the structure of admission preferences at elite universities? What factors besides race and ethnicity do these institutions weigh in

[1]Throughout this article, we use "affirmative action" to refer to preferences extended to underrepresented minority groups—principally students of African or Hispanic, but not Asian, heritage. Other more inclusive and nontraditional uses can be found in the literature. Plus factors for athletes have been termed "affirmative action for athletes" (Bowen and Levin, 2003:84; Karabel and Karen, 1990:L25). Those for legacies have been called "insider affirmative action" (Shulman and Bowen, 2001:41) and "affirmative action for the privileged" (Fetter, 1995:76). Efforts to achieve gender equity in college admissions are labeled "affirmative action for men" (Zwick, 2002:36). Plans to increase the proportion of academically talented students are equated with "affirmative action plans for 'geniuses'" (Karen, 1990:236). And "class-based affirmative action" has meant extending preferences to students from low-income families (Bowen and Bok, 1998:46).

making admission decisions, and how important are they compared to preferences for underrepresented minority students? Second, does the size of the bonus one receives for being a member of one preferred group depend on an applicant's other characteristics? If an applicant falls into two preferred student groups, are preferences additive? And, third, how have the absolute and relative strength of preferences for minority students, athletes, and legacies changed over time?

Data and Methods

Data

To examine these questions, we use data from the National Study of College Experience (NSCE), a project whose purpose is to understand the paths different students follow through higher education. Ten academically selective colleges and universities participated in the NSCE and supplied individual-level data on all persons who applied for admission in the fall of 1983 (or a nearby year), 1993, and 1997.[2] These data include whether an applicant was accepted, together with a string of variables on applicant characteristics from the application form and, if the student subsequently enrolled at that institution, additional information on financial aid and academic performance in college.

The information for this analysis comes from three private research universities that represent the top tier of American higher education. These are not the only NSCE schools that give admission preferences to underrepresented minority students, athletes, or legacies, but they were able to provide complete information for all three entering cohorts in our data on whether an applicant fell into any of these groups. Legacies are children or other close relatives of alumni. Athletes are defined as individuals who are recruited by athletic programs, typically meaning that they appear on coaches' recruiting lists or are otherwise of Olympic or star athletic caliber.

Table 1 contains a brief overview of the data. Altogether there are 124,374 applicant records, slightly more than half of which came from men. Approximately 80 percent of applicants had "recentered" SAT scores of 1200 or better, and the mean score for all applicants was 1332.[3] The fact that the

[2]The 10 institutions were drawn from the 34 colleges and universities that Bowen and Bok (1998) included in their College and Beyond data set. In addition to having geographic spread, the 10 NSCE schools include representatives from public universities, private research universities, small liberal arts colleges, and historically black colleges and universities. Anonymity was guaranteed to these institutions in exchange for their participation in the National Study of College Experience.

[3]The SAT was renormed by the Educational Testing Service in April 1995. Mean scores were set at or near 500 on the math and verbal tests through a process called "recentering" (College Board, 2003). All SAT scores reported in this article use the recentered scale. Prior to recentering, the math average SAT score in 1993 was 478 and the verbal average was 424 (Zwick, 2002:76).

TABLE 1

Sample Characteristics and Percent of Applicants Admitted

Category	Number of Applicants	Percent of Applicants	Percent Admitted
Total Sample	124,374	100.0	25.0
Cohort			
1980s[a]	40,825	32.8	24.5
1993	38,000	30.6	29.1
1997	45,549	36.6	21.9
Sex			
Male	68,465	55.0	24.1
Female	55,909	45.0	25.9
Citizenship			
U.S.	105,959	85.2	26.4
Non-U.S.	18,415	14.8	16.5
SAT Score			
<1000	2,643	2.1	1.9
1000–1099	4,967	4.0	5.8
1100–1199	12,180	9.8	12.2
1200–1299	23,287	18.7	17.5
1300–1399	32,603	26.2	24.0
1400–1499	29,486	23.7	33.2
1500–1600	14,440	11.6	48.7
Unknown	4,768	3.8	10.2
Race			
White	60,620	48.7	26.9
African American	6,618	5.3	38.7
Hispanic	6,906	5.6	31.6
Asian	28,754	23.1	20.9
Other[b]	21,476	17.3	18.6
Athlete			
No	116,897	94.0	23.4
Yes	7,477	6.0	49.1
Legacy			
No	119,649	96.2	24.0
Yes	4,725	3.8	49.7

[a]The 1980s entering classes represented by the three institutions in our analysis correspond to the fall of 1982, 1985, and 1986.

[b]"Other" race includes race not specified.

SOURCE: National Study of College Experience.

average SAT score among all SAT takers in 1993—the middle of our three entering classes—was 1003 illustrates the exceptional quality of this applicant pool (College Board, 2003). SAT scores are missing for fewer than 4 percent of applicants. Of these, about one-quarter (28 percent) reported a score from the standardized ACT test that was administered primarily in midwestern states in its early years but is now used more widely (Zwick, 2002). Candidates with neither SAT nor ACT score are more than 60 percent male, and roughly 45 percent are non-U.S. citizens, suggesting these

applicants are applying from outside the United States and have less access to SAT examinations.

Nearly one-half of applicants reported their race as white, and almost one-quarter listed an Asian heritage. One applicant in six gave a race or ethnicity other than white, African American, Hispanic, or Asian. Individuals in this "other" race category are slightly more likely than whites to be legacies (5.7 vs. 5.1 percent), implying that some of these applicants may be white but preferred not to report their race as such expecting that it might be counted against them. More importantly, members of other races are roughly twice as likely as all applicants to have neither an SAT nor an ACT score, and they are disproportionately non-U.S. citizens (46.3 percent in the 1997 cohort vs. 16.1 percent among all 1997 applicants). College administrators frequently code the race/ethnicity of foreign nationals simply as "foreign" without specifying a race group. Athletes and legacies comprise 6 percent and 4 percent of the applicant pools, respectively.[4]

Table 1 also contains the percent of applicants in each category who were accepted. The overall acceptance rate across all three cohorts is 25.0 percent, but there is considerable variation around this mean. Acceptance rates rise sharply with increases in SAT scores and reach nearly 50 percent for applicants who score 1500 or better. African Americans and Hispanics are admitted at higher rates than whites or Asians. Both athletes and legacies are roughly twice as likely to be accepted as their nonathlete or nonlegacy counterparts. To put these figures in perspective, for the three schools for which they have detailed records, Bowen and Bok (1998:28 n.13) report overall admission rates for the 1989 entering cohort of 44 percent for non-African-American legacies, 22 percent for non-African-American, nonlegacy candidates, and 39 percent for all African-American applicants. For the one institution for which they have reliable data on athletes, "the overall admission rate for athletes who were identified by coaches as promising candidates was 78 percent" (Bowen and Bok, 1998:29).

Methods

We fit a series of logistic regression models to study the influence on admission outcomes of preferences for underrepresented minority students, athletes, and legacies at academically selective private research universities. The response variable is the outcome of the admission decision (coded 1 if the applicant is accepted and 0 otherwise). We begin by exploring models that are additive (in the logistic scale). We move from there to investigate

[4]To clarify, the unit of analysis is the institutional application record. The same individual may have applied for admission to more than one of these three universities. The 124,374 applications represent 112,909 different applicants. Some persons (9,159) applied to two institutions, and a few (1,153) to all three. In short, 9.2 percent of our observations are either duplicates or triplicates.

the potential importance of including interaction terms. Next, the full additive model is fit separately to data from each entering cohort to examine changes over time in the absolute and relative importance of several key preference categories.[5]

Results

Influence of Group Preferences

The principal predictor variables are those shown in Table 1. Including cohort year allows for the possibility that, other things equal, admission chances fluctuate over time, possibly in response to the number of applications institutions receive. We include an applicant's self-reported race or ethnicity to capture the size of the presumed admission preference that members of underrepresented minority groups receive. Other demographic characteristics that may influence admission decisions are an applicant's sex and citizenship status. Academically selective colleges and universities typically rely on a multiplicity of indicators of academic merit and potential, including high school grades, class rank, the number of advanced placement tests taken, standardized test scores, and teacher recommendations, among others (Fetter, 1995; Hernández, 1997). The measure that is most consistently reported in institutional records, however, is SAT score. To broaden the discussion of admission preferences beyond affirmative action, we include whether a candidate is a recruited athlete and/or a legacy. Finally, two institutional dummy variables are incorporated as control variables.[6]

The results of fitting a series of additive models (in the logistic scale) are shown in Table 2. All the logistic regression coefficients and associated odds ratios in Table 2 are significant at the 0.001 level. Model 1 is the baseline model before any of the main variables of interest are included. The set of predictor variables is jointly significant (chi-squared statistic of 7000.2 on 6 degrees of freedom). Relative to individuals who applied to these universities in the 1980s, applicants in the 1993 entering cohort had 31 percent higher odds of being admitted. By contrast, applicants in 1997 had 13 percent lower odds. Part of this difference is due to variations in the total volume of applications. In comparison to the 1980s, the number of applications received was 7 percent lower in 1993 and 12 percent higher in 1997. The odds of being accepted are 11 percent higher for women compared to men, and applicants who are non-U.S. citizens have a chance of being accepted that is less than half that of citizens.

[5]The purposes and values of these three institutions are sufficiently alike that it is appropriate to combine the separate outcomes of their admission decisions into one analysis.

[6]This list of predictor variables does not exhaust the set of factors that admission officers consider. We do not have information on, for example, letters of recommendation, personal statements, or other kinds of extracurricular activities and talents that surely play a role in determining which applicants to accept.

TABLE 2

Factors Affecting the Probability of Admission to Elite Universities: Coefficients Shown as Odds Ratios Based on Logistic Regression

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Cohort							
(1980s)[a]	—	—	—	—	—	—	—
1993	1.306[b]	1.317	1.270	1.317	1.323	1.332	1.340
1997	0.869	0.772	0.846	0.747	0.760	0.753	0.766
Sex							
(Male)	—	—	—	—	—	—	—
Female	1.108	1.401	1.091	1.428	1.499	1.426	1.499
Citizenship							
(U.S.)	—	—	—	—	—	—	—
Non-U.S.	0.469	0.628	0.517	0.765	0.815	0.805	0.861
SAT Score							
<1000		0.100		0.053	0.052	0.053	0.052
1000–1099		0.308		0.194	0.188	0.194	0.188
1100–1199		0.668		0.532	0.517	0.531	0.517
(1200–1299)		—		—	—	—	—
1300–1399		1.530		1.783	1.891	1.796	1.907
1400–1499		2.746		3.545	3.983	3.607	4.062
1500–1600		6.181		8.710	10.059	8.956	10.381
Unknown		0.628		0.562	0.567	0.569	0.575
Race							
(White)			—	—	—	—	—
African American			1.788	4.767	5.165	5.054	5.497
Hispanic			1.476	3.139	3.477	3.301	3.669

TABLE 2—Continued

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Asian			0.821	0.642	0.682	0.669	0.712
Other			0.836	0.867	0.883	0.855	0.871
Athlete							
(No)					—		—
Yes					4.070		4.180
Legacy							
(No)						—	—
Yes						2.909	3.050
N	124,374	124,374	124,374	124,374	124,374	124,374	124,374
−2 log likelihood	132,748.7	121,797.5	131,815.6	117,423.4	115,021.9	116,450.3	113,990.8
(Degrees of freedom)	(6)	(13)	(10)	(17)	(18)	(18)	(19)
Pseudo R^2	0.055	0.134	0.062	0.164	0.180	0.171	0.187

[a]Omitted categories are shown in parentheses. Two institution dummy variables are included in all of the above models as control variables, but their estimated coefficients are not reported in the table.

[b]All coefficients in Table 2 are significant at the 0.001 level.

SOURCE: National Study of College Experience.

Including SAT score in Model 2 results in a substantial increase in explained variance (from a pseudo R^2 of 0.055 to 0.134). The newly included variables are jointly significant at the 0.001 level. Other things equal, applicants who present higher SAT scores have a clear advantage in the competitive admissions process. The odds of being admitted for candidates whose scores are 1500 or higher are more than 60 times greater than the odds for applicants whose SAT scores are below 1000. In Model 3, race and ethnicity are added to Model 1. The newly included variables do not improve R^2 to the same extent that incorporating SAT score did, but the race and ethnicity measures are jointly significant. Here we find our first indication of the strength of preferences for underrepresented minority students. African-American students have nearly an 80 percent better chance of being admitted than their white counterparts, while the Hispanic advantage is reflected in almost 50 percent higher odds compared to whites. By contrast, Asian applicants and those from other races face lower odds of admission—on the order of 17 or 18 percent—in relation to comparable whites.

Model 4 examines preferences for minority students when SAT score is controlled. Including both SAT score and race/ethnicity represents a significant improvement over models with either one alone. SAT score and race are correlated. Average scores for applicants in each race/ethnic group are as follows: white (1347), African American (1202), Hispanic (1230), Asian (1363), and other races (1322). Because groups with lower SAT scores are given an admission preference, variations in SAT scores appear to matter more in admission decisions once race variables are included. More importantly, the admission bonus given to African-American and Hispanic students is much larger after controlling for SAT score. The Asian disadvantage also strengthens when controlling for SAT score, because Asian students as a group have the highest average scores.

Models 5 and 6 add athlete and legacy status, respectively, to Model 4. Being a recruited athlete significantly improves one's chances of being admitted to an elite university. The odds of acceptance for athletes are four times as large as those for nonathletes. Put differently, the athletic advantage is roughly comparable to having SAT scores in the 1400s instead of the 1200s. Legacy applicants also receive preferential treatment in admissions. Children or other close relatives of alumni have nearly three times the likelihood of being accepted as nonlegacies. The SAT effect is somewhat "steeper" when athlete status is controlled, but it changes little when legacy status is added. These results are partly explained by the fact that athletes in the applicant pools have lower average SAT scores than nonathletes (1298 vs. 1335), whereas there is a smaller gap between legacies (1350) and nonlegacies (1332).

The full model with all explanatory variables is included in Model 7. Female candidates have 50 percent better odds of being admitted than their statistically equivalent male counterparts, presumably because the majority of all applicants are men and admission officers are aiming for a fuller

representation of women on campus. Non-U.S. citizens remain at a competitive disadvantage in relation to citizens, but the negative effect is weaker than in Model 1. The largest admission preferences are conferred on applicants who have SAT scores above 1400, who are African American or Hispanic, and who are athletes or legacies. Although having an SAT score in the 1500–1600 range is no guarantee of admission, applicants with scores below 1000 have almost no chance. The odds of being accepted if one is in the top SAT category are 200 times as great as those for candidates from the bottom SAT group. African-American applicants receive the largest race/ethnic preference (by a factor of 5.5 over whites) followed by Hispanics. Asians experience the greatest disadvantage in admissions vis-à-vis other comparable racial/ethnic groups, including those of other races. The odds of admission for Asians are nearly 30 percent lower than those of their white counterparts.

The athlete advantage is weaker than the preference for African Americans, but stronger than the preference for Hispanic or legacy applicants. The legacy preference, while substantial, is less than that shown to Hispanics. Using the estimated logistic regression coefficients, it is possible to convert the magnitude of these preferences to a common SAT metric. The bonus for African-American applicants is roughly equivalent to an extra 230 SAT points (on a 1600-point scale), to 185 points for Hispanics, 200 points for athletes, and 160 points for children of alumni. The Asian disadvantage is comparable to a loss of 50 SAT points.[7]

Our results are generally consistent with other research. Kane (1998) analyzed High School and Beyond data, a longitudinal survey of the high school class of 1982. He used high school grade-point average (GPA) and SAT score as two measures of student academic ability. Both are important predictors of admission outcomes throughout the entire range of college

[7]Our finding that applicants of Asian heritage experience an apparent admissions disadvantage raises the issue of whether there are "discriminatory admissions policies against Asian American applicants to elite colleges and universities" (U.S. Commission on Civil Rights, 1992:104) or, as one reviewer expressed it, whether Asian applicants are actually subject to "disaffirmative action" in college admissions. The two-year review that the U.S. Department of Education's Office for Civil Rights conducted of Harvard University's admission policies concluded that: "Over the last ten years Asian American applicants have been admitted at a significantly lower rate than white applicants; however . . .. [T]his disparity is not the result of discriminatory polices or procedures . . .. We determined that the primary cause of the disparity was the preference given to children of alumni and recruited athletes" (U.S. Commission on Civil Rights, 1992:120). The Office for Civil Rights also concluded that, whereas Asian applicants were typically stronger on standardized tests and other measures of academic performance (with the exception of the SAT verbal test), white applicants were higher on such nonacademic scores as athletic and personal rating (U.S. Commission on Civil Rights, 1992:122, n.98). Although we do not have in our data the full set of information that admission officers consider, it is likely that incorporating additional measures of academic performance and these nonacademic factors would cast the effect of coming from an Asian background in a different light. Given the limited number of variables in our analysis, it is not possible to resolve the question of whether Asian applicants suffer discrimination in admissions.

selectivity. At the one-fifth of schools that are the most academically selective, one letter grade higher on the GPA scale raises admission probabilities by 15 percentage points. A jump of 400 SAT points raises the probability of being admitted by 10 percentage points. With data from some of the most elite colleges and universities, William Bowen and his colleagues have shown that SAT scores and acceptance rates are positively correlated (Bowen and Bok, 1998; Bowen and Levin, 2003). Undergraduate GPAs in combination with standardized admission tests for professional schools also predict admission to law school (Wightman, 1997) and to graduate business schools (Dugan et al., 1996).

At the top tier of four-year undergraduate institutions, African-American and Hispanic candidates in the early 1980s were between 8 and 10 percentage points more likely than whites to be admitted (Kane, 1998). This effect was equivalent to two-thirds of a letter grade on the GPA or to 400 SAT points. Underrepresented minority student status made almost no difference to admission chances at the less selective four-year institutions attended by 80 percent of students. Kane (1998) reports that when all colleges are considered, students of primarily Asian heritage were 4.5 percentage points less likely to be admitted than whites. Bowen and Bok (1998) and Shulman and Bowen (2001) have also observed a minority student advantage in admission, especially after SAT scores are controlled. Affirmative action gives the biggest boost to African-American and Mexican-American law school applicants, but Asian candidates also benefit, though to a lesser extent (Wightman, 1997). African Americans and Hispanics have an admissions advantage in applying to business school, whereas the odds of being accepted for Asian applicants are roughly two-thirds those of whites (Dugan et al., 1996).

The admission preference conferred on athletes who are on a coach's list has been studied extensively for the fall 1999 entering cohort by Bowen and Levin (2003). In the Ivy League, the athlete admission advantage is 51 percentage points for men and 56 percentage points for women. At other Division III schools, the athlete advantage is closer to 30 percentage points. Legacy preferences have been the least studied. Raw acceptance rates for legacies are typically much larger than for nonlegacy applicants (Argetsinger, 2003; Karen, 1990, 1991; Steinberg, 2003). In a regression analysis based on data from one school, Shulman and Bowen (2001) show that, controlling for SAT score, the legacy preference is roughly 25 percentage points.

Two Qualifications[8]

Admission officers at elite institutions typically rely on more than SAT scores to assess candidates' academic potential (Toor, 2001). One expects

[8]We are grateful to Mark Long for raising the issues discussed in this section.

SAT score to be correlated with these other academic indicators, whose omission could bias the SAT coefficients in Table 2. The omission of these complementary measures of academic performance could bias other coefficients as well. For example, suppose that, for the same SAT scores, athletes have lower GPAs than nonathletes, possibly because they spend more time practicing and have less time to study. Then the coefficient on athlete could be biased downward.

One of our three schools was able to provide SAT score, high school GPA, and high school class rank for all three entering cohorts. Table 3 compares the average GPAs and class ranks for athletes versus nonathletes in 100-point SAT intervals. For the same SAT scores, athletes have significantly lower GPAs in the SAT ranges where most students are concentrated and somewhat lower class ranks, though most of the class-rank differences are not statistically significant. The implications of these differences for the coefficients on selected variables are shown in Table 4. To construct this table, the ''SAT baseline'' model was reestimated from Model 7 in Table 2 using data from the school that also provided GPA and class rank. A second model added GPA but not class rank; a third incorporated class rank but excluded GPA; and a final model included both GPA and class rank. The ''plus'' and ''minus'' signs after each variable indicate whether the associated logistic regression coefficients in each of the four models were consistently positive or negative. Ratios in the table are formed by dividing the logistic regression coefficients in models that include GPA and/or class rank by the corresponding coefficient in the SAT-only baseline model. For example, including alternative measures of academic performance raises the coefficient on athlete by about 10 percent, indicating that the athlete advantage in admissions is understated when GPA and class rank are omitted. This finding adds empirical support to a conjecture raised in Shulman and Bowen (2001:382, n.9, 395, n.6). The legacy advantage is reduced when GPA is included. Race effects are also magnified by incorporating other academic indicators. The size of the preference for African-American and Hispanic applicants grows, and the Asian disadvantage is also stronger. The SAT effect is ''flatter'' when other academic measures are combined with it.

A second qualification relates to the possibility that the legacy advantage is overstated when viewed in the context of a single institution. Even though nonlegacy candidates face an admission disadvantage compared to legacy applicants at a given school, they are likely to be accepted by another very good institution because the talent level in the overall applicant pool is so high. We are unable to address completely the ultimate consequences of a legacy preference because we lack information on all the schools to which individuals in our data set applied. We can, however, provide a partial answer by taking advantage of information on admission results in cases where the same individual submitted an application to more than one institution in our sample.

TABLE 3

A Comparison Between Nonathletes and Athletes of High School Grade-Point Average and Class Rank, Grouped by SAT Score[a]

Group	SAT Score							
	<1000	1000–1099	1100–1199	1200–1299	1300–1399	1400–1499	1500–1600	Unknown
				Average GPA[b]				
Nonathlete	3.20	3.38	3.52*	3.64**	3.72***	3.81	3.88**	3.65
Athlete	3.30	3.32	3.43	3.56	3.64	3.78	3.73	3.68
				Average Class Rank[c]				
Nonathlete	80.8	85.3*	87.7*	90.7	92.6	94.2	95.7	88.4*
Athlete	79.7	80.3	85.0	89.4	91.3	93.9	94.5	90.5

[a]Based on all applicants to one private research university that provided data on an applicant's high school grade-point average (GPA) and high school class rank. Data include one entering cohort in the 1980s, 1993, and 1997.

[b]GPA is measured on a four-point scale with a maximum of 4.0.

[c]Class rank is measured on a 100-point scale, 0–99; 99 is the top 1 percent, 98 the next 1 percent, and so on.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ for the significance of the difference between athletes and nonathletes.

SOURCE: National Study of College Experience.

TABLE 4

Relative Changes in Logistic Regression Coefficients Associated with SAT Score, Race/Ethnicity, Athlete, and Legacy When Additional Measures of Academic Merit are Included: One Institution, Three Entering Cohorts

Selected Predictor Variables	Ratio of Logistic Regression Coefficients		
	(SAT+GPA)/ (SAT Baseline) (1)	(SAT+Class Rank)/ (SAT Baseline) (2)	(SAT+GPA+ Class Rank)/ (SAT Baseline) (3)
SAT Score			
<1000 (−)[b]	0.815	0.962	0.805
1000–1099 (−)	0.816	0.937	0.781
1100–1199 (−)	0.791	0.880	0.753
(1200–1299)	—	—	—
1300–1399 (+)[c]	0.716	0.892	0.668
1400–1499 (+)	0.710	0.918	0.671
1500–1600 (+)	0.732	0.932	0.700
Race			
(White)	—	—	—
African American (+)	1.152	1.178	1.189
Hispanic (+)	1.061	1.040	1.082
Asian (−)	1.213	1.168	1.246
Athlete			
(No)	—	—	—
Yes (+)	1.080	1.112	1.108
Legacy			
(No)	—	—	—
Yes (+)	0.887	1.042	0.852

[a]The SAT baseline model is the same as Model 7 in Table 2 but fit to data from one private research university that provided information on high school GPA and class rank. GPA and class rank are entered as categorical variables.

[b]Logistic regression coefficients are negative in all four models.

[c]Logistic regression coefficients are positive in all four models.

SOURCE: National Study of College Experience.

Included in the 1993 and 1997 cohorts are 72,117 separate applicants, of whom 61,838 applied to just one of these three elite universities, another 9,126 applied to two schools, and 1,153 applied to all three. Table 5 examines admission rates for these three applicant groups by whether an individual was a legacy at any of the schools to which he or she applied. The legacy advantage weakens appreciably when students apply to multiple institutions. Legacy applicants to a single institution have even odds of being accepted compared to a 22 percent likelihood for nonlegacies. When students apply to two institutions, the likelihood of being accepted by at least one of them grows, and the gap shrinks between applicants who are a legacy at neither school and other legacy applicants. The chances of being accepted somewhere are high (between two-thirds and three-quarters) when students

TABLE 5

The Diminishing Effect of the Legacy Preference in the Context of Multiple Applications: Three Universities, 1993 and 1997 Entering Classes[a]

	Applied to One Institution Only			Applied to Two of Three Institutions			Applied to All Three Institutions		
Legacy Status	Percent Accepted	Number of Applicants	Percent of Applicants	Percent Accepted by at Least One School	Number of Applicants	Percent of Applicants	Percent Accepted by at Least One School	Number of Applicants	Percent of Applicants
Not a legacy at any school	22.2	59,811	96.7	47.1	8,603	94.3	64.4	1,092	94.7
A legacy at one or more schools	50.2	2,027	3.3	66.2	523	5.7	73.8	61	5.3
Total		61,838	100.0		9,126	100.0		1,153	100.0

[a]The 1980s cohorts are excluded because each of the three institutions provided data on a different entering class. See note a to Table 1.

SOURCE: National Study of College Experience.

apply to all three schools. The difference between legacies and nonlegacies has narrowed to fewer than 10 percentage points. In addition, the likelihood that a student who has applied to all three institutions and is not a legacy at any of them will be accepted by at least one (64.4 percent) exceeds the probability of admission for legacy applicants to a sole institution (50.2 percent). These additional results suggest that an analysis that relies on the disposition of applications to a specific university overstates the importance attached to being a legacy and that the ability to claim legacy status at a particular institution is ultimately less consequential for being admitted to some prestigious university when students are applying to many schools.

The Role of Interactions

Researchers have uncovered a limited number of statistically significant interactions between a candidate's race or ethnicity and measures of their academic performance. Kane (1998) found that elite colleges apparently place less weight on high school GPAs of minority applicants than of comparable white applicants. African-American and Hispanic applicants' other characteristics, including SAT scores, seem to carry the same weight in the evaluation process as those of whites. Dugan et al. (1996) showed that the African-American advantage in admission to business schools is concentrated among weaker candidates (those whose GMAT scores are among the lower half of scores submitted to a given school) who apply to highly competitive graduate management programs. No interaction effects were found for Hispanic students.

Results of fitting models with interaction terms are shown in Table 6. The baseline Model 1 with no interactions is the same as Model 7 in Table 2 except that, to restrict the analysis to a manageable number of interactions, Model 1 is estimated using only those cases that report race and SAT score. The odds ratios are roughly the same in the two models, apart from the effect of being a non-U.S. citizen. A comparison of the other models in Table 6 with Model 1 shows that each set of interaction terms is significant at the 0.001 level. The penalty for scoring less than 1200 on the SAT is significantly greater for African-American and Hispanic students than the penalty for white students who score less than 1200 (Model 2). Similarly, the reward (i.e., increased likelihood of admission) that is produced by scoring more than 1300 is significantly smaller for African-American and especially for Hispanic students than the reward for white students who score more than 1300. Thus, we find that the underrepresented minority advantage is greatest for African-American and Hispanic applicants with SAT scores in the 1200–1300 range and not for applicants with relatively low scores (cf. Dugan et. al., 1996). SAT scores for white and Asian candidates seem to receive the same emphasis. SAT scores for athletes appear to matter less than for nonathletes (Model 3). Having SAT scores above 1300

TABLE 6

Models with Interactions: Coefficients Shown as Odds Ratios Based on Logistic Regression

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Cohort							
(1980s)[a]	—	—	—	—	—	—	—
1993	1.353***	1.352***	1.348***	1.354***	1.348***	1.353***	1.353***
1997	0.757***	0.756***	0.754***	0.757***	0.754***	0.757***	0.757***
Sex							
(Male)	—	—	—	—	—	—	—
Female	1.531***	1.534***	1.535***	1.532***	1.529***	1.531***	1.531***
Citizenship							
(U.S.)	—	—	—	—	—	—	—
Non-U.S.	0.990	0.973	0.995	0.989	0.992	0.991	0.991
SAT Score							
<1000	0.044***	0.202***	0.033***	0.044***	0.045***	0.044***	0.043***
1000–1099	0.167***	0.362***	0.148***	0.167***	0.170***	0.168***	0.167***
1100–1199	0.492***	0.595***	0.480***	0.492***	0.494***	0.492***	0.493***
(1200–1299)	—	—	—	—	—	—	—
1300–1399	1.947***	2.129***	1.999***	1.905***	1.955***	1.947***	1.948***
1400–1499	4.266***	4.850***	4.416***	4.135***	4.306***	4.269***	4.268***
1500–1600	11.087***	12.645***	11.460***	10.852***	11.213***	11.104***	11.099***
Race							
(White)	—	—	—	—	—	—	—
African American	6.178***	8.599***	6.277***	6.128***	6.549***	6.247***	6.182***
Hispanic	3.838***	5.401***	3.896***	3.817***	4.000***	3.897***	3.843***
Asian	0.691***	0.746***	0.690***	0.692***	0.700***	0.691***	0.691***
Athlete							
(No)	—	—	—	—	—	—	—
Yes	4.070***	4.108***	4.639***	4.068***	4.544***	4.075***	4.168***

TABLE 6—Continued

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Legacy							
(No)	—	—	—	—	—	—	—
Yes	2.738***	2.758***	2.739***	1.935***	2.750***	2.832***	2.847***
Interactions							
SAT × Race							
SAT < 10 · B		0.087***					
SAT10 · B		0.245***					
SAT11 · B		0.489***					
SAT13 · B		0.834*					
SAT14 · B		0.877					
SAT15 · B		0.562*					
SAT < 10 · H		0.090***					
SAT10 · H		0.319***					
SAT11 · H		0.714**					
SAT13 · H		0.776**					
SAT14 · H		0.498***					
SAT15 · H		0.251***					
SAT < 10 · A		0.498					
SAT10 · A		0.488**					
SAT11 · A		1.085					
SAT13 · A		0.939					
SAT14 · A		0.890					
SAT15 · A		0.921					
SAT × Athlete							
SAT < 10 · Ath			3.366***				
SAT10 · Ath			1.914***				
SAT11 · Ath			1.143				
SAT13 · Ath			0.822*				

Continued

TABLE 6—Continued

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
SAT14 · Ath			0.662***				
SAT15 · Ath			0.519***				
SAT × Legacy							
SAT < 10 · Leg				0.816			
SAT10 · Leg				0.917			
SAT11 · Leg				0.955			
SAT13 · Leg				1.474***			
SAT14 · Leg				1.864***			
SAT15 · Leg				1.497*			
Race × Athlete							
B · Ath					0.453***		
H · Ath					0.433***		
A · Ath					0.789*		
Race × Legacy							
B · Leg						0.517**	
H · Leg						0.317***	
A · Leg						1.076	
Athlete × Legacy							
Ath · Leg							0.585***
N	99,473	99,473	99,473	99,473	99,473	99,473	99,473
−2 log likelihood	94,613.0	94,363.4	94539.0	94,576.4	94,547.7	94,589.8	94,600.2
(Degrees of freedom)	(17)	(35)	(23)	(23)	(20)	(20)	(18)
Pseudo R^2	0.191	0.193	0.192	0.191	0.192	0.191	0.191

[a]Omitted categories are shown in parentheses. Two institution dummy variables are included in all of the above models as control variables, but their estimated coefficients are not reported in the table.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

SOURCE: National Study of College Experience.

compared to scores in the 1200s makes a larger difference to the admission chances of legacies than of nonlegacies (Model 4).[9]

How does being a member of two preferred admission categories affect one's chances of being accepted? Shulman and Bowen (2001:382, n.9) conclude there is evidence of "double-dipping," in other words, that preferences are roughly additive (in the logistic scale, or multiplicative in the odds-ratio scale). This would mean that the admission advantage for African-American athletes, for example, is equivalent to the sum of the separate bonuses for being either African American or an athlete. Our results point to a different conclusion. Models 5 through 7 show that having any two out of the three preferred characteristics (underrepresented minority student, athlete, or legacy) confers an admission advantage that is less than the advantage that results from adding the separate bonuses. For example, the main effects for "African American" and "athlete" in Model 5 imply admission advantages equivalent to 240 and 210 SAT points, respectively. But the interaction term for being both African American and an athlete amounts to the loss of roughly 110 points. Therefore, compared to white nonathletes, the SAT-equivalent admission advantage for African-American athletes is 340, not 450, points.[10]

Changes Over Time

Preferences are not static but are adjusted by college admission officers to yield the kind of entering class that best meets institutional objectives. Between 1958 and 1968, Harvard College gave less weight to academic abilities and more to personal factors (Whitla, 1965). During the 1960s and early 1970s, women and members of underrepresented minority groups were treated more favorably by elite institutions, and less influence was attached to being a legacy (Klitgaard, 1985). Controlling for changes over time through the use of two cohort dummies is unnecessarily simplistic because it assumes that the effect of student characteristics on admission chances is the same in all three periods.

To investigate the stability of individual regression coefficients, we have fit the full model in Table 2 separately to each entering cohort, with the results in Table 7. There is a smaller female effect in 1997 than in the 1980s, at least partly because women have approached numerical parity with men in applicant pools (41.7 percent of all applicants were female in the 1980s compared with 47.9 percent in 1997). The SAT gradient flattens over time,

[9]This result parallels an earlier finding of Bowen and Bok (1998:29), who concluded on the basis of cross-tabulations of data from three schools that "the 'advantage' enjoyed by legacies [over nonlegacies] is concentrated at the upper end of the SAT range."

[10]An analysis of admissions data at Harvard University led Karen (1991:359) to conclude: "In fact, it is perhaps appropriate to view the advantage accorded legacy applicants as effecting a particular kind of advantage for white applicants." The data in Model 6 show that the legacy advantage compared with nonlegacies is indeed greater for white applicants than for African Americans or Hispanics. The legacy advantage for Asian applicants is comparable to that for whites.

TABLE 7

Models Fit Separately to Each Entering Cohort, 1980s, 1993, 1997: Coefficients Shown as Odds Ratios Based on Logistic Regression

Predictor Variables	1980s Cohort	1993 Cohort	1997 Cohort
Sex			
(Male)	—	—	—
Female	1.580***	1.605***	1.391***
Citizenship			
(U.S.)	—	—	—
Non-U.S.	1.056	0.798***	0.844***
SAT Score			
<1000	0.033***	0.052***	0.055***
1000–1099	0.141***	0.203***	0.176***
1100–1199	0.416***	0.587***	0.468***
(1200–1299)	—	—	—
1300–1399	2.168***	2.022***	1.709***
1400–1499	5.161***	4.179***	3.580***
1500–1600	13.737***	10.662***	9.515***
Unknown	0.998	0.436***	0.512***
Race			
(White)	—	—	—
African American	6.854***	5.731***	4.956***
Hispanic	6.402***	3.539***	3.072***
Asian	0.857***	0.684***	0.678***
Other	0.750***	0.889*	0.914
Athlete			
(No)	—	—	—
Yes	3.618***	4.161***	5.534***
Legacy			
(No)	—	—	—
Yes	3.466***	2.771***	2.858***
N	40,825	38,000	45,549
−2 log likelihood	36,253.6	37,166.1	39,866.1
(Degrees of freedom)	(17)	(17)	(17)
Pseudo R^2	0.202	0.203	0.162

*$p<0.05$; **$p<0.01$; ***$p<0.001$.

NOTE: Omitted categories are shown in parentheses. Two institution dummy variables are included in all of the above models as control variables, but their estimated coefficients are not reported in the table.

SOURCE: National Study of College Experience.

suggesting that SAT scores are becoming less influential in evaluating applicants to elite universities. One reason this might be happening is that applicants' SAT scores have risen, from an average of 1323 in the 1980s to 1345 by 1997. Admission advantages for African Americans and Hispanics fell during the decade and a half, while the Asian disadvantage became more pronounced. The athlete bonus has grown; by 1993 the

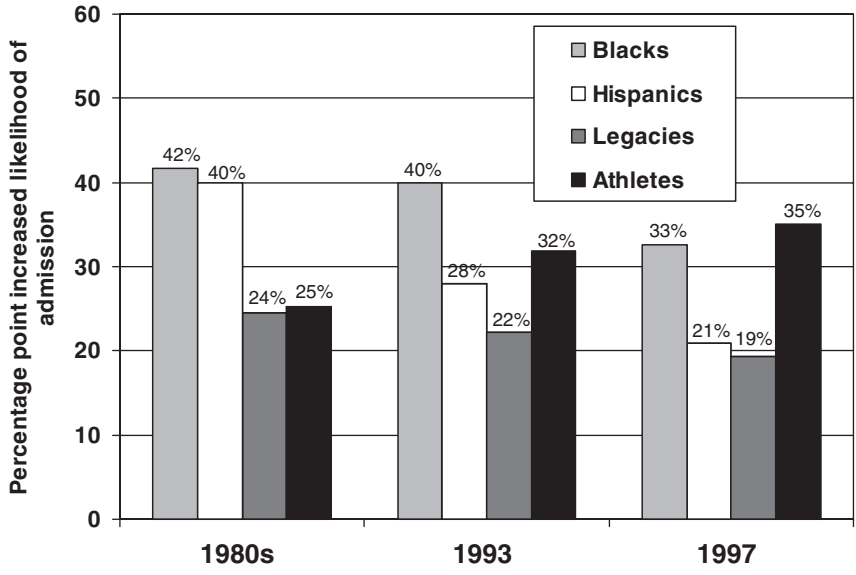
admission advantage for athletes had surpassed the Hispanic advantage, and by 1997 it exceeded both the Hispanic and the African-American advantage. Legacies received a smaller benefit in the 1990s compared with a decade earlier. During the 1980s, legacies received roughly the same consideration by admission officers at elite schools as athletes. But by 1997 the legacy advantage had fallen to one-half that of athletes.

Using data from one academically selective school in the College and Beyond study, Shulman and Bowen (2001) estimate a linear probability model to examine the "adjusted admission advantage" associated with being a minority student, an athlete, or a legacy. The admission advantage is calculated as the difference in the probability that someone with and without a given characteristic would be admitted, other things held constant. They find that the minority student advantage declined from 49 percent in the 1976 entering cohort to just 18 percent in 1999. By contrast, the admission advantage for athletes more than doubled, from 23 percent in 1976 to 48 percent by 1999. The relative advantage of legacies over their nonlegacy counterparts fluctuated between 20 and 25 percent over the 23-year period.

In Figure 1 we reexamine these conclusions using data from three schools and distinguishing between African-American and Hispanic applicants. We

FIGURE 1

Changes in Relative Importance of Underrepresented Minority, Legacy, and Athlete Preferences: 1980s to 1997



NOTE: Estimates based on regression models in Table 7 and derived by setting all other predictor variables to their sample means.
SOURCE: National Study of College Experience.

define the admission advantage in the same way as Shulman and Bowen and use the results in Table 7 to calculate admission probabilities for each student attribute, setting all other explanatory variables to their sample means. Although we consider a somewhat shorter time period, our results are strikingly similar to theirs and provide support for what Shulman and Bowen (2001:382, n.9) term "an unmistakable trend."[11] The size of the preference for underrepresented minority students, and especially for Hispanic applicants, falls over time. There is a slight decline in the bonus associated with legacies—from 24 percent in the 1980s to 19 percent by 1997. The athlete advantage increases monotonically from 25 to 35 percent. Shulman and Bowen attribute the decline in minority students' advantage in large part to the steady improvement in academic credentials among those who apply. In our data, the increase in average SAT scores over the three cohorts is greatest for Asian applicants (2.5 percent), followed by Hispanics (2.1 percent) and African Americans (1.7 percent), and least for whites (1.3 percent).

Conclusions

Critics of affirmative action in American higher education sometimes lose sight of the fact that elite universities give added weight to many different types of student characteristics. In this article, we examine the roles played by preferences for athletes and children of alumni. Based on complete data for three applicant cohorts to three of the most academically selective research universities, we show that admission bonuses for athletes and legacies rival, and sometimes even exceed, the size of preferences for underrepresented minority applicants. Being African American instead of white is worth an average of 230 additional SAT points on a 1600-point scale, but recruited athletes reap an advantage equivalent to 200 SAT points. Other things equal, Hispanic applicants gain the equivalent of 185 points, which is only slightly more than the legacy advantage, which is worth 160 points. Coming from an Asian background, however, is comparable to the loss of 50 SAT points.

As sizeable as these preferences are, we provide evidence that their magnitudes are biased down by relying on SAT scores as the sole indicator of academic merit. When such additional measures as high school GPA and class rank are included, being a recruited athlete has an even greater impact on one's chances of admission. The African-American and Hispanic advantage also increases, as does the disadvantage if one has an Asian background. On the other hand, our analysis may overstate the legacy advantage. Unlike other student traits that are relatively transferable among the most selective schools (high standardized test scores and class rank, minority student status, and athletic ability), applying as a legacy is institution specific. We show that the admission advantage benefiting legacy applicants to a

[11]Shulman and Bowen (2001) estimated admission advantages separately for men and women, but the results for both groups were virtually identical.

particular school is substantially weakened if talented students submit applications to several colleges and universities.

The relative weights assigned to different student abilities are in constant motion, and our data indicate that admission officers at elite universities are placing a declining weight on belonging to an underrepresented minority student group, whereas the admission advantage accruing to athletes has been growing. By 1997, in fact, being a recruited athlete mattered more than any other type of admission preference we have examined. A subsequent article in this journal will consider the opportunity cost of admission preferences (Espenshade and Chung, forthcoming). Who are the winners and losers from current admission practices?

Examining preferences for recruited athletes and children of alumni in the context of admission bonuses for underrepresented minority applicants helps to situate affirmative action in a broader perspective. Many different student characteristics are valued by admission officers and receive extra weight in highly competitive admissions. It is all part of a process that views academically selective colleges and universities as picking and choosing from many different pools or queues in order to create a first-year class that best advances institutional values and objectives.

REFERENCES

Argetsinger, Amy. 2003. "Legacy Students a Counterpoint to Affirmative Action." *Washington Post* March 12:A6.

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.

Bunzel, John H. 1996. "Race and College Admissions." *Public Interest* 122:49–58.

College Board. 2003. *SAT Verbal and Math Scores Up Significantly as a Record-Breaking Number of Students Take the Test*. Report N0218. New York: College Entrance Examination Board.

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., and Chang Y. Chung. Forthcoming. "The Opportunity Cost of Admission Preferences at Elite Universities." *Social Science Quarterly*.

Fetter, Jean H. 1995. *Questions and Admissions: Reflections on 100,000 Admissions Decisions at Stanford*. Stanford, CA: Stanford University Press.

Freedman, James O. 2003. *Liberal Education and the Public Interest*. Iowa City, IA: University of Iowa Press.

Gratz v. Bollinger. 2003. 123 S. Ct. 2411.

Grutter v. Bollinger. 2003. 123 S. Ct. 2325.

Hernández, Michele A. 1997. *A is for Admission: The Insider's Guide to Getting into the Ivy League and Other Top Colleges*. New York: Warner Books, Inc.

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.

Karabel, Jerome, and David Karen. 1990. "Go to Harvard; Give Your Kid a Break." *New York Times* December 8:L25.

Karen, David. 1990. "Toward a Political-Organizational Model of Gatekeeping: The Case of Elite Colleges." *Sociology of Education* 63(4):227–40.

———. 1991. "'Achievement' and 'Ascription' in Admission to an Elite College: A Political-Organizational Analysis." *Sociological Forum* 6(2):349–80.

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

National Association for College Admission Counseling. 2003. *Diversity and College Admission in 2003: A Survey Report*. Alexandria, VA: NACAC.

Office for Civil Rights. 1991. *Annual Report to Congress: Fiscal Year 1990*. Report No. ED/OCR-91-15. Washington, DC: U.S. Department of Education.

Paul, Bill. 1995. *Getting In: Inside the College Admissions Process*. Cambridge, MA: Perseus Publishing.

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

Steinberg, Jacques. 2003. "College Entrance Preferences for the Well Connected Draw Ire." *New York Times* February 13:A24.

Toor, Rachel. 2001. *Admissions Confidential: An Insider's Account of the Elite College Selection Process*. New York: St. Martin's Press.

U.S. Commission on Civil Rights. 1992. *Civil Rights Issues Facing Asian Americans in the 1990s*. Washington, DC: U.S. Government Printing Office.

Whitla, Dean. 1965. "Admission to College: Policy and Practice." *Phi Delta Kappan* March:303–06.

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.