

Racial and Ethnic Preferences in Undergraduate Admissions at the University of Wisconsin-Madison

By Althea K. Nagai, Ph.D.
Research Fellow

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Center for Equal Opportunity



Linda Chavez, Chairman
Roger Clegg, President
7700 Leesburg Pike, Suite 231
Falls Church, VA 22043
Phone 703-442-0066
Fax 703-442-0449
www.ceousa.org

Table of Contents

List of Tables	<i>ii</i>	
List of Figures	<i>ii</i>	
Executive Summary	<i>1</i>	
Acknowledgments	<i>3</i>	
Introduction	<i>4</i>	
Applicants and Admittees	<i>6</i>	
Racial/Ethnic Composition of the Pool	<i>6</i>	
Applicants	<i>6</i>	
Admittees	<i>7</i>	
Admission Rates	<i>7</i>	
Overall Group Comparisons of Admittees: Test Scores and Class Rank	<i>8</i>	
Methodology	<i>8</i>	
Results	<i>9</i>	
SAT Scores	<i>9</i>	
ACT Scores	<i>11</i>	
High School Class Rank	<i>12</i>	
Rejectees versus Admittees	<i>13</i>	
Logistic Regression Analysis and Odds Ratios	<i>14</i>	
Methodology	<i>14</i>	
Results: Relative Odds of Admission, Controlling for Other Factors	<i>16</i>	
Probabilities of Admission	<i>17</i>	
Retention Rate	<i>19</i>	
Appendices	<i>20</i>	
Appendix 1. Logistic Regression Equations	<i>20</i>	
Appendix 2. Calculating the Probability of Admission	<i>20</i>	

List of Tables

Table 1. Probability of Admission to UW, Controlling for Other Factors	1
Table 2. Racial Composition of Applicants, Admittees, and Enrollees	6
Table 3. Applicants Rejected by UW with Test Scores and High School Class Rank Higher Than Black Admittee Median	13
Table 4. Relative Odds of Various Groups Admitted over White Applicants, Controlling for Other Factors	16
Table 5. Retention Rate for UW 2007 and 2008 Entering Classes	19

List of Figures

Figure 1. University of Wisconsin Undergraduate Admission Rates	7
Figure 2. Combined SAT Scores for Admittees	9
Figure 3. Composite ACT Scores for Admittees	11
Figure 4. High School Class Rank for Admittees	12
Figure 5. Probability of Admission by Racial/Ethnic Group, Controlling for Other Factors	18

Executive Summary

The University of Wisconsin-Madison granted an extremely large degree of preference to blacks and Hispanics over Asians and whites in 2007 and 2008. These preferences are evidenced in a number of ways.

Overall Admission Rates. In 2007 and 2008, UW admitted more than 7 out of every 10 black applicants, and more than 8 out of 10 Hispanics, versus roughly 6 in 10 Asians and whites.

SAT Scores among Admittees. The median combined SAT score (math plus verbal) for black admittees was roughly 50 points lower than the median score for Hispanics and 150 points lower than the median score for Asians and whites. The median SAT score for Hispanic admittees was lower than the median for Asian and white admittees by roughly 100 points. The Asian median was 30 points higher than that for whites.

ACT Scores among Admittees. The median ACT score for black admittees was likewise significantly lower than those for Asian and white admittees. The Hispanic median was also substantially lower than those for Asians and whites, while the median score for Asians was slightly higher than the white median.

High School Class Rank among Admittees. The median class rank for black admittees was slightly lower compared to that for Hispanics (by one point in 2007 and two in 2008). It was significantly lower than the average class rank for Asians and whites (85th versus 93rd percentile). Hispanic medians were also lower than those for Asians and whites, while Asian and white admittees had the same median high school rank.

Rejected Applicants. During these years, UW-Madison rejected 1 black and 3 Hispanics, but 39 Asians and 777 whites, despite having higher test scores *and* class rank compared to the average black admittee.

Odds Ratios. Using the SAT and class rank while controlling for other factors, the black-over-white odds ratio was roughly 576 to 1; the Hispanic-over-white odds ratio was 504 to 1. Using the ACT and class rank while controlling for other factors, the black-to-white odds ratio was 1330 to 1; the Hispanic-over-white odds ratio was even higher (1494 to 1). In contrast, whether using the SAT or ACT, the Asian-white odds ratio was 1 to 1.

Probability of Admission. Probabilities of admission were calculated for a male applicant with a composite ACT score and class rank equal to the median for black admittees (see Table 1 below).

Table 1. Probability of Admission to UW, Controlling for Other Factors

	2007		2008	
	In-State	Out-of-State	In-State	Out-of-State
Black	100%	100%	100%	100%
Hispanic	100%	100%	100%	100%
Asian	41%	29%	54%	41%
White	38%	27%	51%	38%

- All black and Hispanic applicants—including out-of-state as well as in-state applicants—with the same academic credentials as the average black admittee would be admitted.
- In contrast, significantly smaller percentages of Asians and white residents would have been admitted. For example, with an ACT score of 24 and a class rank of 85 in 2007 (the medians for 2007 black admittees), only 41% of *in-state* Asians and 38% of *in-state* whites would have been admitted. In 2008, with a score of 25 and class rank of 85 (the medians for 2008 black admittees), 54% of *in-state* Asians and 51% of *in-state* whites would have been admitted.

Retention Rate. UW provided statistics on retention rates for blacks, Hispanics, and “non-targeted” applicants, made up of non-Southeast Asians, whites, and international students. For the entering class of fall 2007 and 2008, more than 9 out of 10 blacks, Hispanics, and non-targeted freshmen remained at the end of the first year. Significant gaps between the groups, however, emerged after two years and continued after three.

- After three years, 79.1% of blacks and 81.5% of Hispanics remained from the entering class of 2007, compared to 85.6% of non-targeted groups.
- For the entering class of 2008, 82.9% of blacks and 85.7% of Hispanics remained after two years, compared to 89.6% of non-targeted students.

Acknowledgments

On behalf of the Center for Equal Opportunity, I would like to thank Milwaukee attorney Daniel Kelly for his help in bringing and winning the lawsuit against the University of Wisconsin that enabled the Center for Equal Opportunity and the Wisconsin Association of Scholars to obtain the admissions data the University sought to withhold and much of which is the basis for this study.

CEO and I would also like to thank the Wisconsin Association of Scholars and its then-president J. Marshall Osborn for their role in filing the initial freedom-of-information request and subsequent lawsuit against the university.

Last but not least, I would like to thank Linda Chavez and the staff at the Center for Equal Opportunity for giving me the chance to work on another major study of racial and ethnic preferences in university admissions. I especially would like to thank Roger Clegg, who provided useful suggestions on the manuscripts, and Rudy Gersten, who handled numerous administrative aspects of obtaining the data and releasing the report.

Dedication

To the memory of Hugh Joseph (Joe) Beard, who along with Daniel Kelly started the lawsuit to obtain the data for this study more than 10 years ago.¹

¹ See *Osborn v. Board of Regents of the University of Wisconsin System*, 254 Wis. 2d 266, 647 N.W.2d 158 (2002).

Introduction

For over thirty years, racial and ethnic preferences have played a key role in how admissions officers at many of the nation’s public and private colleges and universities have chosen their classes. A system of racial and ethnic preferences in admissions operates by establishing different standards of admission for individuals based upon their racial or ethnic background, with some students held to a higher standard and others admitted at a lower standard. Earlier in this century, some colleges and universities denied admission to Jews, blacks, women, and members of other groups even when their grades, test scores, and other measures of academic achievement surpassed those of white males who were offered an opportunity to enroll. The passage of new civil rights legislation starting in the 1960s made this kind of discrimination illegal.

Since then, however, many colleges and universities have created “affirmative action” programs meant to boost the enrollment of students whose race or ethnicity previously had excluded them from pursuing a higher education—especially blacks and, to a lesser extent, Hispanics—by granting them preferences during the admissions process. These policies, when their existence was made public, immediately became controversial, and they remain so today. Defenders of racial and ethnic preferences claim that these policies are not discriminatory and help administrators choose between equally or almost equally qualified students, giving a slight edge to applicants who likely have faced discrimination or have come from disadvantaged backgrounds. Critics of preferences say that these policies are no better than the discriminatory ones they replaced and that, in any event, the advantages they confer upon certain applicants are much greater than supporters are willing to admit.

In the last 15 years or so, public colleges and universities have seen their ability to use racial and ethnic preferences increasingly restricted. The 1996 enactment of California’s Proposition 209 (also known as the California Civil Rights Initiative) forbids discrimination against or granting special treatment to any applicant on the bases of race, ethnicity, or sex in the public programs of the country’s largest state. A large majority of voters approved a similar ballot initiative in the states of Washington (1998), Michigan (2006), Nebraska (2008), and Arizona (2010). Other states such as Florida and Texas have or had created policies that end explicit preferences and guarantee admission to the state university system to the top graduates of their respective state’s high schools regardless of race or ethnicity. Most schools have never used such preferences since most schools are relatively non-selective.

The question of the legality of racial and ethnic preferences in higher education came to a head in 2003, when the U.S. Supreme Court ruled in two major cases on the legality of racial preferences in higher education admission. In the first case, *Gratz v. Bollinger*, the Court found that a point-system of preferences—used by the University of Michigan in

its undergraduate admissions—was unconstitutional. In the second case, *Grutter v. Bollinger*, the Court upheld a system of preferences used by the University of Michigan Law School that it found to be less mechanical.²

The *Gratz* and *Grutter* decisions make it appropriate to monitor universities' use of racial and ethnic preferences for at least three reasons. First, as the split holdings demonstrate, if race is weighed too heavily or too mechanically, the law is violated. Second, since racial preferences are only allowed but not required under current law, the question remains whether universities *should* use them, even when they are allowed to. This policy question cannot be answered if the decision-makers—particularly those outside the university admissions office, including, in the case of public universities, the general public—do not have all the facts. Third, at the conclusion of her majority opinion in *Grutter*, Justice Sandra Day O'Connor wrote, "We expect that 25 years from now, the use of racial preferences will no longer be necessary." Accordingly, one would expect to see the use of preferences and the weight afforded them to decline over time (over eight years of the grace period Justice O'Connor allowed having now lapsed).

This study of the University of Wisconsin-Madison undergraduate admissions data builds on CEO's previous work on racial and ethnic preferences.³ These studies uncover and systematically document the disparities in admission among America's public colleges and universities. Earlier CEO studies focused on undergraduate admissions at the public institutions of higher education in Colorado, Maryland, Michigan, Minnesota, North Carolina, and Virginia, and at Miami University of Ohio, Ohio State University, the University of Washington and Washington State University, the U.S. Military Academy and U.S. Naval Academy, as well as the branches of the University of California at Berkeley, Irvine, and San Diego. These reports have shown that blacks and Hispanics receive large amounts of preference in undergraduate admissions. CEO studies on preferences in public undergraduate institutions of higher education have also obtained aggregate data on graduation rates for racial and ethnic groups. These have shown that blacks and Hispanics are less likely to graduate from institutions giving them admission preferences than are their white and Asian counterparts.

This CEO study analyzes the data provided by the University of Wisconsin-Madison (UW) and comprised of applicant records. For this study, we look at the applicant's admission status, matriculant status, combined SAT scores, composite ACT scores, high school class rank, race/ethnicity, gender, and residency status.

In this report, we dropped those cases for which race or ethnicity is listed as "Other," missing, or unknown. American Indians and Native Hawaiians were also omitted because

² In response to these decisions, Michigan voters in 2006 passed Proposal 2, banning race, ethnic, and gender preferences in Michigan public contracting, public employment, and public education, including university admissions. A three-judge panel of the Sixth Circuit Court of Appeals overturned Proposal 2 on July 1, 2011. See Ryan Brown, "U.S. Appeals Court Overturns Michigan Ban on Affirmative Action at Public Colleges," *Chronicle of Higher Education*, July 1, 2011, http://chronicle.com/article/US-Appeals-Court-Overturns/128127/?sid=pm&utm_source=pm&utm_medium=en. The litigation in this case is continuing, however.

³ See the studies on CEO's website, <http://www.ceousa.org/content/blogcategory/78/100/>.

of their small numbers in this context. Additionally, cases with missing academic data were dropped from the statistical analyses. Lastly, where instances might lead to the identification of an individual, UW excluded the data from disclosure.

Applicants and Admittees

Racial/Ethnic Composition of the Pool

Table 2 below displays the racial/ethnic composition of the undergraduate school’s pool of applicants and admittees in 2007 and 2008.

Table 2. Racial/Ethnic Composition of Applicants and Admittees⁴

Year		Applicants	Admittees
2007	Black	2.6%	2.9%
	Hispanic	3.1%	4.4%
	Asian	7.9%	7.8%
	White	86.4%	84.9%
2008	Black	2.2%	2.6%
	Hispanic	3.2%	4.6%
	Asian	7.5%	7.3%
	White	87.1%	85.5%

Applicants

The applicant pool for UW changed little from 2007 to 2008. Blacks made up 2.6% of the applicant pool in 2007 and 2.2% in 2008. Hispanics were slightly over 3% in both years. Asians were 7.9% of the pool in 2007 and 7.5% in 2008.

Whites made up the overwhelming majority of applicants for both years. Whites were 86.4% of the applicant pool in 2007, rising to 87.1% in 2008.

⁴ “No Response,” “American Indian,” “Native Hawaiian,” “Alaskan Native,” and “Other” were dropped from the analysis. The total numbers used for Table 1 are below.

	Applicants	Admittees
2007	19,345	12,219
2008	19,131	11,550

Admittees

The racial and ethnic composition of admittees also changed little from 2007 to 2008. Blacks made up 2.9% of all those admitted in 2007 and 2.6% of admittees in 2008. Hispanics made up 4.4% of admittees in 2007 and 4.6% in 2008. Asians were 7.8% of admittees in 2007, dropping to 7.3% in 2008

Whites were the overwhelming majority of admittees, making up 84.9% of those admitted to UW in 2007, rising to 85.5% in 2008.

Admission Rates

Figure 1. University of Wisconsin-Madison Undergraduate Admission Rates

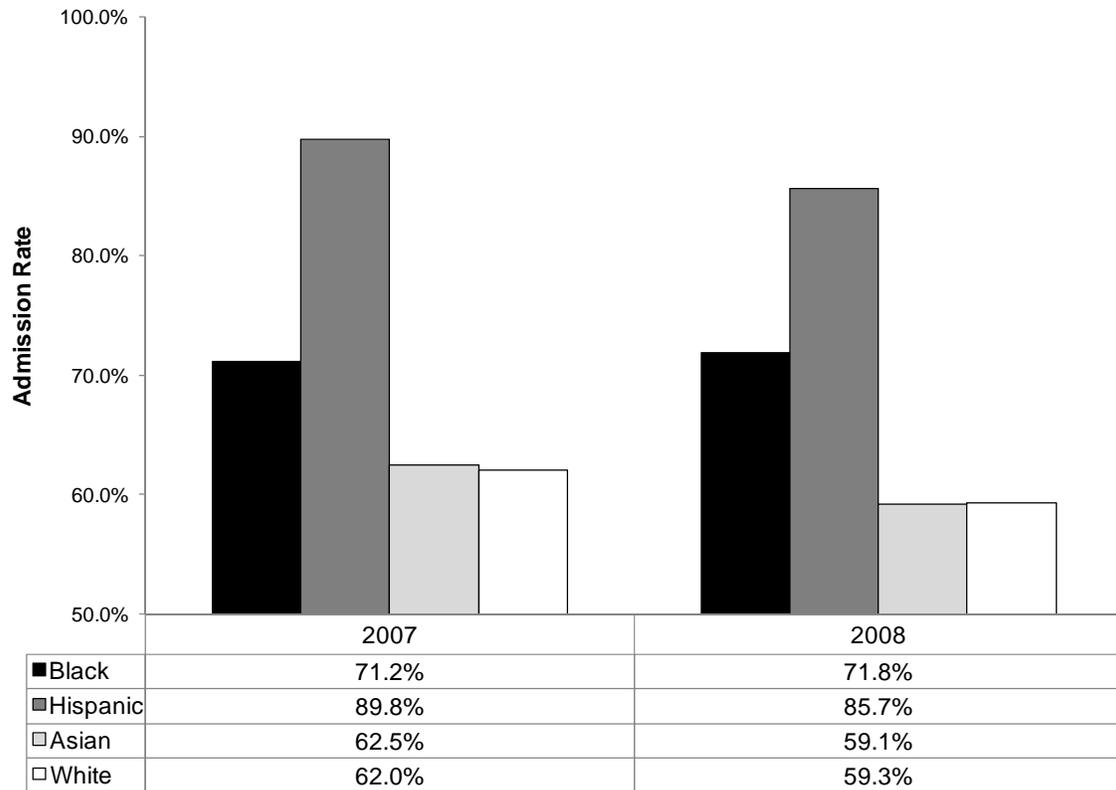


Figure 1 presents the percentage admitted from each racial/ethnic group of applicants for 2007 and 2008. Admission rates dropped from 2007 to 2008 for Hispanics, Asians, and whites but increased slightly for blacks. UW admitted 71.1% of black applicants in 2007 and 71.8% in 2008.

Admission rates were highest for Hispanic applicants. In 2007, UW admitted 89.8% of Hispanic applicants, dropping to 85.7% in 2008.

Admission rates for Asians were lower than those for blacks and Hispanics. UW admitted 62.5% of Asians in 2007 and 59.1% in 2008.

White admission rates were comparable to those of Asian applicants. In 2007, 62.0% of whites were admitted to UW, dropping to 59.3% in 2008.

Overall Group Comparisons of Admittees' Test Scores and Grades

Methodology

High school students applying to the University of Wisconsin-Madison are required to take either the SAT or ACT, and to submit their high school GPA or class rank. According to UW's website, UW "typically see[s]" students with an unweighted GPA between 3.5 and 3.9 and/or a class rank in the 85th to 96th percentile range and an ACT between 27 and 29. UW also mentions a total SAT range (math plus verbal plus writing) from 1860 to 2090. If we convert it to a math-verbal combined SAT score, it would range from 1240 to 1393.⁵ We read this as UW suggesting that students much below the range are unlikely to be admitted, although UW also states that there is no minimum requirement for test scores and high school grades or class rank.⁶

In this section, the combined math plus verbal test scores and high school class percentile of those admitted to UW are used to analyze the gaps in academic credentials for blacks, Hispanics, Asians, and whites. Admittee means are not reported; instead, test scores and class rank are reported at the 25th, 50th, and 75th percentiles. Percentile scores such as these are useful because a few extremely low or high scores do not affect them, while the mean and related statistics are more susceptible to such influences. The 50th percentile (i.e., the median) represents the middle of the distribution of scores, while the 25th and 75th percentile scores taken together represent the spread of scores. For example, a combined math and verbal SAT score of 950 at the 25th percentile means that 25 percent of combined SATs were below 950, while 75 percent were above it. A combined SAT of 1400 at the 75th percentile means that 75 percent of scores were below 1400, while 25 percent were above it.

⁵ The writing section of the SAT was not instituted by the College Board until March 2005 and was therefore not provided as part of the original freedom-of-information request.

⁶ <http://www.admissions.wisc.edu/freshman/requirements.php>.

The figures below show the distribution of individual subscores by racial and ethnic group, starting with combined math and verbal SAT scores from 2007 and 2008, followed by composite ACT scores, and high school class rank.⁷

Results

SAT Scores

Figure 2. Combined SAT Scores for Admittees

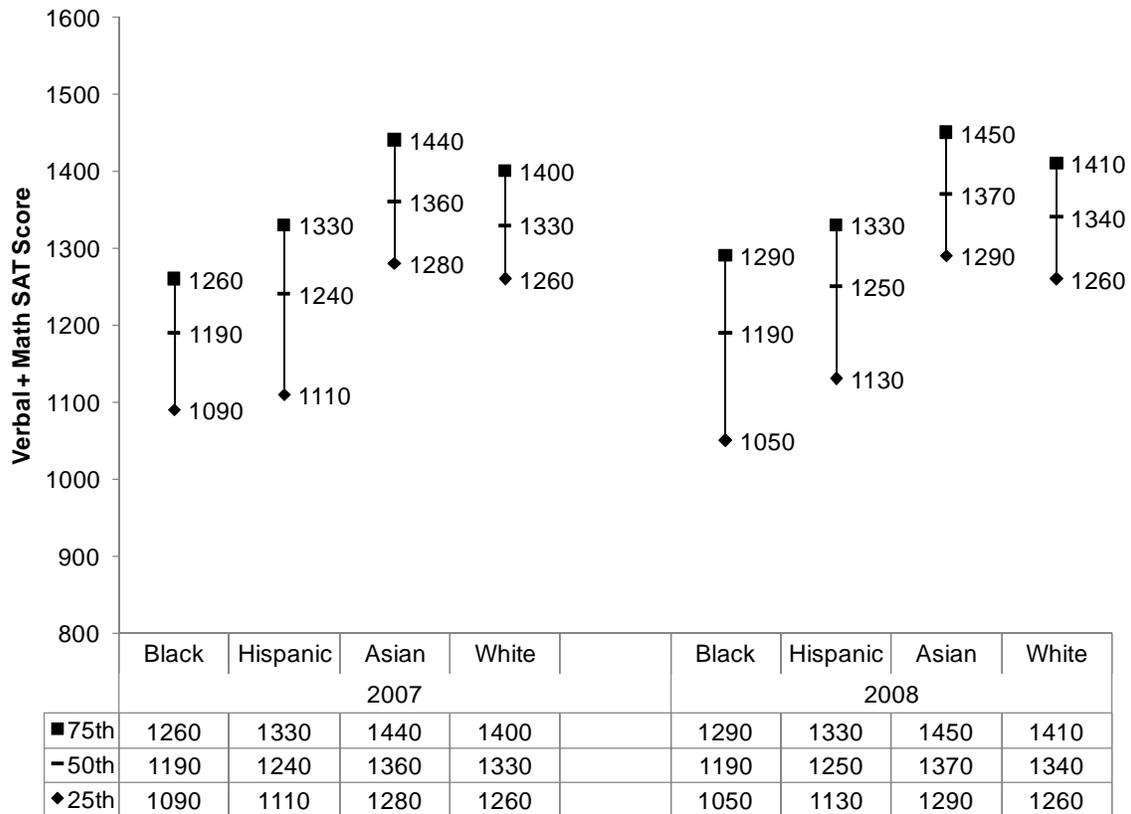


Figure 2 displays the spread of admittees' combined SAT math and verbal scores.⁸ Blacks admitted in both years had combined SAT scores generally lower than those for Hispanics, Asians, and whites. In 2007 and 2008, the median combined SAT score for

⁷ Too few blacks and Hispanics with both SAT scores and GPAs were in the database for extensive statistical comparison. As such we will focus on test scores and high school class rank. We note, however, that blacks and Hispanics admitted in 2007 and 2008 had lower median GPAs compared to Asian and white admittees. In 2007, the median GPA for black admittees was 3.41, compared to a 3.47 median for Hispanics, a 3.69 for Asians, and a 3.81 for whites. In 2008, the median for black admittees (3.30) is both lower than it was in 2007 and is lower than the Hispanic median (3.40), the Asian median (3.70), and the white median (3.81).

⁸ Combined SAT scores can reach a maximum of 1600 points (an 800 score on both the mathematics and verbal sections). The College Board modified the SAT in 2005 to include a separate writing (essay) section.

black admittees (1190) was lower than the median Hispanic score (1240 and 1250, respectively). The median score for black admittees was also 170 points lower than the Asian median in 2007 (1360) and 140 points lower than the 2007 white median (1330). In 2008, the differences in medians were even larger—there was a 180-point gap between the black and Asian median and a 150-point gap between the black and white median.

Moreover, the SAT score for black admittees at the 75th percentile in 2007 (1260) was equal to or lower than the Asian and white scores at the 25th percentile (1280 and 1260, respectively). This means that 75% of blacks in 2007 were admitted with lower test scores than at least 75% of Asian and white admittees. A similar gap emerges in 2008; the SAT score for black admittees at the 75th percentile (1290) is the same as that for Asians at the 25th and falls between the 25th and 50th percentile for white admittees.

The median SAT score for Hispanic admittees was also lower than the Asian and white medians. In 2007, the median score for Hispanic admittees (1240) was 120 points lower than the median for Asians and 90 points lower than the median for whites. In 2008, the Hispanic median (1250) was lower than the Asian and white medians (a difference of 120 and 90 points, respectively). The Hispanic medians were also lower than Asian and white scores at the 25th percentile. In 2007, the median SAT score for Hispanic admittees was 1240—40 points lower than the Asian score at the 25th percentile and 20 points lower than the white score at the 25th. The median SAT scores in 2008 for Hispanics (1250) was also 40 points lower than the Asian test score at the 25th percentile and 10 points lower than the white score at the 25th percentile. In other words, half the Hispanics admitted to UW had lower test scores compared to over 75% of Asians and whites admitted by UW.

The median scores for Asian admittees in 2007 and 2008 were higher than the white medians for those same years. In 2007, the Asian median was 1360, compared to the white median of 1330. In 2008, the Asian median was 1370, compared to the white median of 1340.

ACT Scores

Figure 3. Composite ACT Scores for Admittees

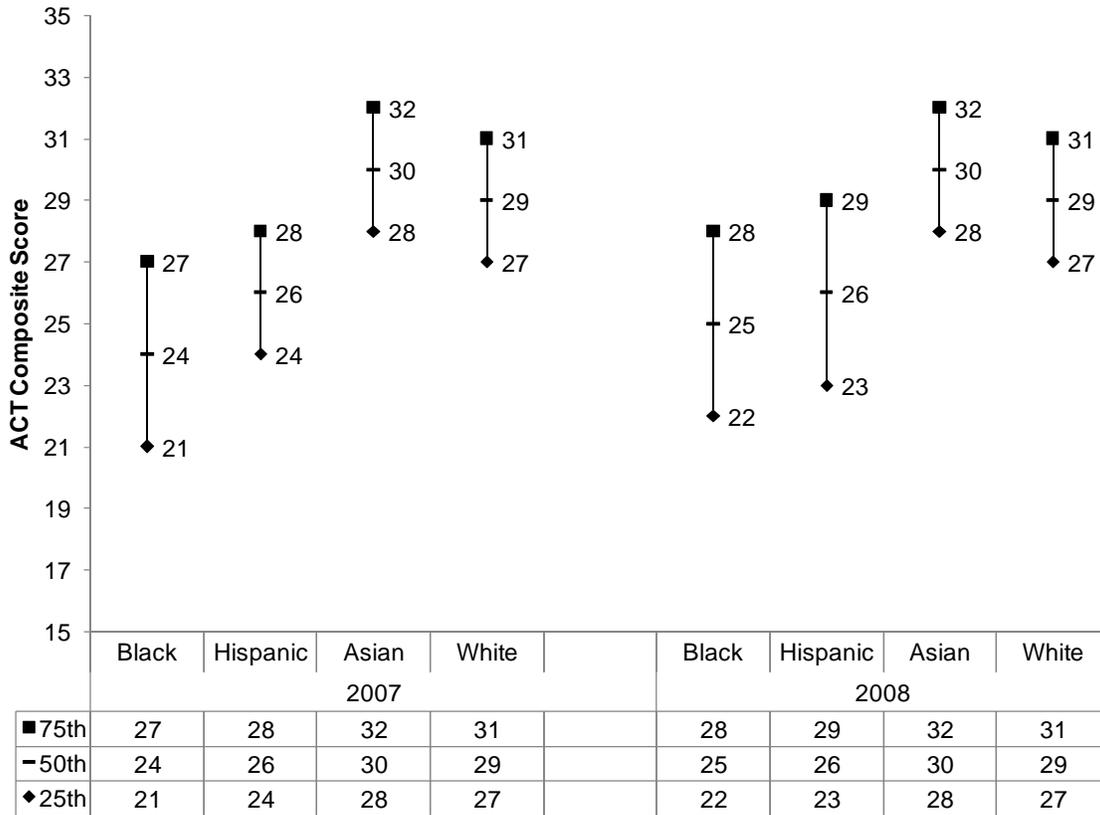


Figure 3 displays the spread of admittees’ composite ACT scores.⁹ The median ACT scores for black admittees in 2007 and 2008 are lower than those for the other three groups. In 2007, the median ACT score for black admittees (24) was 2 points lower compared to the Hispanic median (26), 6 points lower than the Asian median (30), and 5 points lower than the white median (29). ACT scores of admittees changed little in 2008. The black admittee median was 1 point higher compared to 2007, but the test-score gaps remain. The median ACT score for black admittees was lower in both years than the Asian and white scores at the 25th percentile (28 and 27, respectively). This means that half or more of blacks were admitted in 2007 and 2008 with ACT scores lower than 75% of Asians and whites.

The median ACT scores for Hispanic admittees were also lower than the median ACT scores for their Asian and white counterparts. In 2007 and 2008, the Hispanic median (26) was 4 points lower than the Asian median and 3 points lower than the white median.

⁹ The ACT is a test of academic achievement, covering English, mathematics, reading, and science. ACT scores have a maximum of 36, with the composite ACT being the average of all four subject scores. One point on the ACT is worth roughly 30 to 60 points on the SAT, depending on the actual scores (ACT, Inc. 2010, “ACT-SAT Concordance Reference Sheet,” accessed October 25, 2010, <http://www.act.org/aap/concordance/>). See also <http://professionals.collegeboard.com/profdownload/act-sat-concordance-tables.pdf>.

The Hispanic median for both years was also lower than the Asian and white ACT scores at the 25th percentile, meaning that 50% of Hispanic admittees had lower ACT scores than 75% of Asians and whites admitted to UW.

In contrast, the median ACT score for Asian admittees was 1 point higher than the median score for whites in 2007 and 2008.

High School Class Rank

Figure 4. High School Class Rank of Admittees

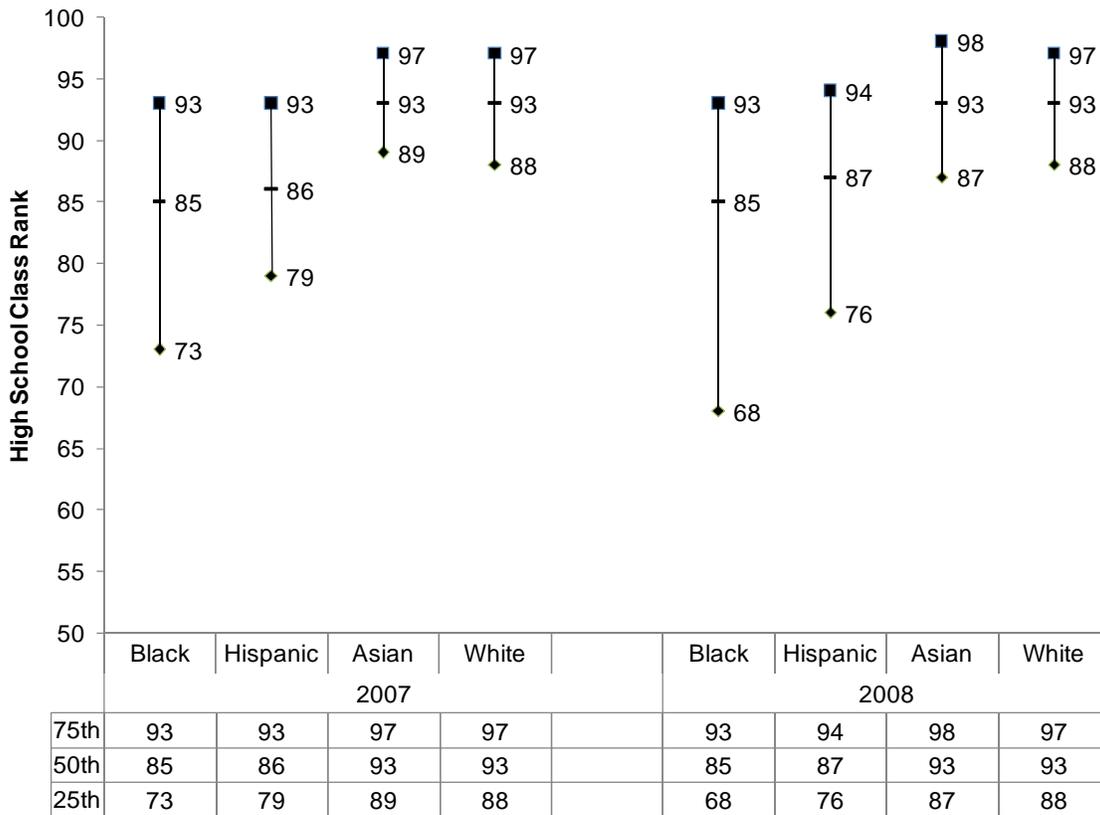


Figure 4 displays the high school rank of UW admittees. The median high school class rank of black admittees in both years was lower than the medians for all other groups. In 2007, the median high school rank for black admittees (85) was 1 point lower than that for Hispanics (86) and 8 points lower than the median for Asians and whites (93). In 2008, the gaps between black admittees’ median (85) and the other groups were roughly the same—2 points compared to Hispanic admittees (87) and 8 points compared to Asians and whites (93).

The median high school class rank for Hispanic admittees was also lower than the medians for Asians and whites. In 2007, the median for Hispanic admittees (86) was 7

points lower than the medians for Asians and whites (93); in 2008, the Hispanic median (87) was 6 points lower.

In both years, Asian and white admittees had the same median high school rank (93).

Rejectees versus Admittees

Next we look at the number of blacks, Hispanics, Asians, and whites rejected by UW despite test scores *and* high school class rank higher than the median scores and class rank of black admittees.

Table 3. Applicants Rejected by UW with ACT Scores and High School Class Rank Higher Than Black Admittee Median

	SATs and HS Class Rank			ACTs and HS Class Rank		
	2007	2008	Total	2007	2008	Total
Black	0	0	0	0	1	1
Hispanic	0	0	0	0	3	3
Asian	6	3	9	13	17	30
White	38	33	71	363	343	706

SATs and High School Class Rank. In 2007 and 2008, there were no blacks nor any Hispanics rejected by UW with higher SAT scores and class rank compared to the average black admittee. In contrast, 6 Asians and 38 whites in 2007 and 3 Asians and 33 whites in 2008 were rejected with these credentials, or a combined total of 9 Asians and 71 whites with better academic credentials than the average black admittee over these two years.

ACTs and High School Class Rank. In 2007, there were no blacks nor any Hispanics rejected by UW with higher test scores and class rank compared to the average black admittee; in 2008, 1 black and 3 Hispanics was rejected. In contrast, significantly more Asians and whites were rejected in 2007 and 2008 despite higher test scores and class rank. In 2007, 13 Asians and 363 whites were rejected with higher ACT scores and class rank than the median black admittee; in 2008, 17 Asians and 343 whites were rejected. These numbers totaled to 30 Asians and 706 whites rejected by UW despite academic credentials better than the medians for blacks admitted by UW over these two years.

Logistic Regression Analysis and Odds Ratios

Methodology

Although the data presented thus far provide evidence of racial preferences in admissions to the UW undergraduate program, it is possible to make the case even stronger and considerably more precise. The most powerful means of assessing the degree of racial and ethnic preference in admissions is to develop statistical models that predict the probability of admission at a school for members of the different ethnic and racial groups, holding constant their qualifications. Computing a logistic regression equation that predicts admission decisions by race and ethnicity does this by including test scores, high school grades or class rank, and various background characteristics as statistical control variables.

Logistic regression analysis with multiple control variables is used as the preferred statistical technique because of the nature of the data provided. One way of conventionally expressing a relationship between the independent and dependent variable is by using correlation coefficients. A negative correlation coefficient of -1.0 signifies a perfect negative relationship between the independent (predictor) variable and the dependent (or outcome) variable, whereby an increase in the value of the independent variable yields a decrease in the value of the dependent variable. A positive correlation coefficient of 1.0 signifies a perfect positive relationship between the two variables; as the independent variable increases, so does the dependent variable. Strictly speaking, however, one cannot use correlations to analyze admissions data because correlations and standard multiple regression analysis requires a dependent variable that is non-binary in form. In the case of an applicant's admission status, the dependent variable (individual admission status) is a binary dependent variable—reject versus admit. To address this binary-variable problem, we rely on multiple logistic regression equations and their corresponding odds ratios.

The odds ratio is somewhat like a correlation coefficient, except instead of varying from 1.0 to -1.0 , it varies between zero and infinity. An odds ratio of 1.0 to 1 means that the odds of admissions for the two groups are equal. It is equivalent to a correlation of zero. An odds ratio greater than 1.0 to 1 means that the odds of members of Group A being admitted are greater than those for members of Group B, in precisely the amount calculated. An odds ratio of less than 1.0 to 1 means the members of Group A are less likely to be admitted than those in Group B. The former is similar to a positive correlation, the latter similar to a negative correlation.

The statistical technique of logistic regression with multiple controls allows us to present admissions data in terms of the relative odds of those in Group A being admitted compared to Group B while simultaneously controlling for a host of other possibly confounding variables. The value of the odds ratio is that it provides a relatively direct

summary measure of the degree of racial or ethnic preference given in the admissions process for a particular school.

Logistic regression equations predicting the likelihood of admissions were computed for the 2007 and 2008 applicant pools, controlling for SAT or ACT scores, high school class rank, gender, legacy status, and in-state residency. We were able to derive the odds of admission from these equations for each minority group relative to that of whites, while simultaneously controlling for the effects of these other variables.¹⁰

Logistic regression analysis also allows us to test for statistical significance. Statistical calculations always include what is called a *p*-value. When results are deemed to be statistically significant, this means that the calculated *p*-value is less than some pre-determined cutoff level of significance. The level of significance conventionally is reported in the form of “ $p \leq .05$.” This value means that, with these data, there is a probability equal to or less than 5 percent that the difference found between one group and another (e.g., blacks versus whites, Hispanics versus whites, or Asians versus whites, since minority groups are being compared to whites) is due to chance. It is a convention in statistical studies to use the 0.05 value. In more stringent analyses, 0.01 (one in 100) or occasionally 0.001 (one in 1,000) or even 0.0001 (one in 10,000) can be used as the cutoff. Any *p* value greater than 0.05 (or the more stringent 0.01, etc.) is rejected, and the results are said to be nonsignificant. A difference that is statistically significant has very little chance of being the result of chance—that is, a statistical fluke.

In the next section, we discuss odds ratios derived from comparing all applicants, not just admittees, by race—blacks to whites, Hispanics to whites, and Asians to whites. Statistical significance is also noted. The size of the odds ratio reflects the strength of the association between race or ethnicity and admission status. An odds ratio equal to or greater than 3.0 to 1 is commonly thought to reflect a strong relationship; an odds ratio of about 2.0 to 1 reflects a moderate association; while a relative odds ratio of 1.5 or less to 1 indicates a weak relationship. Of course, an odds ratio of 1.0 to 1 indicates no relationship.¹¹ Finally, a *very* strong relationship might be taken to be the rough equivalent of the relative odds of smokers versus nonsmokers dying from lung cancer, which in one well-known study is calculated as 14 to 1.¹²

¹⁰ For a discussion of logistic regression and a more complete discussion of odds ratios, see Alan Agresti, *Introduction to Categorical Data Analysis* (New York: John Wiley and Sons, 1996).

¹¹ See David E. Lilienfeld and Paul D. Stolley, *Foundations of Epidemiology*, 3rd edition (New York: Oxford University Press, 1994): 200-202.

¹² Taken from a 20-year longitudinal study of British male physicians by R. Doll and R. Peto, as quoted in Agresti, *Introduction to Categorical Data Analysis*, p. 47.

Results: Relative Odds of Admission, Controlling for Other Factors

Table 4. Relative Odds of Various Groups Admitted over White Applicants, Controlling for Other Factors

	Odds Ratio With SAT	Odds Ratio With ACT
Black Over White	576 to 1****	1330 to 1****
Hispanic Over White	504 to 1****	1494 to 1****
Asian Over White	1 to 1 ^{ns}	1 to 1 ^{ns}

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$, ^{ns}Not statistically significant.

Table 4 displays the odds ratios of blacks, Hispanics, and Asians over whites. It first estimates the relative odds of admission using the SATs, but also controlling for high school class rank, year of admission, residency, gender, and whether a parent was an alumnus/a. It then uses the ACTs and the additional controls.

When using the SATs to calculate odds ratios and controlling for other factors, the black-over-white odds ratio is roughly 576 to 1 and the Hispanic-over-white odds ratio is only slightly lower (504 to 1). Asians however, receive no preference over whites, as shown by an odds ratio of 1 to 1.

For the ACTs, odds ratios favoring blacks and Hispanics over whites are even larger. Controlling for the ACTs and other factors, blacks are favored over whites by an odds ratio of 1330 to 1. The Hispanic preference is even larger: 1494 to 1.

As with the SATs, the 1-to-1 odds ratio shows that Asians receive no preference over whites when controlling for test scores and other factors.¹³

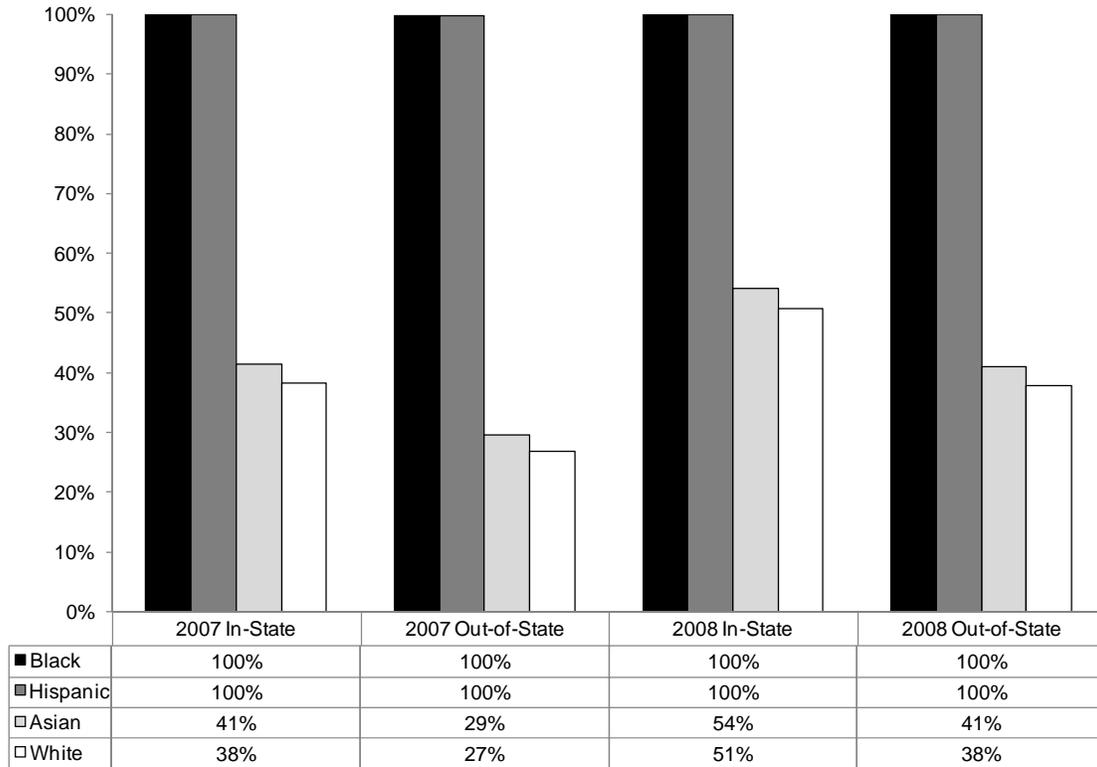
¹³ There was no preference with regard to gender, and a modest one with regard to residency (roughly 2 to 1 for those with SATs and roughly 1.7 to 1 for those with ACTs). If applicant's parent was an alumnus/a, there was a small preference (odds ratio of less than 2-to-1 for those with SATs and with ACTs).

Probabilities of Admission

The meaning of logistic regression equations and their associated odds ratios may be difficult to grasp because the equations are complex and hard to explain without resorting to mathematical formulations. A more intuitive way to grasp the underlying dynamic of preferential admissions is to convert these logistic regression equations into estimates of the probabilities of admission for individuals with different racial/ethnic group membership, given the same particular test scores and grades. In this section, we compare the probabilities of admission for individuals belonging to these different groups, using the logistic regression equation specific to the ACT or high school class rank. The probability calculations provide an estimate of the admission chances for members of each group, all with the same test scores or class rank, along with the same residency status and sex.

We chose to examine the probabilities for an in-state and out-of-state male applicant to UW. The same set of ACT scores and high school class rank is entered for blacks, whites, Hispanics, and Asians. Chances of admission were then calculated for black, Hispanic, Asian, and white in-state applicants and nonresident applicants with those qualifications (see Figure 5). These calculations do not change the statistical results reported in the earlier section on odds ratios. They simply provide an easier-to-understand interpretation of their meaning.

Figure 5. Probability of Admission by Racial/Ethnic Group, Controlling for Other Factors *



* Assumes applicant is nonlegacy male with the same ACT composite score and high school class rank as the black admittee medians for that particular year.

Figure 5 shows the probability of admission of a male applicant with a composite ACT score equal to the medians for blacks admitted for each year. In 2007 and 2008, blacks and Hispanic applicants with the same ACT score and high school rank as the average black admittee had a 100% chance of admission.¹⁴ This applies to both in-state *and* out-of-state blacks; it also applies to in-state and out-of-state Hispanics. In contrast, Asians and whites, even with in-state preference, had a significantly lower chance of getting in with the same credentials.

In 2007, an in-state Asian applicant with these same credentials and background would have had a 41% chance of admission; an in-state white applicant would have had a 38% chance. For out-of-state Asian and white applicants, the chances of admission were even lower (29% and 27%, respectively).

¹⁴ The 2007 black admittee medians were an ACT score of 24 and a class rank of 85. The 2008 black admittee medians were a score of 25 and a rank of 85.

The probability of admissions increased in 2008 for in-state Asian and whites but was still substantially lower than those for in-state *and* out-of-state blacks and Hispanics. In-state male Asian and white applicants with the same credentials as the average black admittee had a 54% and 51% chance of admission, respectively, compared to a 100% chance of admission for in-state *and* out-of-state blacks and Hispanics with the same credentials and background. And again, the out-of-state Asian and white applicants' chances of admission were even lower (41% and 38%, respectively).

Retention Rate

UW publishes summary statistics on retention rates and six-year graduation rates for various groups but not for whites.¹⁵ Instead, UW presents aggregate data for a combined group of whites, “non-targeted Asians,” and international students.¹⁶ We use this aggregated group as a baseline for comparison with blacks and Hispanics (see Table 5).

Table 5. Retention Rate for UW 2007 and 2008 Entering Classes

		After 1 year	After 2 Years	After 3 Years
2007	Blacks	93.4%	83.0%	79.1%
	Hispanics	93.7%	84.7%	81.5%
	Non-Targeted Groups	93.6%	88.7%	85.6%
2008	Blacks	90.1%	82.9%	--
	Hispanics	91.4%	85.7%	--
	Non-Targeted Groups	94.2%	89.6%	--

For the entering class of fall 2007, 93.4% of blacks, 93.7% of Hispanics, and 93.6% of the non-targeted freshmen remained at the end of the first year. Gaps between the groups emerged after two years and continued after three. There was a gap of roughly 6 points between blacks and the non-targeted group after two and three years. There was a gap of roughly 4 points between Hispanics and the non-targeted groups during that same time-period.

For the entering class of 2008, somewhat fewer blacks and Hispanics remained after one year compared to non-targeted freshmen (90.1% of blacks and 91.4% of Hispanics versus 94.2% of non-targeted groups). After two years, there was a gap of roughly 7 points between blacks and non-targeted groups and a gap of roughly 4 points between Hispanics and the non-targeted students.

¹⁵ See University of Wisconsin-Madison, March 30, 2011, *Retention and Graduation Rates for Undergraduates*. Downloaded August 8, 2011, http://apa.wisc.edu/degrees_grad_ret.html.

¹⁶ “Non-Targeted Asians” are defined by UW as non-Southeast Asians.

Appendix 1. Logistic Regression Equations

Using Combined SATs

	Unstandardized Regression Coefficient	Significance Level	Odds Ratio
Year	-0.3088	0.0018	0.73
Combined SAT	0.0086	0.0000	1.01
HS Class Rank	0.1573	0.0000	1.17
Black	6.3561	0.0000	576.02
Asian	0.0167	0.9108	1.02
Hispanic	6.2219	0.0000	503.66
Female	0.1289	0.2029	1.14
Resident	0.7976	0.0000	2.22
Parent Alum	0.1864	0.3603	1.20
Constant	596.4991	0.0027	--

Using Composite ACTs

	Unstandardized Regression Coefficient	Significance Level	Odds Ratio
Year	-0.1809	0.0001	0.83
Composite ACT	0.5103	0.0000	1.67
HS Class Rank	0.2035	0.0000	1.23
Black	7.1929	0.0000	1329.99
Asian	0.1356	0.1945	1.15
Hispanic	7.3094	0.0000	1494.22
Female	-0.0618	0.1804	0.94
Resident	0.5267	0.0000	1.69
Parent Alum	0.6600	0.0000	1.93
Constant	332.5142	0.0003	--

Appendix 2. Calculating the Probability of Admission

Using Combined SAT Score:

$$A = \text{EXP}((0.0086 * \text{CombinedSAT}) + (0.1573 * \text{HSRank}) + (6.3561 * \text{Black}) + (0.0167 * \text{Asian}) + (6.2219 * \text{Hispanic}) + (0.1289 * \text{Female}) + (0.7976 * \text{In-State}) + 0.1864 * \text{Parent}) + (-0.3088 * \text{Year}) + 596.4991)$$

Using Composite ACTs:

$$A = \text{EXP}((0.5103 * \text{ACTCOMP}) + (0.2035 * \text{HSRank}) + (7.1929 * \text{Black}) + (0.1356 * \text{Asian}) + (7.3094 * \text{Hispanic}) + (-0.0618 * \text{Female}) + (0.5267 * \text{In-State}) + (0.6600 * \text{Parent}) + (-0.1809 * \text{Year}) + 332.5142)$$

$$\text{Probability of Admission} = A / (1 + A)$$



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Linda Chavez, Chairman