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*Color-Blind
Affirmative Action
and Student Quality*

KATE ANTONOVICS
AND BEN BACKES

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Kate Antonovics
University of California, San Diego

Ben Backes
American Institutes for Research

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Color-Blind Affirmative Action and Student Quality

Kate Antonovics and Ben Backes

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Abstract

This paper assesses the extent to which schools in the University of California (UC) system were able to restore racial diversity among admitted students using race-neutral policies after California's ban on race-based affirmative action. Using administrative data from the UC from before and after the ban on race-contingent admissions policies, we present evidence that UC campuses changed the weight given to SAT scores, grades and family background characteristics after the end of affirmative action, and that these changes were able to substantially (though far from completely) offset the fall in minority admissions rate after the ban on affirmative action. In addition, we explore the possible inefficiencies generated by these changes in the admissions process, and find that while the new admissions rules affected the composition of admitted students, it is not clear that overall student quality declined. These results have important implications in light of the declining number of public universities in the United States that practice race-based affirmative action.

1 Introduction

In the last two decades, public universities in a growing number of states have stopped practicing race-based affirmative action in admissions. This policy change is the result of various court rulings, voter initiatives and administrative decisions. In addition, many now believe that the United States Supreme Court will place further limits on affirmative action in higher education when it issues its ruling on *Fisher v. Texas* later this year. Given that university administrators remain committed to promoting racial diversity, a natural question is to what extent racial diversity can be maintained using race-neutral policies that do not run afoul of the legal and judicial constraints placed on traditional race-based affirmative action. Another important question is whether these race-neutral policies are likely to affect overall student quality. For example, if universities respond to bans on affirmative action by giving an admissions advantage to students from economically disadvantaged backgrounds, to what extent will this enable universities to promote racial diversity and what impact would such policies have on the quality of admitted students?

Knowing the answer to these questions is important not only for understanding the implications of eliminating race-based affirmative action but also because the U.S. Supreme Court's decision in *Grutter v. Bollinger* suggests that the use of race is only permissible if there has been "serious, good faith consideration of workable race-neutral alternatives that will achieve the diversity the university seeks." Thus, the legality of race-based affirmative action appears to hinge at least partly on the extent to which universities are able to successfully achieve racial diversity using race-neutral policies, and any evaluation of whether these policies are "workable" presumably must take into consideration their costs and benefits in terms of their impact on student quality.

In an effort to answer these questions, this paper uses administrative data from the University of California (UC) on every fall freshman applicant from 1995-2006 to assess the extent to which UC schools were able to maintain racial diversity by changing their admissions rules after that state's ban

on affirmative action took effect in 1998.¹ In addition, we investigate how the new admissions rules affected the average quality of the pool of admitted students in terms of SAT scores, high school GPA and predicted performance in college.

Consistent with previous research, we find that the removal of explicit racial preferences dramatically lowered admissions rates for under-represented minorities (URMs) relative to whites at selective UC campuses. Our results, however, suggest that the decline would have been far larger had UC schools not changed their admissions process to implicitly favor URMs (for example, by placing less weight on SAT scores). At Berkeley, for example, our findings indicate that the observed drop in URMs' admission rate after the ban on affirmative action would have been nearly twice as large had Berkeley made no other changes to its admission process. In addition, while we find evidence that the composition of likely admits changed substantially as a result of these new admissions rules, overall student quality appears to have remained quite stable (as measured by expected first-year college GPA).

The paper will proceed as follows. In Section 2 we discuss the related literature and in Section 3 we outline the institutional details of California's affirmative action ban. Then in Section 4 we discuss our data and how we estimate the changes in each campus's admissions rule after Prop 209. Then in Section 5 we present our estimates of how the admissions rule changed at each of the eight UC campuses, document the extent to which the changes in the estimated admissions rule were able to restore minorities' admission rates to their pre-Prop 209 levels, and explore the short-term effects of the changes in the estimated admissions rule on the quality of the pool of admitted students. Finally, Section 6 concludes.

2 Related Literature

Here we consider the related literature on affirmative action in higher education, with a

¹ We discuss the details and timing of this ban in greater detail below.

particular focus on papers that address the effect of affirmative action on student quality.²

As discussed above, universities forced to abandon race-based affirmative action may instead adopt race-neutral policies designed to implicitly favor minorities. Indeed, the theoretical literature on affirmative action draws a distinction between “color-sighted affirmative action”, wherein there are explicit racial preferences in admissions, and “color-blind affirmative action”, wherein colleges adopt race-neutral policies that implicitly favor minorities by giving an admissions preference to students who possess characteristics that are positively correlated with being a minority (see, for example, Fryer et al. (2008) and Ray and Sethi (2010)). Both forms of affirmative action stand in contrast to laissez-fair admission regimes in which race is not considered either explicitly or implicitly.

Since bans on affirmative action only prohibit the use of explicit racial preferences, we would expect universities to move from color-sighted to color-blind affirmative action in the wake of such bans. Building a model of college admissions, Chan and Eyster (2003) show that a move from color-sighted to color-blind affirmative action could decrease the average quality of admitted students (regardless of race) since color-blind affirmative action may lead admissions officers to partially ignore applicants’ qualifications. Ray and Sethi (2010) additionally point out that color-blind affirmative action creates an incentive for admissions officers to adopt admissions policies that are non-monotone in the sense that, within each racial group, some students with lower scores are admitted while those with higher scores are rejected. In this case, average student quality will necessarily be lower under color-blind relative to color-sighted affirmative action.

Both Chan and Eyster (2003) and Ray and Sethi (2010) take students’ human capital investment decisions as fixed so that all changes in average student quality operate through changes in the pool of admitted students. In contrast, building a model of college admissions with endogenous human capital investment, Fryer et al. (2008) show that color-blind affirmative action will alter students’ incentives to invest in human capital. Thus, they note that relative to color-sighted

² See Holzer and Neumark (2000) for a comprehensive review of the theoretical and empirical literature on affirmative action more generally.

affirmative action, color-blind affirmative action may lower student quality both in the short run (by altering the pool of admitted students) and in the long run (by lowering incentives to invest in human capital). In this paper, we focus on analyzing the short-run impact of color-blind affirmative action. In a companion paper (Antonovics and Backes (2013b)), we examine the long-run impact of Prop 209 on human capital investment.

Similar to this paper, Long and Tienda (2008) examine how the admissions process changed at public universities in Texas after its affirmative action ban, but our paper differs from theirs in a number of important ways. First, their focus is on assessing whether these changes in the admissions rule were able to restore the share of minorities who were admitted, and they do not comprehensively assess the effect of the changes on student quality.³ Second, the policy changes in Texas were fundamentally different from those in California. In particular, a year after the University of Texas stopped using affirmative action in admission, it introduced a top 10% plan in which students in the top 10% of their high school class were guaranteed admission to any Texas public university. California adopted a similar policy in 2001 (known as “Eligibility in a Local Context”), but this plan was significantly weaker than Texas’s plan both in that the guarantee was only offered to students in the top 4 percent of their high school class, and California’s plan only guaranteed that students be admitted to at least one UC school (while in Texas students were guaranteed admission to any UT school).

Finally, we note that one strand of the literature on affirmative action examines whether affirmative action creates a mismatch between the quality of the average student and the quality of the average minority (see, for example, Sander (2004), Rothstein and Yoon (2008), and Arcidiacono et al. (2011)). The hypothesis is that aggressive affirmative action programs destine minority admits to be at the bottom of their incoming class in terms of academic credentials. As a result, the claim is that these students are likely to do poorly (relative to their white peers) in college, which in turn may adversely affect their later life outcomes. In this paper, we focus on student quality rather than on the

³ Table 4 of their paper indicates that the change in weights led to a small reduction in the SAT/ACT scores of admitted students, but the paper does not otherwise assess the quality of admitted students.

extent of mismatch between a student's academic credentials and that of his or her peers.

3 Background on California's Affirmative Action Ban

The effort to remove racial preferences in California was an extended process spanning multiple years. To provide some context of the policy change, we summarize the key institutional details below.

The first threat to affirmative action in California was in July 1995, when the Board of Regents of the University of California passed a resolution (SP-1), which stipulated that UCs would discontinue considering race in admissions by the beginning of 1997. The implementation of SP-1, however, was delayed following the passage in November 1996 of Proposition 209 (Prop 209), which banned the use of racial preferences in university admissions.⁴ Prop 209 underwent legal challenges until the Supreme Court denied further appeals in November 1997. Thus, the incoming class of 1998 was the first to be admitted under the statewide ban on affirmative action.⁵

It is important to recognize that in an effort to minimize the effects of Prop 209 on minority enrollment, UC campuses increased minority outreach efforts.⁶ This could be one channel through which URM and white students could be differentially affected by the ban on affirmative action. However, these efforts were widely viewed as ineffective, at least initially.⁷ Part of the reason for lack of effective programs was that in the immediate aftermath of Prop 209, there were concerns about whether race-specific outreach (as opposed to, for example, targeting low income areas) was permitted after Prop 209. In addition, outreach programs focusing on elementary and middle schools would not have an effect until those students reached college age. To the extent that increased outreach had an effect, our measured effects of Prop 209 represent the net effect of the ban and the

⁴ Searching the LexisNexis article database gives the first mention of Prop 209 in July 1996.

⁵ For a complete summary of the events of the ban, see Table 1.

⁶ For example, "In an attempt to improve minority access to UC without the help of affirmative action, the university's investment in kindergarten-through-12th-grade outreach has rocketed from about \$60 million in 1995 to \$180 million last year and a planned \$250 million this year" (2000, January 21). UC Regents Urged to Step Up Minority Outreach at Schools. The San Francisco Chronicle.

⁷ "[In the last five years] minority admissions have dropped significantly and outreach expenditures have almost quadrupled to nearly \$300 million with minimal results" (2000, June 8). Effects of minority outreach may take time for U. California system. The Daily Bruin.

change in outreach efforts.

4 Data and Empirical Strategy

We begin by investigating how each of the eight UC campuses changed its admissions rule in response to Prop 209. To do so, we use administrative data on every fall freshman applicant to the UC from 1995-2006.⁸ The data contain individual-level information on each student's race, high school GPA, SAT scores, parental income, and parental education. In addition, the data report the campuses to which each student applied, the campuses that accepted the applicant, and the campus at which the student enrolled, if any.⁹ Since these data were provided by the University of California Office of the President, we refer to them as the UCOP data.

The measure of high school GPA available in the data is UC adjusted high school GPA, which gives increased weight to AP courses, and only counts certain kinds of courses. Parental income and parental education are both reported by the student, and parental education is the highest education level of either parent.

In an effort to protect student privacy, the UC Office of the President collapsed many important variables into descriptive categories before releasing the data. Thus, for example, SAT scores are reported in 7 bins and high school GPA is reported in 4 bins. To facilitate comparison across these different measures of academic ability, we assign the midpoint of each bin to be the student's test score (or grade) and then standardize so each is mean zero with a standard deviation of one. Parental income and parental education are also reported in bins (11 for parental income and 8 for parental education), and we again assign to each student the midpoint of his or her bin. Year of application is grouped into three-year cohorts (1995-1997, 1998-2000, 2001-2003 and 2004-2006). By design, the second three-year application cohort begins in 1998, the year the ban on racial preferences was implemented. Finally, race is collapsed into four categories: white, Asian, URM and

⁸ The eight UC campuses are Berkeley, Los Angeles, San Diego, Santa Barbara, Davis, Irvine, Santa Cruz and Riverside.

⁹ Additional information about this publicly available dataset can be found in Antonovics and Sander (2011).

other/unknown. The URM category includes Native Americans, blacks, Chicanos and Latinos, which are the primary groups that received preferential treatment based on race before Prop 209. The other/unknown category includes both students who indicate that their race falls outside the categories used by the university, as well as students who choose not to reveal their race (a group that grew substantially after Prop 209 went into effect). In our empirical analysis, we compare admissions rates of URMs with the combined set of whites, Asians and other/unknown. Our primary reason for grouping students in the other/unknown category with Whites and Asians is that the average characteristics of students in the other/unknown group are very close to the average characteristics of Whites and Asians. Nonetheless, our results are not sensitive to dropping the other/unknown group.

A potential problem with using a sample composed of UC applicants is that the application decision could itself be affected by the affirmative action ban, leading to sample selection bias. While we are not aware of any direct evidence on changes in application rates following affirmative action bans, a handful of studies have used data from SAT test-takers to proxy for college application. One example is Dickson (2006), who finds that removal of affirmative action in Texas led to a decline in the share of minority students taking either the ACT or SAT. However, Antonovics and Backes (2013a) show that although URMs were less likely to send SAT scores to selective UCs, there is no evidence of a decline in URM score-sending to UC campuses generally. In addition, Furstenberg (2010) shows that the demographic characteristics of SAT takers are generally uncorrelated with the introduction of the bans in California and Texas. Using actual enrollment data from public universities in states which banned affirmative action, neither Backes (2012) nor Hinrichs (2012) find any evidence that fewer URMs enrolled in college. Finally, Antonovics and Sander (2011) provide evidence that URMs did not find UCs less attractive – as measured by enrollment rates conditional on admission – after Prop 209.

Turning to our data on UC applicants, Table 2 presents basic summary statistics of the UCOP

data used in our analysis.¹⁰ As might be expected, relative to non-URMs, URMs who applied to the UC have lower average SAT scores, lower average high school GPAs and come from families with lower parental income and education. The bottom panel of Table 2 also presents the admission rates for URMs and non-URMs at each of the eight UC campuses for each admission cohort. As the table shows, there was a substantial drop in URMs' relative chances of admission starting with the 1998-2000 application cohort, especially at the more selective UC schools.

In order to understand the changes in the admissions rule after Prop 209, we begin by estimating the following equation separately for each school using OLS:

$$A_i = \delta_1 URM_i + \mathbf{X}'_i \delta_2 + \delta_3 (URM_i \times Post_i) + (\mathbf{X}'_i Post_i) \delta_4 + \epsilon_i \quad (1)$$

where A_i is an indicator for whether student i was admitted (conditional on application), URM_i is an indicator for whether the student is black, Hispanic or Native American (with Whites and Asians being the excluded group), \mathbf{X}_i is a vector of student-level characteristics used in determining admissions (SAT scores, high school GPA, parental income, parental education, and a constant term), and $Post_i$ is an indicator that takes on the value of one if the student applied after Prop 209 went into effect. Our estimates of Equation (1) form the backbone of most of our empirical analysis, and the primary parameters of interest are δ_3 and δ_4 , which capture how the importance of race and other student-level characteristics changed after the implementation of Prop 209.

Conversations with admissions officers at the UC indicate that during this time period campuses generally assigned points (or weights) to different dimensions of a student's application, and prior to Prop 209 race was only used to set different admissions thresholds for different groups. For this reason, we allow race to enter linearly (rather than being interacted with X_i).

As discussed below, at several points, we also include indicators for a student's application

¹⁰ Here we present the unstandardized versions of SAT scores and high school GPA since these are more meaningful.

cohort (1995-1997, 1998-2000, 2001-2003 or 2004-2006) instead of a simple indicator for whether the student applied before or after Prop 209. Doing so allows us to more fully describe the evolution of the admissions process over time.

Of course, campuses have a much richer set of information about students than we do. For example, we have no information on the quality of student essays or the extracurricular activities in which students are involved. Thus, we cannot estimate the true admissions rule used at each campus. Nonetheless, to the extent that we know many of the most salient pieces of information used in the admission process, we are broadly able to characterize the admissions process for each application cohort and its changes over time. In addition, we can use our estimates of Equation (1) to explore how changes in the importance of SAT scores, high school GPA and family background characteristics in predicting admissions affected a) the relative admission rates of URMs and b) the overall quality of students admitted to each of the UC campuses.

5 Results

Figure 1 presents our estimates of Equation (1), with the height of each bar representing the various coefficient estimates for each UC campus. We present our results graphically in order to facilitate comparisons across the different UC campuses and across the different predictors of admissions.¹¹ Panel (a) contains the coefficient on URM (the light blue bars) and on $URM \times Post$ (the dark blue bars). As the panel suggests, substantial racial preferences were in place prior to Prop 209, especially at the more selective UC schools. For example, at Berkeley URMs were over 40 percentage points more likely to be admitted than non-URMs, controlling for SAT scores, high school GPA and family background characteristics. Nonetheless, the dark blue bars in Panel (a) confirm that racial preferences were largely eliminated after Prop 209. Interestingly, however, controlling for observables, we note that URMs were still more likely than non-URMs to be admitted after Prop 209

¹¹ Appendix Table A.2 shows the coefficient estimates for a model in which we include separate indicators for each post-Prop 209 application cohort.

(the height of the light blue bars is greater than that of the dark blue bars). This could arise even if admissions officers were not practicing explicit affirmative action after Prop 209, but still used admissions rules that favored students who possessed characteristics correlated with being a URM that we do not observe in our data.

Panels (b)-(f) then focus on the importance of various student academic and family background characteristics in predicting admissions and on how the importance of those factors changed after Prop 209. As Panel (b) shows, SAT math scores became a much less important predictor of admissions after Prop 209, particularly at the more selective UC schools. At Berkeley, for example, prior to Prop 209, a one standard deviation increase in SAT math scores was associated with a 10 percentage point increase in a student's chances of admission. After Prop 209, however, this association fell by more than half to less than 5 percentage points. At Berkeley and UCLA, the two schools that appear to have practiced the most extensive affirmative action prior to Prop 209, we also see that SAT verbal scores became a less important predictor of admission, though this pattern is not consistent across all eight campuses. We also see in Panels (d)-(f) that UC adjusted high school GPA generally became a more important predictor of admission. Prior to Prop 209, for example, a one standard deviation increase in UC adjusted high school GPA was associated with a 13 percentage point increase in the probability of admission to Berkeley, and after Prop 209 this increased to almost 17 percentage points. In addition, we see evidence that, all else equal, students from disadvantaged backgrounds were more likely to receive offers of admission. That is, parental income and parental education are negatively associated with admission, and this negative association grew substantially after Prop 209. At Berkeley and UCLA, for example, the negative association between parental income and admission nearly doubled, and at UCSD it tripled.

As mentioned above, using these coefficient estimates to make inferences about the precise changes in the admissions rules at each school is complicated by the fact that we do not observe all of the criteria used by admissions officers in determining admissions. For example, the fact that high school GPA became a more important predictor of admission could reflect the possibility that after

Prop 209 an increased preference was given to students from disadvantaged high schools, where applicants to the UC were likely to have a relatively high GPA. Nonetheless, it is clear from Figure 1 that student characteristics associated with SAT test scores (including possibly SAT scores themselves) generally became less important in determining admissions while those associated with high school GPA and being from a disadvantaged background became more important in determining admissions.

Finally, it is worth pointing out that our results are largely consistent with the prediction in Fryer et al. (2008) that if schools are prohibited from using race as an explicit criterion in admission (that is, if schools cannot practice color-sighted affirmative action), then schools will shift weight away from traits that predict academic performance towards social traits that proxy for race. To assess whether our results support this prediction, Table A.1 shows the results of regressing an indicator for whether a student is a URM on SAT scores, high school GPA, parental income and parental education for all applicants to the UC system from 1995-2006.¹²

As the table reveals, SAT math scores, parental education and parental income all negatively predict whether a student is a URM. Thus, the fact that we find that the weight placed on these factors decreased after Prop 209 (the interaction between each of these variables and *Post* is negative for almost every campus) is in line with Fryer et al. (2008). Interestingly, although we find that SAT verbal scores positively predict whether a student is a URM, this finding hinges on the fact that Asians are included in the omitted racial category. If Asians are dropped from the analysis, then the coefficient on SAT verbal scores becomes negative and statistically significant. Thus, for example, decreasing the weight placed on SAT verbal scores in the admissions process would tend to benefit both URMs and Asians. In light of the fact that Asians are overrepresented at the UC relative to California's population, this may have created a tension at many UC campuses and may explain why the importance of SAT verbal scores declined at some campuses and increased at others. The only finding that is at odds with the predictions of Fryer et al. (2008) is that Table A.1 indicates a negative and statistically significant association between high school GPA and the likelihood of being a URM.

¹² The predictors of race are consistent over time and across campuses.

According to Fryer et al. (2008) this should have led UC schools to place less (rather than more) weight on high school GPA. Having said that, the magnitude of the relationship between high school GPA and the likelihood that a student is a URM is extremely small, suggesting that the increased emphasis UC schools placed on high school GPA would have had a negligible negative impact on the admission rate of URMs. In the next section, we address the combined impact of the change in the weights given to SAT scores, high school GPA, parental education and parental income and find that together they worked to substantially increase the admission rate of URMs.

5.1 Changes in URMs' Relative Admission Rates

How did the decreased importance of SAT scores and the increased importance of high school GPA and family background affect the admission rates of students from different racial groups? To examine this, we use the estimates from a modified version of Equation (1) that includes indicators for each application cohort (rather than just an indicator for post Prop 209) to simulate the change in students' predicted probability of admission due solely to the change in the importance of SAT scores, high school GPA, parental income and parental education in predicting admissions.¹³ That is, we set the coefficients on race and the interaction between race and application cohort equal to zero, and predict the probability that each student would be admitted in each time period, so that any changes over time in a student's predicted probability of admission are driven only by changes in the importance of different student-level characteristics (other than race) in predicting admissions. We then compute the resulting average predicted probability of admission for each racial group in each time period, and examine how the predicted admission rates of URMs and Asians changed relative to that of Whites. In order to ensure that the changes over time are not driven by changes in the characteristics of the applicant pool, we conduct these simulations only for students who apply in the 1995-1997 application cohort, though our results are not sensitive to which application cohort we use.

¹³ See Appendix Table A.2 for the coefficient estimates used in generating our predicted admission probabilities.

Figure 2 shows the results of this simulation.¹⁴ The figure focuses on the top four UCs (as measured by the average math SAT scores of admitted students), since these schools practiced the most extensive affirmative action prior to Prop 209, and so were the most constrained by the passage of Prop 209. As the figure indicates, the change in the importance of SAT scores, high school GPA and family background in predicting admission appears to have had a large, positive and statistically significant impact on URMs' relative chances of admission at each of the four schools. At Berkeley, for example, we estimate that by 1998-2000, the decrease in the importance of SAT scores and the increase in the importance of high school GPA and family background in predicting admissions led URMs' relative chances of admission to increase by over 8 percentage points compared to 1995-1997. In addition, this increase generally appears to have grown over time. At UCLA for example, the increase in URMs' relative chances of admission grew from about 8 percentage points by 1998-2000 to over 14 percentage points by 2004-2006 (compared to 1995-1997). Thus, to the extent that campuses changed their admissions rules to implicitly favor URMs after Prop 209, Figure 2 suggests that they got better at doing so over time.

Overall, the magnitudes of these changes are substantial. At Berkeley for example, Panel 1a of Figure 1 suggests that in the absence of any other changes to the admissions process, the end of explicit racial preferences would have led to a 30 percentage point fall in URMs' relative chances of admission. Figure 2, however, shows the changes in the importance of SAT scores, high school GPA and family background in predicting admissions in 2004-2006 relative to 1995-1997 increased URMs' relative chances of admission by close to 12 percentage points, implying that almost 40 percent of the admissions advantage given to URMs using race-based affirmative action was restored through race-neutral changes in the admissions process.

Interestingly, the estimated changes in the admissions rules also appear to have positively affected Asians' relative chances of admissions, though the magnitude is considerably smaller than for URMs. For example, by 2004-2006, the estimated changes in the admissions rule at Berkeley indicate

¹⁴ Table A.3 shows the numbers used to generate Figure 2.

an approximate 2 percentage point increase in Asians' relative chances of admission compared to 1995-1997. The reason for this is that in California, Asian applicants to the UC had lower parental income and parental education than otherwise similar whites. Thus, the end of affirmative action benefitted Asians applying to the UC both because the ban on affirmative action opened up more slots for Asian applicants and because the admissions rules changed in ways that implicitly favored Asians relative to whites.

Finally, as Table A.3 indicates, the changes in URMs' and Asians' predicted probability of admissions (relative to whites) at the remaining four campuses was generally negative, though the magnitude of the decline was typically quite small.

5.2 The Effect on the Pool of Admitted Students

Any change in a college's admission rule necessarily affects the pool of admitted students. Given the apparent changes in UC schools' admissions rules after Prop 209, an obvious concern is whether the decreased emphasis on SAT scores (and/or their correlates) and the increased emphasis on high school GPA and family background (and/or their correlates) negatively affected the average quality of admitted students. Examining the changes in the characteristics of actual admits over time, however, is complicated by the fact that a) the characteristics of the applicant pool may have shifted over time and b) the UC schools became more selective during this time period. For example, Table 2 shows that between 1995-1997 and 2004-2006, the probability of admission for non-URMs fell at every campus except UC Riverside. Since average student quality is likely to increase as schools become more selective, it is necessary to hold selectivity constant when trying to assess the effect of changes in a school's admission rule on student quality.

With this in mind, we use the estimated admission rule for the 1995-1997 cohort to identify the pool of likely URM and non-URM admits given the 1995-1997 admission rate for each racial group. Then, using this same group of students (those who applied in 1995-1997), we identify the pool of likely admits using the 2004-2006 estimated admission rule, but hold the admissions rate for URMs

and non-URMs at their 1995-1997 level.¹⁵ Doing so allows us to assess the effect of the changes in the weights given to SAT scores, high school GPA and family background on the pool of likely admits, holding constant the characteristics of the applicant pool and overall selectivity.¹⁶

Table 3 presents our results for URMs.¹⁷ Looking at the top row of Table 3, our results suggest that the changes in the admissions rules between the 1995-1997 cohort and the 2004-2006 cohort led to a 20.4 percentage point drop in the average SAT math scores of likely admits. In order to gauge the magnitude of this change, the third and fourth rows show the average SAT math scores and the standard deviation of math SAT scores of likely admits using the 1995-1997 estimated admission rule. As the table reveals, math SAT scores fall by 3.4 percent (relative to the 1995-1997 mean of 607.7), or about 29 percent of a standard deviation (relative to the 1995-1997 standard deviation of 71.4). In addition, the drop in SAT verbal scores is of a similar magnitude. At UCLA, UCSD and UCSB, the drop in SAT math scores and SAT verbal scores is about half as large as the drop for Berkeley, both in terms of the actual number of points and relative to the 1995-1997 mean and standard deviation. At UCD and UCI, we also see a fall in SAT math and SAT verbal scores among predicted admits, though the magnitude is quite small.

In addition, we find that the high school GPA of likely admits increases over time. As Table 3 indicates, the average high school GPA of likely admits at Berkeley increased by about 0.11 between 1995-1997 and 2004-2006, representing a 3 percent increase relative to the mean high school GPA among predicted admits in 1995-1997, or about 27 percent of a standard deviation. The increase in the high school GPA among likely admits at UCLA is about half as large. We also see an increase at UCSD, though the magnitude is quite small, and changes to the admissions rules at UCD, UCI and

¹⁵ Our estimates of the 2004-2006 estimated admissions rule are from the modified version of Equation 1 that includes indicators for each applicant cohort and their interactions with student-level characteristics.

¹⁶ Our results are very similar if we instead conduct this simulation for other application cohorts. See the appendix for the results using the 1998-2000, 2001-2003 and 2004-2006 application cohorts.

¹⁷ We were unable to conduct this analysis for UCSC and UCR because we had missing values for a larger fraction of applicants than were actually admitted (due to the very high admissions rate at these schools), making it difficult to determine the pool of likely admits. Given the high admissions rate at these schools, however, it is unlikely that the estimated changes in the admissions rule would have had a large effect on the pool of admitted students (since most applicants were admitted, regardless of the rule).

UCSB yielded no discernible change in high school GPA.

In terms of family background characteristics, we see that among likely URM admits at Berkeley the fraction of students who have at least one parent with a college degree declines by 6 percentage points (a 12 percent drop relative to the mean of 50 percent) and the average family income declines by \$3,500 (a 7 percent drop relative to the mean of \$52,500).¹⁸ Interestingly, the change in family background characteristics brought about by the changes in the admissions rule at UCLA, UCSD, UCD and UCSB is similar in magnitude to the change at Berkeley.

Thus, several broad patterns emerge from Table 3. First, the most salient changes in the pool of predicted admits occurs at the most selective UC schools. Second, balancing the moderate fall in the SAT scores was an increase in the high school GPA of predicted URM admits. Finally, across all UC campuses, predicted URM admits increasingly came from relatively disadvantaged backgrounds. Together, these results suggest that the changes in UC's admissions rules over time have led to a meaningful shift in the composition of the student body.

As a way to partially examine the overall impact of these compositional changes on the college performance of likely admits, we predict the first-year college GPA of likely admits based on their academic and family background characteristics. In particular, using the pool of students who enroll at a given campus, we regress first-year college GPA on SAT scores, high school GPA, parental income, parental education and intended major. We then use the results of this regression to predict, for each likely admit, expected first-year college GPA. Table 3 then presents the change in the average predicted first-year college GPA of likely admits due to the changes in the importance of different student characteristics in predicting admission between 1995-1997 and 2004-2006. Since the weights given to different student characteristics in predicting first-year college GPA are the same for all students, this exercise serves as a way to summarize the changes in SAT scores, high school GPA and family background characteristics brought about by the changes in the admissions process over time. As the table suggests, there is almost no change in expected first-year college GPA. The stability of

¹⁸ To obtain these numbers from Table 3, note that $\$3,500 = 0.7 \times 50k$, and $\$52,500 = 1.05 \times 50k$.

first-year college GPA is driven by the fact the deleterious effect of the fall in the SAT scores of predicted admits is counterbalanced by the increase in high school GPA. We also conduct a similar analysis examining the likelihood that expected admits will finish a bachelor's degree, and again find that the changes in the admissions rules have very little effect on this over the time period we examine.¹⁹

Table 4 shows a similar set of results for non-URMs. As the table reveals, the changes in the characteristics of likely non-URM admits are very similar to the changes in the characteristics of likely URM admits. Thus, the patterns revealed in Table 3 are not specific to one racial group, but rather reflect broader changes in the characteristics of predicted admits.

To the extent that our estimates of the changes in the admissions rule at each campus do not reflect the true changes in the admissions rule, it is also interesting to examine what happened to the academic ability of actual admits. Our best measure of academic ability is a student's index score. A student's index score is a weighted average of a student's SAT math scores, SAT verbal scores and high school GPA, where the weights were determined by regressing students' first-year college GPA on these three variables. The index score was created by the UC and is the only continuous measure of student quality in our data. Given the increase in the overall selectivity of UC schools over this time period, you would expect average index scores to increase over time. Indeed, as Figure 3 reveals, actual student quality was increasing over this time period. In addition, to the extent that schools relied more heavily on family background characteristics in determining admissions after Prop 209, you might also expect the variance of students' index scores to also increase over time. There is, however, little evidence of this in Figure 3. Indeed, in Table A.10, we see that the log of the ratio of the 90th and 10th percentiles of the index distribution is stable over this time period. Thus, consistent with our findings in Table 3, we do not find strong evidence that students' overall academic ability (as measured by the combination of SAT scores and high school GPA) was negatively affected by the

¹⁹ Our data do not contain information on whether the students in the 2004-2006 cohort have completed their Bachelor's degree. Thus, these estimates are based on the sample of enrollees from 1995-2003.

introduction of color-blind affirmative action, though we again emphasize that this stability masks a compositional change brought about by the decreasing importance of SAT scores and the increased importance of high school GPA and family background characteristics in determining admissions.

6 Summary

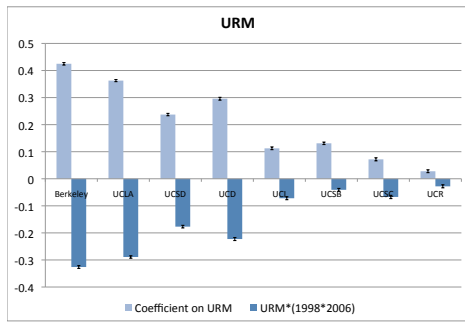
Preventing universities from using race as an explicit criterion in admissions does not prevent universities from valuing diversity, and a natural response to bans on affirmative action is the adoption of race-neutral policies that increase diversity by increasing the admissions advantage given to students who possess characteristics that are correlated with being from an underrepresented group. A natural question is the extent to which these policies can restore racial diversity and how the changes to the admissions process will affect the quality of admitted students. Indeed, a number of scholars have pointed out that since bans on affirmative action give schools an incentive to place a greater weight on non-academic factors in determining admissions (such as being from a disadvantaged background), they could lower the quality of students who are admitted, regardless of race.

In this paper, we provide evidence that UC schools responded to California's ban on affirmative action by decreasing the weight placed on SAT scores and increasing the weight given to high school GPA and family background characteristics in determining admissions. In addition, we find that the changes in the weights given to student characteristics substantially increased the fraction of minority students predicted to be admitted. For example, although the admission rate of URM students remained well-below its pre-Prop 209 level, our estimates suggest that at Berkeley as much as 40 percent of admissions advantage given to URM students under race-based affirmative action was restored through race-neutral changes to the admissions process. Put differently, the observed fall in URM students' relative chances of admission after Prop 209 would have been nearly twice as large had Berkeley not changed its admissions process to implicitly favor URM students. In addition, these changes to the admissions process had a meaningful effect on the composition of admitted students. The new rules led to a

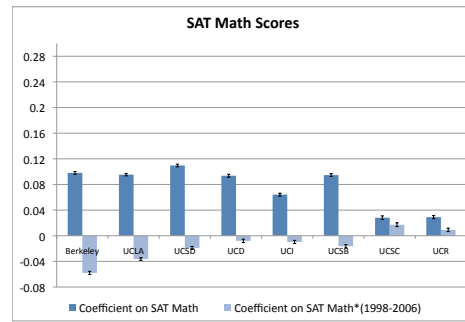
modest increase in the average SAT scores of admitted students, and a modest fall in their high school GPA. In addition, admitted students were more likely to be from relatively disadvantaged families. Nonetheless, we find almost no change in the predicted first-year college GPA of predicted admits. Thus, while the characteristics of admitted students changed, it is not clear that overall student quality declined.

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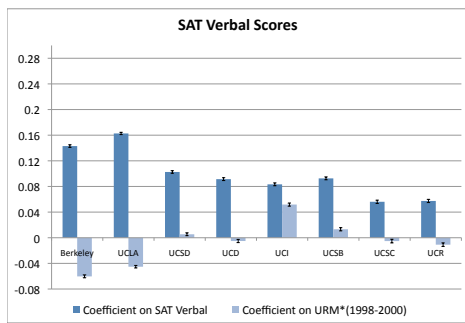
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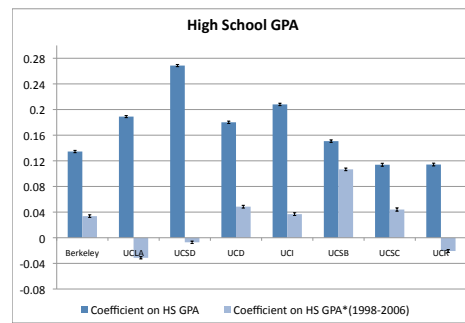
(a)



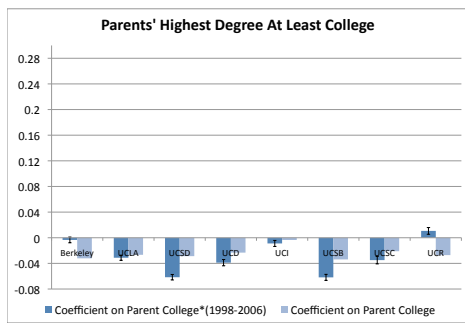
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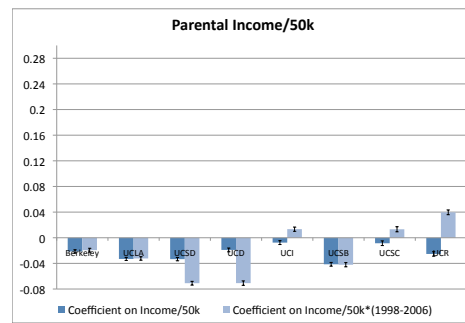
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(d)

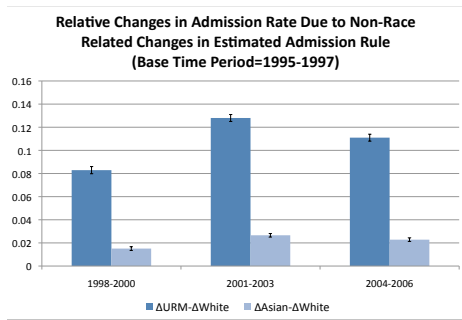


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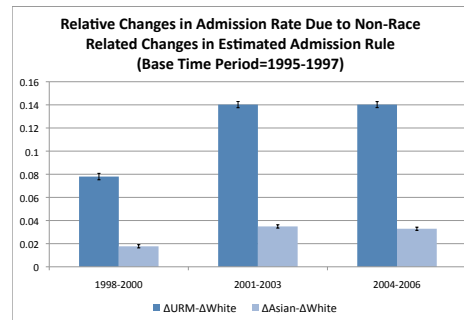


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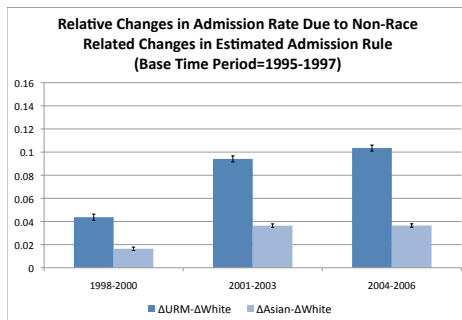
Figure 1: The height of each bar shows the indicated coefficient estimate from a linear regression of an indicator for whether an applicant to a given campus was admitted to that campus on an indicator for URM, SAT math scores, SAT verbal scores, high school GPA, parental income, parental education and their interaction with an indicator for the post Prop 209 time period (1998-2006). Standard errors are indicated by the standard error bars.



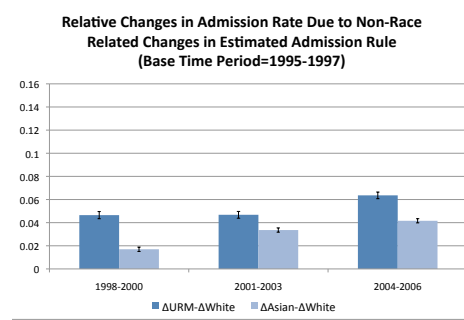
(a) Berkeley



(b) UCLA



(c) UCSD



(d) UCD

Figure 2: The height of each bar shows the change in the predicted probability of admission for each time period (relative to 1995-1997) for URM relative to whites and for Asians relative to whites due to the change in the importance of SAT math scores, SAT verbal scores, high school GPA, parental income and parental education in predicting admission. Standard errors indicated by standard error bars.

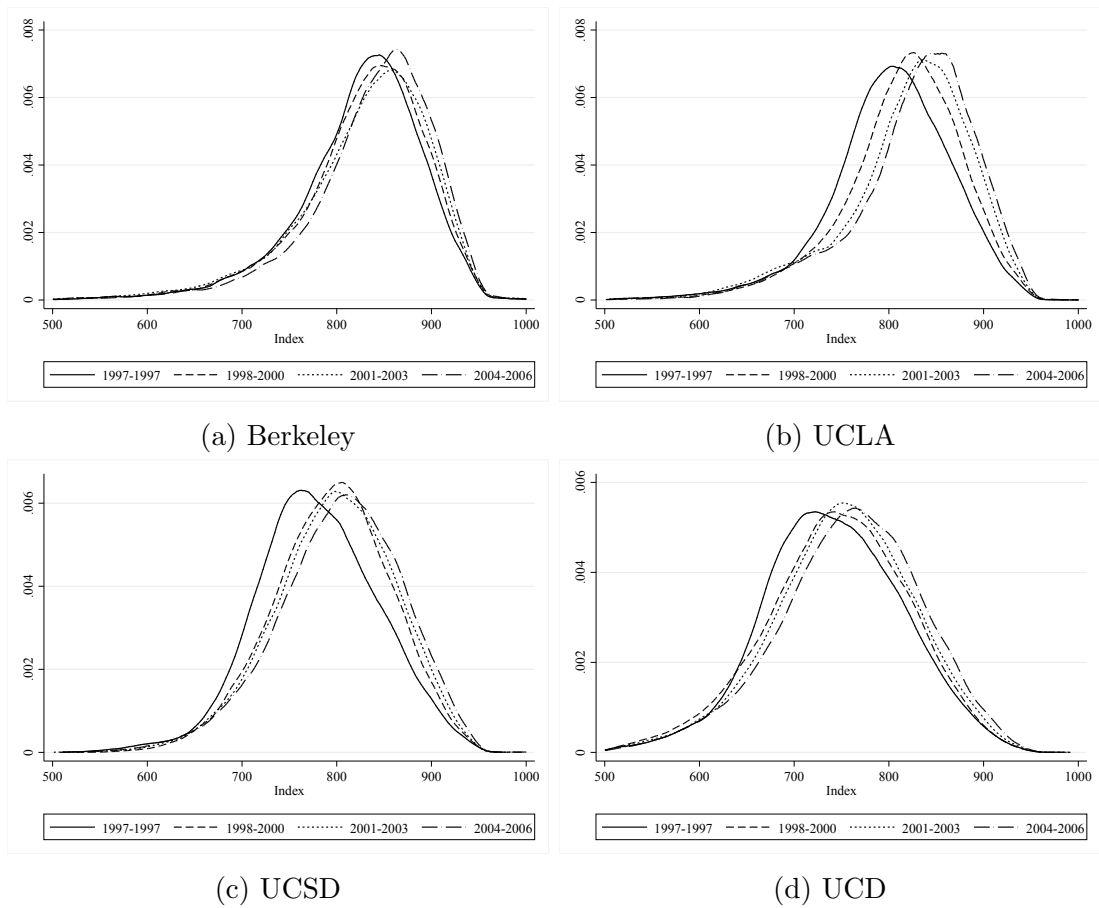


Figure 3: Shows the true distribution of index scores at different campuses for non-URMs admitted during different time periods.

Table 1: Proposition 209 Timeline

| Date | Event |
|------------------|---|
| Spring 1995 | 1996 graduation cohort begins taking SAT |
| July 1995 | Regents of UC pass SP-1 |
| Fall 1995 | 1996 graduation cohort finishes taking SAT |
| Jan - March 1996 | 1996 NAEP sampled |
| July 1996 | First mention of Prop 209 in media |
| November 1996 | Prop 209 passed by voters |
| Spring-Fall 1997 | 1998 cohort takes SAT |
| November 1997 | Supreme Court declines to review case, Prop 209 becomes law |
| Fall 1998 | First affected cohort (1998) enrolls |

Notes: See text for description.



Table 2: UCOP Summary Statistics

| | Non-URM | | | | URM | | | |
|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | '95-'97 | '98-'00 | '01-'03 | '04-'06 | '95-'97 | '98-'00 | '01-'03 | '04-'06 |
| SAT Math | 614 (.86) | 617 (.86) | 620 (.86) | 619 (.87) | 528 (.93) | 534 (.93) | 532 (.93) | 528 (.92) |
| SAT Verbal | 580 (.95) | 583 (.94) | 582 (.94) | 584 (.94) | 525 (.93) | 527 (.93) | 519 (.93) | 519 (.92) |
| High School GPA | 3.7 (.5) | 3.7 (.49) | 3.7 (.49) | 3.7 (.48) | 3.4 (.48) | 3.5 (.49) | 3.5 (.49) | 3.5 (.48) |
| Parental Income/50,000 | 1.3 (.66) | 1.4 (.66) | 1.5 (.66) | 1.5 (.68) | .91 (.61) | .99 (.63) | 1 (.65) | 1 (.65) |
| Parent At Least College | .73 (.44) | .72 (.45) | .72 (.45) | .69 (.46) | .37 (.48) | .36 (.48) | .34 (.47) | .31 (.46) |
| Observations | 110,072 | 121,598 | 131,539 | 124,880 | 26,694 | 27,707 | 35,274 | 41,457 |
| Admitted to Berkeley | 0.32 | 0.28 | 0.24 | 0.25 | 0.52 | 0.25 | 0.24 | 0.20 |
| Admitted to UCLA | 0.38 | 0.32 | 0.26 | 0.27 | 0.47 | 0.25 | 0.21 | 0.18 |
| Admitted to UCSD | 0.59 | 0.44 | 0.43 | 0.45 | 0.58 | 0.32 | 0.34 | 0.36 |
| Admitted to UCD | 0.72 | 0.67 | 0.64 | 0.63 | 0.85 | 0.62 | 0.58 | 0.58 |
| Admitted to UCI | 0.73 | 0.63 | 0.59 | 0.62 | 0.68 | 0.53 | 0.46 | 0.44 |
| Admitted to UCSB | 0.78 | 0.54 | 0.51 | 0.54 | 0.78 | 0.52 | 0.49 | 0.52 |
| Admitted to UCSC | 0.84 | 0.82 | 0.84 | 0.77 | 0.84 | 0.76 | 0.75 | 0.69 |
| Admitted to UCR | 0.85 | 0.88 | 0.91 | 0.89 | 0.81 | 0.82 | 0.83 | 0.82 |

Notes: Includes all students who applied to any UC school from 1995-2006 with complete data on SAT scores, high school GPA, parental income and parental education. Non-URM includes White, Asian and other/unknown. URM includes blacks, Hispanics, and Native Americans. Standard deviations in parentheses.

Table 3: Changes in the Characteristics of Predicted URM Admits

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|-----------------|--------------------|
| SAT Math | | | | | | |
| Change | -20.4*** (1.4) | -9.2*** (1.3) | -9.2*** (1.5) | -3.1** (1.5) | -1.6 (1.6) | -8.0*** (1.3) |
| Average | 607.7 (71.4) | 586.5 (75.1) | 586.6 (77.7) | 549.0 (85.7) | 544.8 (82.3) | 533.5 (81.3) |
| SAT Verbal | | | | | | |
| Change | -26.0*** (1.4) | -11.1*** (1.3) | -8.3*** (1.6) | -3.2** (1.5) | 0.8 (1.5) | -6.8*** (1.3) |
| Average | 605.4 (73.2) | 582.7 (76.3) | 578.7 (82.7) | 541.2 (87.2) | 537.8 (80.3) | 531.7 (82.1) |
| HS GPA | | | | | | |
| Change | 0.11*** (0.01) | 0.05*** (0.01) | 0.02** (0.01) | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) |
| Average | 3.83 (0.41) | 3.80 (0.40) | 3.76 (0.41) | 3.52 (0.48) | 3.56 (0.46) | 3.41 (0.46) |
| Parent College | | | | | | |
| Change | -0.06*** (0.01) | -0.06*** (0.01) | -0.06*** (0.01) | -0.04*** (0.01) | 0.00 (0.01) | -0.07*** (0.01) |
| Average | 0.50 (0.50) | 0.43 (0.50) | 0.49 (0.50) | 0.43 (0.49) | 0.36 (0.48) | 0.40 (0.49) |
| Income/50k | | | | | | |
| Change | -0.07*** (0.01) | -0.06*** (0.01) | -0.09*** (0.01) | -0.06*** (0.01) | 0.02 (0.01) | -0.10*** (0.01) |
| Average | 1.05 (0.64) | 0.99 (0.63) | 1.06 (0.64) | 0.98 (0.63) | 0.91 (0.62) | 0.98 (0.63) |
| First-Year GPA [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.01* (0.00) | -0.01*** (0.00) | -0.01* (0.01) | -0.00 (0.01) | -0.02*** (0.00) |
| Average | 2.98 (0.24) | 2.87 (0.24) | 2.81 (0.25) | 2.60 (0.33) | 2.73 (0.29) | 2.68 (0.28) |
| Bachelor [†] | | | | | | |
| Change | 0.02*** (0.00) | 0.00*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) |
| Average | 0.84 (0.08) | 0.84 (0.07) | 0.82 (0.07) | 0.75 (0.09) | 0.76 (0.07) | 0.72 (0.08) |

Notes: “Change” shows the change in the characteristics of URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 1995-1997 cohort, with the admission rate fixed at the 1995-1997 non-URM admission rate.

[†] Predicted, see text for details.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 4: Changes in the Characteristics of Predicted Non-URM Admits

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|-----------------|--------------------|
| SAT Math | | | | | | |
| Change | -13.9*** (0.5) | -5.3*** (0.5) | -4.3*** (0.5) | -3.2*** (0.6) | -1.2* (0.6) | -3.8*** (0.6) |
| Average | 695.3 (39.2) | 677.5 (50.4) | 656.0 (60.9) | 633.2 (70.1) | 624.3 (75.2) | 603.0 (72.5) |
| SAT Verbal | | | | | | |
| Change | -26.0*** (0.6) | -8.5*** (0.6) | -4.2*** (0.6) | -4.4*** (0.7) | 0.6 (0.7) | -1.6*** (0.6) |
| Average | 678.7 (47.3) | 649.1 (60.8) | 618.7 (76.7) | 593.5 (84.3) | 571.3 (85.7) | 571.6 (80.2) |
| HS GPA | | | | | | |
| Change | 0.09*** (0.00) | 0.02*** (0.00) | 0.00* (0.00) | 0.01* (0.00) | 0.00 (0.00) | 0.00 (0.00) |
| Average | 4.14 (0.20) | 4.08 (0.24) | 3.98 (0.27) | 3.79 (0.43) | 3.69 (0.45) | 3.53 (0.48) |
| Parent College | | | | | | |
| Change | -0.04*** (0.00) | -0.06*** (0.00) | -0.04*** (0.00) | -0.03*** (0.00) | -0.00 (0.00) | -0.03*** (0.00) |
| Average | 0.83 (0.38) | 0.79 (0.41) | 0.79 (0.41) | 0.74 (0.44) | 0.70 (0.46) | 0.76 (0.42) |
| Income/50k | | | | | | |
| Change | -0.06*** (0.01) | -0.09*** (0.01) | -0.06*** (0.01) | -0.06*** (0.01) | 0.01* (0.01) | -0.04*** (0.00) |
| Average | 1.40 (0.64) | 1.35 (0.66) | 1.38 (0.65) | 1.35 (0.65) | 1.21 (0.67) | 1.40 (0.64) |
| First-Year GPA [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) |
| Average | 3.23 (0.16) | 3.19 (0.17) | 3.04 (0.19) | 2.89 (0.26) | 2.93 (0.29) | 2.88 (0.28) |
| Bachelor [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.00*** (0.00) | -0.00*** (0.00) | -0.00*** (0.00) | -0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.90 (0.03) | 0.91 (0.03) | 0.89 (0.04) | 0.83 (0.06) | 0.81 (0.06) | 0.78 (0.07) |

Notes: “Change” shows the change in the characteristics of URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 1995-1997 cohort, with the admission rate fixed at the 1995-1997 URM admission rate.

[†] Predicted, see text for details.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

A Appendix

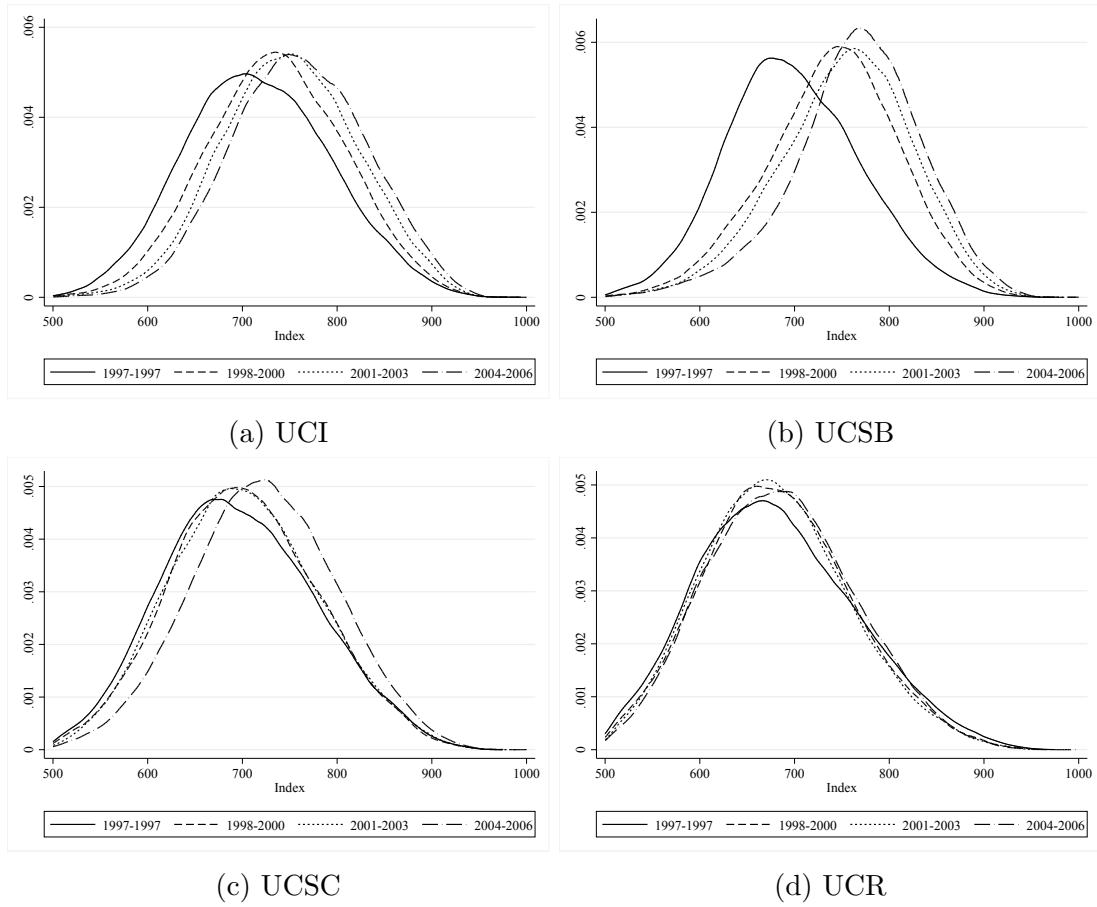


Figure A.1: Shows the true distribution of index scores at different campuses for non-URMs admitted during different time periods.

Table A.1: Predictors of URM

| | URM |
|----------------|----------------------|
| SAT Math | -0.124*** (0.001) |
| SAT Verbal | 0.010*** (0.001) |
| HS GPA | -0.004*** (0.001) |
| Parent College | -0.159*** (0.001) |
| Income/50,000 | -0.044*** (0.001) |

Notes: Standard errors in parentheses. Shows the coefficients from a linear regression of an indicator for whether an applicant to the UC was a URM on academic achievement and family background characteristics. The data span the years 1995-2006. *** significant at the 99 percent level.



Table A.2: Predictors of Admission to Each UC Campuses

| | Berkeley (1) | UCLA (2) | UCSD (3) | UCD (4) | UCI (5) | UCSB (6) | UCSC (7) | UCR (8) |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| URM | 0.42*** (0.00) | 0.36*** (0.00) | 0.24*** (0.00) | 0.30*** (0.01) | 0.11*** (0.01) | 0.13*** (0.00) | 0.07*** (0.01) | 0.03*** (0.01) |
| URM*(1998-2000) | -0.31*** (0.01) | -0.26*** (0.01) | -0.18*** (0.01) | -0.23*** (0.01) | -0.05*** (0.01) | -0.02*** (0.01) | -0.06*** (0.01) | -0.03*** (0.01) |
| URM*(2001-2003) | -0.31*** (0.01) | -0.28*** (0.01) | -0.18*** (0.01) | -0.21*** (0.01) | -0.06*** (0.01) | -0.04*** (0.01) | -0.07*** (0.01) | -0.03*** (0.01) |
| URM*(2003-2006) | -0.35*** (0.01) | -0.31*** (0.01) | -0.18*** (0.01) | -0.23*** (0.01) | -0.08*** (0.01) | -0.05*** (0.01) | -0.06*** (0.01) | -0.02*** (0.01) |
| SAT Math | 0.10*** (0.00) | 0.10*** (0.00) | 0.11*** (0.00) | 0.09*** (0.00) | 0.06*** (0.00) | 0.09*** (0.00) | 0.03*** (0.00) | 0.03*** (0.00) |
| SAT Math*(1998-2000) | -0.05*** (0.00) | -0.03*** (0.00) | -0.01*** (0.00) | -0.03*** (0.00) | -0.01*** (0.00) | 0.01*** (0.00) | 0.00 (0.00) | -0.00 (0.00) |
| SAT Math*(2001-2003) | -0.07*** (0.00) | -0.04*** (0.00) | -0.02*** (0.00) | 0.00 (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) |
| SAT Math*(2004-2006) | -0.06*** (0.00) | -0.04*** (0.00) | -0.03*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) | -0.04*** (0.00) | 0.04*** (0.00) | 0.01*** (0.00) |
| SAT Verbal | 0.14*** (0.00) | 0.16*** (0.00) | 0.10*** (0.00) | 0.09*** (0.00) | 0.08*** (0.00) | 0.09*** (0.00) | 0.06*** (0.00) | 0.06*** (0.00) |
| SAT Verbal*(1998-2000) | -0.04*** (0.00) | -0.03*** (0.00) | 0.01*** (0.00) | -0.00 (0.00) | 0.04*** (0.00) | 0.01*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) |
| SAT Verbal*(2001-2003) | -0.08*** (0.00) | -0.06*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) | 0.06*** (0.00) | 0.00 (0.00) | -0.02*** (0.00) | -0.01*** (0.00) |
| SAT Verbal*(2006-2006) | -0.06*** (0.00) | -0.05*** (0.00) | 0.00* (0.00) | -0.01*** (0.00) | 0.06*** (0.00) | 0.03*** (0.00) | 0.01*** (0.00) | -0.01*** (0.00) |
| HS GPA | 0.13*** (0.00) | 0.19*** (0.00) | 0.27*** (0.00) | 0.18*** (0.00) | 0.21*** (0.00) | 0.15*** (0.00) | 0.11*** (0.00) | 0.11*** (0.00) |
| HS GPA*(1998-2000) | 0.02*** (0.00) | -0.01*** (0.00) | -0.02*** (0.00) | 0.04*** (0.00) | 0.04*** (0.00) | 0.08*** (0.00) | 0.04*** (0.00) | 0.00 (0.00) |
| HS GPA*(2001-2003) | 0.04*** (0.00) | -0.04*** (0.00) | -0.00** (0.00) | 0.05*** (0.00) | 0.03*** (0.00) | 0.11*** (0.00) | 0.03*** (0.00) | -0.03*** (0.00) |
| HS GPA*(2004-2006) | 0.04*** (0.00) | -0.04*** (0.00) | -0.00 (0.00) | 0.05*** (0.00) | 0.04*** (0.00) | 0.13*** (0.00) | 0.07*** (0.00) | -0.02*** (0.00) |
| Parent College | -0.03*** (0.00) | -0.03*** (0.00) | -0.03*** (0.00) | -0.02*** (0.00) | -0.00 (0.00) | -0.03*** (0.00) | -0.02*** (0.01) | -0.03*** (0.00) |
| Parent College*(1998-2000) | -0.00 (0.01) | -0.02*** (0.00) | -0.03*** (0.01) | -0.03*** (0.01) | -0.00 (0.01) | -0.02*** (0.01) | -0.01 (0.01) | 0.01* (0.01) |
| Parent College*(2001-2003) | -0.01 (0.01) | -0.03*** (0.00) | -0.07*** (0.00) | -0.04*** (0.01) | -0.02*** (0.01) | -0.05*** (0.01) | -0.00 (0.01) | 0.01** (0.01) |
| Parent College*(2004-2006) | -0.00 (0.01) | -0.05*** (0.00) | -0.08*** (0.00) | -0.05*** (0.01) | -0.01*** (0.01) | -0.11*** (0.01) | -0.10*** (0.01) | 0.01 (0.01) |
| Income/50,000 | -0.02*** (0.00) | -0.03*** (0.00) | -0.03*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | -0.04*** (0.00) | -0.01*** (0.00) | -0.03*** (0.00) |
| Income/10,000*(1998-2000) | -0.01*** (0.00) | -0.02*** (0.00) | -0.05*** (0.00) | -0.04*** (0.00) | 0.01*** (0.00) | -0.03*** (0.00) | 0.01 (0.00) | 0.03*** (0.00) |
| Income/50,000*(2001-2003) | -0.02*** (0.00) | -0.04*** (0.00) | -0.08*** (0.00) | -0.07*** (0.00) | 0.01*** (0.00) | -0.05*** (0.00) | 0.03*** (0.00) | 0.04*** (0.00) |
| Income/10,000*(2004-2006) | -0.02*** (0.00) | -0.03*** (0.00) | -0.08*** (0.00) | -0.09*** (0.00) | 0.03*** (0.00) | -0.04*** (0.00) | 0.00 (0.00) | 0.04*** (0.00) |
| 1998-2000 | -0.01 (0.01) | -0.03*** (0.00) | -0.06*** (0.01) | 0.03*** (0.01) | -0.11*** (0.01) | -0.20*** (0.01) | -0.02*** (0.01) | -0.02*** (0.01) |
| 2001-2003 | -0.01** (0.01) | -0.04*** (0.00) | -0.00 (0.01) | 0.05*** (0.01) | -0.15*** (0.01) | -0.21*** (0.01) | -0.05*** (0.01) | -0.02*** (0.01) |
| 2004-2006 | -0.02*** (0.01) | -0.05*** (0.00) | 0.01** (0.01) | 0.06*** (0.01) | -0.20*** (0.01) | -0.18*** (0.01) | -0.01** (0.01) | -0.04*** (0.01) |

Notes: Each column shows the coefficients from a linear regression of an indicator for whether an applicant to a given campus was admitted to that campus on academic achievement and family background characteristics interacted with indicators for different time periods. The omitted time period is 1995-1997, the period prior to the implementation of Prop 209.

Table A.3: Change in Predicted Probability of Admission Due to Estimated Change in Weight on SAT Scores, High School GPA, Parental Education and Parental Income

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB | UCSC | UCR |
|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1998-2000 | | | | | | | | |
| URM | 0.03*** (0.00) | 0.01*** (0.00) | -0.06*** (0.00) | -0.05*** (0.01) | -0.02*** (0.00) | -0.08*** (0.00) | -0.01** (0.01) | 0.04*** (0.01) |
| Asian | -0.04*** (0.00) | -0.05*** (0.00) | -0.08*** (0.00) | -0.07*** (0.01) | 0.00 (0.00) | -0.07*** (0.01) | -0.01 (0.01) | 0.04*** (0.01) |
| White | -0.06*** (0.01) | -0.07*** (0.01) | -0.10*** (0.01) | -0.09*** (0.01) | 0.02*** (0.01) | -0.07*** (0.01) | -0.00 (0.01) | 0.05*** (0.01) |
| 2001-2003 | | | | | | | | |
| URM | 0.04*** (0.00) | 0.01*** (0.00) | -0.09*** (0.00) | -0.10*** (0.00) | -0.04*** (0.00) | -0.09*** (0.00) | 0.02*** (0.01) | 0.05*** (0.01) |
| Asian | -0.06*** (0.00) | -0.09*** (0.00) | -0.15*** (0.00) | -0.12*** (0.01) | -0.02*** (0.00) | -0.12*** (0.01) | 0.03*** (0.01) | 0.07*** (0.01) |
| White | -0.09*** (0.01) | -0.13*** (0.00) | -0.19*** (0.01) | -0.15*** (0.01) | 0.00 (0.01) | -0.12*** (0.01) | 0.04*** (0.01) | 0.09*** (0.01) |
| 2004-2006 | | | | | | | | |
| URM | 0.03*** (0.00) | 0.01*** (0.00) | -0.10*** (0.00) | -0.12*** (0.00) | -0.02*** (0.00) | -0.11*** (0.00) | -0.10*** (0.01) | 0.05*** (0.01) |
| Asian | -0.06*** (0.00) | -0.10*** (0.00) | -0.17*** (0.00) | -0.14*** (0.00) | 0.01* (0.00) | -0.17*** (0.00) | -0.09*** (0.01) | 0.07*** (0.01) |
| White | -0.08*** (0.01) | -0.13*** (0.00) | -0.21*** (0.01) | -0.18*** (0.01) | 0.04*** (0.01) | -0.16*** (0.01) | -0.09*** (0.01) | 0.08*** (0.01) |
| Relative Changes | | | | | | | | |
| URM-White (1998-2000) | 0.08*** (0.00) | 0.08*** (0.00) | 0.04*** (0.00) | 0.05*** (0.00) | -0.04*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| URM-White (2001-2003) | 0.13*** (0.00) | 0.14*** (0.00) | 0.09*** (0.00) | 0.05*** (0.00) | -0.04*** (0.00) | 0.02*** (0.00) | -0.02*** (0.00) | -0.03*** (0.00) |
| URM-White (2004-2006) | 0.11*** (0.00) | 0.14*** (0.00) | 0.10*** (0.00) | 0.06*** (0.00) | -0.06*** (0.00) | 0.05*** (0.00) | -0.01*** (0.00) | -0.03*** (0.00) |
| Asian-White (1998-2000) | 0.02*** (0.00) | 0.02*** (0.00) | 0.02*** (0.00) | 0.02*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| Asian-White (2001-2003) | 0.03*** (0.00) | 0.03*** (0.00) | 0.04*** (0.00) | 0.03*** (0.00) | -0.02*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) | -0.01*** (0.00) |
| Asian-White (2004-2006) | 0.02*** (0.00) | 0.03*** (0.00) | 0.04*** (0.00) | 0.04*** (0.00) | -0.03*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.01*** (0.00) |

Notes: Rows 1-3 show the change in predicted probability of admission for each racial group due only to the changes in the estimated weights on SAT scores, high school GPA, parental education and parental income (see Table A.2). Rows 4-6 show the relative changes for different racial groups. Standard errors in parentheses.

Table A.4: Changes in the Characteristics of Predicted URM Admits, Simulated for 1998-2000 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| SAT Math | | | | | | |
| Change | -25.8*** (1.6) | -11.3*** (1.4) | -13.1*** (1.5) | -5.0*** (1.6) | 6.7*** (1.6) | -8.7*** (1.4) |
| Average | 648.8 (57.5) | 628.6 (63.0) | 617.3 (66.2) | 571.4 (82.6) | 553.1 (87.7) | 565.9 (82.6) |
| SAT Verbal | | | | | | |
| Change | -30.1*** (1.7) | -13.3*** (1.5) | -12.0*** (1.7) | -5.2*** (1.6) | 9.0*** (1.6) | -5.9*** (1.5) |
| Average | 644.8 (59.1) | 623.6 (63.2) | 604.5 (72.8) | 560.2 (85.2) | 539.7 (88.3) | 557.7 (86.0) |
| HS GPA | | | | | | |
| Change | 0.12*** (0.01) | 0.04*** (0.01) | 0.01** (0.01) | 0.01 (0.01) | -0.04*** (0.01) | 0.01* (0.01) |
| Average | 4.06 (0.27) | 4.05 (0.26) | 4.02 (0.26) | 3.72 (0.43) | 3.78 (0.37) | 3.73 (0.40) |
| Parent College | | | | | | |
| Change | -0.10*** (0.01) | -0.11*** (0.01) | -0.12*** (0.01) | -0.04*** (0.01) | 0.02*** (0.01) | -0.06*** (0.01) |
| Average | 0.55 (0.50) | 0.48 (0.50) | 0.49 (0.50) | 0.43 (0.50) | 0.33 (0.47) | 0.41 (0.49) |
| Income/50k | | | | | | |
| Change | -0.13*** (0.02) | -0.13*** (0.01) | -0.17*** (0.01) | -0.07*** (0.01) | 0.06*** (0.01) | -0.06*** (0.01) |
| Average | 1.19 (0.65) | 1.14 (0.65) | 1.17 (0.66) | 1.09 (0.65) | 0.96 (0.63) | 1.07 (0.67) |
| First-Year GPA [†] | | | | | | |
| Change | -0.01*** (0.00) | -0.02*** (0.00) | -0.04*** (0.00) | -0.01** (0.01) | 0.01 (0.00) | -0.01*** (0.00) |
| Average | 3.12 (0.17) | 3.07 (0.18) | 2.97 (0.20) | 2.73 (0.27) | 2.76 (0.25) | 2.89 (0.24) |
| Bachelor [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.00*** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.90 (0.05) | 0.89 (0.04) | 0.86 (0.04) | 0.78 (0.07) | 0.81 (0.05) | 0.80 (0.06) |

Notes: “Change” shows the change in the characteristics of URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 1998-2000 cohort, with the admission rate fixed at the 1998-2000 URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.5: Changes in the Characteristics of Predicted Non-URM Admits, Simulated for 1998-2000 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
| SAT Math | | | | | | |
| Change | -15.2*** (0.4) | -5.6*** (0.4) | -5.0*** (0.4) | -2.6*** (0.5) | 0.5 (0.6) | -5.6*** (0.5) |
| Average | 700.6 (35.5) | 684.5 (47.1) | 665.2 (57.5) | 632.3 (71.3) | 630.9 (78.0) | 626.0 (70.7) |
| SAT Verbal | | | | | | |
| Change | -24.3*** (0.5) | -8.9*** (0.5) | -4.8*** (0.6) | -4.3*** (0.6) | 2.1*** (0.7) | -4.3*** (0.6) |
| Average | 682.6 (45.1) | 658.1 (57.4) | 628.3 (72.1) | 591.0 (84.0) | 577.5 (87.3) | 595.9 (79.4) |
| HS GPA | | | | | | |
| Change | 0.10*** (0.00) | 0.02*** (0.00) | 0.00 (0.00) | 0.01* (0.00) | -0.01** (0.00) | 0.01** (0.00) |
| Average | 4.14 (0.20) | 4.11 (0.22) | 4.03 (0.25) | 3.77 (0.43) | 3.75 (0.42) | 3.77 (0.40) |
| Parent College | | | | | | |
| Change | -0.04*** (0.00) | -0.07*** (0.00) | -0.05*** (0.00) | -0.03*** (0.00) | 0.01 (0.00) | -0.04*** (0.00) |
| Average | 0.82 (0.38) | 0.79 (0.41) | 0.77 (0.42) | 0.72 (0.45) | 0.69 (0.46) | 0.76 (0.43) |
| Income/50k | | | | | | |
| Change | -0.08*** (0.01) | -0.10*** (0.01) | -0.08*** (0.00) | -0.05*** (0.00) | 0.02*** (0.01) | -0.05*** (0.00) |
| Average | 1.49 (0.64) | 1.45 (0.66) | 1.44 (0.65) | 1.42 (0.66) | 1.27 (0.68) | 1.47 (0.64) |
| Pred. First-Year GPA [†] | | | | | | |
| Change | -0.00* (0.00) | -0.02*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | 0.00 (0.00) | -0.01*** (0.00) |
| Average | 3.25 (0.15) | 3.21 (0.17) | 3.08 (0.19) | 2.87 (0.27) | 2.89 (0.26) | 3.03 (0.24) |
| Pred. Bachelor [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.00*** (0.00) | -0.00*** (0.00) | -0.00*** (0.00) | -0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.93 (0.03) | 0.92 (0.03) | 0.89 (0.03) | 0.82 (0.06) | 0.83 (0.04) | 0.83 (0.05) |

Notes: “Change” shows the change in the characteristics of non-URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 1998-2000 cohort, with the admission rate fixed at the 1998-2000 non-URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.6: Changes in the Characteristics of Predicted URM Admits, Simulated for 2001-2003 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| SAT Math | | | | | | |
| Change | -24.8*** (1.4) | -12.4*** (1.3) | -13.5*** (1.3) | -4.6*** (1.3) | 4.8*** (1.3) | -12.6*** (1.2) |
| Average | 646.6 (57.8) | 635.9 (60.9) | 614.3 (66.9) | 571.2 (82.7) | 563.6 (82.7) | 572.7 (80.4) |
| SAT Verbal | | | | | | |
| Change | -32.2*** (1.6) | -14.4*** (1.3) | -11.7*** (1.4) | -5.7*** (1.4) | 8.2*** (1.3) | -10.1*** (1.3) |
| Average | 637.9 (59.7) | 625.5 (62.6) | 594.4 (74.1) | 553.7 (86.0) | 543.4 (86.6) | 556.3 (85.8) |
| HS GPA | | | | | | |
| Change | 0.12*** (0.00) | 0.05*** (0.00) | 0.01** (0.00) | 0.01 (0.01) | -0.03*** (0.01) | 0.03*** (0.01) |
| Average | 4.06 (0.27) | 4.07 (0.25) | 4.00 (0.26) | 3.72 (0.43) | 3.83 (0.34) | 3.78 (0.38) |
| Parent College | | | | | | |
| Change | -0.11*** (0.01) | -0.12*** (0.01) | -0.11*** (0.01) | -0.05*** (0.01) | 0.02*** (0.01) | -0.06*** (0.01) |
| Average | 0.54 (0.50) | 0.48 (0.50) | 0.46 (0.50) | 0.41 (0.49) | 0.32 (0.47) | 0.38 (0.49) |
| Income/50k | | | | | | |
| Change | -0.14*** (0.01) | -0.15*** (0.01) | -0.17*** (0.01) | -0.08*** (0.01) | 0.05*** (0.01) | -0.08*** (0.01) |
| Average | 1.27 (0.67) | 1.23 (0.67) | 1.20 (0.67) | 1.14 (0.67) | 1.04 (0.65) | 1.12 (0.67) |
| First-Year GPA [†] | | | | | | |
| Change | -0.03*** (0.00) | -0.02*** (0.00) | -0.04*** (0.00) | -0.01*** (0.00) | 0.01 (0.00) | -0.02*** (0.00) |
| Average | 3.16 (0.17) | 3.16 (0.18) | 2.94 (0.20) | 2.76 (0.28) | 2.82 (0.26) | 2.93 (0.24) |
| Bachelor [†] | | | | | | |
| Change | 0.00 (0.00) | -0.00*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.91 (0.04) | 0.91 (0.03) | 0.85 (0.05) | 0.81 (0.07) | 0.82 (0.05) | 0.82 (0.05) |

Notes: “Change” shows the change in the characteristics of URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 2001-2003 cohort, with the admission rate fixed at the 2001-2003 URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.7: Changes in the Characteristics of Predicted Non-URM Admits, Simulated for 2001-2003 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| SAT Math | | | | | | |
| Change | -10.6*** (0.4) | -6.3*** (0.4) | -5.8*** (0.4) | -2.7*** (0.5) | 1.5*** (0.5) | -5.9*** (0.5) |
| Average | 702.8 (33.3) | 692.0 (42.2) | 669.8 (55.9) | 635.8 (71.4) | 635.8 (76.8) | 636.1 (69.2) |
| SAT Verbal | | | | | | |
| Change | -20.9*** (0.5) | -10.2*** (0.5) | -5.6*** (0.5) | -4.0*** (0.6) | 3.0*** (0.6) | -4.5*** (0.5) |
| Average | 686.1 (42.5) | 668.1 (52.7) | 630.0 (71.5) | 591.6 (83.7) | 585.7 (87.0) | 601.4 (78.1) |
| HS GPA | | | | | | |
| Change | 0.08*** (0.00) | 0.03*** (0.00) | 0.00 (0.00) | 0.01** (0.00) | -0.01*** (0.00) | 0.01*** (0.00) |
| Average | 4.16 (0.19) | 4.14 (0.20) | 4.03 (0.25) | 3.77 (0.43) | 3.79 (0.41) | 3.83 (0.36) |
| Parent College | | | | | | |
| Change | -0.05*** (0.00) | -0.08*** (0.00) | -0.05*** (0.00) | -0.03*** (0.00) | 0.01*** (0.00) | -0.04*** (0.00) |
| Average | 0.84 (0.37) | 0.80 (0.40) | 0.76 (0.43) | 0.73 (0.45) | 0.70 (0.46) | 0.76 (0.42) |
| Income/50k | | | | | | |
| Change | -0.06*** (0.01) | -0.11*** (0.01) | -0.09*** (0.00) | -0.05*** (0.00) | 0.02*** (0.00) | -0.04*** (0.00) |
| Average | 1.57 (0.62) | 1.55 (0.64) | 1.52 (0.65) | 1.52 (0.65) | 1.40 (0.68) | 1.56 (0.63) |
| First-Year GPA [†] | | | | | | |
| Change | -0.02*** (0.00) | -0.02*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | 0.00* (0.00) | -0.01*** (0.00) |
| Average | 3.32 (0.14) | 3.31 (0.15) | 3.09 (0.19) | 2.92 (0.28) | 2.96 (0.28) | 3.10 (0.22) |
| Bachelor [†] | | | | | | |
| Change | 0.00*** (0.00) | -0.00*** (0.00) | -0.01*** (0.00) | -0.00*** (0.00) | 0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.94 (0.02) | 0.94 (0.02) | 0.89 (0.04) | 0.85 (0.06) | 0.85 (0.05) | 0.85 (0.04) |

Notes: “Change” shows the change in the characteristics of non-URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 2001-2003 cohort, with the admission rate fixed at the 2001-2003 non-URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.8: Changes in the Characteristics of Predicted URM Admits, Simulated for 2004-2006 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| SAT Math | | | | | | |
| Change | -30.3*** (1.4) | -14.9*** (1.3) | -11.8*** (1.2) | -8.3*** (1.3) | 1.5 (1.1) | -10.9*** (1.1) |
| Average | 652.3 (55.0) | 641.5 (59.7) | 609.3 (69.5) | 572.2 (80.5) | 570.0 (78.7) | 566.9 (81.7) |
| SAT Verbal | | | | | | |
| Change | -33.5*** (1.4) | -15.3*** (1.3) | -9.4*** (1.2) | -8.6*** (1.3) | 8.0*** (1.1) | -8.7*** (1.1) |
| Average | 645.4 (56.5) | 636.5 (57.4) | 593.8 (73.5) | 557.0 (83.5) | 554.8 (81.4) | 556.4 (84.8) |
| HS GPA | | | | | | |
| Change | 0.13*** (0.00) | 0.05*** (0.00) | 0.01** (0.00) | 0.03*** (0.01) | -0.02*** (0.00) | 0.03*** (0.00) |
| Average | 4.09 (0.24) | 4.11 (0.22) | 4.01 (0.26) | 3.75 (0.40) | 3.91 (0.28) | 3.80 (0.36) |
| Parent College | | | | | | |
| Change | -0.11*** (0.01) | -0.14*** (0.01) | -0.10*** (0.01) | -0.05*** (0.01) | 0.02*** (0.01) | -0.05*** (0.01) |
| Average | 0.53 (0.50) | 0.49 (0.50) | 0.44 (0.50) | 0.39 (0.49) | 0.33 (0.47) | 0.37 (0.48) |
| Income/50k | | | | | | |
| Change | -0.15*** (0.01) | -0.17*** (0.01) | -0.15*** (0.01) | -0.09*** (0.01) | 0.04*** (0.01) | -0.07*** (0.01) |
| Average | 1.31 (0.68) | 1.28 (0.69) | 1.22 (0.68) | 1.15 (0.68) | 1.08 (0.66) | 1.12 (0.68) |
| First-Year GPA [†] | | | | | | |
| Change | -0.04*** (0.00) | -0.03*** (0.00) | -0.03*** (0.00) | -0.01*** (0.00) | 0.01** (0.00) | -0.02*** (0.00) |
| Average | 3.21 (0.17) | 3.20 (0.17) | 2.96 (0.19) | 2.76 (0.29) | 2.88 (0.24) | 2.92 (0.26) |
| Bachelor [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.00** (0.00) | -0.01*** (0.00) | -0.01*** (0.00) | -0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.89 (0.04) | 0.90 (0.03) | 0.86 (0.05) | 0.79 (0.07) | 0.82 (0.05) | 0.77 (0.07) |

Notes: “Change” shows the change in the characteristics of URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 2004-2006 cohort, with the admission rate fixed at the 2004-2006 URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.9: Changes in the Characteristics of Predicted Non-URM Admits, Simulated for 2004-2006 Admissions Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
| SAT Math | | | | | | |
| Change | -15.2*** (0.4) | -6.3*** (0.4) | -5.6*** (0.4) | -1.7*** (0.5) | -0.0 (0.5) | -5.0*** (0.5) |
| Average | 701.3 (35.0) | 690.1 (43.6) | 666.9 (57.5) | 633.1 (75.0) | 636.0 (77.2) | 634.9 (72.1) |
| SAT Verbal | | | | | | |
| Change | -21.6*** (0.5) | -11.1*** (0.5) | -5.4*** (0.5) | -2.8*** (0.6) | 1.3** (0.5) | -3.2*** (0.5) |
| Average | 682.2 (44.9) | 667.6 (52.8) | 627.5 (72.6) | 589.6 (85.2) | 590.1 (85.3) | 601.5 (79.8) |
| HS GPA | | | | | | |
| Change | 0.09*** (0.00) | 0.03*** (0.00) | 0.00 (0.00) | 0.00 (0.00) | -0.00 (0.00) | 0.01** (0.00) |
| Average | 4.15 (0.20) | 4.13 (0.21) | 4.02 (0.25) | 3.75 (0.44) | 3.79 (0.42) | 3.81 (0.39) |
| Parent College | | | | | | |
| Change | -0.05*** (0.00) | -0.07*** (0.00) | -0.06*** (0.00) | -0.02*** (0.00) | 0.00 (0.00) | -0.04*** (0.00) |
| Average | 0.82 (0.39) | 0.79 (0.41) | 0.75 (0.43) | 0.70 (0.46) | 0.69 (0.46) | 0.74 (0.44) |
| Income/50k | | | | | | |
| Change | -0.07*** (0.01) | -0.10*** (0.01) | -0.10*** (0.00) | -0.04*** (0.00) | 0.02*** (0.00) | -0.04*** (0.00) |
| Average | 1.58 (0.64) | 1.54 (0.65) | 1.51 (0.66) | 1.49 (0.67) | 1.42 (0.68) | 1.55 (0.65) |
| First-Year GPA [†] | | | | | | |
| Change | -0.02*** (0.00) | -0.02*** (0.00) | -0.02*** (0.00) | -0.01*** (0.00) | 0.00 (0.00) | -0.01*** (0.00) |
| Average | 3.34 (0.14) | 3.30 (0.15) | 3.10 (0.18) | 2.91 (0.32) | 2.95 (0.27) | 3.10 (0.26) |
| Bachelor [†] | | | | | | |
| Change | 0.01*** (0.00) | -0.00*** (0.00) | -0.01*** (0.00) | -0.00*** (0.00) | 0.00 (0.00) | -0.00*** (0.00) |
| Average | 0.91 (0.03) | 0.92 (0.03) | 0.89 (0.04) | 0.83 (0.07) | 0.82 (0.06) | 0.82 (0.06) |

Notes: “Change” shows the change in the characteristics of non-URMs predicted to be admitted in 2004-2006 relative to 1995-1997 due to the change in the weights given to SAT scores, high school GPA, parental education and parental income in predicting admissions (standard error in parentheses). “Average” shows the average characteristics of non-URMs predicted to be admitted in 1995-1997 (standard deviation in parentheses). Conducted for students in the 2004-2006 cohort, with the admission rate fixed at the 2004-2006 non-URM admission rate.

[†] Predicted, see text for details.

*** p<0.01, ** p<0.05, * p<0.10.

Table A.10: Log of the Ratio of the 90th and 10th Percentile of Students' Index Scores Among Admitted Non-URMs, by Admission Cohort

| | Berkeley | UCLA | UCSD | UCD | UCI | UCSB | UCSC | UCR |
|----------------------------|----------|------|------|------|------|------|------|------|
| Log 90/10 Ratio: 1995-1997 | 0.19 | 0.19 | 0.21 | 0.25 | 0.28 | 0.26 | 0.31 | 0.33 |
| Log 90/10 Ratio: 1998-2000 | 0.20 | 0.20 | 0.20 | 0.26 | 0.26 | 0.25 | 0.29 | 0.30 |
| Log 90/10 Ratio: 2001-2003 | 0.21 | 0.21 | 0.21 | 0.26 | 0.25 | 0.24 | 0.29 | 0.30 |
| Log 90/10 Ratio: 2004-2006 | 0.19 | 0.20 | 0.21 | 0.26 | 0.25 | 0.23 | 0.28 | 0.30 |

Notes: Shows the log of the ratio of the 90th and 10th percentile of students' index score for non-URMs admitted during different time periods.