

UC and the SAT/ACT



RESEARCH FINDINGS

1994 - 2019

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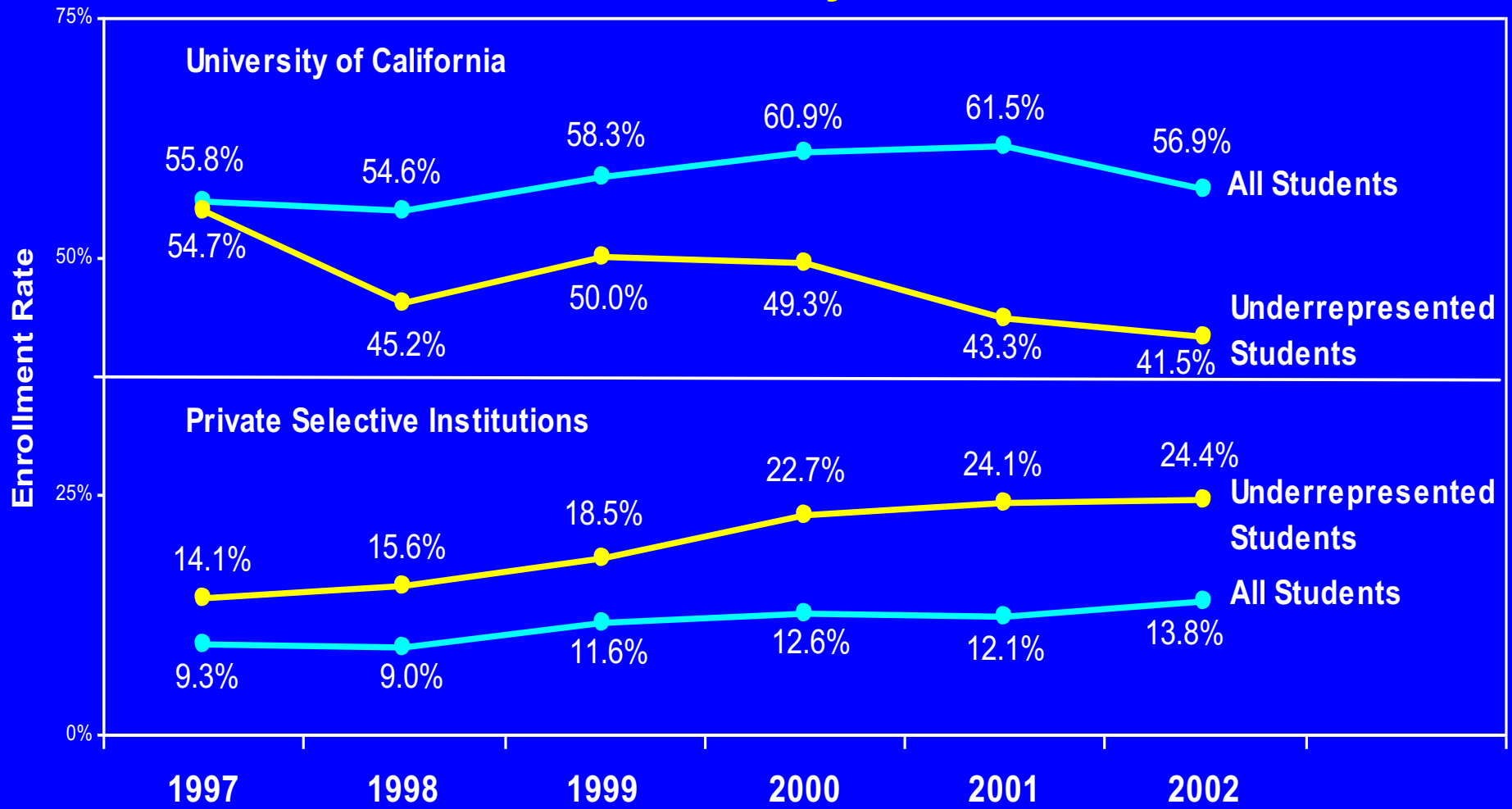
UC Admissions in the Aftermath of Prop 209



Prop 209 and its impact

- 1995: Regents' resolution SP-1 barring use of race
- 1996: Prop 209 passed
- 1998: Prop 209 takes effect
- Underrepresented minority admissions fall by half at top UC campuses; cascade effect

College Destinations of Top Applicants Denied Admission to Berkeley and UCLA, 1997 to 2002



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UC policy responses

- School-centered outreach
- Top 4% Plan/ELC
- Holistic review
- Class-based admissions preferences
- Admissions testing: search for alternatives to the SAT/ACT

Standardized Regression Coefficients for HSGPA, SAT I and SAT II Scores by UC Campus, 1996-1999

Regression equation: $UCGPA = HSGPA + SAT I + SAT II$

	HSGPA	SAT I	SAT II
UC Berkeley	.21	-.02*	.27
UC Davis	.30	.04	.27
UC Irvine	.25	.09	.21
UC Los Angeles	.23	.05	.26
UC Riverside	.31	.16	.10
UC San Diego	.27	.03*	.25
UC Santa Barbara	.36	.11	.15
UC Santa Cruz**	n/a	n/a	n/a
UC System	.27	.07	.23

* Not statistically significant at <.01 level.

** Does not assign conventional grades.

Initial Findings

Curriculum-based achievement exams like the SAT II Subject Tests predict UC performance at least as well as nationally norm-referenced exams like the SAT or ACT.

“The benefits of achievement tests for college admissions – greater clarity in admissions standards, closer linkage to the high school curriculum – can be realized without any sacrifice in the capacity to predict success in college.”

Geiser, S. & R. Studley, (2002). “UC and the SAT: Predictive Validity and Differential Impact of the SAT I and SAT II at the University of California.” *Educational Assessment*, vol. 8, no. 1, pp. 1-26.

Beyond Prediction: Testing for Achievement



- Desirable properties of achievement tests:
 - Criterion- vs. norm-referenced assessment
 - Better alignment with K-12 standards
 - Minimize test prep
 - Less adverse impact
 - “Signaling effect” for disadvantaged students and schools
- President Atkinson’s 2001 address to ACE
- BOARS’ 2002 Policy on Admissions Testing

The SAT and ACT Respond to UC



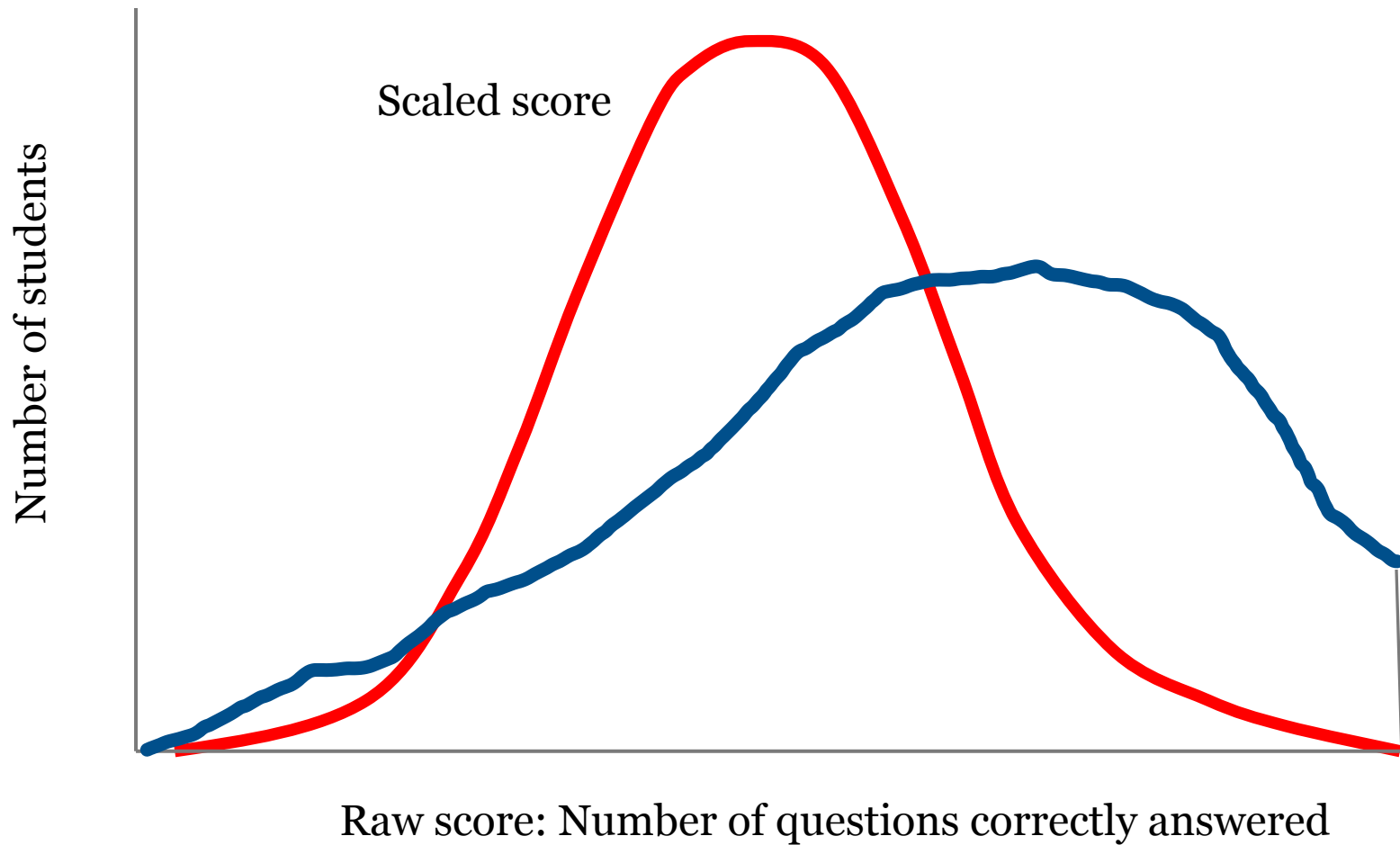
What changed

- SAT drops verbal analogies and quantitative comparisons
- Both ACT and SAT add Writing Test
- Intended to position national exams as achievement tests
- Foreshadows later efforts to have college admissions tests adopted for state K-12 accountability purposes

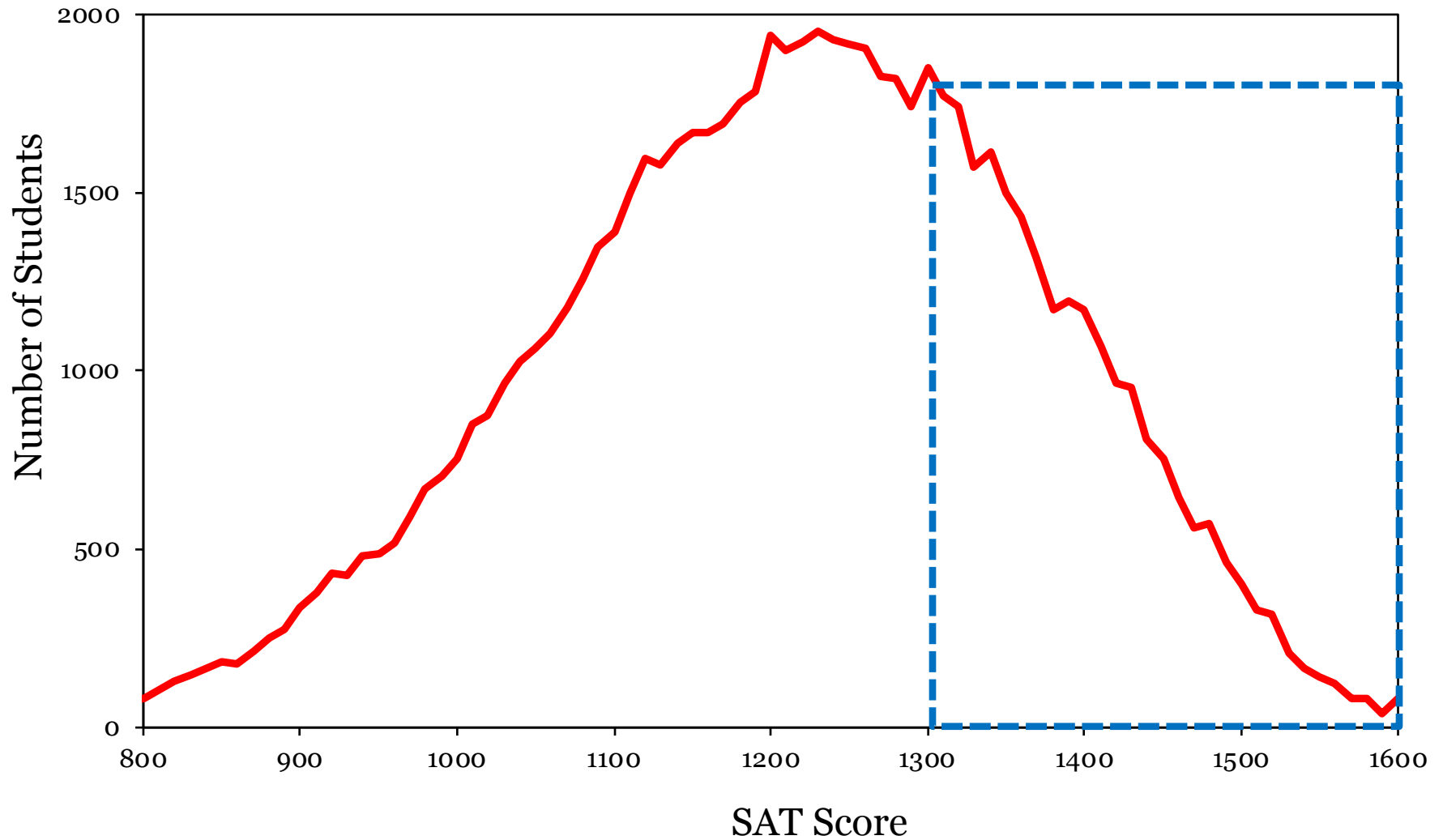
What didn't change

- Both SAT and ACT retain norm-referenced design
- Bell-curve assumption is last remaining vestige of IQ tradition in college admissions
- “A test at war with itself”: Norm-referenced assessment for college admissions vs. standards-based assessment for K-12 accountability

Creating the Bell Curve



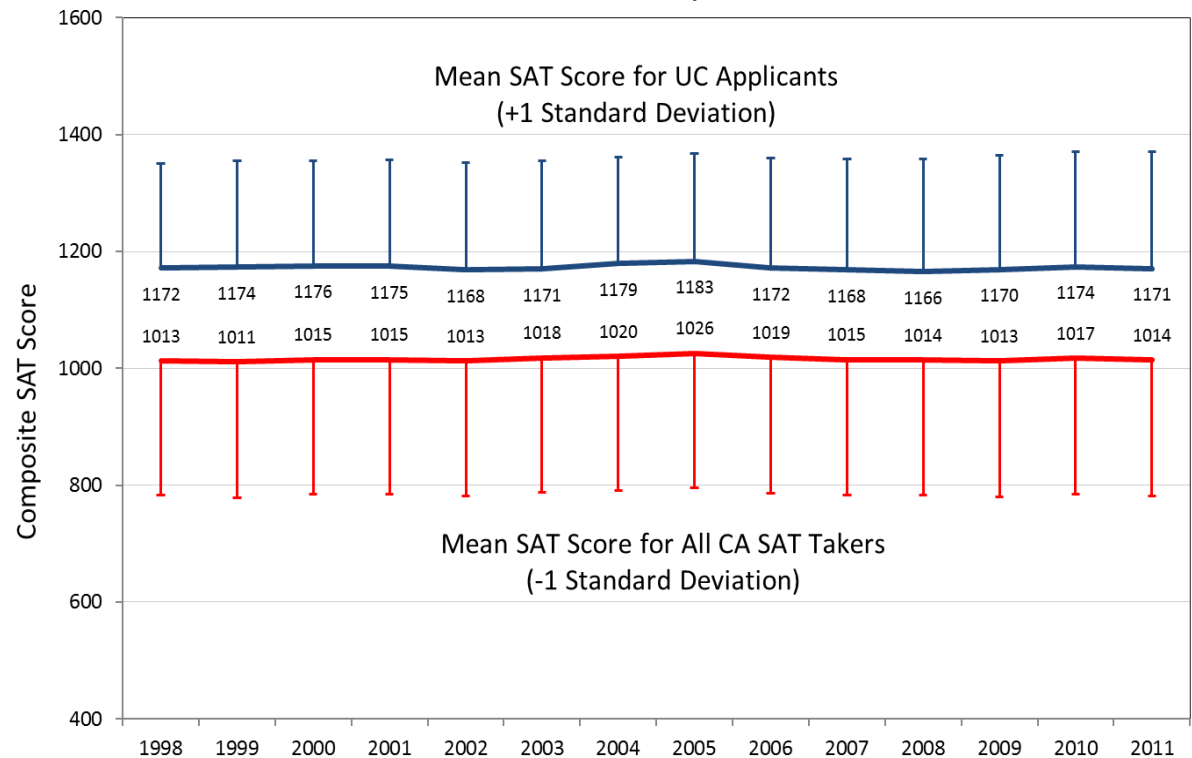
Frequency Distribution of Scaled Scores Among California SAT Takers





Norm-referenced tests are designed to produce the same distribution from one year to the next and are ill-suited to measure change over time in educational achievement

Mean and Standard Deviation SAT Scores for UC Applicants vs. All California SAT Takers, 1998 to 2011



Source: UC Corporate Student System and College Board annual College-Bound Seniors Reports for California.



Study Variables

Sample: All California resident applicants for UC freshmen admission from 1994 through 2016

- SAT scores
 - Composite of verbal + math
 - Includes ACT-equivalent scores
- High school GPA
 - “Weighted” for AP/honors
- Family income
 - Log of family income in constant 2012 \$
- Parents’ education
 - Highest-educated parent
- Underrepresented minority status
 - Self-identification as Latino/a or Black
 - Excludes Native Americans



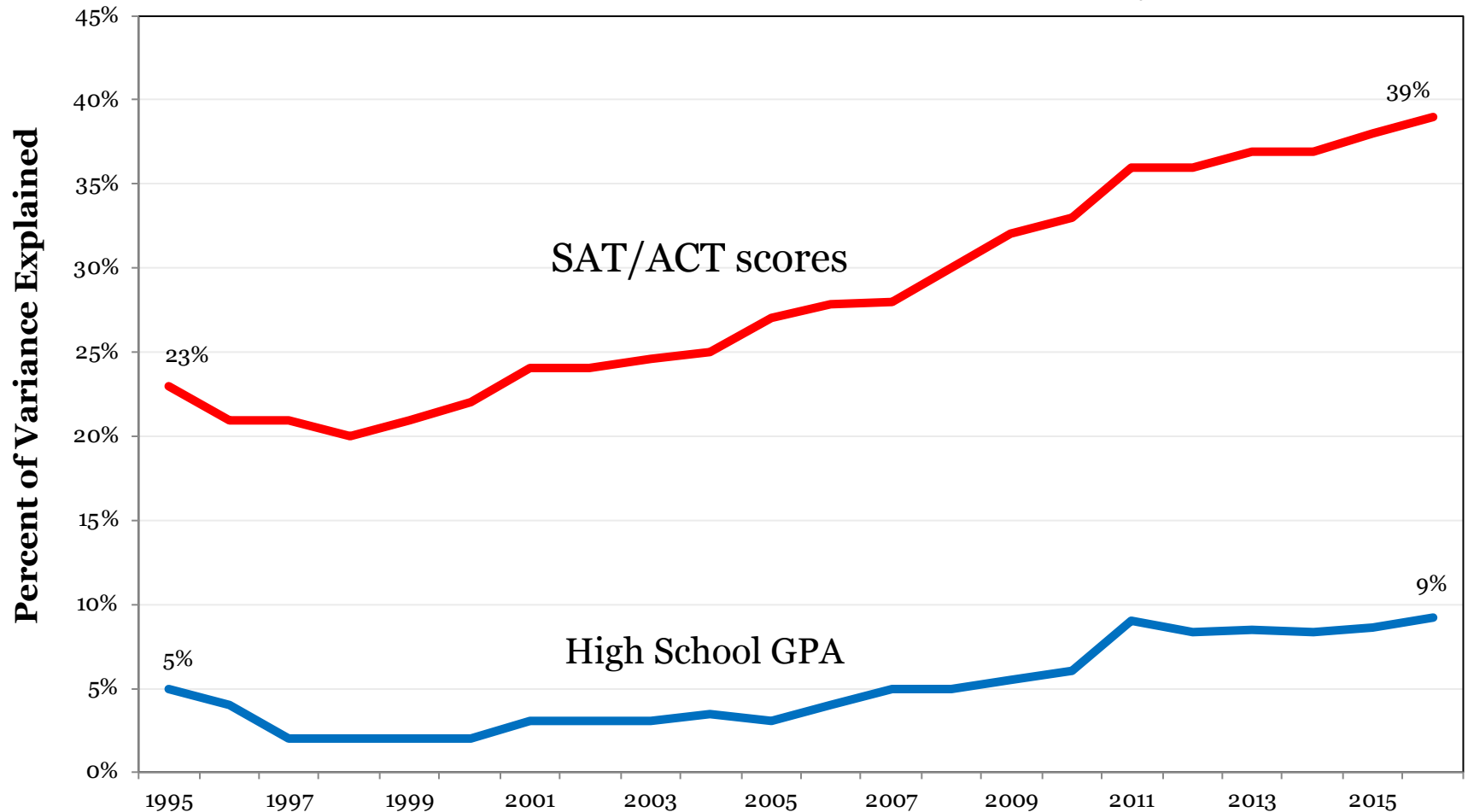
**Conditioning
effect of
socioeconomic
background on
SAT/ACT scores
vs. HSGPA**

Correlations

	Family Income	Parents' Education	Race/ Ethnicity
High school GPA	.11	.14	-.17
SAT/ACT scores	.36	.45	-.38

Variance in SAT/ACT Scores and High School GPA Explained by Family Income, Education and Race/Ethnicity, 1995 to 2016

Regression equation: $SAT \text{ score or HSGPA} = b_1(\text{Log of Income}) + b_2(\text{Parent Ed}) + b_3(\text{URM Status})$



Source: UC Corporate Student System data on all California residents who applied for freshman admission from 1995 through 2016 and for whom complete data were available on all covariates.

New Findings, Part 1

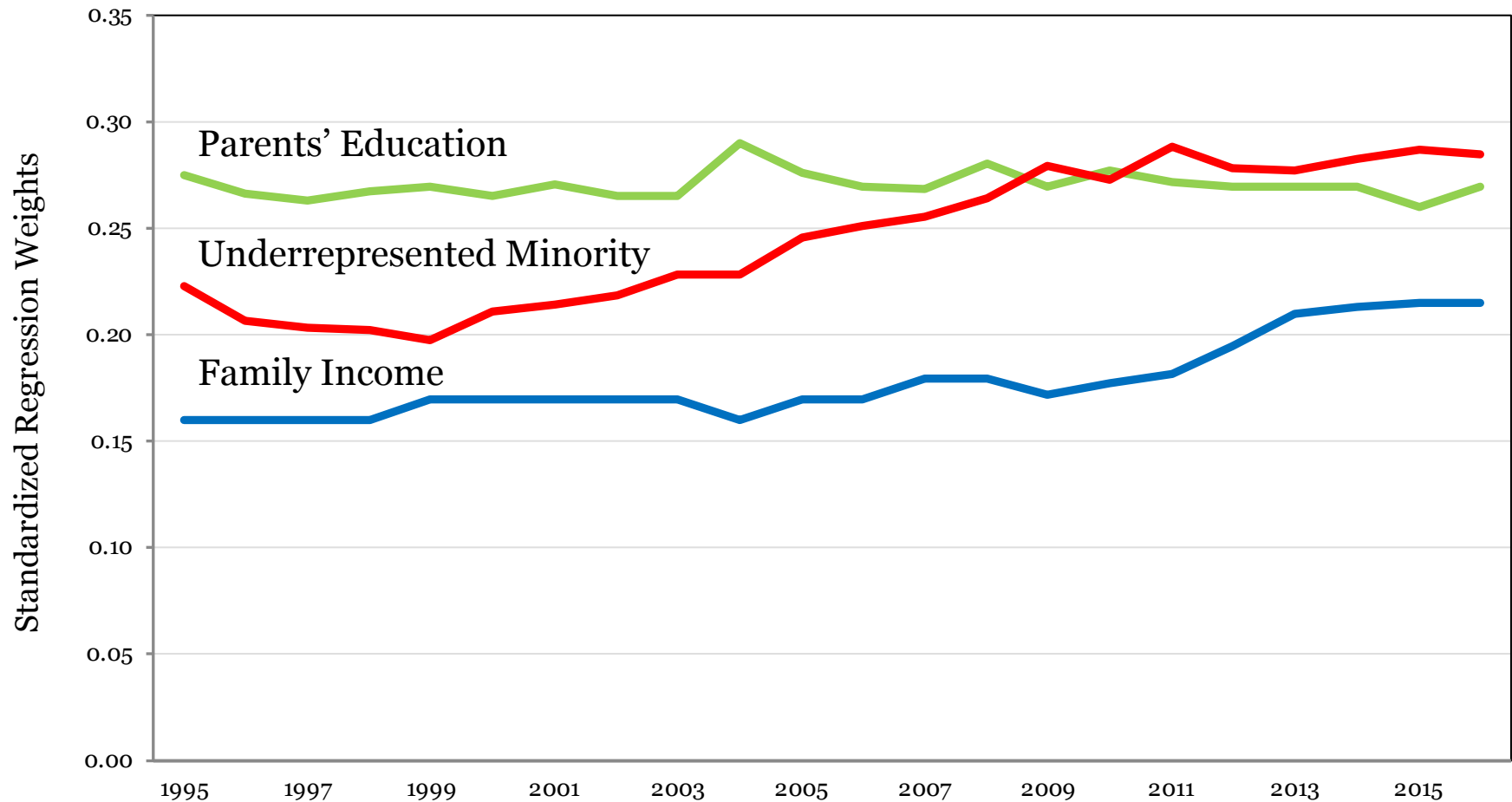
Compared to other admissions criteria like high school GPA, SAT/ACT scores are more sensitive to social background factors like parental education, income, and race/ethnicity.

The conditioning effect of socioeconomic background has grown substantially over the past quarter century and now accounts for 39% of all test-score variation among UC applicants.

Policy implication: The growing correlation between social background and SAT/ACT scores makes it difficult to rationalize treating scores purely as a measure of individual merit or ability, without regard for group differences in opportunity to learn.

Relative Weight of Family Income, Education, and Race/Ethnicity in Explaining SAT/ACT Scores, 1995 to 2016

Regression equation: $SAT/ACT \text{ score} = b_1(\text{Log of Income}) + b_2(\text{Parent Education}) + b_3(\text{URM Status})$



Source: UC Corporate Student System data on all California residents who applied for freshman admission from 1995 through 2016 and for whom complete data were available on all covariates.

Racial Segregation in California Public Schools



Los Angeles Schools by Level of Segregation (2016)

	Number of Schools	Percent of schools
Majority nonwhite (50-100% nonwhite)	958	95%
Intensely segregated (90-100% nonwhite)	785	78%
Apartheid schools (99-100% nonwhite)	264	26%

Racial Segregation in California Public Schools



Over the past 25 years, California public schools have become among the most racially segregated in the US

Orfield, D. & Ee, J. (2014) “Segregating California’s Future,” UCLA Civil Rights Project.

Rapid increase in “intensely segregated” schools (90% or more URM)

Over half of all Latino/a students, and 39% of African Americans, attend intensely segregated schools

Double segregation by race and poverty

Black students on average attend schools that are two-thirds poor, while the average for Latinos is 70%.

Racial segregation is associated with multiple forms of disadvantage that combine to magnify test-score disparities among racial minorities

Card, D. & Rothstein, J. (2006). “Racial segregation and the black-white score gap.” NBER Working Paper 12078. Cambridge, MA: National Bureau of Economic Research.

New Findings, Part 2

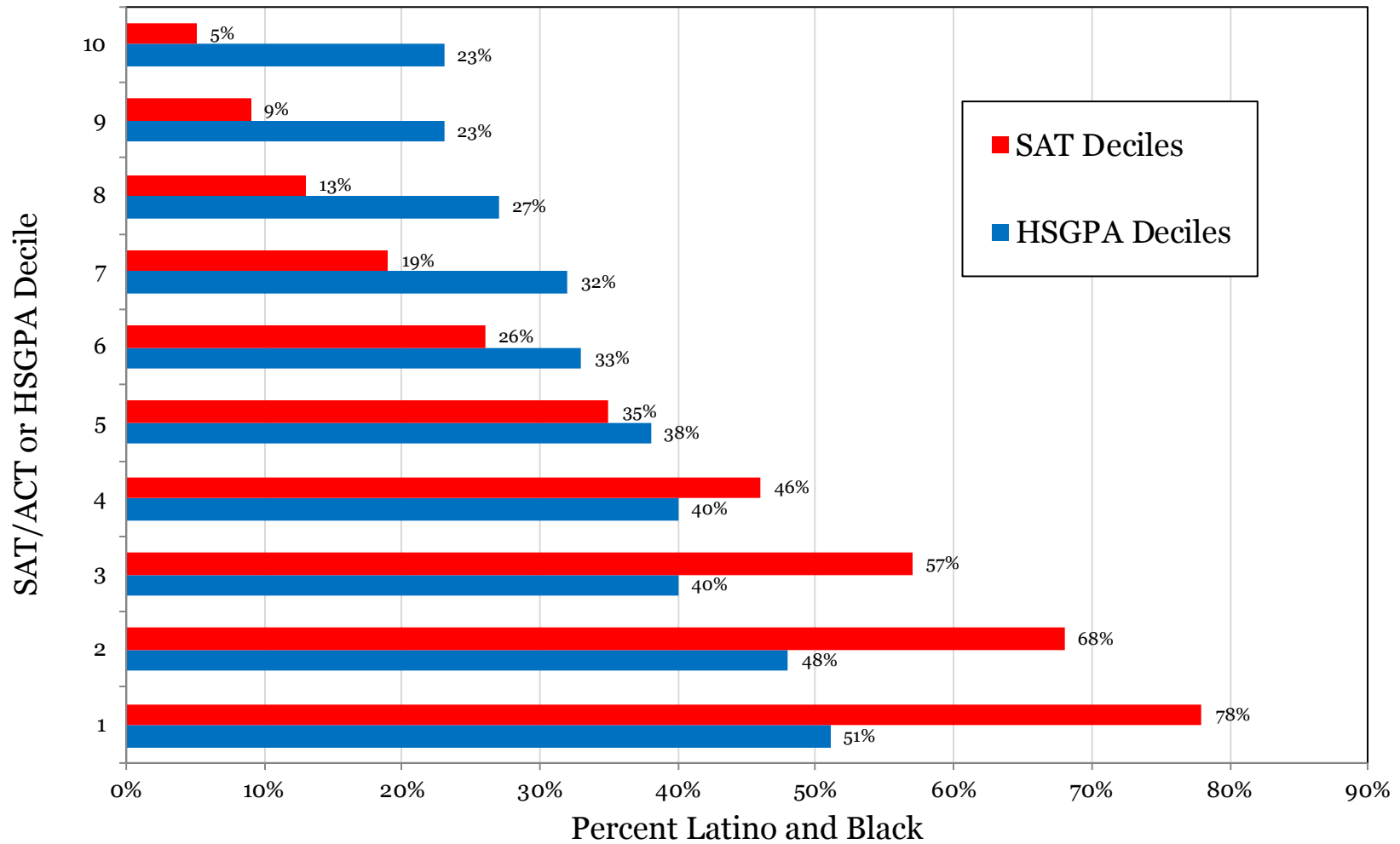
Race/ethnicity has an independent conditioning effect on SAT/ACT scores after controlling for family income and education.

The conditioning effect of race on SAT/ACT scores has grown substantially in the past 25 years, mirroring the massive re-segregation of California public schools during the same period.

Statistically, race/ethnicity has become more important than either family income or education in accounting for test-score differences among California high school graduates who apply to UC.

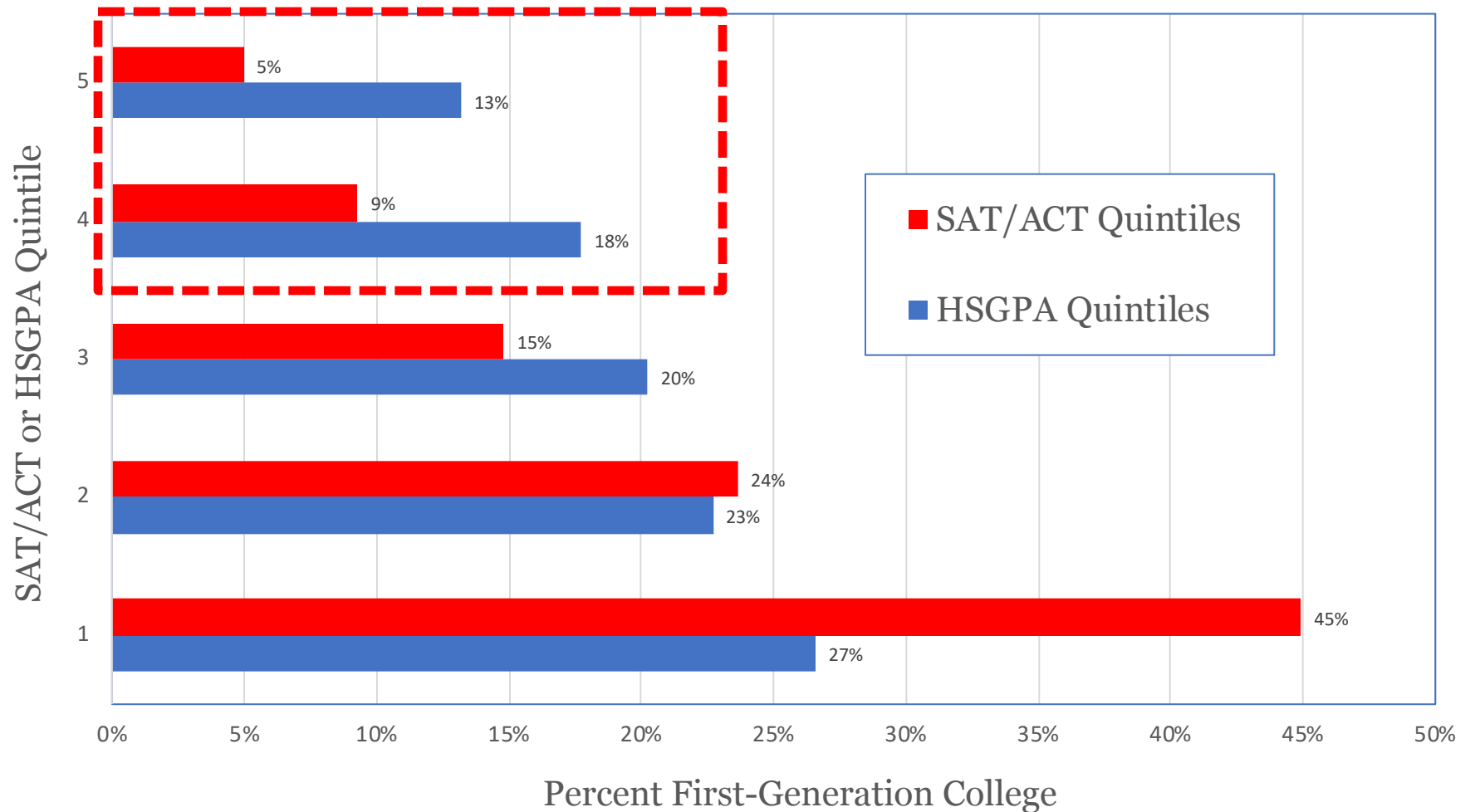
Policy implication: “Class based” or “race neutral” affirmative action is unlikely to prove an effective proxy for redressing racial/ethnic disparities in college admissions.

Percent Latino and Black Applicants by SAT/ACT vs. High School GPA Deciles



Source: UC Corporate Student System data on all CA resident freshman applicants from 2016 for whom complete data were available on all covariates.

Percent First-Generation College Applicants by SAT/ACT vs. HSGPA Quintiles



Source: UC Corporate Student System data on California residents who applied for freshman admissions between 1994 and 2011 for whom complete data were available on all covariates.

Conclusion

National standards for fairness in testing encourage colleges and universities to take into account the conditioning effects of socioeconomic background on test performance. UC considers family income and education in evaluating applicants' test scores, but Prop 209 bars it from considering race/ethnicity.

Race has an independent effect on SAT/ACT scores among UC applicants, mirroring the growing concentration of Latino and Black students in California's poorest, most intensely segregated schools.

Policy implication: If UC cannot legally consider the effect of race and racial segregation on test performance, neither should it consider SAT/ACT scores. Race-blind implies SAT/ACT-blind admissions.

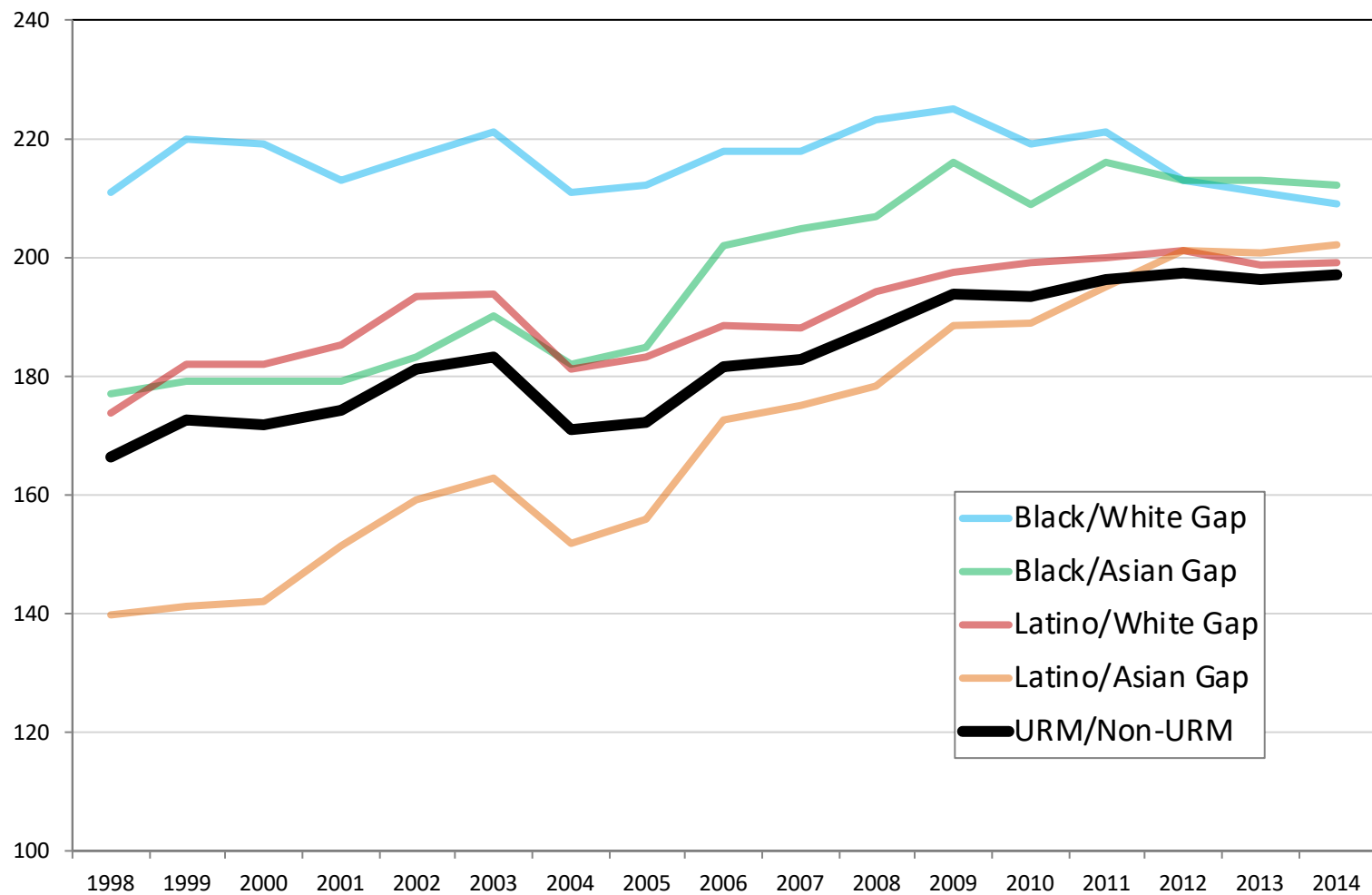
UC and the SAT/ACT

Research Findings: 1994 to 2019



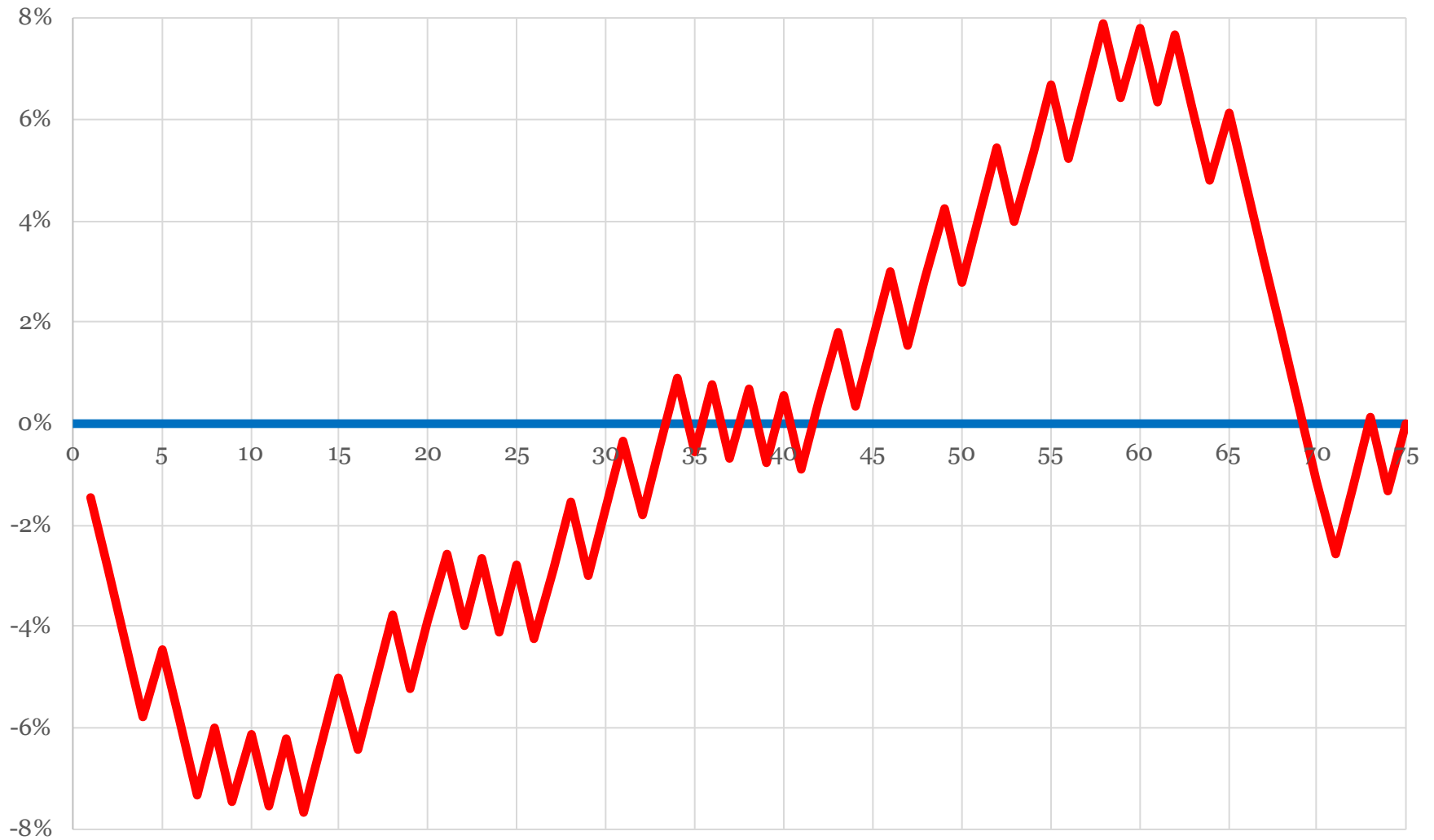
**ADDITIONAL SLIDES
FOR Q & A**

Score Gaps Between Racial/Ethnic Categories: California SAT Takers, 1998 to 2014



Source: College Board College-Bound Seniors Reports for California.

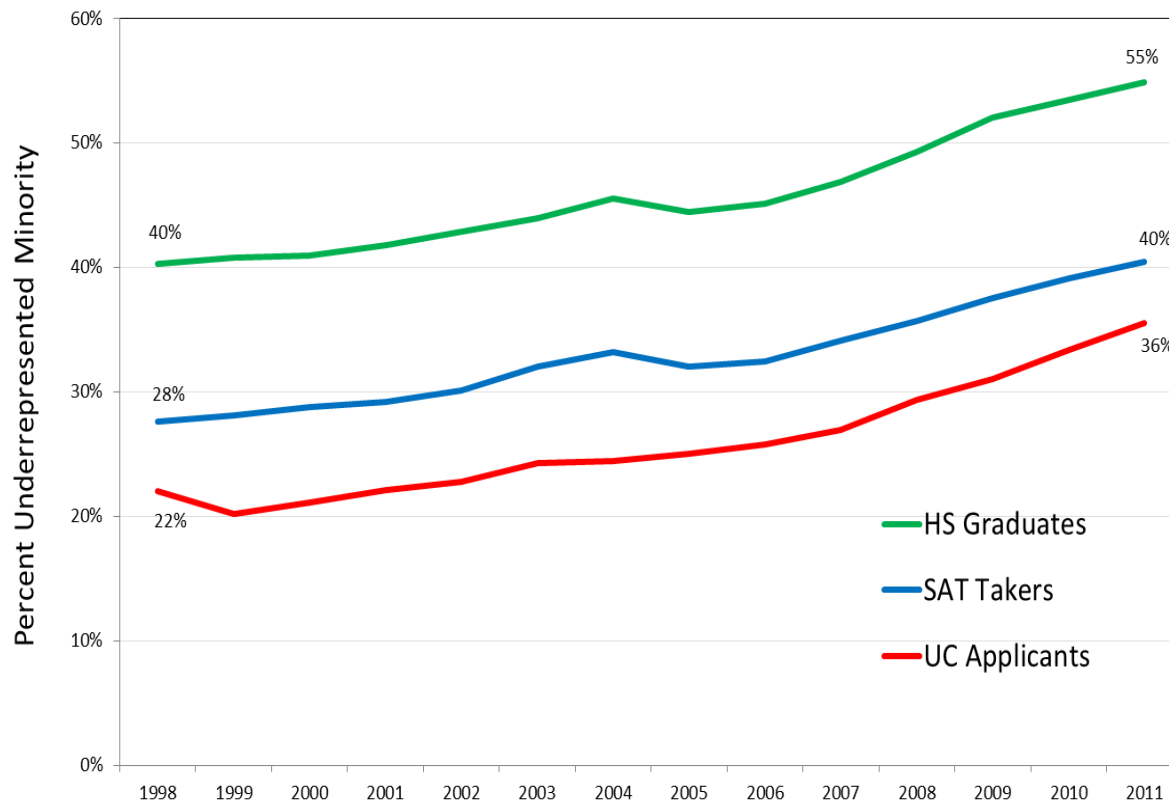
ACT Writing: Scaled Score vs. Number Correct



Probing the UC findings

Changes in racial/ethnic composition of UC applicants vs. all California SAT takers

Underrepresented Minorities as a Proportion of California High School Graduates, SAT Takers, and UC Applicants, 1998 to 2011

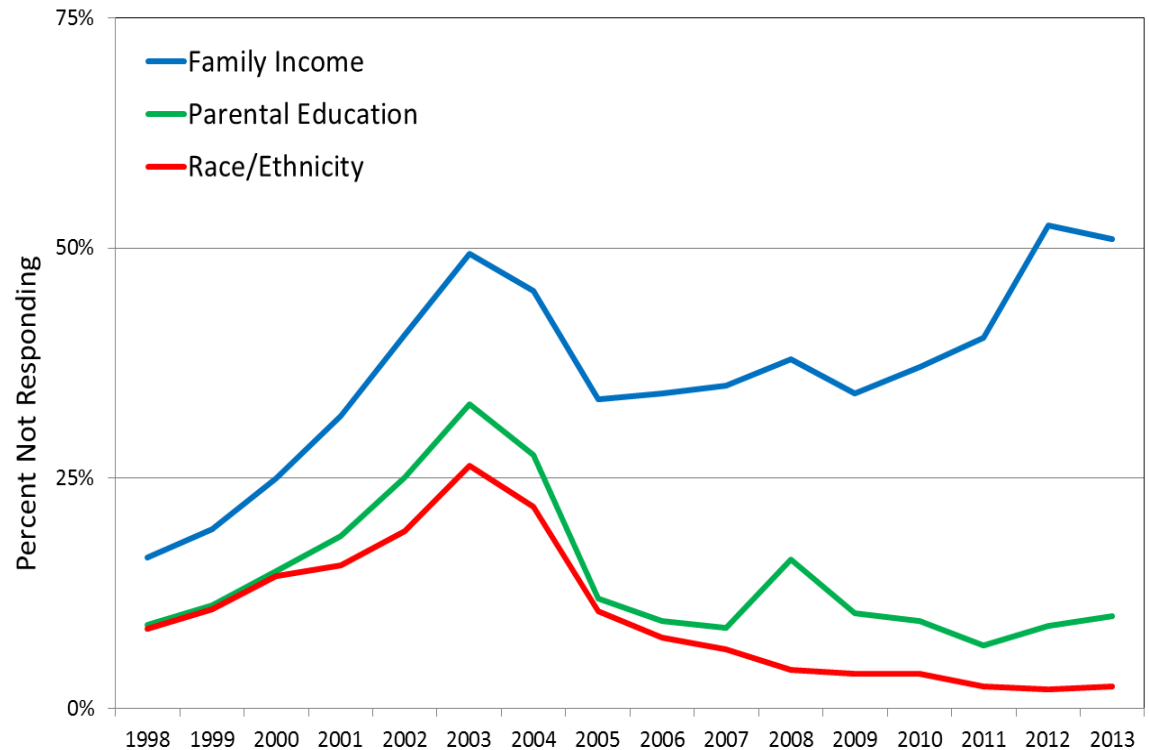


Source: UC Corporate Student System, College Board Annual College-Bound Seniors Reports, California Department of Finance.

Probing the UC findings

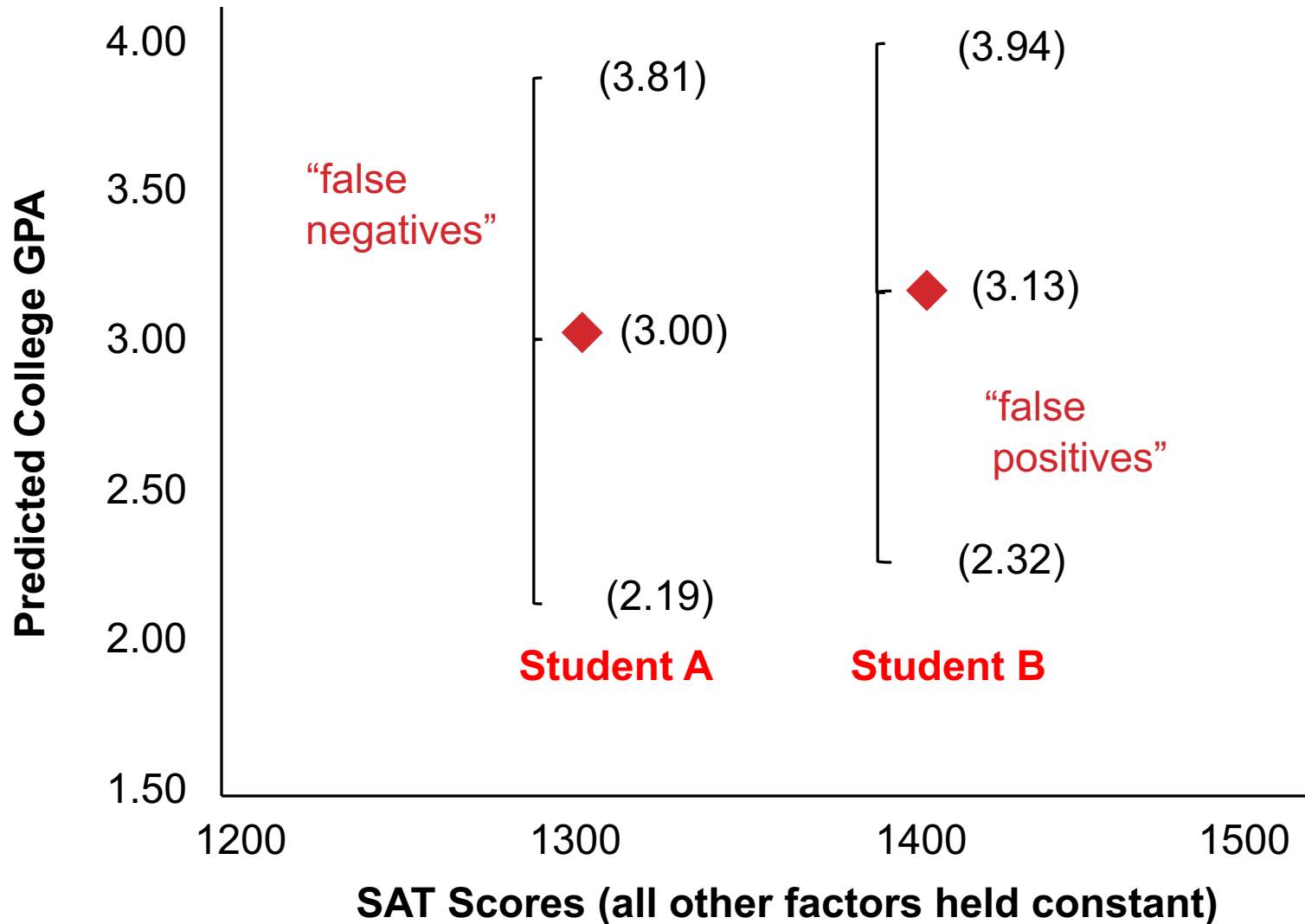
Problem of missing SES data for California SAT takers

Percent Not Responding to SAT Questionnaire Items on Family Income, Parents' Education, and Race/Ethnicity: California SAT Takers, 1998 to 2013

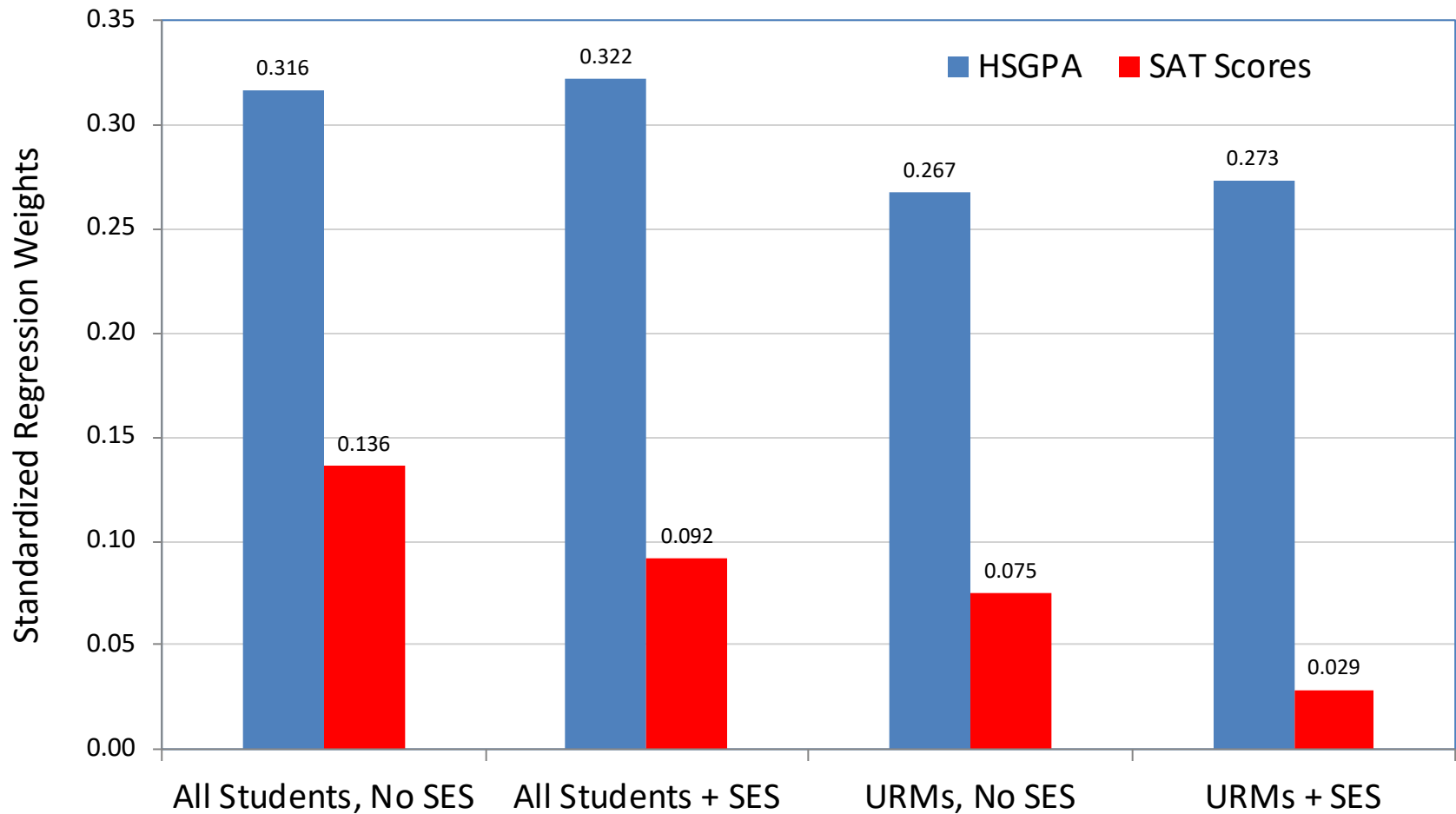


Source: College Board annual College-Bound Seniors Reports for California, 1998 to 2013.

Prediction Errors



Relative Weight of High School GPA and SAT/ACT Scores in Predicting 5-Year Graduation Rates, Before and After Controlling for SES: All UC Freshmen vs. Underrepresented Minorities



Source: UC Corporate Student System data, 1994 to 2005. All estimates are statistically significant at .001 confidence level.

Percent of Variance in UCGPA Predicted by HSGPA and Test Scores With and Without Bonus Points for AP/Honors

Regression equation: $UCGPA = \alpha HSGPA + \beta SAT I + \phi SAT II$

Explained Variance in First-Year UCGPA

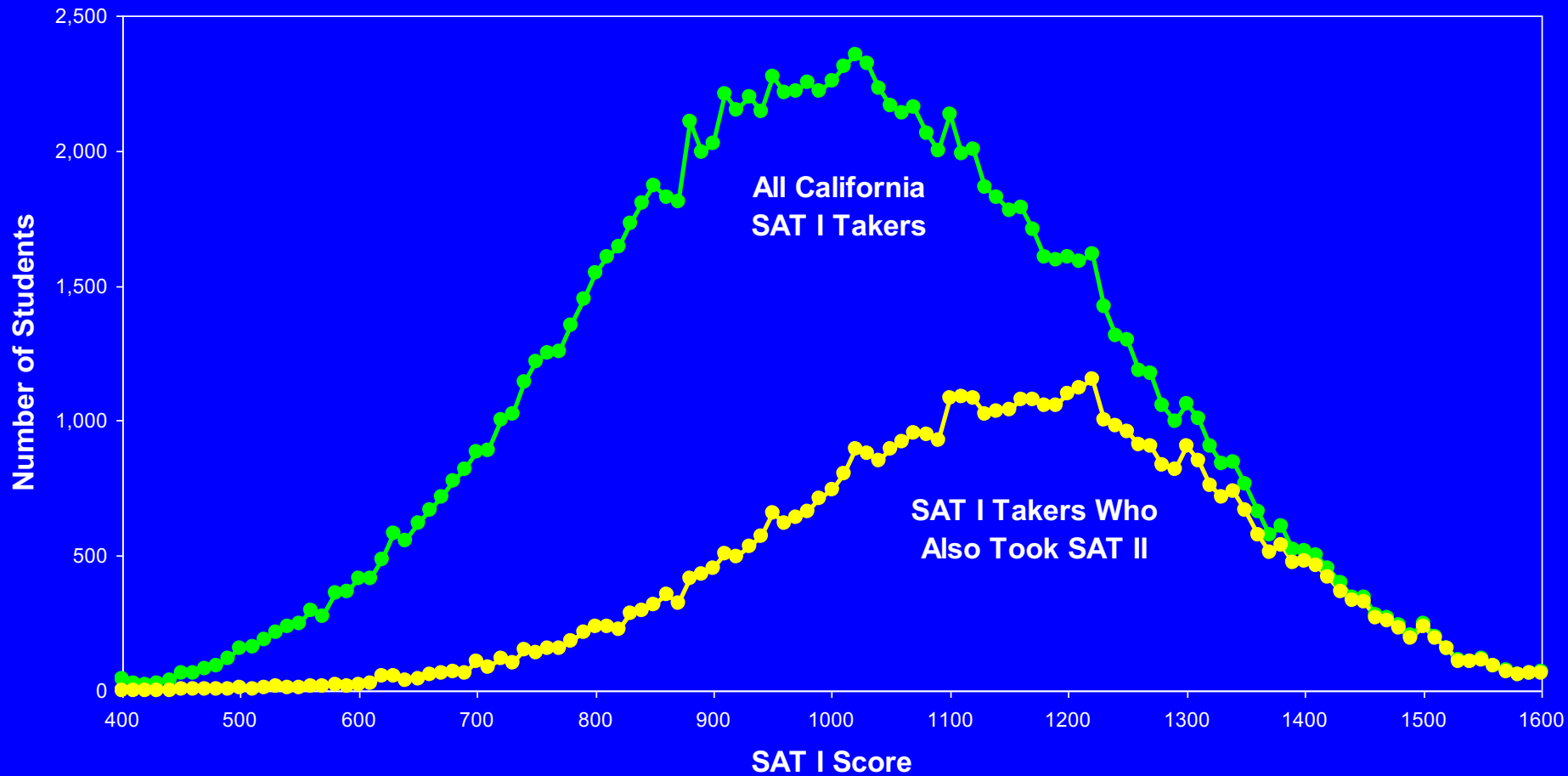
HSGPA Weighting	1998		1999		2000	
	R ²	Rank	R ²	Rank	R ²	Rank
No Bonus Point	21.32%	1	21.46%	1	23.54%	1
Half Bonus Point	20.67%	2	21.10%	2	22.87%	2
Full Bonus Point	19.22%	3	19.82%	3	21.19%	3

Explained Variance in Second-Year UCGPA

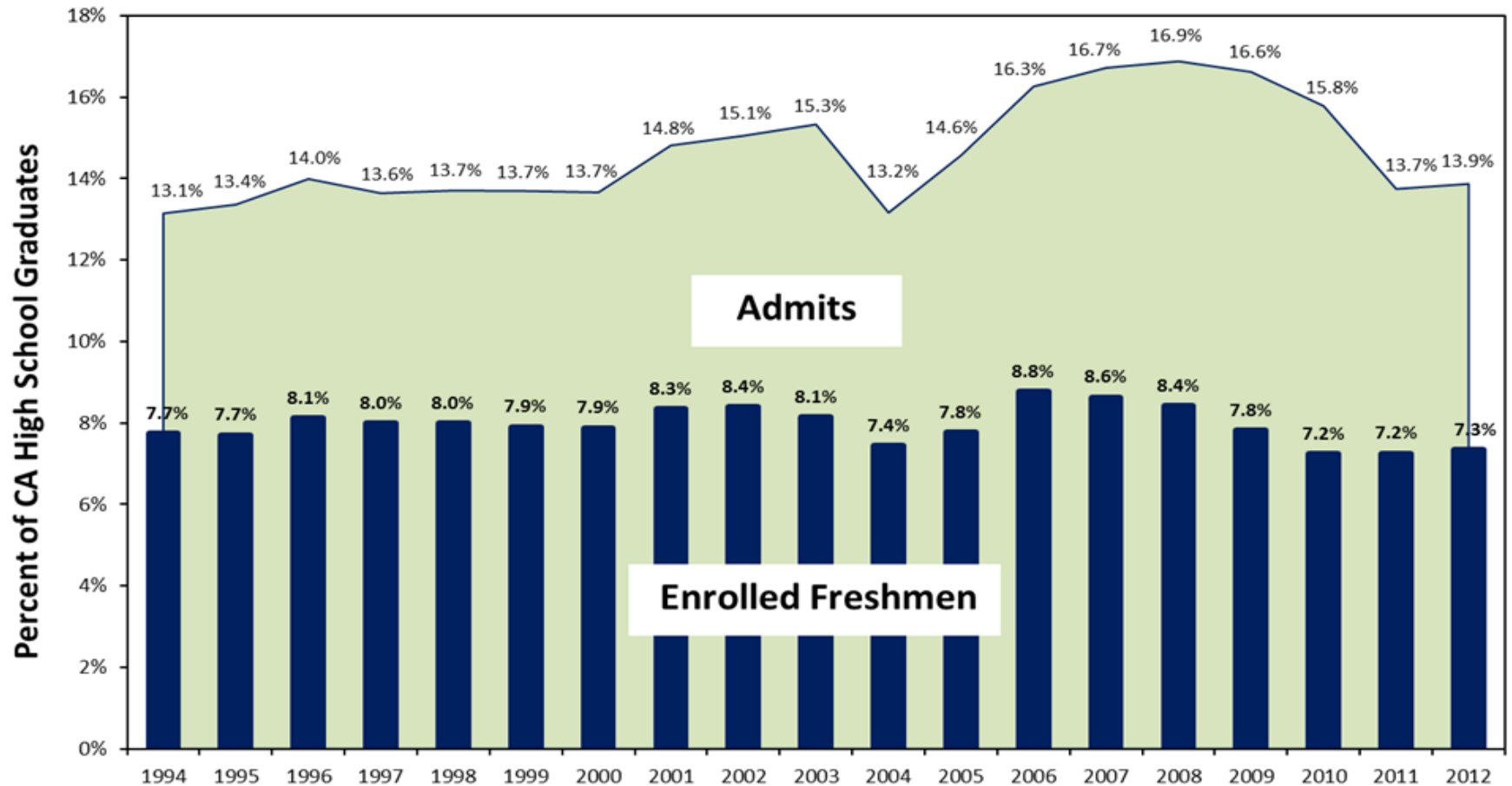
HSGPA Weighting	1998		1999		2000	
	R ²	Rank	R ²	Rank	R ²	Rank
No Bonus Point	14.91%	1	13.88%	1	16.37%	1
Half Bonus Point	14.33%	2	13.34%	2	15.79%	2
Full Bonus Point	13.16%	3	12.28%	3	14.65%	3

Source: UC Corporate admissions and longitudinal data for first-time CA resident freshmen entering in Fall 1998, 1999, and 2000. N = 50,472.

Frequency Distribution of SAT I Scores: All CA SAT I Takers vs. SAT I Takers Who Also Took SAT II

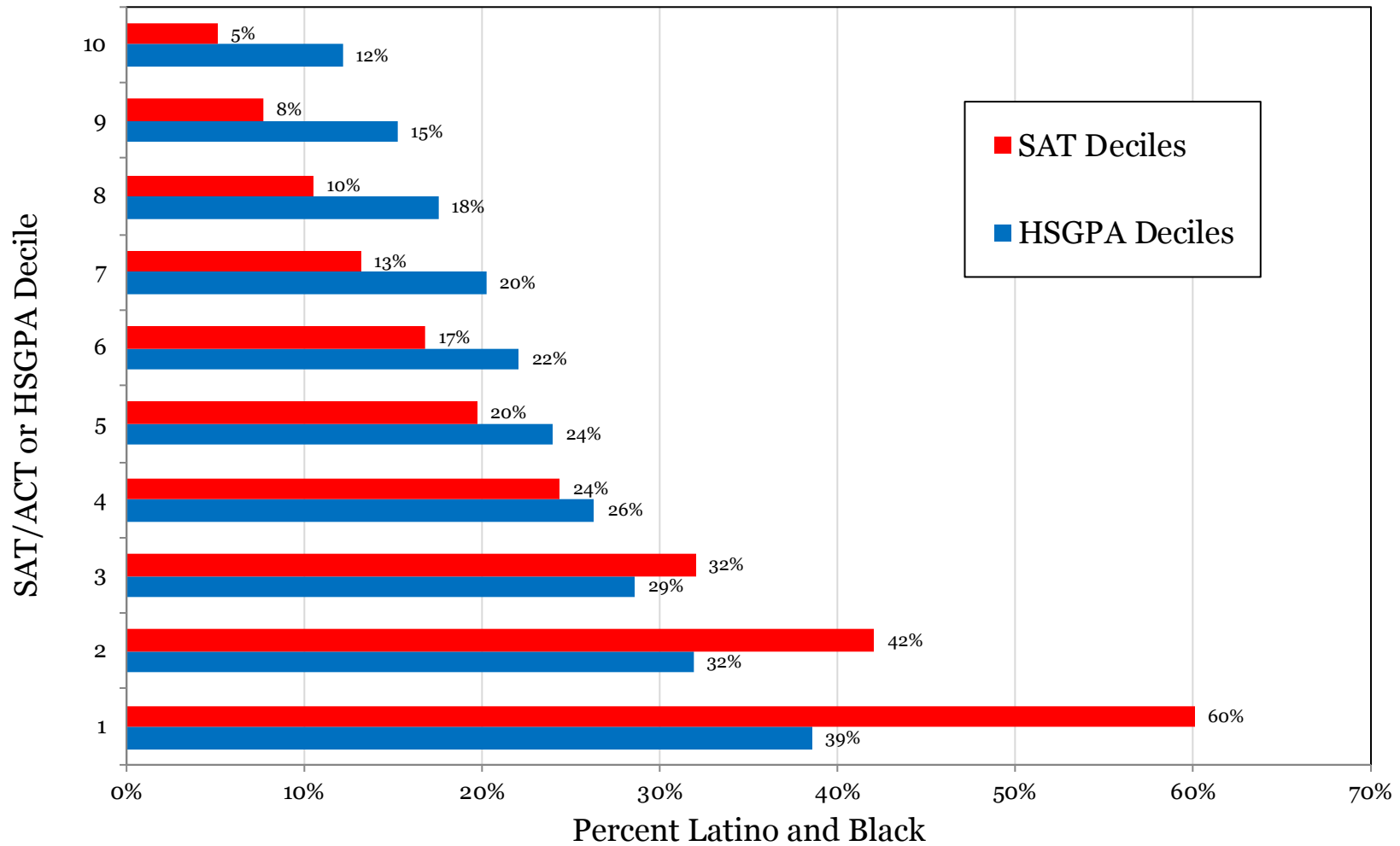


New California Resident Admits and Enrolled Freshmen as a Percentage of California High School Graduates



Source: UC Corporate Student System (for CA resident admits and new freshmen), California Department of Finance Demographic Research Unit (for CA public high school graduates), California Postsecondary Education Commission (for CA private high school graduates from 1994 to 2009), and Western Interstate Commission on Higher Education (for CA private high school graduates from 2010 to 2012).

Percent Latino and Black Applicants by SAT/ACT vs. High School GPA Deciles



Source: UC Corporate Student System data on all CA resident freshman applicants from 1994 through 2011 for whom complete data were available on all covariates.

Criterion-referenced scoring

“In addition, BOARS Testing Principles should explicitly prefer tests that are not only curriculum-based but also scored by reference to achievement standards.”

-- BOARS' 2009 revision of UC Principles for Admissions Testing

Administrative utility

“BOARS’ review of the history of the development of admissions tests and of their use at the University of California points clearly to the fact that the original decision to adopt the testing requirement and create the Eligibility Index was driven only in part by policy goals. Pragmatic needs to reduce the size of the eligibility pool and to rank-order applicants to selective campuses in a simple, efficient way also played substantial roles. In BOARS’ current view, these pragmatic reasons—while important—are insufficient justification in themselves for the adoption of a test requirement or the selection of a specific test battery.”

-- BOARS’ 2002 policy