RESEARCH FINDINGS

# Hard Lessons in California

## Minority Pay Gap Widens Despite More Schooling, Higher Scores

By Martin Carnoy, and
Richard Rothstein

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# EXECUTIVE SUMMARY

African Americans and Latinos historically have fared poorly, relative to whites, in educational attainment (years of schooling), educational achievement (test scores), and average wages. One would expect that, if education gaps between minority and white youth are narrowed, the wage gaps for these youth should narrow as well. If this turns out not to be the case, a political intervention (such as affirmative action or other policies) in this imperfect market system may be justified.

This report examines whether a narrowing gap between the educational attainment and achievement of California's minority and white youth has been paralleled by a narrowing wage gap between California's young minority and white workers when these youths enter the labor market. We find that educational attainment and achievement of California's minority youth improved from the 1970s to 1988, and, in some respects, the improvement was extraordinary.

- The number of minority youths who graduated from high school, attended "some college," and were awarded bachelor's degrees increased. These numbers also increased as a share of the total minority youth population and—key to our argument—relative to the attainment of white youths. In a few categories where there was no such relative improvement, there was instead relative stability with respect to whites.
- At the same time, the academic achievement (i.e., test scores) of minority youth also improved, in some cases dramatically, both absolutely and relative to white academic performance.

The report then examines the wages of California's white and minority workers, age 25-34, in 1980, 1990, and 1995. (We end our examination of educational achievement with 17-year-olds in 1988, because this is the latest year for which 17-year-olds are subsequently counted as part of the 25- to 34-year-old workforce in 1995.)

- We find that, in contrast to the relatively improved qualifications of young minority workers, the wage gap has moved in the opposite direction. As minority workers have improved their qualifications relative to whites, their wages have deteriorated relative to wages of white workers of the same age and with similar levels of completed schooling.

Thus, we suggest that California's labor market may not properly reflect trends in the relative educational preparation of white and minority workers. Therefore, intervention may be appropriate to assist the labor market to function more efficiently.

A related analysis—presented in Appendix 1—examines enrollment trends in California's public institutions of higher education. It finds:

- While African American high school youths have (at least according to indicators we examine) improved their preparation compared to the preparation of other students, their enrollment at the University of California has not improved commensurately, especially in the most recent period.
- Latinos' relatively improved preparation, on the other hand, may be better reflected in University of California enrollment rates.

- Enrollment by African Americans (to a lesser extent) and Latinos (to a greater extent) at California State University seems to parallel these youths' improved academic preparation.

In each case, there is no formula for determining the precise enrollment appropriate for different high school achievement levels. Data permit us to say only that African American enrollment rates at the University of California seem not to follow closely these students' improved preparation. Whether the relatively improved enrollment of Latinos at the University of California or of minorities at California State University is attributable to past affirmative-action policies, or whether stepped-up intervention is required in the case of African American enrollment at the University of California, are questions beyond the scope of this report.

# INTRODUCTION

This report finds that improvements in the educational preparation of California's young minority workers, relative to the educational preparation of California's young white workers, have not been reflected in relative wage progress by these minority youth when they enter the labor force. If labor markets were operating efficiently, we would expect relative education gains to generate relative wage gains. Because this has apparently not been the case, we take this finding as evidence of an imperfect labor market in California, at least as it affects minority youth.

This finding is relevant to California's November 1996 ballot initiative, Proposition 209, which aims to prohibit all "affirmative action" and preferential treatment for minorities and women in state public employment, education, and other programs. Advocates of this proposition tend to argue that past discrimination has been mostly corrected by public policies, and that free and unfettered labor markets are now fair and efficient in allocating and paying workers of all ethnic groups and genders. Opponents tend to argue that markets are not now fair and efficient, and that intervention is needed not only to make them more so but to prevent them from sliding backward and wiping out progress already made.

Such arguments cannot be answered by anecdotal accounts of individual cases in which minorities were or were not more qualified than whites for particular positions. The peculiarities of any anecdote can be overcome only by averaging all experiences on the basis of their common elements. Instead of argument by anecdote, we are better advised to look at broad trends to understand what changes are taking place in the relative educational performance and labor-market outcomes of young minority and white workers.

There is no easy way to do this. We know that both white educational attainment (years of schooling completed) and achievement (test scores) remain mostly superior to the attainment and achievement of minority workers. And we know that the wages of whites continue to be higher than those of minorities. But do the differences in qualifications (education) fully justify the wage gap, or is the wage gap greater than we should expect, based on what is known about the educational differences?

Our approach to this question focuses not on any judgments about what absolute or relative white and minority wage levels should be for workers of particular qualifications, but rather on the direction of changes over the last two decades. Thus, even though minorities are, on the whole, less educationally qualified than whites, if the gap between white and minority attainment and achievement has narrowed, we would expect the gap between the wages of young white and minority workers to narrow as well. In particular, we look at changes in the relative educational attainment and achievement of white and minority 17-year-olds in California. We then look at changes in the wages earned by these youths as they participate in the job market seven to 16 years later, when they are from 25 to 34 years old.

While we do not pretend we can quantify how much of a narrowing of the wage gap should be produced by a specified narrowing of the educational gap, we do believe that the direction of these changes is significant. If relatively better educated minority youth earn relatively better wages, then

this is a possible indication that California's labor market may no longer be discriminatory, and that interventions like affirmative action may not be required to perfect it. If, on the other hand, significantly better educated minority youth are mostly unsuccessful in narrowing the wage gap, then some nonmarket interventions (whether affirmative action or some other program) may be a reasonable response.

We do not claim that educational attainment and achievement are the only relevant qualifications that workers bring to the job market. Some will insist, for example, that even if quantifiable attainment and achievement qualifications are relatively more equal, minority job applicants could have inferior discipline and work habits compared to white applicants, and that this difference justifies rational distinctions in their outcomes (wages). Others may claim that a spatial mismatch between minority job applicants and the location of available jobs may cause a relative oversupply of minority applicants for jobs that are accessible to them, compared to the supply of white applicants for jobs accessible to whites—and that this would result in lower average wages for minority workers than for white workers of similar qualifications. We cannot disprove these and similar points, because the data we examine do not address issues like discipline or geographical employment dispersion. We suggest only that, if the data show a narrowing gap in educational attainment and achievement, without a narrowing gap in wages for cohorts that improved their educational preparation, these data would tend to strengthen the case for affirmative action in employment.

There is another important caveat to our findings. Available data rarely match the precise interests of policy makers. Thus, for example, to implement our "cohort" approach, it would be ideal if we had educational data for California's 17-year-olds in 1980 and 1990 and wage data for 25-year-olds who were in California's workforce in 1988 and 1998. Clearly such data are unavailable, not only because it is too soon to have 1998 data but because available data won't match: some 25-year-olds working in California, for example, were educated elsewhere; wage data are not available for 25-year-olds alone, but for a broader 25- to 34-year-old group; and some 25-year-olds have not yet "cashed in" on the quality of their secondary school educations because they are still in college or graduate school. No study can identify or control all these complicating factors. All we can do is use the best available data to suggest the direction of change and the trends relevant to public policy.

# THE EDUCATIONAL ATTAINMENT OF YOUNG CALIFORNIANS

**Figure 1** describes the educational attainment of employed young white[1] and African American males in California's workforce. In 1980, 94% of male white workers age 25-34 had graduated from high school. (These workers were mostly members of the high school graduating classes of 1963 to 1972.) By 1990, the rate of high school graduation of similar male white workers (i.e., workers in the high school classes of 1973 to 1982) fell slightly, to 92%. By 1995, however, the graduation rate rebounded and gained: 96% of this age cohort (from the high school classes of 1978 to 1987) were high school graduates.

The pattern for African American males was slightly different. There was no falloff in high school graduation rates for the 1990 cohort of 25- to 34-year-old male workers compared to the similar cohort of African American male workers in 1980. Thus, the gain in high school graduation rates for African American male workers was somewhat greater than for whites over the period.

A larger share of the white and African American cohorts also attended college, but here the gain was significantly greater for African Americans than for whites. In 1995, 70% of the white 25- to 34-year-old working cohort had attended "some college," up from 68% for a similar cohort in 1980. For African Americans in these cohorts, the college-attendance rate in 1995 was 63%, up from 57% in 1980. Again, the narrowing gap meant that the absolute differences in "some college" attendance was relatively small (70% vs. 63%) for young white and African American workers in 1995.

This relative gain for African Americans in "some college" primarily reflects expanded attendance at community colleges. When we look at these cohorts' rates of graduation from four-year colleges, a different picture emerges. The graduation rate of white 25- to 34-year-olds in the workforce barely changed over this period, going from 34% in 1980, to 32% in 1990, and then rebounding to 35% in 1995. For African Americans in these cohorts, the college-graduation rate moved up slightly, from 18% to 20%, narrowing the gap but still leaving a large absolute difference between the white and African American college-graduation rates.

**Figure 2** shows data for comparable cohorts of females in the workforce. The share of 25- to 34-year-old white females who completed college rose significantly, from 29% in 1980 to 35% in 1995. African American females also improved their attainment dramatically. In 1995, 99% of African American 25- to 34-year-old females had graduated from high school, a higher proportion than white females from that cohort. The improvement in "some college" was even greater, going from 56% for 25- to 34-year-olds in 1980 to 74% in 1995. Again, by 1995, a higher proportion of African American than white working females in this age cohort had attended some college.

As is the case for males, there remains a big gap in the female four-year college graduation rate—18% of female African American workers age 25-34 in 1995 had graduated from college, up from 17% for a comparable group in 1980. But this achievement represents a falloff from 1990, when the

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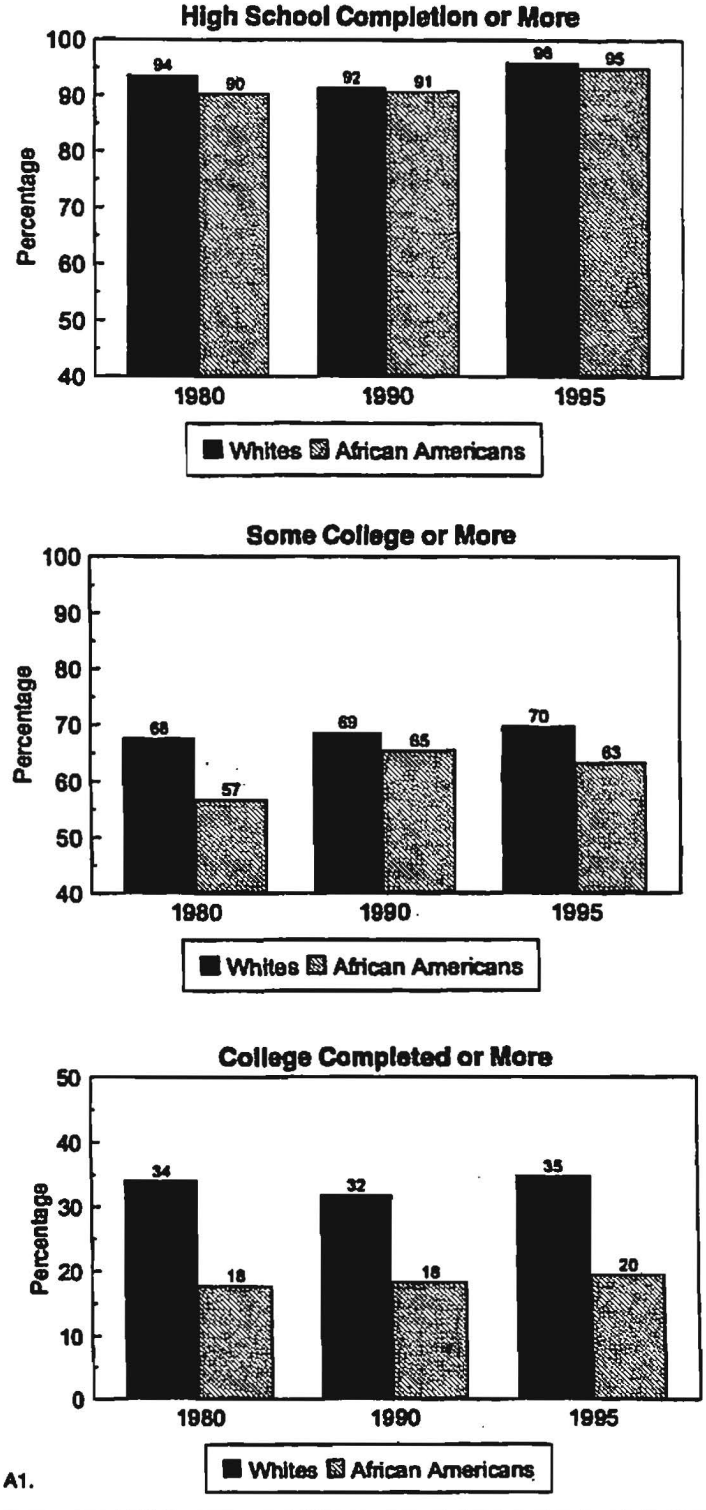
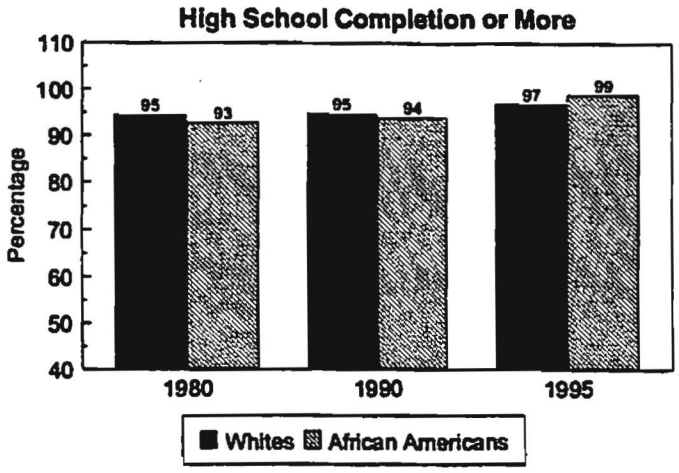
1. Throughout this report, where we describe characteristics of "white" workers or students, we are reporting data on "white, non-Hispanic" workers or students. Some sources on which we rely report data for "Hispanics," others for "Latinos." In this report, to avoid confusion we use the term "Latinos" to describe all such data.

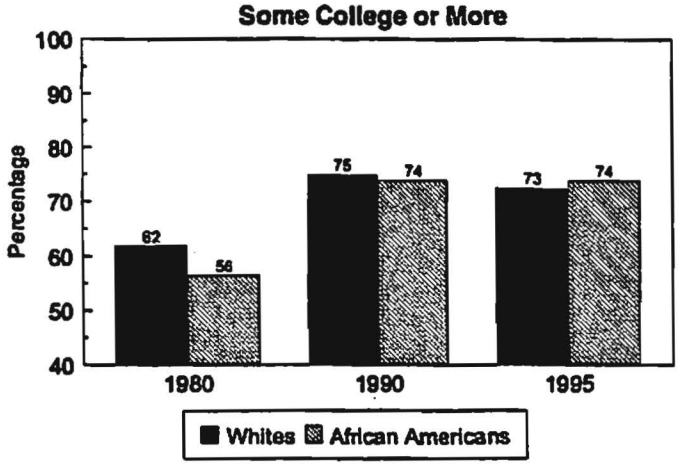
## FIGURE 1
## Educational Attainment, 1980-95, California, Whites and African Americans, Males

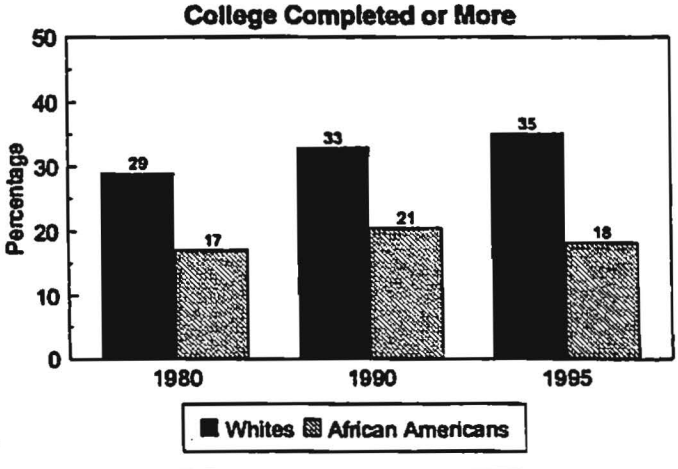



Source: Appendix Table A1.

## FIGURE 2
## Educational Attainment, 1980-95, California, Whites and African Americans, Females




Source: Appendix Table A2.

25- to 34-year-old cohort had a college-graduation rate of 21%. Thus, the college-graduation rate for young female African American workers remained substantially behind that for white females in 1995, and the gap actually widened due to the substantial gains made by white females from 1980 to 1995.

Based on these data, and to the extent that educational attainment is an important consideration in the wage decisions by California employers regarding young workers, we would expect young white males, on average, to earn more than young African American males in 1995, but we would also expect narrowing wage gaps from 1980 to 1995 between young white and African American male workers.

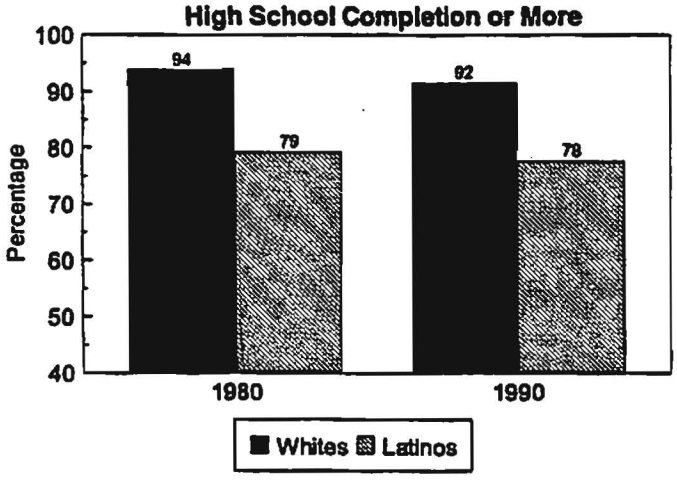
For females, again to the extent that educational preparation is important to California employers, we would expect the wages of young African Americans to be closer to parity with the wages of young whites because, with respect to high school completion and "some college" attendance, African American female attainment has grown substantially and now exceeds that of whites. On the other hand, the narrowing of the overall wage gap between African American and white females would be offset because the college-graduation rate of white female workers grew faster than that of African American female workers during the period.

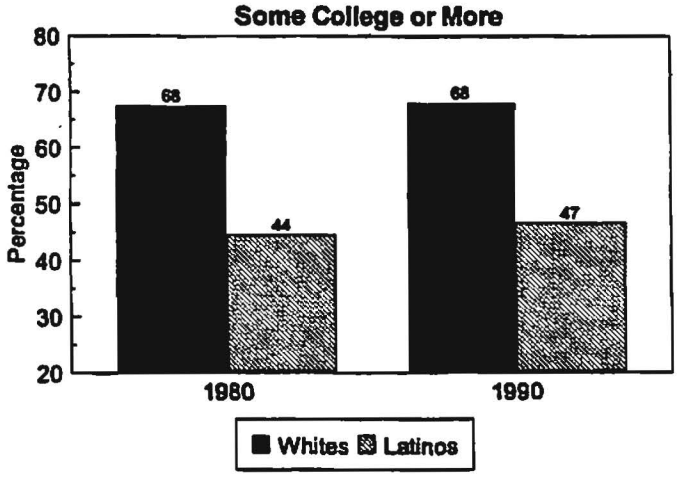
We cannot say which of these trends should predominate. A narrowing of the gap between African American and white females would suggest that labor markets reflect the predominance of African American females' higher relative high school completion and "some college" attendance. However, we know that real wages for all young female workers with only high school or "some college" fell in California from 1980 to 1995, while real wages for all young female workers with college degrees have increased. Therefore, an increase in the overall gap between African American and white female wages could be the result of shifts in the weights of the college graduate and non-college graduate groups: African American females have increased their relative strength in the group of high school and "some college" educated workers whose wages have been declining overall, while their relative strength has decreased in the group of college graduate workers whose wages have been rising. Thus, a decrease in the overall wage gap for African American females would suggest a diminishing need for market interventions like affirmative action. But if the overall wage gap has increased, we cannot draw absolutely firm conclusions that market intervention is required. The wage gap could have increased because the group in which African American females have improved their relative attainment (high school graduates and "some college") has experienced declining real wages, while the group in which African American females' relative attainment has not improved (college graduates) has experienced rising real wages.

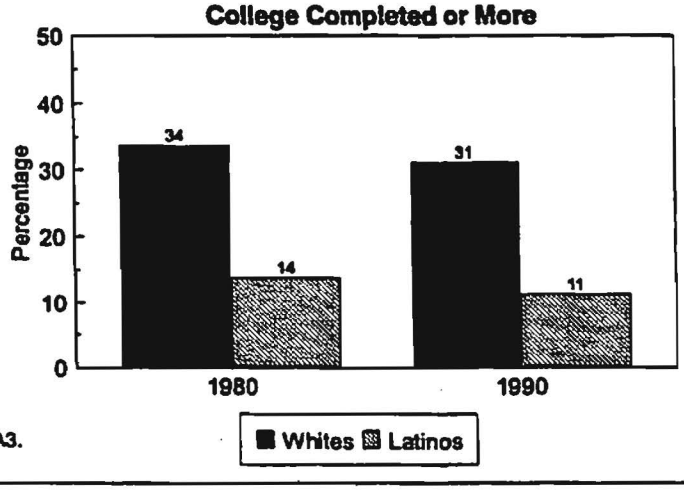
Interpreting similar data for Latinos is difficult because many data sources do not distinguish between native-born and immigrant Latinos. Thus, if we examine the experience of 25- to 34-year-old Latinos in the workforce in 1995, we cannot tell whether these workers were part of California high school graduating classes from 1978 to 1987 or whether they immigrated as young adults without attending school in this country.

We do, however, have separate data for native and foreign-born Latino workers in 1980 and 1990, but not for 1995. As **Figure 3** shows, the high school graduation rate for male native-born Latino 25-

## FIGURE 3
## Educational Attainment, 1980-90, California, Whites and Latinos, Males




Source: Appendix Table A3.

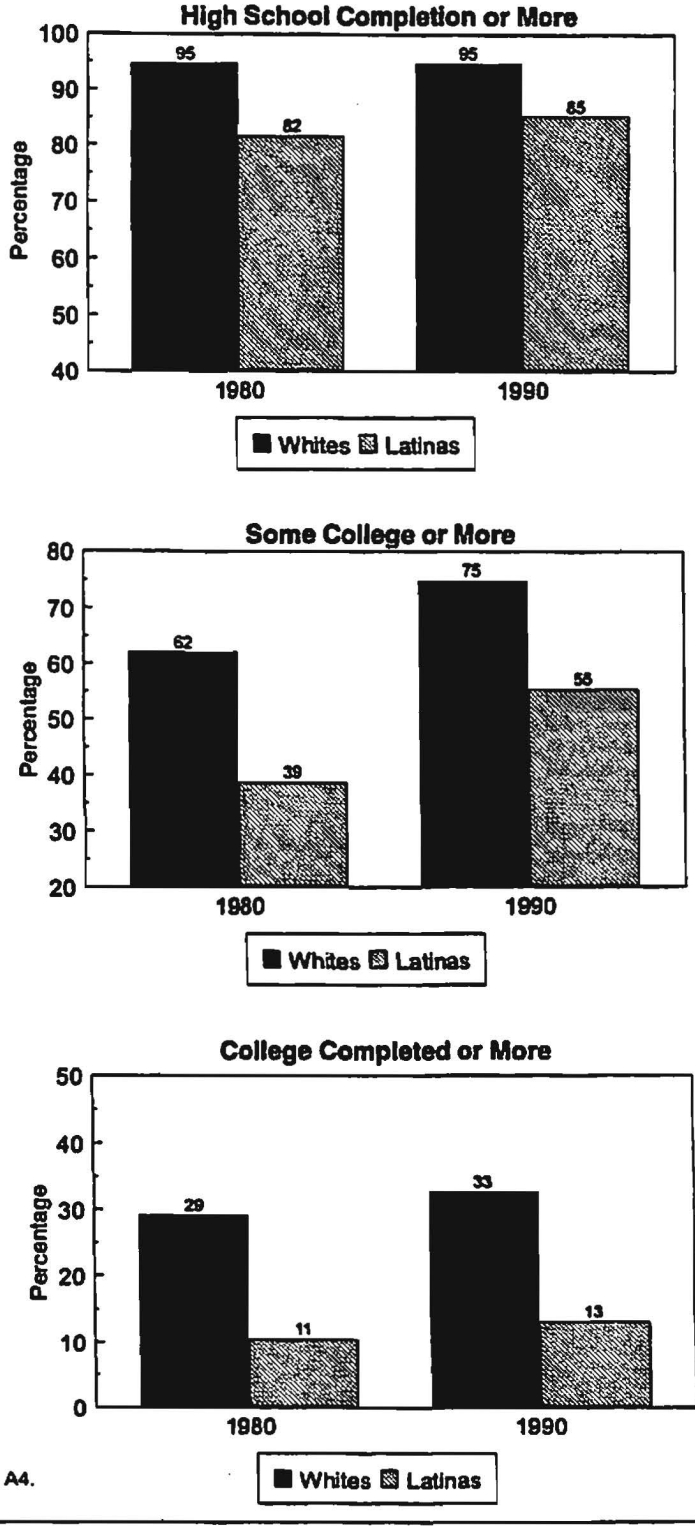
to 34-year-old workers fell slightly, from 79% in 1980 to 78% in 1990. This decline is similar to the slight falloff for young white workers in the same period. As with whites, the share of young Latino male workers with some college education grew, from 44% to 47%. And, again like whites, the share of young male Latino workers with a four-year college degree fell, from 14% to 11%. We noted above that the white cohort of 25- to 34-year-olds in 1995 then rebounded with a higher four-year college graduation rate. We cannot say from the available data whether the same thing happened for native-born Latinos.

**Figure 4** shows that, as with white females, educational attainment of young native-born Latina workers improved considerably. For 25- to 34-year-old Latina workers, high school graduation rates rose from 82% in 1980 to 85% in 1990, still below the white female level but less so. The share of young Latina workers with "some college" jumped dramatically, from 39% in 1980 to 55% in 1990, substantially narrowing the gap with white females. The share of young Latina workers with college degrees increased from 11% in 1980 to 13% in 1990. Thus, though Latinas increased their levels of college graduation at a slightly faster rate than did white females, the gap between white female workers and Latina workers remained relatively stable in this regard (29% vs. 11% in 1980; 33% vs. 13% in 1990).

It seems that native-born Latina workers age 25-34 in 1990 improved their educational attainment, compared to a similar cohort 10 years earlier, at about the same pace as did African American female workers. Native-born male Latino workers, however, did not improve their educational attainment as rapidly as did African American male workers during this period. We cannot infer from the data whether these patterns continued for native Latinos and Latinas from 1990 to 1995.

Based on available data, we might expect the overall wage gap between young white male workers and young male Latino workers to have remained relatively stable from 1980 to 1990. In both cases, the later cohorts had slightly lower rates of high school and college graduation, but significantly higher rates of "some college" attended. For females, we might expect a narrowing wage gap: the cohort of working Latinas who were 25 to 34 years old in 1990 had significantly more high school and college graduates and a lot more members with "some college" than did the similar cohort of Latina workers in 1980. Moreover, the educational gains of young working Latinas were substantially greater than the gains of comparable white female workers for both those who graduated from high school and for those who attended "some college."

## FIGURE 4
## Educational Attainment, 1980-90, California, Whites and Latinas, Females




Source: Appendix Table A4.

# THE EDUCATIONAL ACHIEVEMENT OF YOUNG CALIFORNIANS

Knowing the relative trends in attainment (years of school completed) is important, because many employers consider attainment in making their initial hiring decisions. Few employers examine test scores. Thus, regardless of the quality of education, we would still expect a narrowing of the gap in educational quantity, or attainment, to be reflected to some extent in labor-market outcomes.

Nonetheless, the narrowing of employment qualifications will be limited by the *quality* (as opposed to the quantity) of more schooling. Though young minority workers may recently have completed more years of school than did previous cohorts, they may not be able to hold jobs to which they were presumed qualified, or promoted within organizations at expected rates, if academic achievement did not improve commensurate with their attainment. Thus, it is also important to look at what happened to the relative test scores of whites and minorities, males and females, who later entered the workforce.

We first look at Scholastic Aptitude Test (SAT) scores. SAT scores can be misinterpreted if they are used to describe the overall quality of schooling, because SAT test takers are a self-selected group. Thus, declining average SAT scores may simply mean that a larger and less elite group of students chose to take the test.

But for our purposes, SAT trends are instructive. SAT tests are generally taken by high school juniors and seniors who plan to go to college. Indeed, the number of all California students who have taken the SAT test has gone up at roughly the same rate as the number of students who attend California's public four-year colleges. Because we know that, for most groups, a larger proportion of high school students went to college and a larger proportion graduated from college in later than in earlier years, the SAT trends can suggest how the academic preparation of those who went to college compares from cohort to cohort.

There are other ways of thinking about the self-selection problems of SAT test takers. First, if a larger proportion of a particular group (say, African American 17-year-olds) takes the SAT test in a particular year, we would ordinarily expect the average African American score to decline, because a larger (and thus less elite) group of African American students are now taking the test. If, despite an expansion of the pool, the average score increases, the increase is all the more impressive.

Second, if the proportion of a particular group, like African Americans, who actually attend college increases at a faster rate than the increase in proportion of those who take the SAT, we cannot be assured that the increase in average SAT scores reflects an increase in the average quality of African American college graduates. It may have been the case that, previously, only higher-scoring students actually attended college, but that now college attendees are more representative of all SAT test takers. But if, on the contrary, the proportion actually attending college increases at the same or at a slower rate than the increase in the proportion of those taking the SAT test, then any increase in average SAT scores probably reflects an improvement in the quality of college students.

Recall that we want to compare the prior educational achievement of workers who were 25- to

34-years-old in 1980, 1990, and 1995. Thus, we want to examine the test scores of 17-year-olds from 1963-72, 1973-82, and 1978-87. However, the College Board did not begin to report test scores by race and ethnicity until 1976. Consequently, we can examine SAT scores only for those workers who were 25 to 31 years old in 1990 and those who were 25 to 34 years old in 1995. Further, we do not have separate male and female California SAT data for race and ethnic groups.

Nonetheless, the data suggest that an overall narrowing of the attainment gap has been matched by a narrowing of the achievement gap as well. For California's white students, the average verbal score was basically unchanged, from 456 in 1976 to 453 in 1987. The average math score was also stable, going from 494 to 499 in the same period.

For California's African American students, however, the average verbal score rose from 331 in 1976 to 359 in 1987, and the average math score rose from 354 to 388. Averaging the mean total scores (verbal and math) for the years 1976 to 1982 (the cohort of workers who would have been 25 to 31 years old in 1990), and comparing it to the average of the means for the years 1978 to 1987 (the cohort of workers who would have been 25 to 34 years old in 1995) shows an increase in African Americans' scores from 695 to 716. This represents an increase of about 0.1 standard deviations, equivalent to slightly more than three points in percentile rank.

The average number of African American test takers was 6,377 from 1976 to 1982, compared to an almost identical 6,313 from 1978 to 1987. During this time the number of African American 17-year-olds in California was also stable, going from 37,560 to 37,112 between these two periods. Thus, the increase in average scores for African American test takers probably represents a genuine improvement in academic quality and not selection factors.

Without reading too much into these figures, the evidence from SAT scores suggests that the increase from 1990 to 1995 in the percentage of young African American workers who had either graduated from college or had some college experience may also reflect an increase in the quality of these workers. Greater average achievement accompanied greater average attainment.

Average verbal SAT scores for Mexican American students rose from 368 in 1976 to 374 in 1987; math scores rose from 404 to 419. Again, this increase took place while the average number of Mexican American test takers grew from 6,671 for the 1976-82 group to 7,329 for the 1978-87 group. The proportion of Latino high school students who took the test also increased, from 8% of all Latino 17-year-olds in the first period to 9% in the second period. (From 1976 to 1987, the percent of Latino 17-year-olds who took the SAT jumped from 7% to 11%.) Thus, the scores rose slightly at a time when a significant expansion of the test-taking pool made an increase in average scores much more difficult to achieve.

We noted above that there were big gains in the share of minority students who graduated from high school and who went on to community colleges, but not in the share who graduated from four-year colleges (or who planned to do so). For these students, we cannot estimate the quality of their educational credentials by looking at SAT scores because they are unlikely to have taken the SAT. There is, however, a test given to a sample of all 17-year-olds, regardless of whether they plan to go to

four-year colleges: the National Assessment of Educational Progress (NAEP). If trend data were available for California's race and ethnic groups from this test, we could better estimate whether the narrowing of the high school graduation and "some college" gap between minority and white students should lead us to expect a narrowing of the wage gap when these students enter the labor force.

However, NAEP score trend data are not reported for California's racial and ethnic groups. The best we can do is look at national trend data in NAEP scores for the years when the cohorts we are examining were 17 years old and infer what this means for California.

NAEP reading scores represent a range of reading skills. A score of 150 reflects an ability to follow brief written directions. A score of 200 reflects an ability to combine ideas and make inferences based on short, uncomplicated passages. A score of 250 reflects an ability to make inferences and reach generalizations from passages dealing with literature, science, and social studies. A score of 300 reflects an ability to find, understand, summarize, and explain relatively complicated information. A score of 350 reflects an ability to synthesize and learn from specialized and complex texts like scientific materials, literary essays, and historical documents.

Nationally, the average NAEP reading proficiency score of white 17-year-olds rose from 291 in 1971 to 295 in 1988. For African American 17-year-olds, the gain was greater, from an average of 239 in 1971 to 274 in 1988. The score for Latino 17-year-olds rose from 252 in 1975 to 271 in 1988 (Mullis et al. 1994, Fig. 7.2, 137). Thus, while average scores for whites remained higher, the average scores of all three groups in 1988 reflected the ability to make inferences and reach generalizations from passages dealing with literature, science, and social studies.

The NAEP also distinguishes five levels of math scores. Students with a score of 150 can recognize simple situations in which addition and subtraction apply. Those at the 200 level also know basic multiplication and division and can read information from charts and graphs. Students at the 250 level can apply addition and subtraction skills to one-step word problems, can compare information from charts and graphs, and can analyze simple logical relations. Those at the 300 level perform moderately complex procedures and reasoning, like computing decimals, fractions, and percents; interpreting simple inequalities; evaluating formulas; and solving simple linear equations. Students at the 350 level can solve two-step problems using variables, can identify equivalent algebraic expressions, and are developing an understanding of functions and coordinate systems.

Average math NAEP scores of white 17-year-olds were 310 in 1973, 308 in 1986, and then back at 310 in 1990. For African American 17-year-olds, again there was a relative gain, from an average math score of 270 in 1973, to 279 in 1986, to 288 in 1990. For Latinos, the scores rose from 277 in 1973, to 283 in 1986, to 284 in 1990 (Mullis et al. 1994, Fig. 4.2, 80).

These are highly significant gains. In 1978, the gap between white and African American mathematics NAEP scores among 17-year-olds was over 1.1 standard deviations, meaning that the average score for African Americans was 37 percentile points lower than the average score for whites. By 1990, the gap had been reduced to 0.6 standard deviations, or about 21 percentile points. On the verbal test, the gap was reduced from 1.2 standard deviations (about 41 percentile points) to 0.7 standard

deviations (about 24 percentile points). Thus, the gap between white and African American NAEP scores was reduced by about 40% from the 1970s to 1990 (Grissmer et al. 1994, 16-17).

Gains, though of smaller magnitude, were also posted by Latinos. (While NAEP score reports do not distinguish between the scores of native- and foreign-born students, we are less concerned with the distinction here, since NAEP scores are reported only for students in high schools, and so would not be affected by immigrants who never attended school in this country.) In mathematics, the white-Latino gap for 17-year-olds was reduced from about 0.9 standard deviations (about 31 percentile points) to about 0.8 standard deviations (about 27 percentile points). On the verbal test, the gap was reduced even more—from about 0.95 standard deviations (about 32 percentile points) to about 0.5 standard deviations (about 17 percentile points) (Grissmer et al. 1994, 16-17).

In the case of both reading and math, therefore, the gap between NAEP scores of minorities and whites narrowed nationally while students preparing for the labor markets of 1980, 1990, and 1995 were still in school. As noted, NAEP trend data are not available for California or for race and ethnic groups within California. However, NAEP data are reported for four geographic regions—Northeast, Southeast, Central, and West. Overall score patterns for all 17-year-olds in the Western Region were similar to those for all 17-year-olds in the nation in both reading and math (Mullis et al. 1994, Fig. 7.4, 141, and Fig. 4.4, 85). Although we cannot be certain, this was probably also true in California, for California is the largest state in the Western region.

In sum, although conclusions must be tentative, there is nothing in the NAEP results to suggest that young minority workers age 25-34, participating in the labor market with higher rates of high school graduation in 1995 than in 1990 or in 1980, did so with less academic preparation. On the contrary, based on what we can infer from these data, the narrowing of the attainment gap is probably paralleled by a narrowing of the achievement gap as well.

## THE RELATIVE WAGES OF YOUNG CALIFORNIANS

If labor markets work well, then a narrowing education gap between minority and white workers should produce a narrowing wage gap. **Figure 5** compares our estimates of the median wages, in 1979, 1989, and 1995, of all 25- to 34-year-old white male workers to 25- to 34-year-old African American male workers (see the appendix tables for a description of wage calculations) and of all white female to African American female workers. We see that the gap in median wages has widened, notwithstanding the overall narrowing of the gap in educational attainment.

Wages for African American males fell as a share of wages for white males, from 84% in 1979, to 80% in 1989, to 77% in 1995. Relative wages for African American females also fell compared to wages of white females, from 101% in 1979, to 90% in 1989, and to 86% in 1995.

Both African American males and females made their largest relative attainment gains at the high school completion and "some college" levels, where wages for all workers declined or stagnated, in contrast to the college-completed level, where wages for all workers improved relatively. Thus, because of the shifting weights of groups where real wages declined (high-school-educated and "some college"-educated workers), these data on declining relative wages for relatively better-educated African American workers are suggestive of a market distortion, but not definitive. To paint the picture more completely, we now look at the relative wages within each education group. Because the achievement (test scores) of minority workers has improved relative to white workers, we would expect the wage gap to narrow within the group of high-school-educated workers, within the group of "some college"-educated workers, and within the group of college graduates.

Panels 2 and 3 of Figure 5 show the real median wages of young (age 25-34) minority workers in California, in both 1979 and 1989, as a percent of white workers of the same age cohort with similar educational attainment. In each case, minority wages fell as a share of white wages; in other words, the "within-group" wage gap widened from 1979 to 1989.

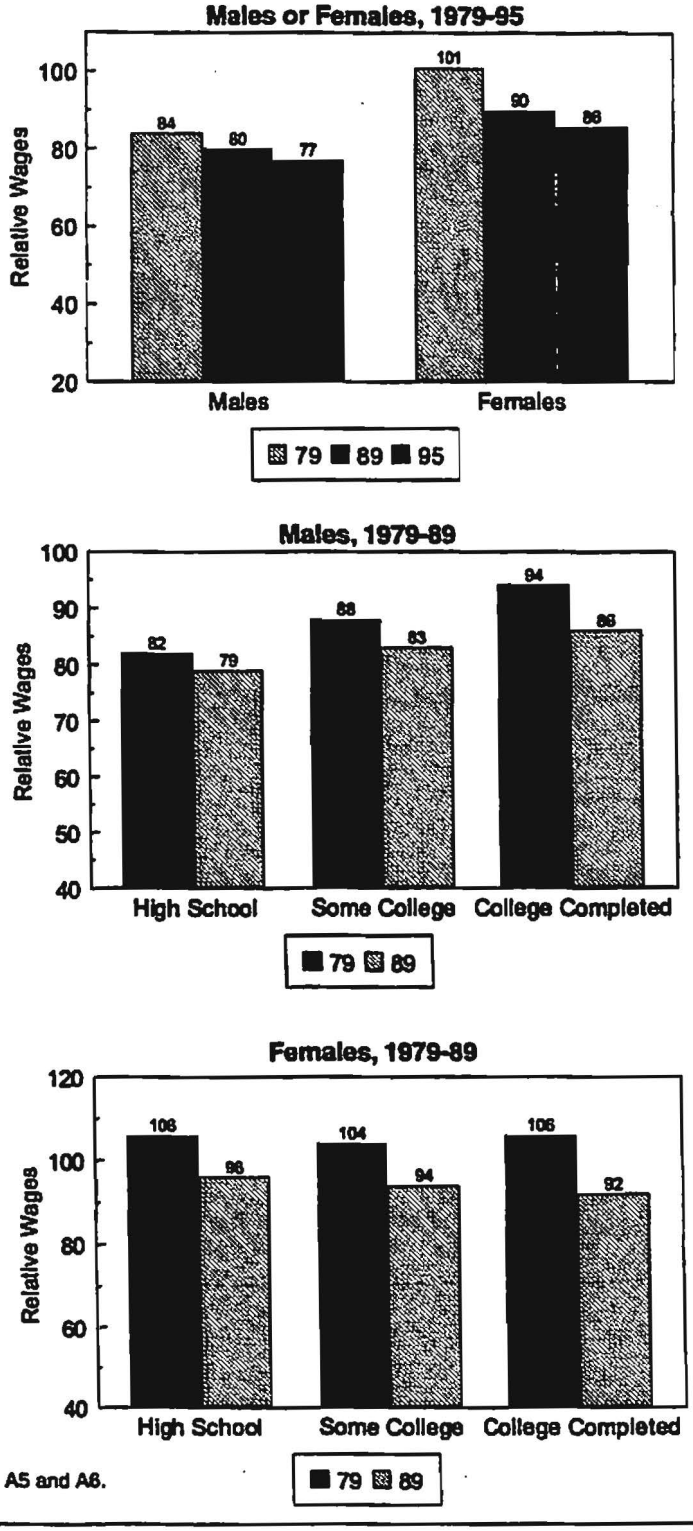
As panel 2 illustrates, for African American males with a high school education only, relative wages fell between 1979 and 1989, from 82% of wages of similarly educated white workers to 79%. For those with "some college," the relative wage dropped from 88% to 83%. For college graduates, it dropped from 94% to 86%.

For African American females (panel 3), relative wages also fell. Indeed, whereas in 1979 working African American females age 25-34 with a high school education earned 6% more than working white females from that age cohort with similar educational attainment, by 1989 the relative wages of these African American females had fallen to 4% below the level of whites. African American females with "some college" earned 4% more in 1979 but 6% less in 1989; and those with four-year college degrees earned 6% more than comparable white females in 1979 but 8% less in 1989.

As **Figure 6** shows, Latinos, male and female, age 25-34 lost ground to white workers at each of the comparable education levels from 1979 to 1989.

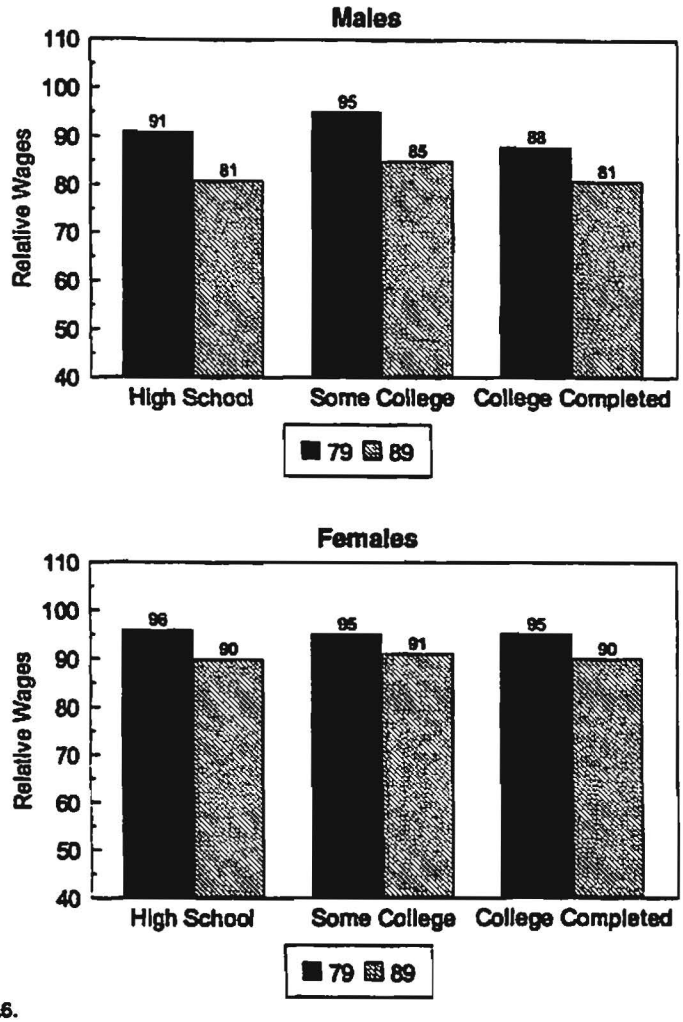
There is no consistent data series that shows relative wages of young workers from 1979 to 1989 and then from 1989 to 1995. The data for 1979 and 1989 displayed in Figures 5 and 6 are from the

## FIGURE 5
## Relative Wages, African American/White, California, by Gender and Education




Source: Appendix Tables A5 and A6.

**FIGURE 6**
**Relative Wages, Latino/White, California, by Gender and Education**



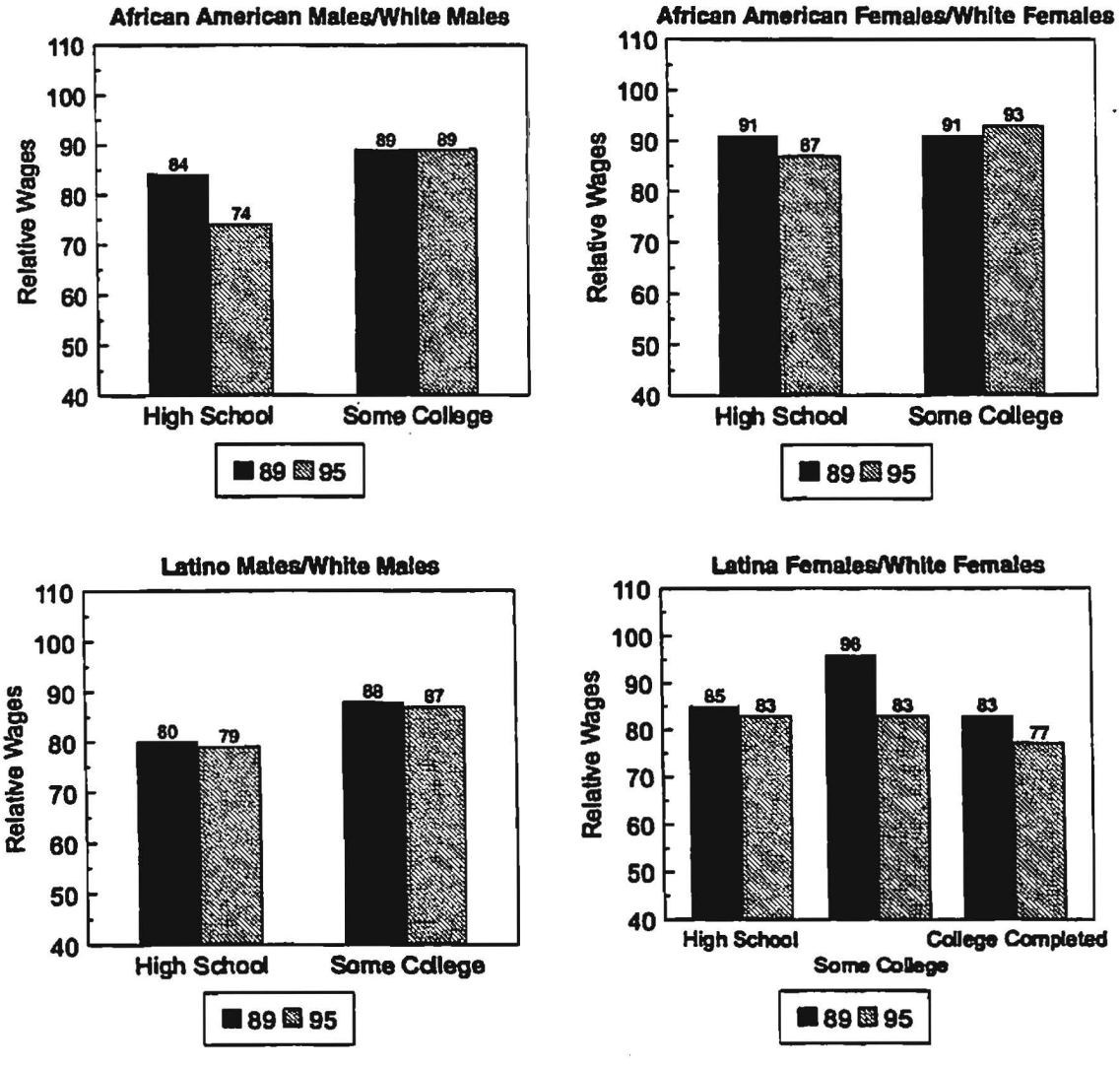

Source: Appendix Table A6.

U.S. Census of 1980 and 1990. (For a full description of the source, see the appendix tables.) The Census Bureau's Current Population Survey (CPS) collects data that can be used to observe relative wages in 1989-90 and 1994-95, but because the CPS is based on a sample and not the entire population, the two series are not strictly comparable. (For example, the 1990 Census found that, in 1989, the average wage for white male workers 25 to 34 years old in California with a high school education only was $14.08 in 1995 dollars. The CPS reports that the 1989-90 average wage for such workers was $13.28.) However, while the two series cannot be compared for information about absolute wage levels, there is no reason to doubt the validity of the trends revealed within each respective survey. Thus, data from the CPS can be used to show changes from the 1989-90 period to the 1994-95 period

in the relative wages of minority and white workers. (For simplicity, we refer to these years as "1990" and "1995.")

Figure 7 displays the results. For California's African American males age 25- 34 with a high school education only, relative wages fell substantially, from 84% to 74% of the wages of comparably educated white male workers of the same age cohorts. For those with "some college," there was no

**FIGURE 7**
**Relative Wages, 1989-95, California, by Race, Gender, and Education**




Source: Appendix Table A7.

change in relative wages—African Americans earned an average of 89% of the wages of whites with "some college" in both 1990 and 1995. (Because the CPS is based on a sample of the population, and because there are relatively few California African Americans with four-year college degrees, the CPS sample does not collect enough data on college-educated workers in these California cohorts to permit meaningful conclusions on relative wages of those with four-year college degrees.)

The next panel of Figure 7 shows that relative wages also fell for African American females from the 1990 to the 1995 cohort. While the CPS series showed these females with "some college" earning 4% more than comparably educated whites of the same age cohort in 1990, their earnings fell to 7% less than those of whites by 1995.

For Hispanic males with a high school education or "some college," relative wages were nearly unchanged from 1990 to 1995. For Latino females, there was a small drop in relative wages for those with a high school education, a large drop in relative wages for those with "some college," and a moderate drop for those with a four-year college education.

The data show, therefore, that the wage gap for comparably educated minority and white workers widened from 1979 to 1990, and then widened again from 1990 to 1995.

## EDUCATION AND WAGES COMPARED

While no single statistic is sufficiently reliable to prove a case, the broad trends are remarkably consistent in direction—the data show that the educational attainment and achievement of minority 17-year-olds relative to the attainment and achievement of comparable whites improved steadily, and in some cases dramatically, from 1972 to 1988 in California. Yet when these youths entered the labor market, their improved relative qualifications did not result in improved relative wages. On the contrary, these more educationally qualified minority workers found that, when they were in their late twenties and early thirties, their wages were lower relative to those of comparably educated white workers than they were for previous cohorts. Relative wages for young minority workers declined from 1979 to 1989 and then declined again from 1990 to 1995.

Thus, we can reasonably conclude that the labor market is not working perfectly, at least with respect to compensating minority workers more equally relative to their improved educational qualifications. While a thorough evaluation of affirmative action is beyond the scope of this report, it is clear that, contrary to the stated fears of affirmative-action opponents, its continuance is unlikely to distort the efficiency of the labor market. Rather, based on the evidence examined here, affirmative action could make the labor market more efficient, by putting pressure on wages to more consistently and more rationally reflect workers' educational qualifications.

# APPENDIX I
## Minority Access to California's Institutes of Higher Education

This report shows that the average educational attainment of minority workers has grown, leading to a more qualified minority workforce. But has minority attainment grown as much as it should have, given what we know about minority achievement?

To address this question, we examine SAT test taking by minority students and compare it with the minority enrollment of undergraduates at the University of California, for which the SAT is an admissions requirement. We find that the number of minority SAT test takers was increasing dramatically while minority SAT scores were either rising or falling slightly—falling much less than we would expect from such a dramatic increase (and, presumably, broadening) in the base of test takers. Yet the number of minority undergraduates subsequently enrolled in the University of California has not always paralleled these achievement gains.

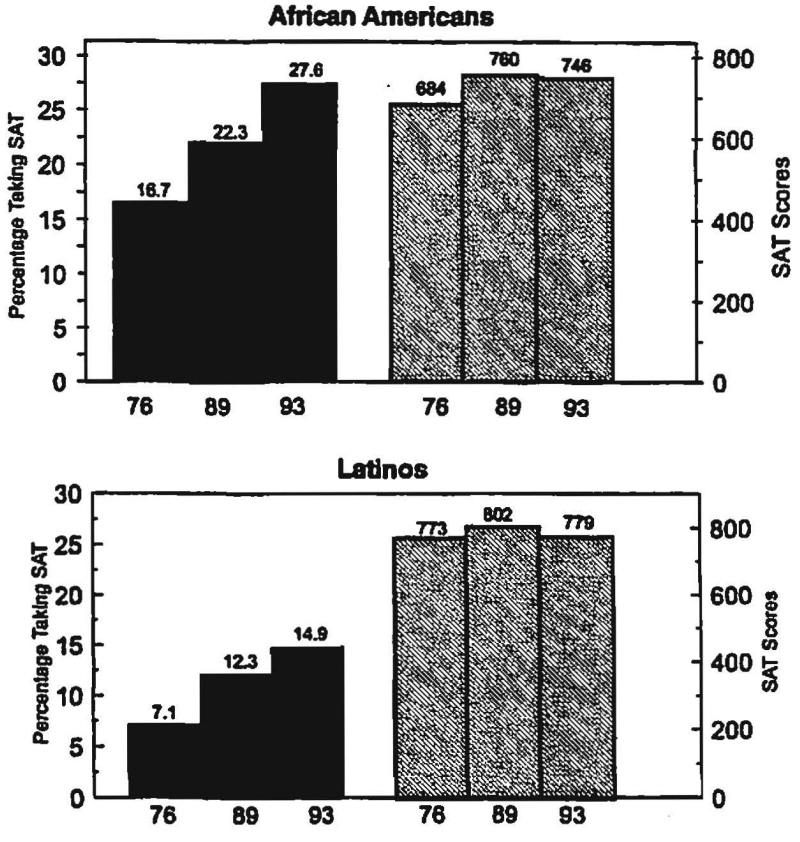
**Figure A1** shows that, in 1976, about 5,800 African American students in California, 16.7% of all African American 17-year-olds in California that year, took the SAT. They had an average score (verbal and math combined) of 684. In 1993, however, about 8,200 African American students, 27.6% of all African American 17-year-olds in California, took the test—a 42% increase in the number of test takers—and they had an average score of 746. The average score peaked at 760 in 1989, when 22.3% of all African American 17-year-olds took the test, and then fell off a little in the next four years while the number of test takers continued to grow substantially—a 13% increase in those four years alone. (In 1994 and 1995, African American mean scores fell further, but the number of test takers continued to climb, both as an absolute number and as a share of African American 17-year-olds.)

During this period, the total number of California students (all race and ethnic groups) who took the SAT increased more slowly, from about 109,000 to 120,000 (about 10%), and the overall average score was unchanged (900 in 1976 vs. 899 in 1993). One would expect a narrowing of the SAT score gap between African American and white students to be reflected in relative enrollment rates.

**Figure A2** shows that there was a significant increase in African American enrollment at the University of California from 1980 (3,500 African American students, or 3.6% of all enrolled students) to 1989 (5,800 African American students, or 4.7% of all enrolled students), but then a rapid decrease from 1989 to 1995 (to 5,000 students, or 4.0% of all enrolled students), a decrease that cannot be explained by the slight falloff in SAT scores during this period while the number of SAT test takers soared. On balance, the significant African American improvement on the SAT does not seem to have translated into significant gains in enrollment at the University of California, either absolutely or relative to other groups.

Enrollments at California State University (where the SAT is not a requirement for admission) reflect the trend in the NAEP for the 1980-95 period. (We noted in the text that national NAEP scores suggest a relative improvement in the academic preparation of African American students compared to all students.) In the California State system, African American enrollment was 5.7% of total student

**FIGURE A1**
**Percent Taking SAT and SAT Score, by Race, 1976-93, California**

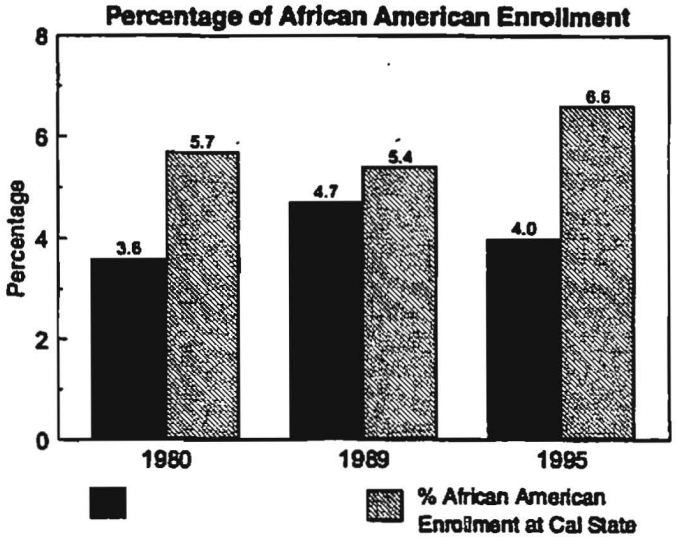


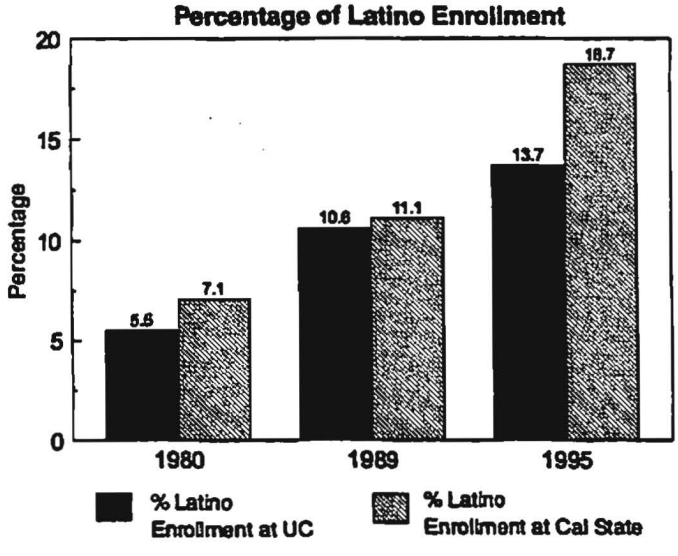

Source: Appendix Table A8.

enrollment in 1980, dropped to 5.4% in 1989, but then recovered and grew to 6.6% of total enrollment in 1995.

We do not conclude from these trends that admissions policies at the University of California are discriminatory. It may be the case that economic problems have made it increasingly difficult for qualified African American students (whose increased SAT test taking and better scores reflect higher-education aspirations) to afford to attend the University of California, and that economic pressures have played less of a role in preventing African American students from attending the less-expensive California State University. Our only conclusion here is that trends in the enrollment policies of the University of California do not reflect trends in relative qualifications of African American 17-year-olds. If, as California's Master Plan for higher education suggests, a well-functioning "market" in public higher education is one based on merit, not economic means, there may be a market imperfection in

## FIGURE A2
## Percentage of Enrollment, by Race, 1980-95
University of California and California State




Source: Appendix Table A9.

public higher education with respect to African Americans. Affirmative action in admissions may be one method of offsetting this imperfection. (Increased financial aid might be another.)

Figures A1 and A2 also display SAT and enrollment trends for Latinos. We are less certain of these data because sources are not consistent in how they categorize Latinos—for example, in 1987 the College Board added a category of "Other Hispanics" (other than Mexican Americans or Puerto Ricans), and we have had to estimate this category for earlier years. Nonetheless, with the data we have, we show that, as was the case with African American scores, Mexican American SAT scores (verbal plus math) grew slowly from 1976 and peaked in 1989 at 802. These gains were especially significant because they took place at the same time as a substantial increase in the number of Latino test takers, from 7.1% of all California Latino 17-year-olds in 1976 to 12.3% in 1989. Then, from 1989 to 1993, Mexican American scores dipped (to 779 in 1993), but probably less than could be explained by another big jump in test takers: in 1993, 14.9% of all Latino 17-year-olds took the SAT. If we had data that permitted us to compare the SAT scores of the top 12% of Latino students in 1989 and 1993, it is likely we would find a further improvement in scores.

Thus, with Latino scores maintaining their level over this entire time period, while Latino test takers (as a proportion of Latino 17-year-olds and as a proportion of all SAT test takers) rose substantially, we would expect to find a trend of increasing absolute and relative enrollment at the University of California.

We do, in fact, find this to be the case. Latino enrollment at the University of California as a share of total enrollment grew steadily, from 5.5% in 1980, to 10.6% in 1989, to 13.7% in 1995, a gain whose direction is consistent with the test-score improvements. This was a period in which affirmative action was an important part of the UC admissions process. Whether Latinos would have experienced the same rise in enrollment without such policies we cannot say, based on these data alone.

Meanwhile, Latino enrollment at California State University increased from 7.1% of all enrolled students in 1980, to 11.1% in 1989, to 18.7% in 1995. This trend is also consistent in direction with the trend of real and relative improvements in nationally reported Latino NAEP scores. Again, we cannot say whether, in the absence of affirmative-action programs at California State University, these enrollment gains would have been realized.

## TABLE A1
## Educational Attainment, by Race, California Males, 25-34-Year-Olds, in Civilian Labor Force, With Earnings, 1980-95

| | Non-Hispanic Whites | | | Latinos | | | African Americans | | | Asian Americans | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Males | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 |
| High School Graduate + | 93.6% | 91.5% | 96.0% | 55.4% | 49.7% | 54.3% | 90.3% | 90.8% | 95.0% | 91.3% | 89.7% | 96.2% |
| Some College + | 67.5 | 68.5 | 69.7 | 29.9 | 28.8 | 27.2 | 56.7 | 65.3 | 63.3 | 74.4 | 75.6 | 76.2 |
| College Graduate + | 34.0 | 31.8 | 34.8 | 9.4 | 6.9 | 6.5 | 17.8 | 18.4 | 19.5 | 45.9 | 42.5 | 44.1 |

Source: U.S. Department of Commerce, Bureau of the Census, Five Percent Census, State of California, 1980 and 1990; Outgoing Rotation Group 1994-95 Current Population Survey. Sample defined as all those with earnings, both not attending and attending school.

Notes: (a) High school graduate in 1980 defined as those with 12 years of schooling competed (no evidence of degree received in1980 Census). (b) College graduate defined in 1980 as those with 16 years of schooling or more (no evidence of degree received in 1980 Census). In both (a) and (b), 1990 definition includes only those with high school degree received and those with bachelor's degree or more.

## TABLE A2
## Educational Attainment, by Race, California Females, 25-34-Year-Olds, in Civilian Labor Force, With Earnings, 1980-95

| | Non-Hispanic Whites | | | Latinos | | | African Americans | | | Asian Americans | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Females | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 | 1980 | 1990 | 1995 |
| High School Graduate + | 94.5% | 94.8% | 96.9% | 64.9% | 64.2% | 71.0% | 92.7% | 94.0% | 98.9% | 90.6% | 91.3% | 94.0% |
| Some College + | 61.9 | 74.9 | 72.5 | 30.8 | 40.3 | 40.7 | 56.4 | 73.9 | 73.8 | 71.6 | 77.9 | 76.3 |
| College Graduate + | 29.1 | 33.0 | 35.2 | 8.4 | 9.8 | 11.7 | 17.1 | 20.6 | 18.4 | 42.8 | 44.0 | 48.4 |

Source: U.S. Department of Commerce, Bureau of the Census, Five Percent Census, State of California, 1980 and 1990; Outgoing Rotation Group 1994-95 Current Population Survey. Sample defined as all those with earnings, both not attending and attending school.

Notes: (a) High school graduate in 1980 defined as those with 12 years of schooling competed (no evidence of degree received in1980 Census). (b) College graduate defined in 1980 as those with 16 years of schooling or more (no evidence of degree received in 1980 Census). In both (a) and (b), 1990 definition includes only those with high school degree received and those with bachelor's degree or more.

## TABLE A3
## Educational Attainment, by Race, Ethnicity, and Birthplace; California Males, 25-34-Year-Olds, in Civilian Labor Force, 1980 and 1990

| | Non-Hispanic Whites | | Latinos | | African Americans | | Asian Americans | |
|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| **Native-Born** | | | | | | | | |
| High School Grad[a] | 26.3% | 23.5% | 34.9% | 31.2% | 33.7% | 27.1% | 16.4% | 11.0% |
| Some College | 33.8 | 36.9 | 30.6 | 35.3 | 39.3 | 44.9 | 33.8 | 34.0 |
| College Grad or More[b] | 33.7 | 31.1 | 13.8 | 11.2 | 17.3 | 17.4 | 45.2 | 50.5 |
| High School + | 93.8 | 91.5 | 79.3 | 77.7 | 90.3 | 90.8 | 95.4 | 95.5 |
| Some College + | 67.5 | 68.0 | 44.4 | 46.5 | 56.6 | 64.6 | 79.0 | 84.5 |
| Total Sample | 57,527 | 59,069 | 8,885 | 10,689 | 5,116 | 4,978 | 1,634 | 2,194 |
| **Foreign-Born** | | | | | | | | |
| High School Grad[a] | 21.8% | 17.2% | 16.8% | 15.6% | 23.4% | 14.2% | 17.2% | 15.1% |
| Some College | 29.3 | 33.1 | 11.1 | 14.7 | 33.9 | 43.5 | 26.0 | 32.8 |
| College Grad or More[b] | 38.8 | 41.0 | 5.3 | 4.7 | 30.8 | 31.4 | 46.2 | 40.0 |
| High School + | 89.9 | 91.3 | 33.2 | 35.0 | 88.1 | 89.1 | 89.4 | 87.9 |
| Some College + | 68.1 | 74.1 | 16.4 | 19.4 | 64.7 | 74.9 | 72.2 | 72.8 |
| Total Sample | 3,194 | 4,543 | 9,540 | 20,322 | 192 | 423 | 3,428 | 6,925 |

Source: U.S. Department of Commerce, Bureau of the Census, Five Percent Census, State of California, 1980 and 1990. Sample defined as all those with earnings, both not attending and attending school.

Notes: (a) High school graduate in 1980 defined as those with 12 years of schooling competed (no evidence of degree received in 1980 Census). (b) College graduate defined in 1980 as those with 16 years of schooling or more (no evidence of degree received in 1980 Census). In both (a) and (b), 1990 definition includes only those with high school degree received and those with bachelor's degree or more.

## TABLE A4
## Educational Attainment, by Race, Ethnicity, and Birthplace, California Females, 25-34-Year-Olds, in Civilian Labor Force, 1980 and 1990

| | Non-Hispanic Whites | | Latinos | | African Americans | | Asian Americans | |
|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| **Native-Born** | | | | | | | | |
| High School Grad[a] | 32.7% | 20.0% | 43.0% | 29.9% | 36.3% | 20.3% | 18.6% | 10.2% |
| Some College | 32.8 | 42.1 | 28.2 | 42.2 | 39.4 | 53.8 | 33.9 | 34.0 |
| College Grad or More[b] | 29.2 | 32.7 | 10.5 | 13.2 | 17.0 | 19.9 | 44.6 | 52.7 |
| High School + | 94.7 | 94.8 | 81.7 | 85.3 | 92.7 | 94.0 | 97.1 | 96.9 |
| Some College + | 62.0 | 74.8 | 38.7 | 55.4 | 56.4 | 73.7 | 78.5 | 86.7 |
| Total Sample | 40,804 | 47,487 | 7,301 | 8,865 | 5,131 | 4,333 | 1,475 | 1,954 |
| **Foreign-Born** | | | | | | | | |
| High School Grad[a] | 30.8% | 18.0% | 20.7% | 18.0% | 35.4% | 15.8% | 19.1% | 14.6% |
| Some College | 33.1 | 37.6 | 13.7 | 19.3 | 30.7 | 46.7 | 26.6 | 33.9 |
| College Grad or More[b] | 27.1 | 39.0 | 5.4 | 6.4 | 24.4 | 30.6 | 41.9 | 41.0 |
| High School + | 91.0 | 94.6 | 39.8 | 43.7 | 90.5 | 93.1 | 87.6 | 89.5 |
| Some College + | 60.2 | 76.6 | 19.1 | 25.7 | 55.1 | 77.3 | 68.5 | 74.9 |
| Total Sample | 2,046 | 2,880 | 4,904 | 9,092 | 127 | 304 | 3,247 | 5,818 |

Source: U.S. Department of Commerce, Bureau of the Census, Five Percent Census, State of California, 1980 and 1990. Sample defined as all those with earnings, both not attending and attending school.

Notes: (a) High school graduate in 1980 defined as those with 12 years of schooling competed (no evidence of degree received in 1980 Census). (b) College graduate defined in 1980 as those with 16 years of schooling or more (no evidence of degree received in 1980 Census). In both (a) and (b), 1990 definition includes only those with high school degree received and those with bachelor's degree or more.

## TABLE A5
## Estimates of Median Relative Wage Ratios, 25-34-Year-Olds, by Race, Ethnicity, and Gender, 1979-95 (Weights in Parentheses)

| Gender/ Education | 1979 White Non-Hispanic | 1979 Latino | 1979 African American | 1989 White Non-Hispanic | 1989 Latino | 1989 African American | 1995 White Non-Hispanic | 1995 Latino | 1995 African American |
|---|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | | |
| < High School Complete | 5.75 (.064) | 5.24 (.446) | 4.72 (.097) | 8.02 (.085) | 6.52 (.053) | 6.52 (.092) | 9.04 (.040) | 6.98 (.457) | 6.55 (.050) |
| High Sch. Grad. | 7.19 (.261) | 6.55 (.255) | 5.90 (.336) | 11.46 (.230) | 9.32 (.209) | 9.05 (.255) | 11.84 (.263) | 9.31 (.271) | 8.73 (.317) |
| Some College | 7.53 (.335) | 7.16 (.205) | 6.62 (.389) | 12.71 (.367) | 10.80 (.219) | 10.60 (.469) | 12.13 (.349) | 10.60 (.207) | 10.75 (.438) |
| College Grad. | 8.21 (.160) | 7.20 (.046) | 7.71 (.093) | 15.40 (.235) | 12.53 (.051) | 13.18 (.163) | 16.56 (.256) | 13.25 (.049) | 13.30 (.169) |
| Grad. School | 9.23 (.180) | 8.06 (.048) | 8.63 (.085) | 16.02 (.083) | 13.03 (.018) | 13.71 (.025) | 18.12 (.092) | 14.44 (.016) | 14.55 (.026) |
| Average Wage | 7.74 | 6.19 | 6.47 | 12.93 | 8.47 | 10.35 | 13.61 | 8.79 | 10.43 |
| Relative Wage | | 0.80 | 0.84 | | 0.66 | 0.80 | | 0.65 | 0.77 |
| **Females** | | | | | | | | | |
| < High School Complete | 3.98 (.055) | 3.84 (.351) | 4.21 (.073) | 6.46 (.052) | 5.79 (.031) | 6.18 (.06) | 7.19 (.031) | 5.64 (.390) | 6.23 (.011) |
| High Sch. Grad. | 4.97 (.326) | 4.80 (.341) | 5.26 (.363) | 8.62 (.199) | 7.72 (.239) | 8.24 (.201) | 9.65 (.244) | 7.99 (.293) | 8.36 (.251) |
| Some College | 5.50 (.328) | 5.23 (.224) | 5.74 (.393) | 10.13 (.419) | 9.19 (.305) | 9.52 (.533) | 11.02 (.373) | 9.20 (.290) | 10.22 (.554) |
| College Grad. | 6.38 (.146) | 6.05 (.041) | 6.74 (.092) | 12.85 (.263) | 11.53 (.076) | 11.88 (.176) | 14.93 (.278) | 11.51 (.095) | 14.18 (.157) |
| Grad. School | 7.59 (.145) | 7.20 (.043) | 8.02 (.078) | 14.91 (.061) | 13.37 (.022) | 13.78 (.030) | 18.57 (.074) | 15.78 (.022) | 17.64 (.027) |
| Average Wage | 5.64 | 4.71 | 5.72 | 10.67 | 7.89 | 9.60 | 12.21 | 8.65 | 10.53 |
| Relative Wage | | 0.83 | 1.01 | | 0.74 | 0.90 | | 0.71 | 0.86 |

Source: For weighted wages, Table A6 (1979 and 1989) and A7 (1995). Wage levels in 1995 should not be compared with earlier years shown here as they derive from a different data source (see text). Wages for <HSC in 1979, 1989, and where missing in 1995 (see Table A7), are estimated on basis of high school wages; similarly, for graduate school wages. Weights are taken from Table A1, with the addition of separating college graduates and those with some graduate school on the basis of original sample data.

## TABLE A6
## Estimated Median Wages, by Age Group, Race, Ethnicity, and Gender, California High School Graduates, Some College, and College Graduates, 1979 and 1989 (Mean Log Earnings in 1995 Dollars and Percent of Non-Hispanic White Wages)

| | Non-Hispanic Whites | | Latinos | | African Americans | | Asian Americans | |
|---|---|---|---|---|---|---|---|---|
| | 1979 | 1989 | 1979 | 1989 | 1979 | 1989 | 1979 | 1989 |
| **Males** | | | | | | | | |
| 18-22-Year-Old HS Grad | 9.84 | 8.22 | 9.55 | 7.52 | 8.65 | 7.45 | 9.89 | 7.37 |
| | | | (0.98) | (0.92) | (0.89) | (0.90) | (0.97) | (0.97) |
| 25-34-Year-Old HS Grad | 15.09 | 14.08 | 13.75 | 11.45 | 12.38 | 11.12 | 12.74 | 10.78 |
| | | | (0.91) | (0.81) | (0.82) | (0.79) | (0.84) | (0.76) |
| 25-34-Year-Old Some College | 15.81 | 15.62 | 15.03 | 13.27 | 13.90 | 13.03 | 14.69 | 12.26 |
| | | | (0.95) | (0.85) | (0.88) | (0.83) | (0.93) | (0.78) |
| 25-34-Year-Old College Grad | 17.23 | 18.92 | 15.11 | 15.40 | 16.18 | 16.20 | 15.78 | 18.26 |
| | | | (0.88) | (0.81) | (0.94) | (0.86) | (0.92) | (0.96) |
| **Females** | | | | | | | | |
| 18-22-Year-Old HS Grad | 7.81 | 7.34 | 8.08 | 6.94 | 8.06 | 7.48 | 8.35 | 7.41 |
| | | | (1.03) | (0.95) | (1.03) | (1.02) | (1.07) | (1.01) |
| 25-34-Year-Old HS Grad | 10.43 | 10.59 | 10.08 | 9.49 | 11.04 | 10.13 | 9.97 | 9.60 |
| | | | (0.96) | (0.90) | (1.06) | (0.96) | (0.96) | (0.91) |
| 25-34-Year-Old Some College | 11.54 | 12.45 | 10.98 | 11.29 | 12.05 | 11.70 | 11.52 | 12.22 |
| | | | (0.95) | (0.91) | (1.04) | (0.94) | (1.00) | (0.98) |
| 25-34-Year-Old College Grad | 13.39 | 15.79 | 12.70 | 14.17 | 14.15 | 14.60 | 13.33 | 14.86 |
| | | | (0.95) | (0.90) | (1.06) | (0.92) | (1.00) | (0.94) |

Source: California Five Percent Sample, U.S. Census, 1980 and 1990, all workers with earnings not in school.

## TABLE A7

## Estimated Median Wages, by Age Group, Race, Ethnicity, and Gender, California High School Graduates, Some College, and College Graduates, 1989 and 1995 (Mean Log Earnings in 1995 Dollars and Percent of Non-Hispanic White Wages)

| | Non-Hispanic Whites | | Latinos | | African Americans | | Asian Americans | |
|---|---|---|---|---|---|---|---|---|
| | 1989-90 | 1994-95 | 1989-90 | 1994-95 | 1989-90 | 1994-95 | 1989-90 | 1994-95 |
| **Males** | | | | | | | | |
| 18-22-Year-Old HS Grad | 8.18 | 6.79 | 7.36 | 6.75 | 7.01 | n.a. | 6.83 | n.a. |
| | | | (0.90) | (0.99) | (0.86) | | (0.83) | |
| 18-22-Year-Old Some College | 8.49 | 6.97 | 7.60 | 6.46 | n.a. | n.a. | 7.68 | 7.09 |
| | | | (0.90) | (0.93) | | | (0.90) | (1.02) |
| 25-34-Year-Old HS Grad | 13.28 | 11.84 | 10.57 | 9.31 | 11.21 | 8.73 | 10.74 | 9.27 |
| | | | (0.80) | (0.79) | (0.84) | (0.74) | (0.81) | (0.78) |
| 25-34-Year-Old Some College | 14.38 | 12.13 | 12.71 | 10.60 | 12.78 | 10.75 | 12.83 | 10.90 |
| | | | (0.88) | (0.87) | (0.89) | (0.89) | (0.89) | (0.90) |
| 25-34-Year-Old College Grad | 17.81 | 16.56 | 13.50 | n.a. | n.a. | 13.30 | 14.42 | 15.40 |
| | | | (0.78) | | | (0.80) | (0.81) | (0.93) |
| **Females** | | | | | | | | |
| 18-22-Year-Old HS Grad | 6.95 | 6.23 | 6.64 | 5.94 | n.a. | n.a. | 6.60 | n.a. |
| | | | (0.96) | (0.95) | | | (0.95) | |
| 18-22-Year-Old Some College | 7.04 | 6.25 | 6.64 | 6.48 | n.a. | n.a. | 7.42 | 6.73 |
| | | | (0.94) | (1.04) | | | (1.05) | (1.08) |
| 25-34-Year-Old HS Grad | 9.86 | 9.65 | 8.40 | 7.99 | 8.94 | 8.36 | 9.76 | 9.18 |
| | | | (0.85) | (0.83) | (0.91) | (0.87) | (0.99) | (0.95) |
| 25-34-Year-Old Some College | 11.36 | 11.02 | 10.89 | 9.20 | 11.80 | 10.22 | 11.69 | 10.62 |
| | | | (0.96) | (0.83) | (1.04) | (0.93) | (1.03) | (0.96) |
| 25-34-Year-Old College Grad | 15.06 | 14.93 | 12.50 | 11.51 | 15.66 | n.a. | 13.50 | 12.58 |
| | | | (0.83) | (0.77) | (1.04) | | (0.90) | (0.84) |

Source: Data from 1989 and 1990 CPS and 1994 and 1995 Outgoing Rotation Group, subsample for California.

## TABLE A8

## Total (Verbal + Math) Mean California SAT Scores, by Race and Ethnicity, and Number of California Test Takers (Thousands) as Percent of All 17-Year-Olds, by Race and Ethnicity

| | All | | | | African Americans | | | | Latinos | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | # of 17-Year-Olds | # of Test Takers | Test Takers as % of All | Mean (V+M) | # of 17-Year-Olds | # of Test Takers | Test Takers as % of All | Mean (V+M) | # of 17-Year-Olds | # of Test Takers | Test Takers as % of All | Mean (V+M) Mexican American Only |
| 1976 | 401.1 | 108.6 | 27.1% | 900 | 34.8 | 5.8 | 16.7% | 684 | 85.4 | 6.1 | 7.1% | 773 |
| 1977 | 407.2 | 107.6 | 26.4% | 897 | 36.0 | 6.3 | 17.5% | 682 | 89.0 | 7.0 | 7.9% | 768 |
| 1978 | 413.4 | 111.5 | 27.0% | 894 | 37.2 | 7.6 | 20.4% | 680 | 92.7 | 8.5 | 9.2% | 763 |
| 1979 | 419.7 | 102.6 | 24.4% | 900 | 38.4 | 6.7 | 17.4% | 697 | 96.2 | 7.9 | 8.2% | 777 |
| 1980 | 426.1 | 102.7 | 24.1% | 896 | 39.6 | 6.4 | 16.2% | 696 | 99.9 | 8.1 | 8.1% | 780 |
| 1981 | 422.9 | 100.1 | 23.7% | 901 | 38.8 | 5.7 | 14.7% | 707 | 102.9 | 8.3 | 8.1% | 784 |
| 1982 | 419.7 | 102.2 | 24.4% | 899 | 38.0 | 6.1 | 16.1% | 722 | 105.9 | 9.0 | 8.5% | 788 |
| 1983 | 416.6 | 100.5 | 24.1% | 895 | 37.3 | 5.7 | 15.3% | 724 | 108.9 | 9.7 | 8.9% | 788 |
| 1984 | 413.4 | 102.3 | 24.7% | 897 | 36.6 | 5.8 | 15.8% | 731 | 111.9 | 10.4 | 9.3% | 792 |
| 1985 | 410.3 | 104.6 | 25.5% | 904 | 35.8 | 5.6 | 15.6% | 741 | 115.0 | 11.5 | 10.0% | 800 |
| 1986 | 407.2 | n.a. | n.a. | n.a. | 35.0 | n.a. | n.a. | n.a. | 118.0 | n.a. | n.a. | n.a. |
| 1987 | 404.1 | 117.2 | 29.0% | 908 | 34.3 | 7.1 | 20.7% | 747 | 121.0 | 13.4 | 11.1% | 793 |
| 1988 | 401.1 | 119.8 | 29.9% | 908 | 33.5 | 7.2 | 21.5% | 754 | 124.0 | 14.2 | 11.5% | 801 |
| 1989 | 398.1 | 115.5 | 29.0% | 906 | 32.8 | 7.3 | 22.3% | 760 | 127.0 | 15.6 | 12.3% | 802 |
| 1990 | 395.1 | 112.6 | 28.5% | 903 | 32.0 | 7.1 | 22.2% | 759 | 130.0 | 16.6 | 12.8% | 796 |
| 1991 | 392.1 | 114.7 | 29.3% | 897 | 31.2 | 7.4 | 23.7% | 751 | 133.0 | 18.2 | 13.7% | 790 |
| 1992 | 389.1 | 116.8 | 30.0% | 900 | 30.4 | 7.7 | 25.3% | 750 | 136.0 | 19.2 | 14.1% | 779 |
| 1993 | 386.2 | 120.4 | 31.2% | 899 | 29.7 | 8.2 | 27.6% | 746 | 139.0 | 20.7 | 14.9% | 779 |
| 1994 | 383.3 | 127.0 | 33.1% | 895 | 29.0 | 8.8 | 30.3% | 739 | 142.0 | 22.7 | 16.0% | 775 |
| 1995 | 380.4 | 127.4 | 33.5% | 902 | 28.2 | 8.7 | 30.9% | 736 | 145.0 | 23.4 | 16.1% | 777 |

Source: The College Board, College Bound Seniors, California Report, 1994 Profile of SAT Program Test Takers; The College Board Seniors, California Report, 1995 Profile of SAT Program Test Takers; Census.

Notes: (a) # of Latino SAT Test Takers, 1976-85, includes authors' estimates of "Other Hispanics." (b) Total 17-year-old populations are from 1979, 1980, and 1990 Census, with intermediate years and 1991-95 lineage interpolated by authors.

## TABLE A9
## Undergraduate Enrollment, Public Universities and Colleges, California, by Race and Ethnicity, 1980-93 (Thousands)

| | Total Enrollment | | | Non-Hispanic Whites | | | Latinos | | | African American | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | University of Calif. | California State Univ. | Comm. College | University of Calif. | California State Univ. | Comm. College | University of Calif. | California State Univ. | Comm. College | University of Calif. | California State Univ. | Comm. College |
| 1980 | 98.5 | 246.8 | 1,154.9 | 66.1 | 132.6 | 727.5 | 5.3 | 17.6 | 111.9 | 3.5 | 14.0 | 94.3 |
| 1984 | n.a. | n.a. | n.a. | 68.6 | 160.6 | 608.9 | 7.0 | 22.8 | 110.3 | 4.2 | 14.6 | 74.3 |
| 1985 | n.a. | n.a. | n.a. | 68.9 | 163.8 | 604.8 | 8.1 | 24.2 | 115.0 | 4.4 | 14.4 | 70.2 |
| 1986 | 112.4 | 266.7 | 1,022.5 | 68.7 | 164.8 | 627.0 | 8.9 | 25.1 | 125.6 | 4.8 | 14.1 | 74.3 |
| 1987 | 117.1 | 274.0 | 1,072.1 | 69.6 | 166.6 | 655.9 | 10.2 | 27.3 | 136.5 | 5.1 | 14.5 | 76.4 |
| 1988 | 121.0 | 284.9 | 1,108.5 | 69.6 | 169.0 | 668.1 | 11.6 | 29.7 | 151.5 | 5.5 | 15.0 | 78.0 |
| 1989 | 123.4 | 289.2 | 1,172.3 | 68.2 | 166.3 | 686.3 | 13.1 | 32.1 | 169.1 | 5.8 | 15.7 | 83.3 |
| 1990 | 124.3 | 294.1 | 1,195.5 | 65.5 | 162.1 | 664.9 | 14.2 | 35.0 | 174.9 | 5.6 | 16.1 | 84.8 |
| 1991 | 124.6 | 287.8 | 1,101.1 | 62.6 | 151.8 | 604.9 | 14.8 | 38.1 | 176.3 | 5.3 | 16.6 | 85.7 |
| 1992 | 124.2 | 277.1 | 1,167.7 | 59.3 | 139.2 | 607.1 | 15.2 | 39.7 | 205.1 | 5.0 | 16.6 | 90. |
| 1993 | 122.3 | 262.5 | 1,074.2 | 54.8 | 123.8 | 528.4 | 15.4 | 41.6 | 205.6 | 4.9 | 16.0 | 86.0 |
| 1994 | 121.6 | 239.0 | 1,085.9 | 51.3 | 114.4 | 510.3 | 16.1 | 44.6 | 223.4 | 4.8 | 16.5 | 88.7 |
| 1995 | 123.7 | 264.4 | 1,063.3 | 49.8 | 110.4 | 485.7 | 17.0 | 49.4 | 230.2 | 5.0 | 17.6 | 87.2 |

Source: California Post-Secondary Education Commission, Student Profiles, 1990 (October 1990); 1995 (March 1995); 1996 (March 1996).

Note: Community College Enrollment is "undergraduate, for credit" only.

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