Racial and Ethnic Wage Gaps in the California Labor Market

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Foreword

Labor economists have long used wage gaps to compare different groups in the labor force. Wage gaps are a crude measure of how well each group does with respect to others—say, Latino and African American workers compared to white workers. They can also indicate how well segments of the labor force are doing as market circumstances and labor force characteristics change over time. With increasing sophistication, labor economists are able to "control" for characteristics—such as occupation, educational attainment, union membership, and government versus private employment—that might reasonably affect the wage of a group. With each characteristic that is added to the model, the wage gap tends to reflect more accurately the real gap that exists between people who otherwise should be earning roughly the same wage if markets work efficiently. When every characteristic is controlled for—not possible with most databases—a wage gap between an African American worker and a white worker might be attributed mostly to discrimination. For this reason, the analysis of wage gaps is a central part of the policy research agenda for labor economists.

Research on wage gaps is important for other reasons also. Deborah Reed and Jennifer Cheng, in *Racial and Ethnic Wage Gaps in the California Labor Market*, look at wage gaps in California over two decades and examine recent data from the Census Bureau. Although there is some softening of relative wage capacity over the last decade for African Americans—for both men and women—Hispanics and Asian Americans in the California labor force held their own over the period. The authors also found that if Hispanic workers had the same educational and occupational characteristics as whites in 2000, they would earn as much as or more than whites. Once again, this finding indicates that education is the road to improvement for Hispanics and underscores the importance of public spending for education as an investment in California's future labor force.

The picture is not quite so positive for African Americans. Although the wage gap would close somewhat if African Americans had the same educational and occupational profile as whites, the gap is still negative, whereas Hispanic and Asian American wages remain close to or the same as white workers' wages. This "what if" approach to analyzing wage gaps is extraordinarily important for the formulation and targeting of social policy. There is ever more evidence, as demonstrated by the authors' analysis of recent data, that education is the most direct and most efficient means of reaching comparability in the California workforce. For African Americans, the model suggests that it will take more than just education investment, but at least the movement toward closing the wage gap is in the right direction.

The authors move beyond education and training as factors helping to close the wage gaps in California. They identify school-to-work programs, welfare-to-work, and workforce development as being of potential benefit to both Hispanic and African American workers. And, they point out that early childhood development has the potential to improve school readiness and shore up school attendance rates. They also note that bringing jobs to the people with economic development incentives in low-wage enclaves is part of the solution. Improving public transportation to and from the source of the highest-paying jobs might well help to address the spatial mismatch problem also. Although it is very difficult to measure the effects of spatial mismatch on increasing wage gaps, the issue will no doubt be looked at with great care in coming years as an important missing policy variable that can bring the least fortunate labor force participants more in line with more fortunate workers.

The authors do not expect these wage gaps to disappear soon. Precisely because these gaps are likely to persist, a better understanding of their causes can be used to guide public policy and public investment. By presenting their findings clearly, accurately, and objectively, the authors have made a significant contribution toward this end.

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Summary

California has one of the most racially and ethnically diverse populations in the world. Our diversity is a source of pride and strength, but it can create challenges, especially when there are large and continuing disparities between groups. This study investigates wage gaps in California. Wage gaps are particularly important because they contribute to racial and ethnic differences in other key measures of well-being such as poverty, educational attainment, and health status.

The wage gaps reported in this study should not be interpreted as measures of racial and ethnic discrimination. Differences in earnings are explained to some extent by differences in worker characteristics, such as educational attainment. Even after we adjust for worker characteristics measured in our data, the adjusted wage gap may still reflect differences between workers we do not measure in this study, such as school quality or college major. Furthermore, adjustments for worker characteristics may remove part of the total effect of discrimination, as differences in worker characteristics (such as education and occupation) may actually arise from discrimination.

Our main focus is on racial and ethnic wage gaps for U.S.-born workers. We separate U.S.-born workers from immigrants because gaps for the two groups have different causes, interpretations, and policy implications. Wage gaps between U.S.-born groups stem from their different opportunities and experiences in the United States. By focusing on U.S.-born workers, we further our understanding of social processes facing racial and ethnic groups in our nation and our state. Wage gaps for immigrant groups reflect not only U.S. experiences but also immigration law and its enforcement.

We analyze wage gaps for four main racial and ethnic groups: whites, Hispanics, African Americans, and Asians. Previous research has shown substantial labor market differences between subgroups of Hispanics and Asians (Reyes, 2001). The main data sample for this

study was not substantial enough to analyze wage gaps for these subgroups separately. Our focus on U.S.-born workers means that we are combining subgroups that have more similar earnings levels.

Wage Gaps in 2000

Among U.S.-born California full-time workers, the median hourly earnings of white men was $20.83 in 2000, and the median of Hispanic men was $16.96. These medians convert to a relative wage of 81 cents earned by Hispanic men for every dollar earned by white men (Figure S.1). For African American men, the median was $15.41, leading to a relative wage of 74 cents for each dollar earned by white men. Asian men earned a median of $21.82 with a relative wage of $1.04 for every dollar earned by white men.

Among U.S.-born California women who worked full-time, the median wage for whites in 2000 was $17.03 and for Hispanics the median was $13.40. These medians translate to a relative wage of 79 cents on the dollar—similar in magnitude to the wage gap for Hispanic
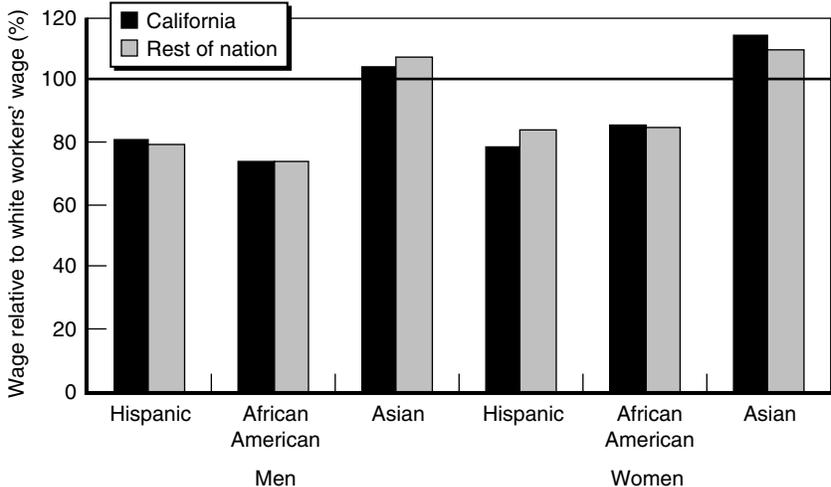
SOURCE: Authors' calculations from the Current Population Survey (1999–2001).
NOTE: Calculations are based on median hourly earnings for U.S.-born, full-time workers, ages 25–54, adjusted for age differences.

Figure S.1—Relative Wages, 2000

men. African American women had median hourly earnings of $14.57 for a relative wage of 86 cents on the dollar. Asian women earned a median hourly wage of $19.54 or $1.15 for every dollar earned by white women.

Wage gaps in California were similar to those in the rest of the nation for most of the groups studied. With the exception of Hispanic women, small differences in relative wages between California and the rest of the nation may be explained by the imprecision of the estimates. For Hispanic women, the relative wage in California (79 cents per dollar) was substantially lower than in the rest of the nation (84 cents per dollar). We find that the higher level of education of white women working in California compared to white women working in the rest of the nation explains this disparity.

Trends in Wage Gaps

For U.S.-born Hispanics, there is no evidence of a substantial change in the wage gap with whites between 1979 and 2000 (Figure S.2). At the
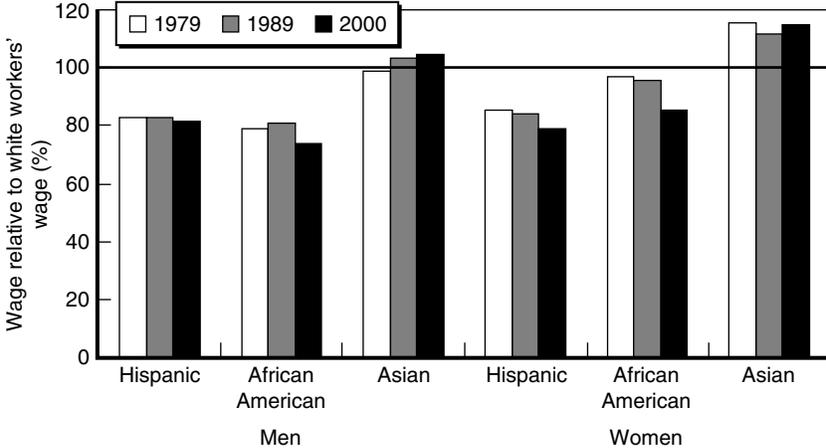
SOURCES: Authors' calculations from the decennial Census (1980, 1990) and the Current Population Survey (1999–2001).

NOTE: Calculations are based on median hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Figure S.2—Trends in Relative Wages, 1979, 1989, and 2000

median, Hispanic men earned between 81 and 83 cents per dollar earned by white men in each of the three years studied. Hispanic women earned between 79 and 85 cents per dollar earned by white women in each of the years. For both men and women, there was essentially no change in the estimated relative wage between 1979 and 1989. The estimates suggest a decline in the relative wage between 1989 and 2000, particularly for women. However, because of imprecision of the estimates, the evidence is inconclusive.

For African Americans, there was no substantial change between 1979 and 1989, but relative wages fell between 1989 and 2000. For men, the relative wage at the median was 81 cents per dollar in 1989 and 74 cents in 2000. For women, the relative wage fell from 96 cents per dollar to 86 cents per dollar. In the rest of the nation, the relative wage for African American men did not change substantially between 1989 and 2000 (from 76 to 74 cents per dollar), but for African American women the relative wage fell from 93 to 85 cents per dollar.

For U.S.-born Asians, there is also no evidence of substantial changes over recent decades. U.S.-born Asian men earned between 99 cents and $1.04 per dollar earned by white men in 1979, 1989, and 2000. For Asian women, the relative wage in these years ranged between $1.12 and $1.16. For both men and women, the change in relative wages between 1989 and 2000 was small enough that it may result from imprecision in the estimates.

The Determinants of Wage Gaps

U.S.-born Hispanic workers tend to have lower educational attainment and to work in lower-paying occupations than white workers. If Hispanic workers had the same education levels as white workers, their relative wages would be substantially higher than they are now: 93 cents per dollar for both men and women (Figure S.3). If Hispanics also worked in the same occupations as whites, their wages would be comparable to those of white workers. Thus, differences with white workers in educational attainment and occupation can explain the Hispanic wage gap.

African American workers also tend to have lower education than white workers and are more likely to work in lower-paying occupations,

Legend:
- ■ Actual
- ▨ Match white education
- ▨ Match white education and occupation
- □ Match white, all characteristics

Y-axis: Wage relative to white workers' wage (%)

X-axis (Men): Hispanic, African American, Asian
X-axis (Women): Hispanic, African American, Asian
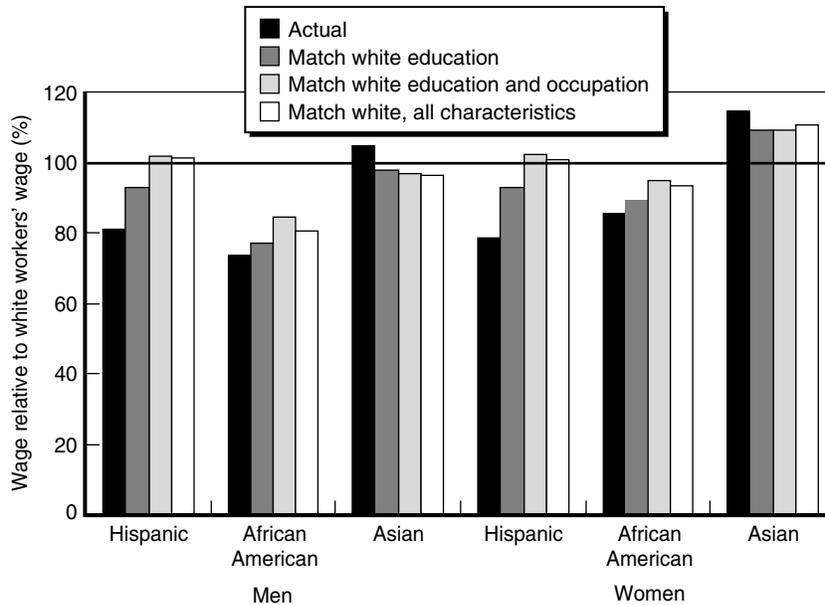
SOURCE: Authors' calculations from the Current Population Survey (1999–2001).
NOTES: Calculations are based on median hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences. Occupation simulation includes occupation and industry of employment. Simulation for all characteristics additionally includes government employment and union membership.

Figure S.3—Relative Wages with Adjustments for Multiple Factors, 2000

but their differences with whites are not as great as for Hispanic workers. If African American workers had the same education levels as white workers, their relative wages would improve by only a few cents per dollar. If they also worked in the same occupations as whites, their relative wages would improve more substantially, to 84 cents per dollar for men and 95 cents per dollar for women.

U.S.-born Asian workers tend to have higher levels of education than white workers and they are more likely to work in higher-paying occupations. If the education of Asian men were to match that of whites, they would not have a wage advantage. Matching the education of Asian women to that of white women would reduce their wage advantage from $1.15 per dollar to $1.09 per dollar and matching the occupations of white women would make little difference to their relative wage.

We also adjusted wage gaps for differences in government versus private sector employment and union membership. These factors do not substantially affect relative wages once the distributions of education and occupation have been matched to that of white workers.

Many factors that potentially influence racial and ethnic wage gaps are not directly measured in the data used for this study. However, research at the national level has shed light on several additional determinants of wage gaps: human capital, discrimination, "spatial mismatch," and social networks. Human capital is a term for job skills, training, and education. African American and Hispanic workers may have lower human capital because they are more likely to attend schools with fewer resources (Betts et al., 2000). Furthermore, African American workers tend to have less labor market and professional experience.

There is a vast amount of anecdotal and legal evidence that labor market and related discrimination is significant in our society. A number of studies have documented that some employers have preferences for white workers (Kirschenman and Neckerman, 1991; Holzer, 1996). "Matched pair" studies, in which two persons who are similar except for race are sent to apply for employment, loans, and housing, also provide convincing evidence of discrimination (Fix and Struyk, 1993).

Spatial mismatch is a third possible explanation for the lower earnings of African Americans compared to whites. African Americans tend to reside a longer distance from high-paying employment opportunities than do whites. According to the spatial mismatch hypothesis, this distance creates a barrier to employment and high earnings for African Americans (Holzer et al., 1994, and Kain, 1992).

Differences in networks and other forms of social capital are a fourth explanation for racial and ethnic wage gaps. Differences in job networks, reliable contacts, and labor market information can encourage occupational segregation and wage gaps (Reingold, 1999). Role models from the family as well as the larger community may also provide motivation that differs across racial and ethnic groups.

Although we found no Hispanic wage gap after adjusting for education and occupation, this finding does not mean that other factors such as school quality, discrimination, and social networks are unimportant for Hispanics. These factors may indirectly affect wages by

affecting educational and occupational outcomes. Also, our analysis suggests that factors such as discrimination and social networks may play a more substantial role for workers with low levels of education. Because our method simulates median wage gaps if Hispanic workers had the same education levels as white workers, the simulation puts more weight on college-educated workers than on high-school-educated workers.

The finding that Asian workers tend to earn more than white workers does not imply that discrimination does not affect Asian earnings. For example, a glass ceiling may keep Asians from attaining the highest-earning positions, but that is not reflected in our analysis of middle-earning workers. In addition, some Asian subgroups may face discrimination that is not apparent when we aggregate all U.S.-born Asian groups.

Prospects for the Future

Looking to the future, we expect substantial wage gaps to persist for several reasons. First, wage gaps have not improved in California since the late 1970s. Second, a major factor that has exacerbated wage gaps for African Americans and especially for Hispanics is the growing disparity between wages for educated and skilled workers and wages for workers with low levels of education, which has been a labor market trend for the last 20 years and does not appear to be reversing. Finally California is currently in unstable economic times. If we have a prolonged economic downturn similar to that of the early 1990s, we expect that Hispanic and African American workers would feel the largest unemployment effects.

On the positive side, educational attainment for Hispanic and African American workers improved over the 1990s, both in an absolute sense and relative to white workers. The share of Hispanic and African American workers in high-paying occupations also increased. These trends improved Hispanic and African American earnings compared to what would have happened without improvements in educational and occupational attainment. If wage gaps are to decline, the most likely route is through continued improvement in the educational and occupational status of Hispanics and African Americans.

Policy Considerations

Our results point to some general policy directions for reducing racial and ethnic wage gaps: education and training, housing and economic development, and employment and tax policies. As we have not evaluated these policies directly or determined their cost-effectiveness, we are not recommending any specific policies but rather suggesting policy directions for further consideration and evaluation.

Education and training are important determinants of labor market wages, and their value has increased over the last two decades. The state plays a major role in the education and training of California workers. Improvements in the quality of K–12 public schools, particularly in underperforming and poor districts, which tend to have a high share of Hispanic and African American students, will likely lead to larger shares of Hispanic and African American students going to college and eventually to higher wages for these groups. California also offers opportunities for students to attend public colleges and universities at relatively low costs, which is particularly important for Hispanic and African American students because their families tend to have fewer resources. The state's efforts to provide worker training through school-to-work programs, welfare-to-work programs, and workforce development are mainly focused on low-educated workers and may therefore be particularly beneficial to Hispanic and African American workers. Recent efforts to encourage early childhood development can improve school readiness, particularly for young Hispanic children who tend to have low rates of preschool attendance (Reed and Bailey, 2002).

Public policy can also address spatial mismatch and neighborhood segregation by increasing affordable housing in neighborhoods near good jobs, by improving public transportation, and by economic development in low-income areas. In addition, a number of policies could improve the earnings and employment prospects of low-earning workers: the Earned Income Tax Credit, the minimum wage, transitional "jobs of last resort," and strengthened unions.

Improving opportunities for workers, families, and communities with low resources will reduce racial and ethnic wage gaps in the long run. California, with its tremendous racial and ethnic diversity, has

much at stake in ensuring that people from diverse backgrounds have opportunities to enhance their skills and education, to find work in good jobs, and to earn enough to support their families.

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1. Introduction

California has one of the most racially and ethnically diverse populations in the world. Our diversity is a source of pride and strength. Yet racial and ethnic diversity can create challenges, especially when there are large and continuing disparities between groups. A recent publication from the Public Policy Institute of California, *A Portrait of Race and Ethnicity in California: An Assessment of Social and Economic Well-Being*, shows substantial differences across racial and ethnic groups for several social indicators including poverty, health, and education (Reyes, 2001).[1]

Labor market earnings are one manifestation of racial and ethnic disparities and, as such, are an important social indicator. Earnings not only reflect labor market conditions, but are the main source of income for most families. Income differences across racial and ethnic groups can contribute to disparities in other outcomes, such as poverty, educational attainment, and health status (Illig, 1998; Duncan and Brooks-Gunn, 1997).[2] For more than four decades, public policy in the United States has aimed at improving and equalizing opportunity across racial groups through civil rights legislation and affirmative action.

A large body of multidisciplinary research literature at the national level shows that wage gaps across racial and ethnic groups are substantial. This study uses survey data to measure racial and ethnic wage gaps in California with comparisons to earlier decades and to the rest of the nation.[3] We explore the causes of wage gaps, including education and occupation. For the underlying causes of wage gaps that are not

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[1]See Council of Economic Advisors (1998) for a similar study at the national level. See also U.S. Commission on Civil Rights (1986, 1990).

[2]In addition to earnings, family structure plays an important role in racial and ethnic differences in income and poverty status (Cancian and Reed, 2002).

[3]For additional research on racial and ethnic wage gaps in California, see Ong (1999) and Ong and Zonta (2001).

measured in our data, such as discrimination and family resources, we review the evidence from the national literature.

This study does not attempt to measure discrimination. The wage gaps we measure are determined in part by labor market discrimination, but they also stem from other factors such as differences across groups in educational attainment. We also measure wage gaps after adjusting for worker characteristics such as education. The adjusted wage gap does not measure labor market discrimination because it does not fully account for worker characteristics such as quality of schools attended or college major. Furthermore, adjustments for worker characteristics also may remove part of the total effect of discrimination, as differences in worker characteristics such as education and occupation may arise from discrimination. Therefore, none of the statistical measures of wage gaps provided in this report should be interpreted as a measure of labor market discrimination.

In this study, our main focus is on racial and ethnic wage gaps for workers born in the United States. We separate U.S.-born workers from immigrant workers because wage gaps for the two groups have different causes and suggest different policy responses. Throughout the analysis, we consider four main racial and ethnic groups: whites, Hispanics, African Americans, and Asians. Racial and ethnic classification is based on self-reported race and Hispanic ethnicity. Hispanics are classified as Hispanic regardless of race; when we use the term "white," we mean "white non-Hispanic." Similarly, African American and Asian groups are non-Hispanic by our classification.

This report proceeds as follows. In the second chapter, we discuss measurement issues including benefits and limitations of our chosen wage gap measure relative to alternative measures. In Chapter 3, we explore the magnitude and trends in wage gaps in California and the rest of the nation from the late 1970s through 2000. Chapter 4 investigates the determinants of wage gaps in California. In Chapter 5, we briefly explore wage gaps for immigrants. We conclude with a discussion of prospects for the future and the potential policy directions to address wage gaps.

Readers interested in the technical details of the study are directed to the appendices. Appendix A describes the wage data used in this study.

Appendix B provides technical details of the methodology. Appendix C briefly explores California wage gaps at the bottom and top of the wage distribution.

2. Measuring Wage Gaps

There is no single method for measuring wage gaps. The main measure used in this report compares the median hourly wage of U.S.-born Hispanic, African American, and Asian workers to that of white men and women separately.[1] This chapter discusses measurement issues, including the benefits and limitations of our chosen measure relative to others.

The main data come from the Current Population Survey (CPS), Earner Study. The CPS is a monthly survey of about 50,000 households nationally conducted by the Bureau of the Census. The CPS is the primary source of information on the labor force characteristics of the U.S. population. The Earner Study asks additional questions about earnings for roughly one-fourth of the wage and salary workers in the CPS sample. Our analysis for 2000 is based on combining the monthly CPS for three years: 1999–2001. For recent historical data, we rely on the 1980 and 1990 decennial Census. We limit our analysis to employees ages 25 to 54. The CPS survey is limited to civilian, non-institutionalized people, and we impose the same limitation in the Census data.[2]

Our California sample for 2000 has 14,499 U.S.-born, full-time workers. Because the analysis is based on a sample, estimates are measured with some imprecision. Small differences in the relative wage of a few cents per dollar are within the margins of error of the estimates.

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[1]We separate men and women in our analysis because wage gaps between men and women reflect substantial gender differences in labor market attachment (see Figure 2.4). Jacobsen and Levin (1995) show that intermittent labor force participation reduces women's earnings.

[2]The Census data measure wages earned on all jobs combined. The CPS data measure wages earned in the "main job" (i.e., the job at which the worker works the most hours). For a comparison of these measures, see Appendix A.

Throughout the text, we discuss only those differences that are statistically significant.[3]

U.S.-Born Workers

Our main focus is on racial and ethnic wage gaps for U.S.-born workers. To understand these gaps, it is important to separate U.S.-born workers from immigrant workers because gaps for the two groups have different causes, interpretations, and policy implications. Wage gaps between U.S.-born groups stem from their different opportunities and experiences in the United States. Wage gaps for immigrant groups reflect not only U.S. experiences but also immigration law and its enforcement. For example, the skill set of immigrant workers is determined in large part by the granting of work permits and the enforcement of U.S. immigration and employment law. Additionally, the California education system plays a much smaller role for immigrant than for U.S.-born workers because many immigrants have completed their formal education before arriving in the state.[4]

Focusing on U.S.-born workers has a substantial effect on measurement of wage gaps. California has a large share of immigrants in its workforce. In our sample of full-time workers in 2000, 36 percent of men and 32 percent of women were immigrants. Among immigrant workers, 55 percent were Hispanic and 32 percent were Asian. Although there are many immigrant workers with high wages, the bulk of Hispanic and Asian immigrants tend to have low wages. For these reasons, including immigrants in the analysis tends to substantially reduce the median wages of Hispanics and Asians but has little effect on the median wages of whites and African Americans. Therefore, wage gaps are much bigger for Hispanics and Asians when we include immigrants.

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[3]We use a 10 percent level of statistical significance.

[4]For a study of immigrants and wage gaps in California, see Schoeni et al. (1996) and Reimers (1997). For a study of immigrants and U.S. education, see Vernez and Abrahamse (1996).

Figure 2.1 shows the relative wage for all workers and for U.S.-born workers.[5] At the median, Hispanic men earned 55 cents for every dollar earned by white men. However, among U.S.-born workers, the relative wage was 81 cents per dollar. For Hispanic women, the relative wage was 59 cents, but it was as high as 79 cents among the U.S.-born. For Asians, the relative wage was 91 cents for men and 93 cents for women. Among the U.S.-born, Asians earned more than whites with relative wages of $1.04 for men and $1.15 for women. Focusing on U.S.-born African Americans does not substantially change the estimated relative wage because immigrants were only about 6 percent of African American workers and only 8 percent of white workers.
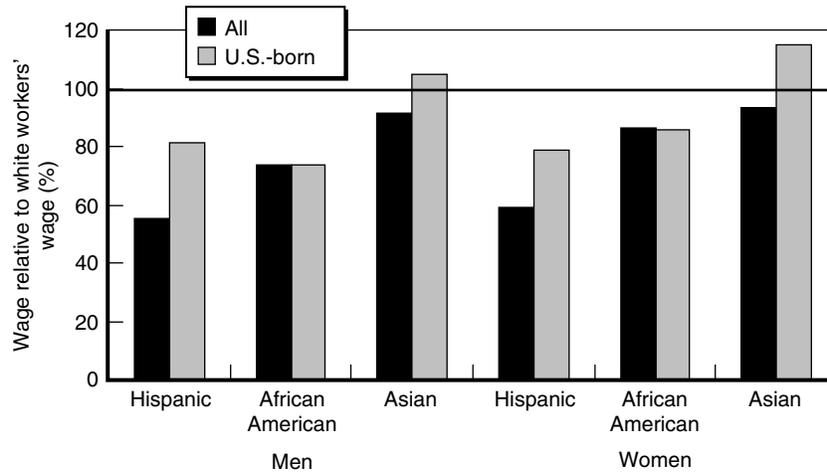
SOURCE: Authors' calculations from the Current Population Survey (1999–2001).
NOTE: Calculations are based on median hourly earnings for full-time California workers, ages 25–54, adjusted for age differences.

Figure 2.1—Relative Wages, U.S.-Born and Immigrant Workers, 2000

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[5]We use the term "U.S.-born" to mean all persons born in the 50 United States and Washington, D.C., or persons born abroad to American parents.

Although the main focus of this study is the wage gap for U.S.-born workers, we briefly discuss immigration, wage gaps, and the determinants of immigrant wage gaps in Chapter 5.[6]

Four Main Racial and Ethnic Groups

In the main part of our analysis, we do not include Native Americans, separate Hispanics by region of origin, or divide Asians by ethnicity and origin because the 2000 CPS data sample is too small to provide accurate measures for these groups. Our results for Hispanics and especially for Asians therefore mask substantial subgroup variation (Reyes, 2001). In this section, however, we provide estimates for Native Americans and major subgroups of Hispanics and Asians using 1990 Census data.[7]

Native Americans earn substantially less than white workers. Their wage gaps with whites are similar in magnitude to those of U.S.-born Hispanics. Among full-time workers, Native American men earned 80 cents per dollar earned by white men in 1989. Native American women earned 79 cents per dollar earned by white women.

Among U.S.-born Hispanics, Mexicans represent the largest group and had the lowest relative wage of 81 cents per dollar for men and 83 cents per dollar for women in 1989 (Figure 2.2). Central and South American and Caribbean men had higher relative wages of about 86 cents per dollar. For women, the Caribbean relative wage was 90 cents per dollar, whereas the Central and South American relative wage was 98 cents per dollar.

Among U.S.-born Asians, Filipinos earned less than whites with relative wages of 94 cents per dollar for both men and women (Figure 2.3). Japanese and especially Chinese earned substantially more than whites. Chinese men earned $1.13 per dollar earned by white men, and

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[6]We do not analyze gender wage gaps in this study. For national research on gender differences in the labor market, see Goldin (1990), Fields and Wolff (1991, 1995), Goldin and Polachek (1987), Ashraf (1996), Blau and Kahn (1997), Loury (1997), Pencavel (1998), and Robinson (1998). For California research on gender differences, see Ong (1999) and Ong and Zonta (2001).

[7]At the time of this analysis, the Public Use Microdata Sample (PUMS) for the 2000 Census had not yet been released.
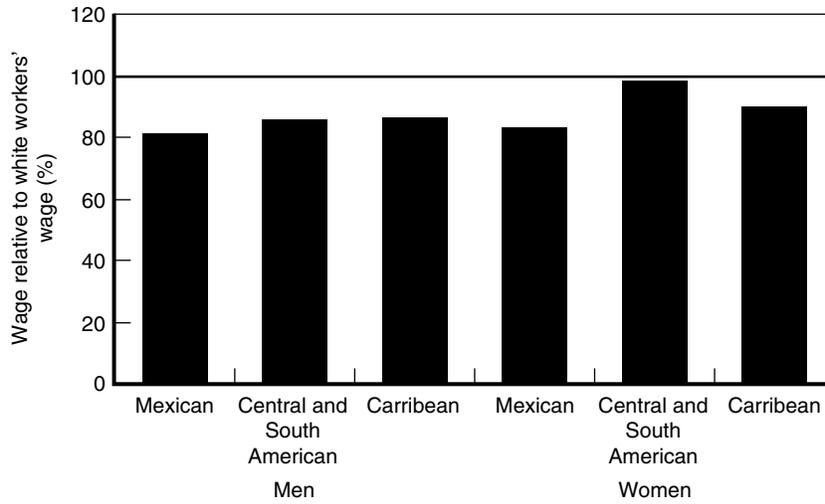
Figure 2.2—Relative Wages, Hispanic Subgroups, 1989
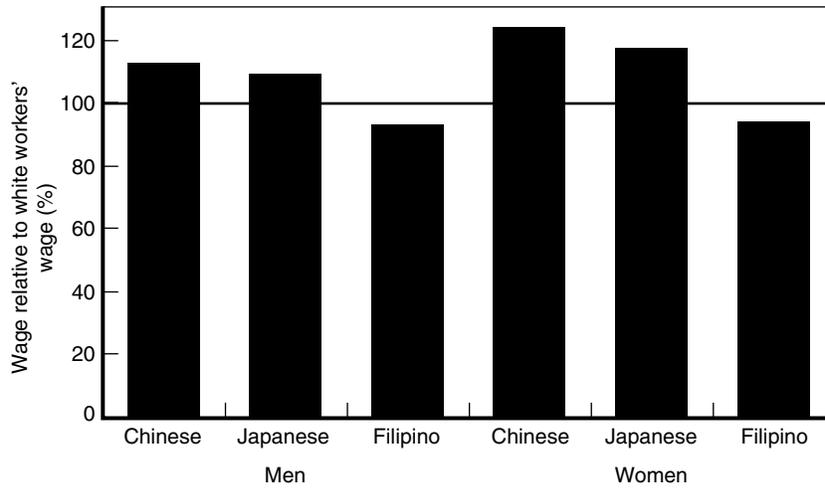
Figure 2.3—Relative Wages, Asian Subgroups, 1989

Japanese men earned $1.09 per dollar. The highest relative wage was that of Chinese women, who earned $1.24 per dollar earned by white women. Japanese women earned $1.18 per dollar.

Hourly Wage for Full-Time Workers

Earnings will vary depending on whether a worker is employed full-time or part-time, full-year or part-year. Gaps measured in annual earnings will differ from gaps in weekly or hourly earnings because the distributions of weeks and hours of work differ across the groups.[8]

Compared to African American men, men from other groups were more likely to be working in 2000.[9] Just over 10 percent of white, Hispanic, and Asian men were not working compared to 22 percent of African American men (Figure 2.4). Among women, 26 percent of whites, 30 percent of Asians, 32 percent of Hispanics, and 39 percent of African Americans were not working. Part of the higher nonworking rates for African Americans can be explained by their higher unemployment rates.

Among those working, there are small differences across the groups in average weeks worked per year and average hours worked per week (Figure 2.5). Among working men, average hours of work per week varied from a low of 41 hours for African Americans and Hispanics to a high of 44 hours for whites. Average weeks of work varied from a low of 46 weeks for African American men to a high of 48 weeks for white and Asian men. Among working women, the average number of hours of work per week was between 38 and 39 hours for all groups and the average number of weeks of work was 46 weeks for Asians and 44 weeks for all other groups.

Differences in time spent working reflect labor market opportunities but also choices about how much to work. We focus our attention on

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[8]Welch (1997) argues that wage differences drive different labor supply responses.

[9]The CPS does not sample populations living in institutions or members of the armed forces. Our measures do not incorporate all differences because the groups differ in the share that is part of these unsampled populations. For example, the prison population is not included in our estimate of those out of the labor force.
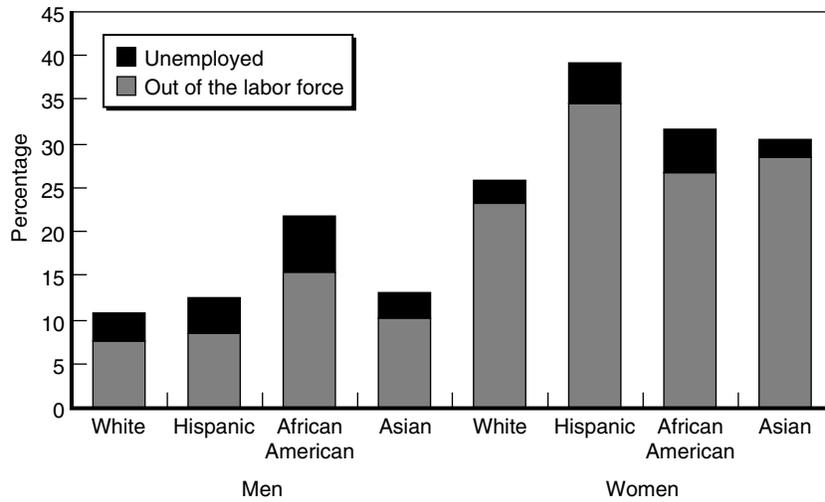
Figure 2.4—Unemployed and Out of the Labor Force, 2000
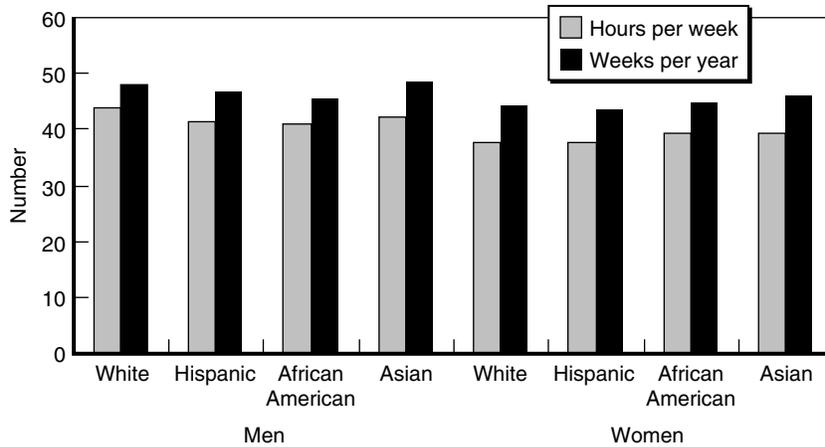
Figure 2.5—Hours and Weeks of Work

the gaps in what the labor market pays each group. To remove group differences that result from choices about how much to work, we measure wage gaps using hourly wages for full-time workers (i.e., workers who worked at least 35 hours). By using hourly wages, however, we are probably underestimating the full earnings gap because some differences in hours of work are not by choice. By investigating years with good business cycle conditions, we limit the importance of unemployment and underemployment for measuring wage gaps.

For Hispanic and African American men, relative earnings are lower when we use annual earnings rather than hourly wages (Figure 2.6).[10] This reflects the fact that workers in these groups tend to work fewer
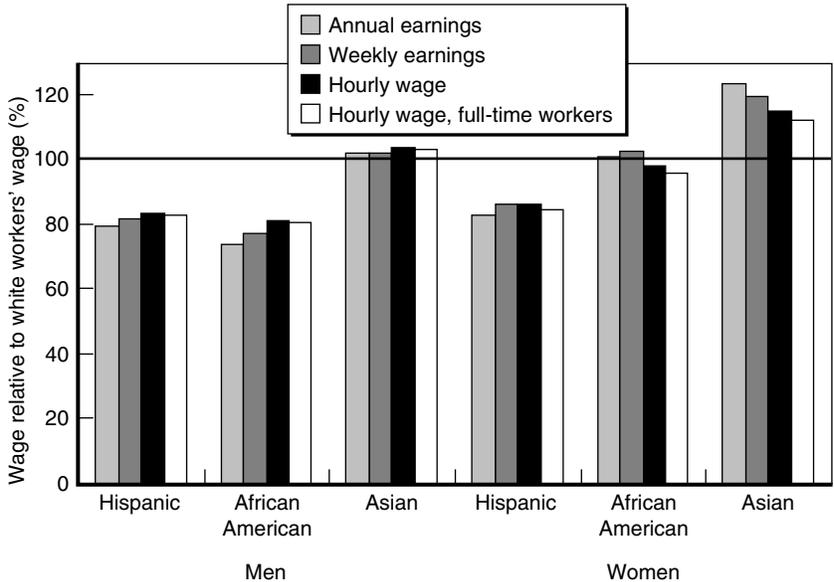
SOURCE: Authors' calculations from the 1990 Census.
NOTE: Calculations are based on median hourly earnings for U.S.-born, California workers, ages 25–54, adjusted for age differences.

Figure 2.6—Relative Wages by Alternative Measures, 1989

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[10]Neither measure of compensation includes noncash items, such as employer-provided health or pension benefits. Inclusion of these benefits would likely increase the gaps, as African American and Hispanic workers are less likely to have such benefits (Blumberg and Nichols, 2001; Kington and Nickens, 2001).

hours and weeks than white men.[11] In contrast, African American and Asian women work more hours and weeks than whites and their relative earnings are higher when we measure annual earnings rather than hourly earnings.

Excluding part-time workers has only a small effect on the measurement of relative wages (Figure 2.6). However, excluding nonworkers does affect the measurement of wage gaps. Workers tend to have higher human capital (e.g., skills, education, training) than those who do not work. Furthermore, the degree of selectivity is likely to be greater for African Americans and Hispanics because a smaller share of these groups is working. For example, only 68 percent of African American men work full-time compared to 77 percent of white men. By using only full-time workers, we are comparing what is likely the top-earning 68 percent of African American men with the top-earning 77 percent of white men. Thus, our measure of relative wages is higher than would be found in the full population if everyone worked. To illustrate this point, we create a rough estimate of the wage gap that would exist in the full population by modeling the determinants of wages for full-time workers and simulating the distribution of wages for the full population.[12]

Using full-time workers rather than the full population removes more low-earning Hispanics and African Americans than whites because Hispanics and African Americans have higher nonparticipation rates.[13] Therefore, the relative wage for full-time workers is higher than the estimated relative wage for the full population for Hispanics and African Americans (Figure 2.7). In contrast, using full-time workers instead of

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[11]Figure 2.6 shows 1989 data because annual data are not available in the CPS Earner Study, and the CPS March file does not have a sufficient sample of U.S.-born Asians.

[12]We model the natural logarithm of wages as a function of education and potential experience. We do not attempt to control for self-selection into the full-time workforce based on unobservable characteristics such as individual work motivation. See Appendix B for fuller discussion of the methodology. Members of the armed forces and institutionalized populations are not included in the "full population" wage measures because they are not sampled in the CPS.

[13]Leeds (1990) argues that the premium for working full-time was higher for whites than for African Americans. See also Averett and Hotchkiss (1996).
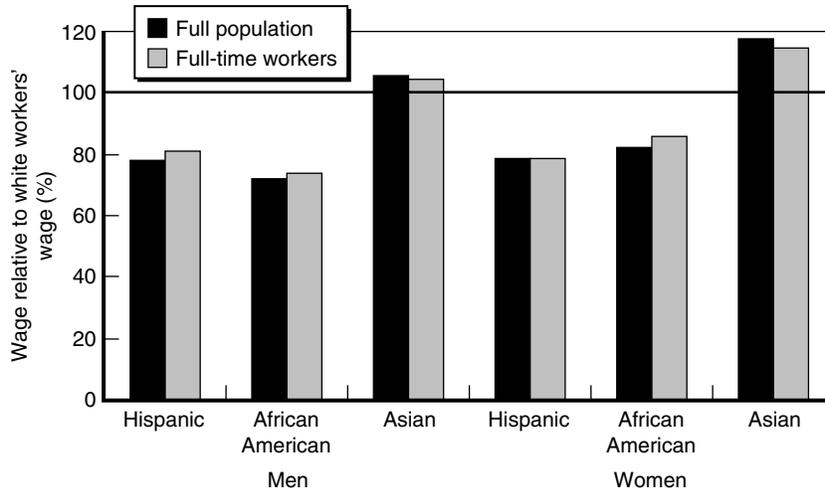
Figure 2.7—Relative Wages for the Full Population, 1989

the full population removes more low-earning whites than Asians and therefore causes the earnings advantage of Asians to be lesser. The full population wage gaps presented in Figure 2.7 probably underestimate the true full population wage gaps. We are unable to entirely correct for self-selection into the full-time workforce.[14]

Even when we focus on the full-time labor force, we are unable to correct for intermittent labor force participation that may reduce the earnings of Hispanics and African Americans relative to whites. One solution to this problem is to focus on young workers for whom employment histories are less relevant. However, the data samples for

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[14]Heckman (1976) provides a method for correcting for unobserved self-selection. We do not use this method because we have no identifying individual characteristic that affects work behavior but not wages. Hoffman and Link (1984) and Vroman (1990) provide discussions of the importance of selection into the workforce for measuring the African American wage gap.

California are too small to provide accurate measures for young workers.[15]

Median Wage

For each racial or ethnic group, there is a distribution of hourly wages and thus a variety of alternative methods for comparing those distributions between groups to create measures of wage gaps. We focus on the gap in the median wage, the wage at which half of workers have lower wages and half have higher wages. Therefore, the gaps we report measure the differences between the groups in terms of the wage of the middle-earning worker.

Perhaps the most common alternative to measuring wage gaps at the median is measuring the gap in average wages. Gaps in average wages combine into a single overall average the gaps between groups for all workers including low-earning workers and high-earning workers. We prefer to measure wage gaps at the median rather than combine what can be very different magnitudes of gaps across the whole distribution.

For most groups, the relative mean wage is slightly lower than the relative median wage (Figure 2.8). The difference is mostly driven by the particularly high wages of high-earning white workers. The wages of high-earning workers factor into the calculation of the mean wage but not the median.

The data used for this study cannot isolate the degree to which groups are affected by a glass ceiling. The highest level of weekly earnings recorded in the CPS data was $1,923, which corresponds to $100,000 for 52 weeks. To assure confidentiality, workers with higher weekly earnings were recorded as $1,923. Therefore, there is no way to determine the degree to which some groups are barred from the highest-paying positions. For example, Asians have a higher median wage than whites, but Asians still may be underrepresented in top-paid

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[15]Furthermore, Lazear (1979) argues that limiting the analysis to young workers underestimates the true wage gaps because the gaps tend to be larger later in workers' careers.
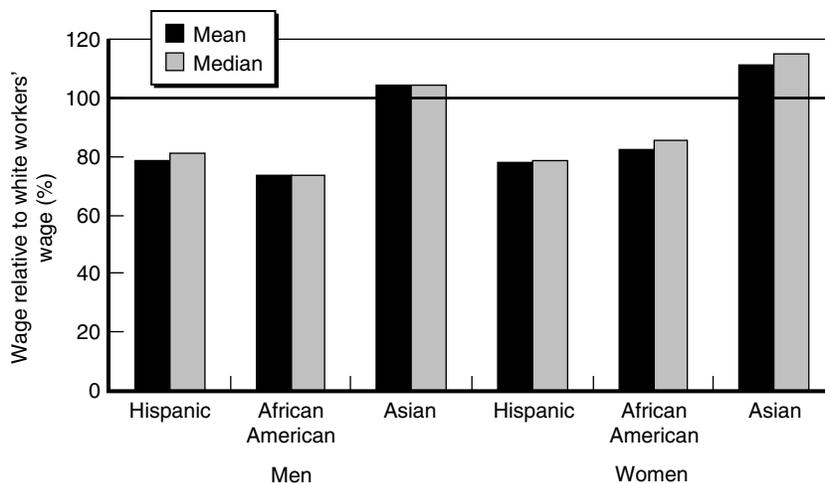
SOURCE: Authors' calculations from the CPS (1999–2001).
NOTE: Calculations are based on hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Figure 2.8—Relative Wages, Average and Median, 2000

management positions. See Appendix C for a further discussion of wage gaps throughout the distribution.[16]

Adjustments for Age Differences

There is a strong relationship between wages earned and a worker's age, with older workers earning substantially more than younger workers. Because Hispanic, African American, and Asian workers tend to be younger than white workers, relative wages for these groups would be lower than if we compared workers of comparable ages. We adjust our relative wage calculations to remove wage gaps that are based simply on age differences.[17] Adjusting for age differences increases relative wages for all groups, but the effect is fairly small (Figure 2.9).

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[16]For a discussion of African American wage gaps throughout the distribution in the United States, see Baldwin and Bishop (1999).

[17]We adjust for the age distribution by weighting the data so that every group has the same age distribution as the overall population in California. See Appendix B for details.
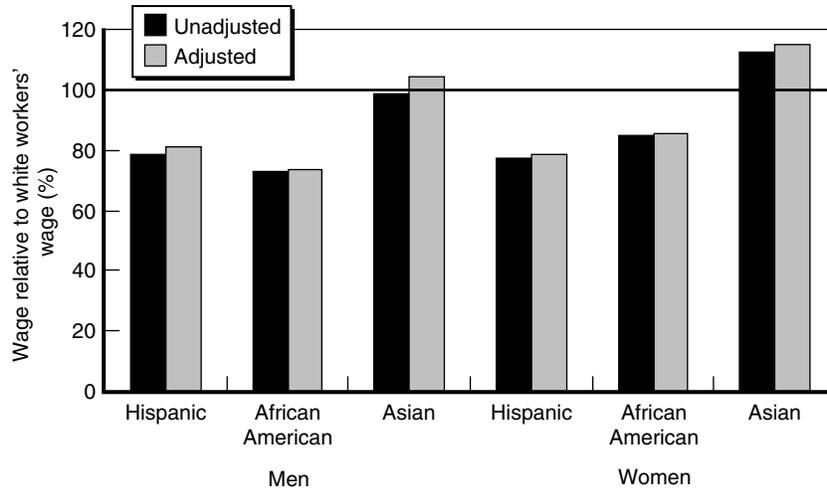
Figure 2.9—Relative Wages, With and Without Age Adjustments, 2000

Summary of Measurement Issues

The wage gap measures in this report compare the age-adjusted hourly wage of middle-earning (median) U.S.-born full-time workers. Our decision to focus on U.S.-born workers has a substantial effect on the relative wage of Hispanics and Asians. The decisions to limit the analysis to full-time workers, to use hourly wages rather than weekly or annual earnings, to use the median as opposed to the average, and to adjust the wage gap for age differences have small but noticeable effects on the measured wage gap.

3. Levels and Trends in Wage Gaps

This chapter begins with estimates of the relative wages of California workers in 2000 and comparisons with the rest of the nation. We then consider the longer-run trend in relative wages since the late 1970s. Finally, we discuss unemployment and wage gaps over the business cycle.

Wage Gaps in 2000

Among U.S.-born California workers, the median hourly earnings of white men was $20.83 in 2000, and the median of Hispanic men was $16.96. This converts to a relative wage of 81 cents earned by Hispanic men for every dollar earned by white men (Figure 3.1). For African American men, the median was $15.41 leading to a relative wage of 74 cents on the dollar compared to that earned by white men. Asian men earned a median of $21.82 with a relative wage of $1.04 for every dollar earned by white men.

Among U.S.-born women who worked full-time, the median wage for whites in 2000 was $17.03, and for Hispanics, the median was $13.40. This translates to a relative wage of 79 cents on the dollar— similar in magnitude to the wage gap for Hispanic men. African American women had median hourly earnings of $14.57 for a relative wage of 86 cents on the dollar compared to that of white women. Asian women earned a median hourly wage of $19.54. This represents $1.15 for every dollar earned by white women.

Wage gaps in California were similar to those in the rest of the nation for most of the groups studied.[1] Small differences in relative

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[1]Carlstrom and Rollow (1998) explore variations across the regions of the United States in the African American wage gap. California might be expected to differ from the rest of the nation if racial and ethnic population density is related to wage gaps (as argued
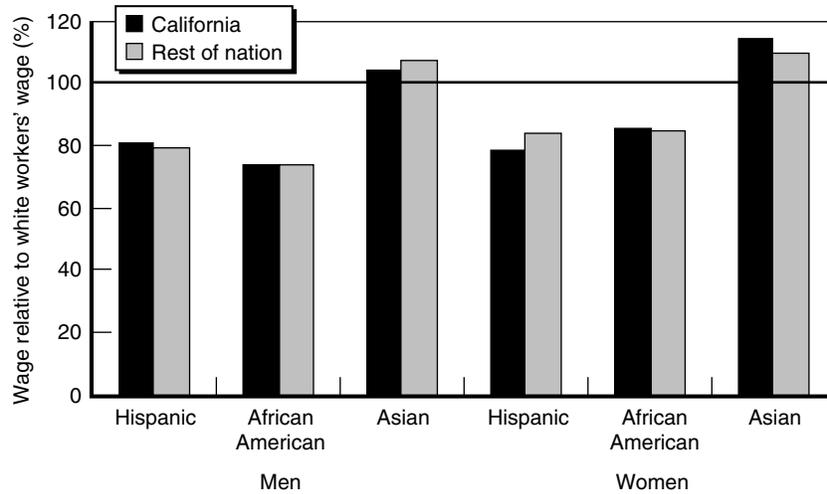
Figure 3.1—Relative Wages, California and the Rest of the Nation, 2000

Wage relative to white workers' wage (%)

- California
- Rest of nation

Men: Hispanic, African American, Asian
Women: Hispanic, African American, Asian

SOURCE: Authors' calculations from the CPS (1999–2001).
NOTE: Calculations are based on median hourly earnings for U.S.-born, full-time workers, ages 25–54, adjusted for age differences.

wages between California and the rest of the nation, as shown in Figure 3.1, may be explained by the imprecision of the estimates, except for Hispanic women.[2] In the rest of the nation, Hispanic women earned 84 cents for every dollar earned by white women. The corresponding relative wage in California was only 79 cents per dollar. The difference is not because Hispanic women in California are underpaid compared to their counterparts in the rest of the nation. At $11.24, the median hourly wage for Hispanic women in the rest of the nation was lower than in California ($13.40).[3] However, white women in the rest of the nation earned much less than white women in California, $13.08 versus $17.03.

by Waldinger, 1996). However, Hirsch and Schumacher (1993) find that racial density does not appear to be related to African American wage gaps.

[2]The relative wage of Asian women appears to be higher in California than in the rest of the nation, $1.15 versus $1.09. However, because of the small size of the Asian sample for California, the relative wage is measured imprecisely and the difference with the rest of the nation is not statistically significant.

[3]Reported wages are not adjusted for differences in cost of living between California and the rest of the nation.

Thus, in the rest of the nation, wages for Hispanic women are closer to those of white women. In the next chapter, we show that differences in educational attainment are the main cause of the difference in Hispanic women's relative wages in California versus their wages in the rest of the nation.

Trends in Wage Gaps

We measure trends in wage gaps in California over the last two decades by comparing relative wages in 1979, 1989, and 2000. In each of these three periods, the California economy was at or near a business cycle peak. Using peak years is preferable for measuring trends because comparing a peak year with a recession year is likely to distort trends as recessions can have differential effects on racial and ethnic groups (as shown in the next section).

For U.S.-born Hispanics, there is no evidence of a substantial change in the wage gap in 1979, 1989, or 2000 (Figure 3.2). At the median, Hispanic men earned between 81 and 83 cents per dollar earned by white men in each of the years studied. Hispanic women earned between 79 and 85 cents per dollar earned by white women in each of the years. For both men and women, there was essentially no change in the estimated relative wage between 1979 and 1989. The estimates suggest a decline in the relative wage between 1989 and 2000, particularly for women. However, because of imprecision in the estimates, the evidence is inconclusive.[4]

For African Americans, there was no substantial change between 1979 and 1989, but relative wages fell between 1989 and 2000. For men, the relative wage at the median was 81 cents per dollar in 1989 and fell to 74 cents in 2000. For women, the relative wage fell from 96 cents

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[4]For U.S.-born Hispanic men, the change in relative wage from 83 percent in 1989 to 81 percent in 2000 was not statistically significant at the 10 percent level. For U.S.-born Hispanic women, the change from 84 to 79 percent was statistically significant at the 5 percent level. However, the apparent change may be due to measurement differences. The CPS survey (used for 2000) may measure a lower relative wage for Hispanic women than does the Census (used for 1989). See Appendix A.
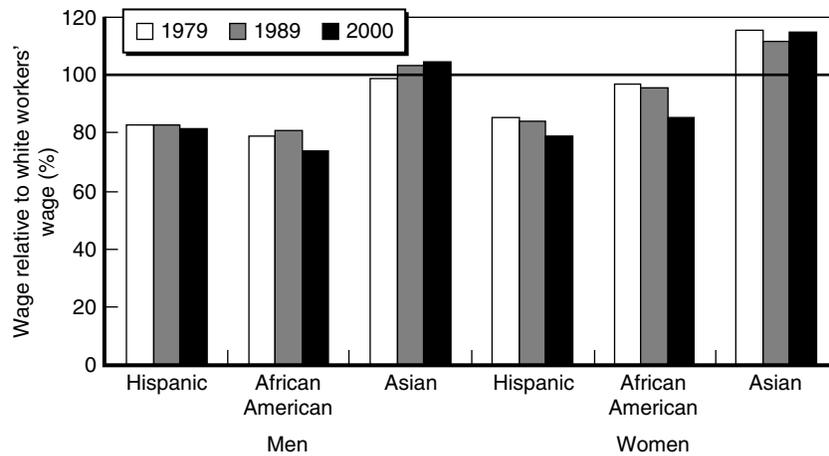
Figure 3.2—Trends in Relative Wages, 1979, 1989, and 2000

per dollar to 86 cents per dollar.[5] In the rest of the nation, the relative wage for African American men did not change substantially between 1989 and 2000 (from 76 to 74 cents per dollar), but for African American women the relative wage fell from 93 to 85 cents per dollar.[6] In Chapter 4, we explore the causes of the declining relative wage of African Americans in California.

For U.S.-born Asians, there is also no evidence of substantial changes over recent decades. U.S.-born Asian men earned between 99 cents and $1.04 per dollar earned by white men in 1979, 1989, and 2000. For

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[5]The decline in relative wages for African Americans was statistically significant at 5 percent for men and women. The decline does not appear to be related to a change from the Census for 1989 to the CPS for 2000. See Appendix A and Figure 3.4.

[6]The decline in relative wages between 1989 and 2000 for African Americans in the rest of the nation was not statistically significant for men (at the 10 percent level) but was statistically significant for women (at the 5 percent level). Our findings are consistent with the national literature, which reports small changes in the relative wage for African American men (Couch and Daly, 2000; Smith, 2001) and a decline in the relative wage for African American women (Conrad, 2001) between 1989 and the late 1990s.

Asian women, the relative wage in these years ranged between $1.12 and $1.16. For both men and women, the changes in relative wages between 1989 and 2000 were small enough that they may be due simply to imprecision in the estimates.[7]

Wage Gaps over the Business Cycle

Labor market conditions can vary substantially over the business cycle and affect racial and ethnic groups differently. In this section, we describe the business cycle trends beginning with the peak in 1989 through the downturn of the early 1990s to the peak in 2000 and the downturn in 2001. Unfortunately, the annual data from the Current Population Survey do not identify immigrants until 1994. Therefore, the analysis in this section includes both immigrant and U.S.-born workers.

During economic downturns, the overall unemployment rate increases. California experienced a substantial recession in the early 1990s, and unemployment rates for all major racial and ethnic groups were at their highest levels of the last 15 years in 1992 or 1993 (Figure 3.3). For white men, the unemployment rate was under 4 percent at the business cycle peak in 1989; it reached 7.5 percent in 1993 and then fell to below 3.1 percent in 2000. It grew to 3.6 percent in 2001. By comparison, the unemployment rate for Hispanic men was much higher at almost 6 percent in 1989. The growth in unemployment during the recession was also much greater for Hispanic men, reaching 11.4 percent in 1993. Unemployment among Hispanic men fell dramatically to 4.1 percent in 1999 and then ticked up to 4.3 percent in 2003.

African American men had relatively high unemployment at 8 percent in 1989 and 15.2 percent in 1993. That figure fell to 5.5 percent in 2001. Unemployment among Asian men rose from under 4 percent in 1989 to 7 percent in 1992 before falling to 2 percent in 2000. In 2001, the unemployment rate for Asian men increased substantially to 4.5 percent.

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[7]The changes were not statistically significant for Asian men or women at the 10 percent level.
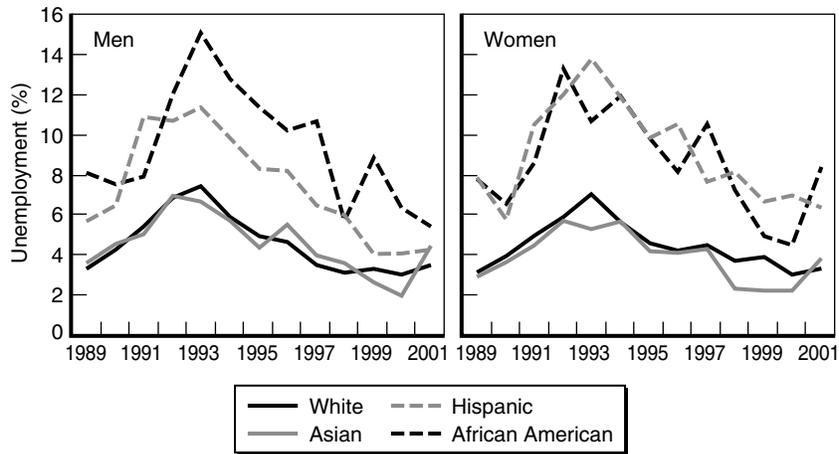
Figure 3.3—Unemployment Rates by Race and Ethnicity, 1989–2001

The recession of the early 1990s clearly had a much larger effect on Hispanic and African American men than it did on white and Asian men. The same pattern is true for women (Figure 3.3, right panel). For African American and Hispanic women, the unemployment rate grew more substantially during the early 1990s and fell more substantially during the late 1990s.

Because business cycle conditions have different effects on racial and ethnic groups, wage gaps have different magnitudes as economic conditions change. The relative wage for full-time Hispanic male workers was at its highest point, 60 cents per dollar, during the recession of the early 1990s; it then fell to 54 cents by 2001 (Figure 3.4). As noted above, these annual trend data include both U.S.-born and immigrant workers. Thus, relative wages are much lower for Hispanics than wages shown in Figures 3.1 and 3.2. It may seem surprising that despite the stronger unemployment effect of the recession on Hispanic men (Figure 3.3), their relative wage was high during the recession. This effect occurs because the lowest-earning Hispanic workers are more likely to become unemployed or part-time workers. We find a similar pattern for
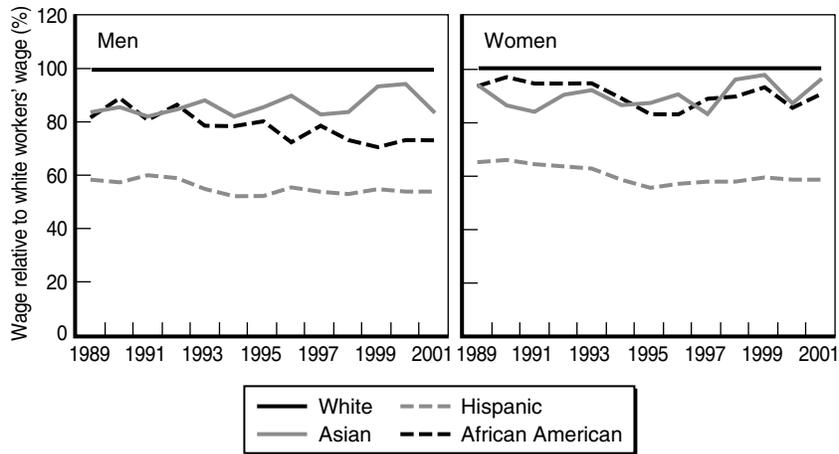
Figure 3.4—Relative Wages by Race and Ethnicity, 1989–2001

Hispanic women and for African American men and women—relative wages are highest during the recession of the early 1990s. During the recession, low-earning workers were disproportionately moved out of the full-time labor force (and out of our calculations) and thus relative wages improved for these groups. This issue highlights the importance of determining long-run trends based on relative wages at business cycle peak years (as in Figure 3.2).

Summary

We have shown that Hispanics and African Americans earn substantially less than white workers, whereas Asian workers tend to earn more than white workers. Wage gaps in California are roughly similar to those in the rest of the nation for most groups but are somewhat larger in the state for Hispanic women. African Americans and possibly Hispanic women were the only groups to experience a growing wage gap during the 1990s.

The analysis of business cycle trends since 1989 shows that the recession of the early 1990s was particularly hard on Hispanic and African American workers—driving up their unemployment rates into double digits. However, these trends have the perverse effect of leading to high relative wages for those who remain employed full-time. Although we do not have recent data for the current period, if the California labor market is in the midst of a multiple-year downturn, we expect the adverse effects to be hardest on Hispanic and African American workers.

4. Determinants of Wage Gaps

Understanding the determinants of wage gaps is important to understanding why wage gaps exist and how policy might affect them. We begin by exploring the role of differences in educational attainment and occupation. We also estimate the importance of union employment and government employment.

Analysis of the Census Bureau data used in this report cannot fully answer the question of why wage gaps exist. If education and occupation are important determinants of wage gaps, the results raise the question of why these factors differ across racial and ethnic groups. Second, substantial gaps exist after taking into account differences in education and occupation, particularly for African Americans. For issues that cannot be addressed with our data, we discuss the evidence from the national research literature with respect to four main types of factors: human capital, discrimination, spatial mismatch, and social networks.

Education

Education is an important determinant of racial and ethnic wage gaps in California. There is a strong positive relationship between education and earnings. Compared to whites and Asians, Hispanics and to a lesser extent African Americans tend to have lower levels of educational attainment. Thus, educational attainment helps explain why Hispanics and African Americans earn less than whites.

Hispanic full-time workers had lower education than other groups; less than 90 percent completed high school and roughly 15 percent completed a bachelor's degree (Table 4.1). African American workers were as likely as whites and Asians to complete high school (over 95 percent), but less than 30 percent of them completed a bachelor's degree. For white workers, about 40 percent had a bachelor's degree. Asians had the highest educational attainment—over 50 percent had a bachelor's degree.

Table 4.1

Educational Attainment by Race and Ethnicity, California, 2000
(in percent)

	High School Diploma	Some College	Bachelor's Degree	Advanced Degree
Men				
White	97	75	42	13
Hispanic	87	49	14	4
African American	98	69	28	6
Asian	98	87	54	11
Women				
White	97	76	40	12
Hispanic	88	54	17	5
African American	96	74	27	8
Asian	98	89	55	13

SOURCE: Authors' calculations from the CPS (1999–2001).

NOTES: The table shows the percentage completing at least the indicated level of education. Calculations are based on U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

For each group, hourly wages tend to be higher at higher education levels. Because the California sample is relatively small, we use national data to investigate the median hourly wage for each group by education level (Table 4.2). For all groups, the overall relative wage was lower than the relative wage within each education level. However, even within education levels, there were some substantial differences between the groups. For almost every education level, Asians had the highest median hourly wage.

For Hispanics, the relative wage within each education level was substantially higher than their overall relative wage. For example, nationally, Hispanic men earned 83 cents per dollar earned by white men. However, for most education levels, the relative wage was closer to 90 cents per dollar. Also, Hispanic men with an advanced college degree actually earned more than white men. This pattern suggests that the overall gap for Hispanics is substantially explained by differences in educational attainment.

Table 4.2

Median Hourly Wage by Race, Ethnicity, and Education, United States, 2000

	White	Hispanic		African American		Asian	
	Median ($)	Median ($)	Relative (%)	Median ($)	Relative (%)	Median ($)	Relative (%)
Men							
Overall	17.50	14.50	83	12.90	74	19.60	112
Less than high school diploma	11.50	10.00	87	9.70	84	12.70	110
High school diploma	14.70	13.10	89	11.40	78	14.70	100
Some college	16.80	15.60	93	13.30	79	17.60	105
Bachelor's degree	22.70	20.90	92	18.40	81	23.80	105
Advanced degree	27.20	28.00	103	22.50	83	26.00	96
Women							
Overall	13.60	12.00	88	11.50	85	16.10	118
Less than high school diploma	8.40	7.80	93	7.70	92	8.10	96
High school diploma	11.00	10.60	96	9.80	89	11.70	106
Some college	12.90	12.60	98	11.70	91	14.70	114
Bachelor's degree	17.70	17.00	96	16.70	94	20.10	114
Advanced degree	21.70	21.30	98	20.10	93	22.80	105

SOURCE: Authors' calculations from the CPS (1999–2001).

NOTES: Calculations are based on U.S.-born, full-time workers, ages 25–54, adjusted for age differences, and are for the entire nation.

For African American men, looking within education level improves relative wages but still leaves a substantial gap with white men. The overall relative wage was 74 cents per dollar nationally. For those with a high school diploma, it was 81 cents per dollar. This finding suggests that even when we adjust for educational differences, the wage gap for African American men will remain substantial.

The national median wage for Asians was higher than that of whites in nearly every education level, but relative wages were closer to parity with whites when we look within education levels. This pattern suggests that when we adjust for educational differences, Asian wages will more closely match those of whites.

To measure the effect of educational differences on wage gaps, we simulate the size of the wage gap if each group had the same distribution of educational attainment as whites.[1] For each group, the black bar in Figure 4.1 shows the actual size of the wage gap with whites. The gray bar shows the size of the wage gap if that group had the same educational attainment as whites.

For Hispanics, relative wages would be much higher if they had the educational attainment of whites. Adjusting for educational differences increases the relative wage from 81 to 93 cents per dollar for men and from 79 to 93 cents per dollar for women. Put differently, educational differences explain more than half of the wage gap between Hispanics and whites.

For African Americans, differences in educational attainment are far less important in determining the wage gap. For men, adjusting for
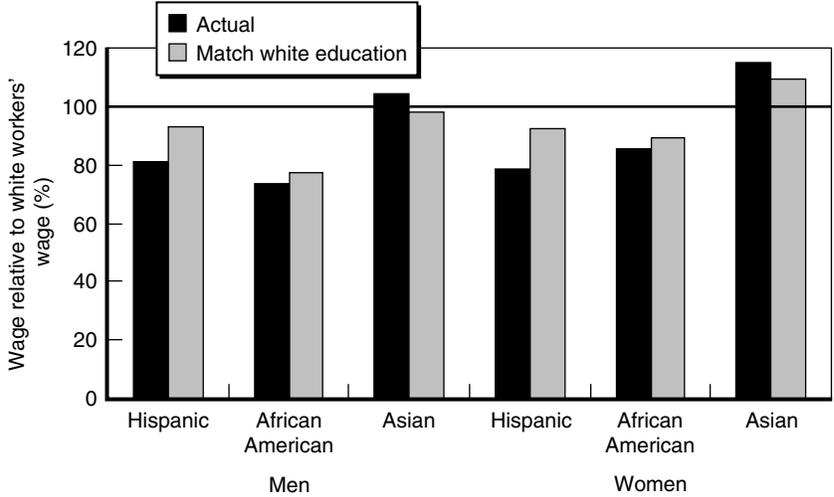
SOURCE: Authors' calculations from the CPS (1999–2001).
NOTE: Calculations are based on U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Figure 4.1—Relative Wages with Adjustments for Education Differences, 2000

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[1]See Appendix B for details.

educational differences improves the relative wage from 74 to 77 cents per dollar, meaning that educational differences explain about 12 percent of the wage gap with whites. For women, the relative wage increases from 86 cents per dollar to 89 cents per dollar, meaning that educational differences explain less than 30 percent of the wage gaps with whites.[2]

Asians had higher educational attainment than whites, and for Asian men, this difference explains all of their wage advantage. That is, if their education were to match that of white men, their median would be slightly lower than the median for white men. Asian women would have a higher median than white women even if education were matched, but their relative wage would have been $1.09 per dollar rather than $1.15—meaning that educational differences explain more than one-third of the higher median wages of Asian women.

In the previous chapter, we found that Hispanic women were the one group for whom the relative wages were lower in California than in the rest of the nation (Figure 3.1). The educational levels of Hispanic women who work full-time are very similar in California and the rest of the nation. For other groups and particularly for whites, full-time working women in the rest of the nation tend to have lower educational levels than those in California. For example, among full-time workers, 34 percent of white women in the rest of the nation have completed a bachelor's degree compared to 40 percent of white women working in California. If the educational attainment for women in California were the same as in the rest of the nation, the median wage of white women in the state would be lower so that the relative wage for Hispanic women would have been 83 cents, nearly the same as in the rest of the nation. This same education simulation has very little effect on the wage gap of Asian and African American women.

During the 1990s, the educational attainment of U.S.-born Hispanic workers improved. For example, the share of Hispanic working men who had completed a high school diploma increased from 78 percent in 1989 to 87 percent in 2000. For working Hispanic women, high school

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[2]These results are consistent with Trejo (1997), who finds that human capital explains the Mexican American wage gap but not the African American wage gap. See also Verdugo (1992).

completion rose from 80 to 88 percent, and the share with a bachelor's degree also increased from 12 to 17 percent.[3]

We would expect that the improvements in Hispanic education would have raised the Hispanic relative wage over the 1990s. Instead, there were two offsetting trends. First, educational attainment for white workers also improved. In particular, the share of white workers with a bachelor's degree increased from 37 to 42 percent for men and from 32 to 40 percent for women. Second, the wages of workers with no college education declined for workers of all racial and ethnic groups, whereas earnings increased for workers with a bachelor's degree.[4] Because the share of workers without a college education is much higher for Hispanics than for other groups (Table 4.1), the decline in earnings for low-educated workers had a greater adverse effect on the median earnings of Hispanics than on any other group. The net effect of these trends was that the relative wage of Hispanics did not improve between 1989 and 2000. Indeed, the relative wage of Hispanics may have declined slightly over the 1990s, but the apparent decline could also have resulted from imprecision of the estimates (Figure 3.2).

For African American workers, the decline in relative wages over the 1990s cannot be explained by changes in education. Between 1989 and 2000, the share of full-time African American workers with a bachelor's degree increased from 21 to 28 percent for men and from 21 to 27 percent for women. Higher education improved the relative wages of African Americans.[5] But the improvement was offset by falling earnings for workers with low education (which happened for all groups). This change had a larger effect on African Americans than it did on whites

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[3]The share of full-time working Hispanic men completing a bachelor's degree was about 14 percent in both years.

[4] Returns to education increased in California, as wages for workers with a high school diploma declined both in an absolute sense and relative to those with more education. See also Reed (1999) and Betts (2000).

[5]This result is based on a simulation that adjusts for improvements in African American and white education. Had there been no change in educational attainment between 1989 and 2000, the relative wage of African American workers in 2000 would have been even lower than is shown in Figure 3.1. Smith (1984) and O'Neill (1990) investigate the relationship between human capital accumulation and African American wage gaps in the United States.

because a larger share of African Americans have no college education (Table 4.1). Yet the decline in earnings for low-educated workers cannot fully explain the decline in African American relative wages. At nearly every education level, the relative wage of African Americans declined between 1989 and 2000 (Table 4.3). By comparison, for Hispanics, the relative wage at nearly every education level in 2000 was similar to that in 1989.

Table 4.3

Relative Wages by Education Level, United States, 1989 and 2000
(in percent)

	Hispanic		African American		Asian	
	1989	2000	1989	2000	1989	2000
Men						
Overall	83	83	81	74	103	112
Less than high school diploma	85	87	85	84	85	110
High school diploma	92	89	83	78	89	100
Some college	95	93	86	79	99	105
Bachelor's degree	92	92	85	81	97	105
Advanced degree	87	103	84	83	95	96
Women						
Overall	84	88	96	85	112	118
Less than high school disploma	91	93	105	92	103	96
High school diploma	98	96	99	89	109	106
Some college	95	98	99	91	108	114
Bachelor's degree	96	96	101	94	103	114
Advanced degree	107	98	104	93	105	105

SOURCE: Authors' calculations from the decennial Census (1990) and the CPS (1999–2001).

NOTES: Calculations are based on U.S.-born, full-time workers, ages 25–54, adjusted for age differences, and are for the entire nation.

Occupation

Occupation is another important determinant of wages.[6] For the purpose of describing occupations, we classify occupations with a

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[6]Solberg and Laughlin (1995) find that occupational assignment is a primary determinant of the gender wage gap nationally. See also Daymont and Andrisani (1984).

national median wage of less than $13 per hour as "low-earning." The largest low-earning occupations in California include sales cashiers, private security guards, nursing aides, and janitors. Moderate-earning occupations are those with a median hourly wage between $13 and $20. The largest moderate-earning occupations in the state are supervisors in sales occupations, secretaries, truck drivers, accountants, and elementary school teachers. Higher-earning occupations with a median wage of at least $21 per hour include managers, administrators, financial officers, computer scientists, and electrical engineers.

Compared to whites and Asians, African Americans and Hispanics tend to be in lower-earning occupations. Less than 15 percent of working white and Asian men were in low-earning occupations compared to more than 25 percent of Hispanic and African American men (Figure 4.2). Among women, about 20 percent of whites were in low-earning occupations. The share was lower for Asians (14 percent) and higher for African Americans (29 percent) and Hispanics (35 percent).

About 55 percent of working men were in moderate-earning occupations. The share was a bit lower for Asian men (47 percent).
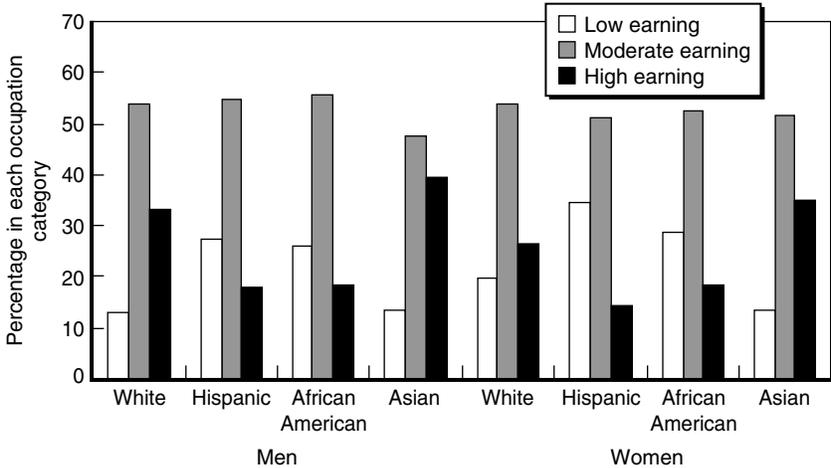
SOURCE: Authors' calculations from the CPS (1999–2001).
NOTE: Calculations are based on U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Figure 4.2—Occupational Distribution in California, 2000

Among working women, just over 50 percent were in moderate-earning occupations and the share did not vary substantially across groups. Roughly 30 percent of white workers were in high-earning occupations. The share was greater for Asians (40 percent for men, 35 percent for women), whereas the share for African Americans and Hispanics was less than 20 percent for both men and women.

Workers' occupations are strongly related to their education level. For example, sales cashiers tend to have low levels of education, whereas computer scientists tend to have high levels of education. To measure the importance of education and occupation separately, we looked first at the role of education without considering occupation. Using this method, the education effects described in the previous section (Figure 4.1) measure the entire effect of education, including the importance of education for determining occupation. We then looked at the effect of occupation after controlling for education. We chose to give education primary importance because we believe educational attainment to be a more fundamental and primary outcome than occupation. We use over 40 detailed occupational categories and 12 major industry categories to model wage determination. We include industry of employment because earnings within occupations may differ by industry. From the model, we simulate the wage gap under a scenario where each group has the same distributions of education and occupation (including industry) as whites.[7]

Under this scenario, the Hispanic wage deficit disappears for both men and women. If Hispanics were to have the same education and occupation as whites, their median wage would be higher than that of whites (Figure 4.3). That is, the relative wage of Hispanics exceeds one dollar for every dollar earned by whites when earnings are adjusted for education and occupation.

For African American men, the relative wage improves to 84 cents per dollar earned by white men when we match their education and occupation distributions to those of whites. That is, if African American men were to have the same distributions of education and occupation as whites, the wage gap would be reduced to 60 percent of its actual size.

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[7]See Appendix B for details.
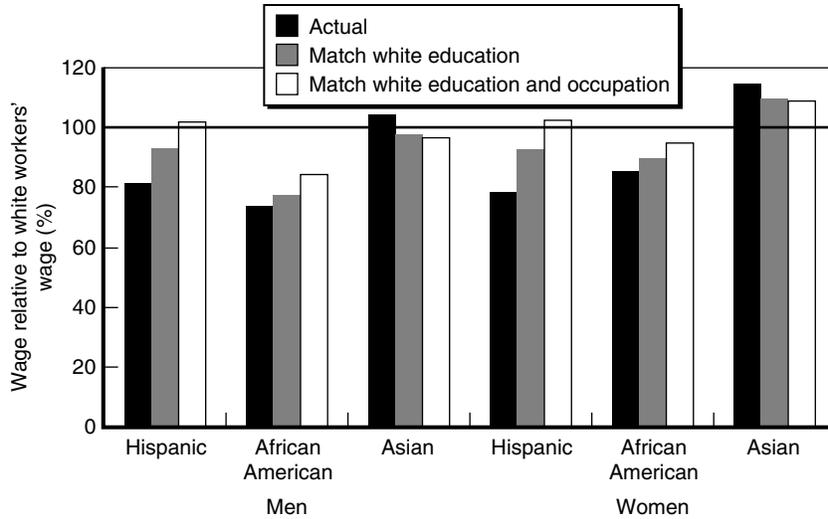
SOURCE: Authors' calculations from the CPS (1999–2001).
NOTES: Calculations are based on U.S.-born, full-time California workers, ages 25–54, adjusted for age differences. Occupation simulation includes occupation and industry of employment.

Figure 4.3—Relative Wages with Adjustments for Education and Occupational Differences, 2000

For African American women, the relative wage improves to 95 cents per dollar, suggesting that differences in education and occupation explain about two-thirds of the wage gap for African American women. For both men and women, wages for African Americans remain below those of whites even after adjusting for education and occupation.[8]

Asians tend to be in higher-paying occupations than whites. For Asian men, matching the distribution of education to that of white men led to wage parity with white men. Further matching the occupation distribution has little effect. For Asian women, even when we match

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[8]This finding is consistent with the national research. Boston (1990) finds substantial national wage gaps for African Americans after adjusting for occupational differences. Anderson and Shapiro (1996) find that human capital and the occupational wage structure do not fully explain the wage gap for African American women in the United States.

education and occupation to that of white women, they continue to have a wage advantage—earning $1.09 per dollar relative to white women.

Over the 1990s, occupational status improved for Hispanic and African American workers. The share of these workers in low-earning occupations declined between 1989 and 2000. However, occupational status also improved for white workers. Overall, changes in occupational status had very little effect on relative wages between 1989 and 2000.[9]

Government Employment and Union Status

In addition to education and occupation, the Census Bureau data include information on government and private sector employment and union status. These factors tend to vary across racial and ethnic groups and may influence wages. However, adding the factors separately or jointly to our simulation model does not substantially change the wage gaps once the distributions of education and occupation have been matched to those of whites (Figure 4.4).[10]

The government employment and union status simulation has the largest effect on the relative wages of African Americans. African American workers are more likely than white workers to be government employees and union members. When we simulate wages for African American workers, if their government and union employment were to be as low as that of white women, the relative wages of African Americans fall by a few cents.

Discussion of the Measured Determinants of Wage Gaps

The five factors that we have investigated in the Census Bureau data (education, occupation, industry, government employment, and union status) can explain why Hispanics earn less than whites and why Asian men earn more than whites (Figure 4.4). However, after adjusting for all five factors, we find that the African American relative wage was

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[9]The net effect of occupational changes was to reduce relative wages by about 2 cents per dollar for Hispanic, African American, and Asian men. For women, occupational changes did not affect relative wages between 1989 and 2000.

[10]We also analyzed region within California. See Appendix B.
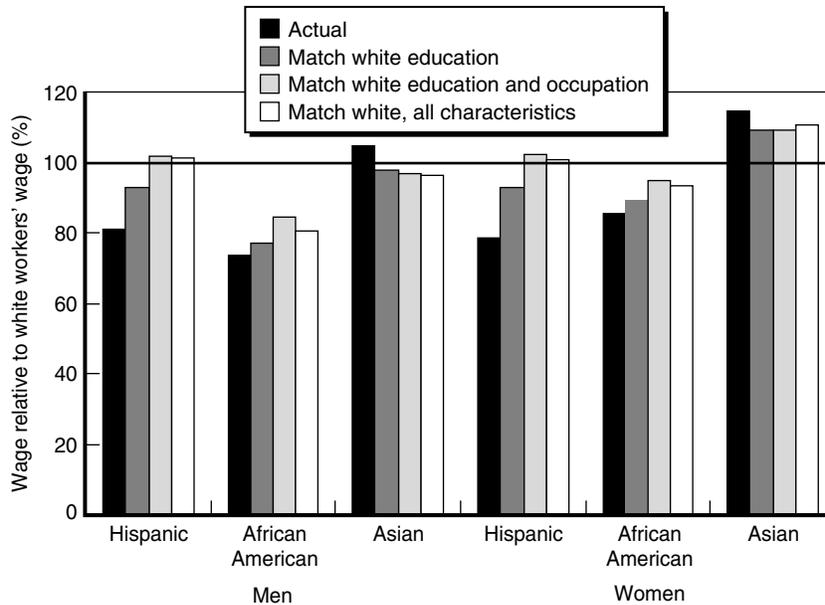
SOURCE: Authors' calculations from the CPS (1999–2001).
NOTES: Calculations are based on median hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences. Occupation simulation includes occupation and industry of employment. Simulation for all characteristics additionally includes government employment and union membership.

Figure 4.4—Relative Wages with Adjustments for Multiple Factors, 2000

only 81 percent for men and 93 percent for women. Taken together, these five factors explain only about one-fourth of the wage gap for African American men and slightly more than half of the wage gap for African American women. For Asian women, these factors explain only about 30 percent of their higher median wage relative to that of white women.

When we use the same simulation for the rest of the nation, we find similar results for most groups. Education and occupation explain the lower earnings of Hispanics relative to whites and the higher earnings of Asian men relative to white men. As in the California results, we find that the five factors used in our analysis explain about half of the wage gap for African American women. For Asian women, we find that the five factors cannot explain their higher earnings relative to earnings of

white women. The most striking difference between the results for California and those for the rest of the nation was for African American men. For California, we find that the five factors used in our analysis explain only about one-fourth of the wage gap for African American men, whereas for the rest of the nation, we find that these five factors can explain nearly 80 percent of their wage gap.

African Americans were the only group for whom we observed a substantial decline in relative wages over the 1990s (Figure 3.2). We investigate the importance of the five explanatory factors by simulating what would have happened to African American relative wages if these factors had not changed. We find that in the absence of changes in these five factors taken together, the relative wages of African Americans would be even lower in 2000. Thus, changes in the five factors led to improvements in relative wages and therefore cannot explain why relative wages declined for African Americans in California.[11]

Research at the national level has also found stagnant or falling relative wages for African Americans over the last two decades.[12] As mentioned above, one factor that has contributed to this trend is increasing employer demand for worker skills leading to a growing wage premium for higher-skilled workers. Because African American workers tend to have lower education than whites (Table 4.1) and perhaps have lower skills in other ways (as discussed in the next section), the growing wage premium for skilled workers would tend to reduce African American wages relative to wages of whites. However, this explanation is

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[11]Holzer (2001) argues that declines in industrialization and unionization have likely contributed to declining relative wages for African Americans. However, our results adjust for occupation, industry, and union status, and suggest that these factors were not important for the trends in California over the 1990s. Juhn et al. (1991) investigate the position of African Americans in the distribution of white wages. Between 1989 and 2000, the education-adjusted median for African American men declined from the 37th to the 31st percentile. For African American women, it declined from the 48th to the 41st percentile. These declines in percentiles may be due, in part, to changes in the base population, as new workers have entered and other workers have exited because they reached age 55, stopped full-time work, or left California.

[12]For a further discussion of the factors driving recent national trends in the wage gap, see Couch and Daly (2000), Smith (2001), Holzer (2001), and Conrad (2001). For studies of earlier decades, see Bound and Freeman (1992), Saunders (1995), Blau and Kahn (1992), and Bound and Holzer (1991).

not fully satisfactory, as the largest increases in the skill premium occurred during the 1980s, and the substantial decline in the African American relative wage occurred in the 1990s.[13]

The decline in relative wages for African Americans does not appear to be directly related to the passage of the California Civil Rights Initiative (Proposition 209) in 1996 because the decline began in the early 1990s (Figure 3.4). Similarly, Smith (2001) argues that the national stagnation in the relative wage of African Americans began in the late 1970s when resources for affirmative action were still expanding.[14]

Other Determinants of Wage Gaps

Many factors that potentially influence racial and ethnic wage gaps are not measured in Census Bureau data. In this section, we describe national research that has shed light on several determinants of wage gaps that we are unable to explore in the California data used in this report. We organize our discussion around four issues: human capital, discrimination, spatial mismatch, and social networks.[15]

Human capital is a term for skills that a worker brings to a job. Formal education, such as completed schooling, is one measure of human capital that varies across racial and ethnic groups and can explain some of the wage gaps. There are many other kinds of human capital that may vary across racial and ethnic groups but are not measured in the data used in this report.[16] For example, for people with the same level of education, those who attended high-quality and more effective schools

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[13]Chay and Lee (1996) argue that the returns to "unmeasured" skill have increased. However, they find that this increase cannot explain all of the decline in the national relative wage of young African American men. See also Card and Lemieux (1994, 1996), Holzer (1998), and Blackburn et al. (1991).

[14]For additional research on affirmative action, civil rights policy, and wage gaps see Smith (1993), Card and Krueger (1993), Chay (1998), and Smith and Welch (1984).

[15]Our discussion focuses on determinants of the wage gaps in 2000. See Holzer (2001) for a discussion of these same factors as determinants of the relative wage trends over recent decades.

[16]Neal and Johnson (1996) investigate the role of "skills" as measured by test scores in explaining the African American wage gap at the national level. See also Chay and Lee (1996) and Card and Lemieux (1994).

will have more human capital.[17] Betts et al. (2000) show that in California, teacher experience is lower in schools attended by Hispanics and African Americans than in those attended by whites. Other schooling issues that differ across groups include quality of college attended as well as major area of study (Weinberger, 1998).

Human capital also develops as workers become more experienced in the labor market and in their profession. In our data, we have information on each worker's age, which is highly correlated with work experience, but not perfectly so. In Chapter 2, we showed that African American men were more likely to be not working and more likely to be working part-time than white men. Therefore, it is likely that an African American man of the same age and with the same level of education as a white man may have less work experience.

Some differences in human capital result from differences in family resources, such as parental income and education. Family resources across groups differ in part because of earnings differentials but also because of differences in family structure. African American children, for example, are much more likely to be raised by single mothers (Cancian and Reed, 2002). Coleman et al. (1966) and more recent evidence in Corcoran (1995) show the importance of family resources for determining education and labor market success. African Americans and Hispanics in California are disadvantaged when it comes to family resources for developing human capital (see Reyes, 2001, for a description of family resources in California by racial and ethnic group).

The Census Bureau data also do not allow us to measure the importance of discrimination in determining wage gaps. Because we lack complete information on workers' human capital, we cannot interpret the part of the wage gap that remains unexplained as "labor market discrimination." Furthermore, discrimination could be an important determinant of educational attainment and occupational status, so that discrimination may account for more than the portion of the wage gap that remains after adjusting for these factors.

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[17]See Carnoy (1996), Grogger (1996), Maxwell (1994), and Card and Krueger (1992) for a discussion of school quality and the African American wage gap.

Although the data used in this report cannot isolate discrimination as a cause of wage gaps, there is a vast amount of anecdotal and legal evidence that labor market and related discrimination is significant in our society. Ong (1999) shows that the number of race-based complaints to California's Fair Employment Practices Commission increased from around 3,000 annually in 1989–1990 to over 6,400 in 1995–1996. Research on employers describes some employers' preferences for white workers (Bertrand and Mullainathan, 2002; Kirschenman and Neckerman, 1991; Holzer, 1996). Moss and Tilly (2001) describe a preference for white, Asian, or Latino workers over African American workers among employers in Los Angeles. Fix and Struyk (1993) describe the convincing evidence of racial discrimination based on "matched pair" studies in which two persons who are similar except for race are sent to apply for employment, loans, and housing.

Spatial mismatch is a third possible explanation for the lower earnings of African Americans compared to whites. African Americans tend to reside a longer distance from high-paying employment opportunities than do whites. According to the spatial mismatch hypothesis, this distance creates a barrier to employment and high earnings for African Americans. Low rates of automobile ownership and distance to public transportation contribute to spatial mismatch (Holzer et al., 1994). Kain (1992) reviews a large literature that provides evidence of the importance of spatial mismatch.

Differences in networks and other forms of social capital are a fourth explanation for racial and ethnic wage gaps. Differences in job networks, reliable contacts, and labor market information can encourage occupational segregation and wage gaps. Case and Katz (1991) describe the adverse behavioral effects of social contacts in poor African American neighborhoods.[18] Reingold (1999) describes the lack of good job networks in poorer minority communities. Role models from the family as well as the larger community may also provide motivation that differs across racial and ethnic groups.

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[18]For a review of the literature on "social isolation" see Ellen and Turner (1997). See also Pastor and Adams (1996) for a study of communities in Los Angeles.

Summary and Discussion

For Hispanics, we have found that lower levels of education and lower occupational status together explain their low relative wages. Likewise, education and occupation explain the high relative wage of Asian men. For Asian women, about 30 percent of their high relative wage can be explained by the five factors addressed in this report: education, occupation, industry, government employment, and union status. African American men have particularly low relative wages of 74 cents per dollar, and the five factors together explain only about one-fourth of the wage gap. African American women have higher relative wages of 86 cents per dollar, and the five factors explain slightly more than half of their wage gap.

Although we have found no Hispanic wage gap after adjusting for education and occupation, this finding does not mean that other factors such as school quality, discrimination, and social networks are unimportant for Hispanics. These factors almost certainly affect the educational and occupational attainment of Hispanics. In addition, the relative wages for Hispanics are lowest at low levels of education (Table 4.2). In our simulation, we match the education of Hispanics to that of whites and thereby put little weight on low education levels, where these other factors may be particularly important.

The finding that Asian workers tend to earn more than white workers at nearly every education level (Table 4.2) does not mean that discrimination does not affect Asian earnings. For example, a glass ceiling may keep Asians from attaining the highest-earning positions, but that is not reflected in our analysis because the data do not allow us to analyze earnings of over $100,000 per year. In addition, some Asian subgroups may face discrimination that is not apparent when we aggregate all U.S.-born Asian groups together.[19]

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[19]Similarly, white workers in ethnic or religious subgroups may also face discrimination.

5. Immigrants and Wage Gaps

Although this report focuses on wage gaps for U.S.-born racial and ethnic groups, immigration is also an important consideration for measuring racial and ethnic wage gaps in California. Immigration can affect wage gaps in three ways. First, immigrants tend to have low wages relative to U.S.-born whites and including immigrants therefore greatly reduces the overall relative wages for Hispanics and Asians (Figure 2.1). Second, immigration in previous decades affects the racial and ethnic make-up of current U.S.-born workers, many of whom are second-generation residents. Finally, immigration can potentially increase the wage gaps of the U.S.-born, if immigrants are more likely to compete for jobs with nonwhites and thus drive down their wages relative to wages of whites.

Immigrant Wage Gaps

In the bulk of this report, we focus on the U.S.-born because the issues for immigrants are quite different. Most U.S.-born workers grew up in the United States. In contrast, many immigrants spent their formative years in their native countries. In particular, many immigrants never attended U.S. schools. For those who did, many had to overcome poor academic preparation in their native country.[1] For many immigrants, too, English is a second language. In these ways, the skills and backgrounds that immigrants bring to the labor market are not comparable to those of natives. Therefore, the wage gaps shown here must be interpreted differently than those for the U.S.-born. Whereas we interpret U.S.-born wage gaps as demonstrative of experiences in U.S. society, the immigrant wage gaps are strongly related to the timing of immigration and to characteristics of immigrants at entry.

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[1]See Vernez and Abrahamse (1996).

In our sample of full-time workers in 2000, 55 percent of the immigrants were Hispanic, 32 percent were Asian, 12 percent were white, and 1 percent were African American. Because most immigrants in California were Hispanic or Asian, we limit our analysis of immigrants to those groups.[2]

Immigrants tend to earn less than U.S.-born workers from the same racial or ethnic group. The relative wage of Hispanic immigrants compared to that of U.S.-born Hispanics was 58 cents per dollar for both men and women. For Asians, the immigrant relative wage was 85 cents for men and 77 cents for women.

In 2000, 44 percent of Hispanics who were full-time California workers were immigrants who arrived in 1980 or later. Their wage relative to U.S.-born whites was 43 cents per dollar for men and women (Figure 5.1, upper panel). Immigrants arriving before 1980 made up 20 percent of the Hispanic workforce. Their relative wage was 56 cents for men and 59 cents for women. Second-generation residents made up 17 percent of the Hispanic workforce, and third- and subsequent generations made up the remaining 19 percent.[3] Their relative wage was about 80 cents per dollar for men and women. The particularly low wages of Hispanic immigrants are related to educational attainment. Hispanic immigrants working full-time have an average educational attainment of nine to ten years, whereas Hispanic natives have an average of roughly 13 years.

Immigrants arriving in 1980 or later made up 58 percent of Asian full-time workers in California in 2000. Their wage relative to U.S.-born whites was 84 cents per dollar for men and women (Figure 5.1, second panel). Immigrants arriving before 1980 made up 23 percent of the Asian workforce. Their relative wage was 95 cents for men and 99 cents for women. Second-generation residents were 10 percent of the

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[2]The sample size in the 2000 data is not large enough to measure gaps for immigrant whites and African Americans.

[3]Second-generation Hispanic residents are identified as persons having at least one parent born outside the United States. Third- and subsequent-generation Hispanic residents are identified as all other U.S.-born Hispanics. Some Hispanics may not identify themselves as "Hispanic." If higher-earning Hispanics are more likely not to self-identify, this will downwardly bias our estimates of the Hispanic relative wage.
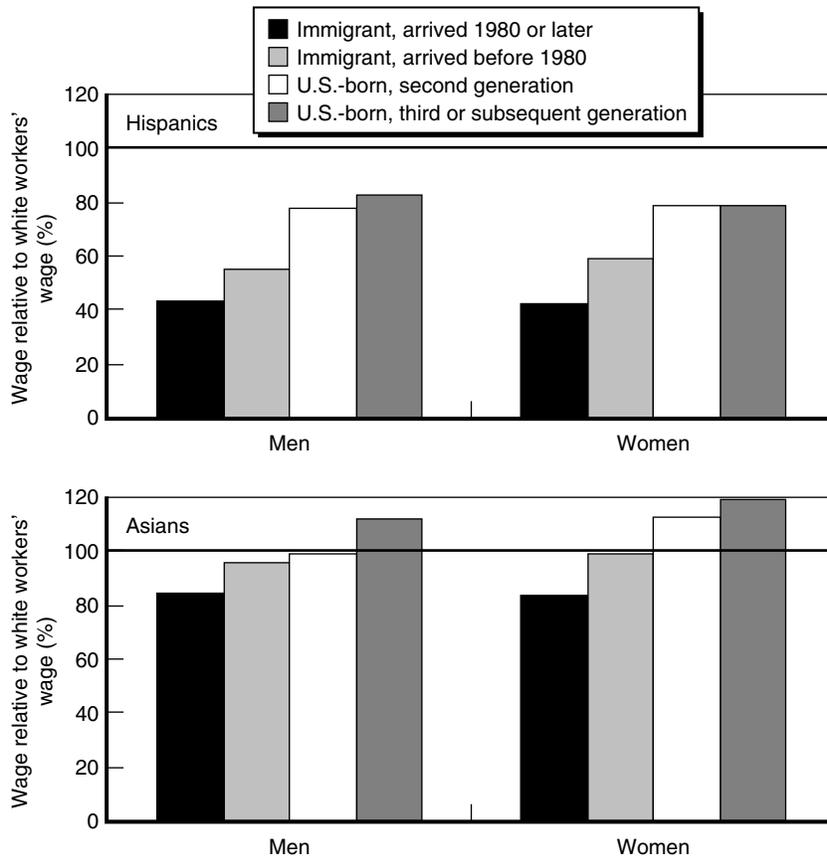
Figure 5.1—Relative Wages for Hispanics and Asians, Immigrant and U.S.-Born Workers, 2000

Asian full-time workforce, and their relative wage was 99 cents for men and $1.13 for women. Less than 9 percent of full-time Asian workers were third-generation or higher, and their relative wage was $1.12 for men and $1.19 for women. Educational differences between Asian immigrants and those U.S.-born are not as substantial as those for Hispanics. Among full-time workers, Asian immigrants have an average

education of 14 to 15 years, whereas U.S.-born Asians have an average of close to 15 years.[4]

Does Immigration Affect U.S.-Born Workers' Wage Gaps?

Immigration can affect the wage gap of the U.S.-born if immigrants differentially affect the wages of U.S.-born racial and ethnic groups. For example, Hispanic immigrants, who tend to have lower levels of education than the U.S.-born, might be expected to compete for jobs primarily with U.S.-born Hispanics and African Americans, who also tend to have lower education levels than whites and Asians. The empirical evidence suggests that the effect of immigration on the wages of the U.S.-born is small or zero (National Research Council, 1997). Even studies that isolate the effect of immigration on U.S.-born Hispanics and African Americans tend to find at most a small negative effect on wages (Bean et al., 1998; Borjas, 1990; and LaLonde and Topel, 1991).

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[4]For a more complete analysis of immigrant education and wage gaps, see Schoeni et al. (1996) and Grogger and Trejo (2002).

6. Conclusion

We have found substantial wage gaps for U.S.-born Hispanics and African Americans relative to whites. For Hispanics, the wage gap can be explained by their lower educational and occupational status. For African Americans, education and occupation explain only a fraction of the wage gap; the remaining portion cannot be explained by factors that are directly measured in these data. U.S.-born Asians earn more than whites. The higher wage of Asian men can be explained by higher educational status. For Asian females, the factors considered in our analysis explain only a portion of their higher wage.

We have found that the wage gaps held fairly steady for all groups over the 1980s but that during the 1990s, the gaps worsened for African Americans and possibly for Hispanic women. For Hispanic women, the apparent growth in the gap is related to the decline in earnings for low-educated workers across all racial and ethnic groups, which resulted in growth in the wage premium for educated workers. The wage premium for education affects Hispanics more than other groups because Hispanic workers have the lowest levels of education. For African Americans, the growing wage premium for educated workers explains only a small part of the growing wage gap during the 1990s, as the wage gap between African Americans and whites grew for nearly all education levels. More generally, most of the growth in the African American wage gap over the 1990s cannot be explained by the five factors analyzed in this report. Similarly, in the national research literature there is no single accepted explanation for recent trends in the African American wage gap (Holzer, 2001).

Looking to the future, we can expect substantial wage gaps to persist for several reasons. First, wage gaps have not improved in California since the late 1970s. Second, the growing wage premium for educated and skilled workers has exacerbated wage gaps for African Americans and especially for Hispanics. This growth has been a labor market trend for

the last 20 years and does not appear to be reversing. Finally, California is currently in unstable economic times. If we have a prolonged economic downturn similar to that of the early 1990s, we would expect the largest unemployment effects for Hispanic and African American workers.

On the positive side, educational attainment for Hispanic and African American workers improved over the 1990s—both in an absolute sense and relative to white workers. Occupational status for Hispanic and African American workers also improved. These trends improved Hispanic and African American median wages compared to what would have happened without improvements in education and occupation. If wage gaps are to decline, the most likely route is through continued improvement in the educational and occupational status of Hispanics and African Americans.

It is beyond the scope of this study to analyze specific policies or to determine their cost effectiveness or best implementation. Therefore, we will not make any specific policy recommendations. However, this study and the national research point to some general policy directions for further consideration and evaluation.[1]

Education and training are important determinants of labor market wages, and their value has increased over the last two decades. The state plays a major role in the education and training of California workers. If successful, current efforts to improve K–12 public schools, particularly in underperforming and poor districts, which tend to have higher proportions of African American and Hispanic students, will improve the quality of schooling and will likely lead to larger shares of Hispanics and African Americans going on to college and eventually to higher wages for these groups.

California's three-part system of public higher education (through California Community Colleges, California State Universities, and the University of California) provides opportunities for students to move on to college at a low cost relative to private colleges and universities, which is particularly important for Hispanic and African American students because their families tend to have fewer resources. With the elimination

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[1]See Holzer (2001) for a further discussion of these and other policy measures.

of race-based affirmative action, public universities have put more emphasis on experiences of "hardship" in determining admissions. The University of California's Eligibility in the Local Context program extends eligibility to the top 4 percent of graduating seniors in participating California high schools. These programs improve admissions of Hispanic and African American students, although they are not as effective for increasing racial and ethnic diversity as earlier race-based policies (Bowen and Bok, 1998; Koretz et al., 2002).

The state's efforts to provide worker training through school-to-work programs, welfare-to-work programs, and workforce development are mainly focused on low-educated workers and will therefore be particularly beneficial to Hispanic and African American workers. Because of the disproportionate share of African American men who are incarcerated, prison programs to develop job skills for reentry into the labor market may be particularly effective in reducing their wage gap.

In recent years, there has been growth in resources for early childhood development and child health in California. If opportunities for high-quality preschool and health insurance are expanded, this change can improve school readiness, particularly for young Hispanic children who are currently underserved in these areas (Reed and Bailey, 2002).

Public policy can also address spatial mismatch and neighborhood segregation.[2] Economic development targeting low-income areas may improve local job opportunities and wages. Low-income housing in suburban neighborhoods can improve access to jobs as well as to higher-quality schools. Public transportation also improves access to jobs for people in neighborhoods with few employers.

Finally, a number of policies attempt to improve the incomes and employment prospects of low-earning workers. An Earned Income Tax Credit (EITC) provides incentives for work through a refundable tax credit based on earnings. In recent years, California has considered a state EITC, and this issue is likely to return when the state is in better fiscal times. MaCurdy (forthcoming) notes the importance of

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[2]See Sandoval et al. (2002) for a discussion of neighborhood segregation in California.

considering the full spectrum of work incentives when designing a state EITC. Raising the state minimum wage will improve the earnings of low-wage workers, although it does not necessarily target low-income families, and it potentially could reduce employment (O'Brien-Strain and MaCurdy, 2000). Transitional "jobs of last resort" (e.g., public works jobs) for those who cannot find other employment can keep workers active in the labor market during hard times as well as develop their job skills (Gottschalk, 1998). In the past, union membership played a role in reducing the wage gap for African American men (Freeman and Medoff, 1984). In contrast, we find no substantial role for unions in California in 2000. Strengthening unions in terms of increased membership and higher wages could potentially improve wage gaps because African American and Hispanic workers have traditionally had higher unionization rates than white workers.

Improving opportunities for workers, families, and communities with low resources will reduce racial and ethnic wage gaps in the long run. California, with its tremendous racial and ethnic diversity, has much at stake in ensuring that people from diverse backgrounds have opportunities to enhance their skills and education, to find good jobs, and to earn enough to support their families.

Appendix A

Notes on Data

Earnings data for this study come from two national household surveys collected by the U.S. Bureau of the Census: the Current Population Survey (Earner Study, public-use files, survey years 1979–2001) and the decennial Census of Population and Housing (survey years 1980 and 1990).

The Current Population Survey and the Census report pretax, money earnings including wages, salary, farm income, and self-employment income. Noncash compensation such as stock options and health benefits is not included.

Earner Study from the Current Population Survey

Each month, the Census Bureau collects information on earnings for about one-fourth of the adult sample in the Current Population Survey. This monthly sample, known as the Earner Study or the Outgoing Rotation Group, can be merged over an entire year to create a single dataset. The Earner Study is available for every year from 1979 to 2001. However, our study requires information on immigration that is available only after 1993.

To have substantial samples of whites, Hispanics, African Americans, and Asians in California, we combine the survey years 1999–2001. We refer to this merged data as from 2000. In our sample of full-time U.S.-born workers in California, there are 5,760 white men, 1,302 Hispanic men, 662 African American men, 4,325 white women, 1,145 Hispanic women, and 743 African American women. Even in the merged data, the sample for U.S.-born Asians is fairly small: 328 men and 234 women.

The CPS Earner Study has information on hourly wage and usual weekly earnings for the main job held in the week before the survey for all employees. (Self-employed workers are not included in our analysis.) There is also information on usual hours of work per week in the main

job as well as in all jobs. For workers who are not paid hourly, we construct an hourly earnings measure from the report of usual weekly earnings divided by the usual hours of work. For hourly wage values of less than $1, we use $1. For hourly wage values of more than $500, we use $500.

Census of Population and Housing

We employ the Public Use Microdata Sample (PUMS) of the Census from 1980 and 1990. The PUMS Census data are a 5 percent random sample of the U.S. population. The Census data have information on annual earnings in the year before the surveys (i.e., 1979 and 1989). For clarity, we refer to all estimates from the Census as estimates for the preceding year. We construct a measure of hourly earnings by dividing annual earnings by the product of weeks worked and usual hours per week.

Because the CPS does not have information on immigration before 1994, we rely on the Census to study wage gaps in past decades. The wage measures from the CPS and the Census are not directly comparable. However, as Table A.1 shows, the magnitudes of relative wages as measured by the Census in 1989 are roughly comparable to those measured by the CPS in 1989 (for immigrants and U.S.-born workers combined) with the exception of Asian females in California.

Consumer Price Index

Relative wage measures do not require inflation adjustments. When combining data for 1999, 2000, and 2001, we adjust earnings measures to 2001 dollars using the consumer price index for California as calculated by the California Department of Finance. The California index is based on the population-weighted mean of the Bureau of Labor Statistics price indices for San Francisco and Los Angeles. The multiplier for 1999 is 1.079 and for 2000 is 1.040.

Top-Codes

The Census Bureau survey data do not report earning and wage responses above a specified "top-code" limit. To reduce the effect of top-

Table A.1

Comparison of Relative Wages Measured by the Census and Current Population Survey, U.S.-Born and Immigrant Workers, 1989 (in percent)

	California		Rest of Nation	
	CPS	Census	CPS	Census
Men				
Hispanic	58	61	70	72
African American	83	80	75	76
Asian	81	84	94	94
Women				
Hispanic	62	65	82	80
African American	97	95	89	94
Asian	95	88	99	100

SOURCES: Authors' calculations from the CPS (1989) and from the decennial Census (1990).

NOTES: The table shows the percentage wage gap relative to whites of the same sex. Calculations are based on median hourly earnings for full-time California workers, ages 25–54, adjusted for age differences, and include U.S.-born and immigrant workers.

codes on our comparisons, we consistently top-code the highest 2.5 percent of weekly earnings for each racial and ethnic group for each sex in each year. The top-codes do not affect our measure of the median but do have a small effect on the wage equation regressions.

Appendix B

Notes on Methodology

This appendix provides further detail on the statistical methodology used for our calculations.

Calculation of the Median

To calculate a robust measure of the median, we calculate the 49th, 50th, and 51st percentiles of the wage distribution and report their average as the median. We use a similar 3 percentile average for all percentile calculations in Appendix C.

The most common alternative to measuring the wage gap at the median is measuring the average wage gap. One advantage of using the average is that it is easier to analyze the determinants using the method proposed by Oaxaca (1973). However, by using the median, we can investigate the actual gap in the middle of the distribution rather than the average of the gaps throughout the distribution. As discussed in Chapter 2, the average gap is strongly influenced by the gaps for high earners. Furthermore, the methodology employed for analyzing the gap at the median can also be used to understand the determinants of the gap at other places in the distribution, as discussed in Appendix C.

Statistical Significance

We calculate confidence intervals using a boot-strap method to construct the empirical distribution of each estimator (e.g., the relative wage ratio) based on 1,000 random draws from the sample for each racial and ethnic group. The size of the 90 percent confidence intervals varies from a low of 6 cents per dollar for Hispanics to as much as 19 cents per dollar for Asian men (Table B.1). Throughout the text, we highlight only differences that are statistically significant.

Table B.1

**Confidence Interval for Relative Wages in
California, 2000 (in percent)**

	Lower Bound	Estimate	Upper Bound
Men			
Hispanic	78	81	84
African American	70	74	77
Asian	95	104	114
Women			
Hispanic	76	79	82
African American	82	86	89
Asian	106	115	124

SOURCE: Authors' calculations from the CPS (1999–2001).

NOTES: The table shows the 90 percent confidence interval. Calculations are based on bootstrap standard errors. Relative wages are based on median hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Age Adjustments

We adjust group-specific statistics so that the age composition of the group matches the age distribution of the adult population in California in 2000 as reported in the 2000 Census. Adjusted statistics include all measures of earnings, education, and occupation. We adjust by reweighting the observations for each group so that the share of observations in each five-year age cell (e.g., 25–29, 30–34, . . . 50–54) matches the share of the total adult population in that age cell. See Chapter 2 for a discussion of the importance of age adjustments for measuring wage gaps.

The most common alternative to age adjustments is to analyze age groups separately. The 2000 data sample used in this report is too small to accurately measure wage gaps within small age groups.

Wage Equation Decompositions

We explore the importance of several potential determinants of wage gaps: education, occupation, industry, union membership, and government employment. We chose to look at these variables because they have been shown to be important determinants of wages. Other determinants of wages, such as specialized training, language skills, and job experience, are not measured in the Census Bureau data used for this report.

To measure the importance of each of these determinants, we ask what the relative wage would be if each group had the same distribution of this characteristic as did whites.[1]

We answer this question by estimating an equation for the determinants of wages, simulating the distribution of wages for each group using the white group characteristics, and then calculating the wage gap at the median. This method follows from Juhn, Murphy, and Pierce (1993).

The simulation is accomplished by using the entire sample of full-time white workers, separately for men and women. We apply coefficient estimates for each racial and ethnic group and add a random error term from the group's error distribution.[2] The simulation strategy assumes that the distribution of worker characteristics could change to match that of whites without changing the coefficients or the distribution of the error term. That is, we simulate certain changes in worker characteristics, holding all else equal. This assumption is probably too strong. For example, if the education of Hispanic workers were to increase to match that of white workers, this would likely change the coefficients on education for all groups—as the supply of college-

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[1]There are several alternative counterfactuals. For example, we could simulate the relative wage if the education of each group matched that of the overall working population (combining all racial and ethnic groups). Alternatively, we could simulate the white median wage if the education of white workers were to match that of each racial and ethnic group. Results vary somewhat depending on the counterfactual chosen. We chose counterfactuals with intuitive, straightforward approaches.

[2]The error distribution is summarized in 0.1 percentiles (i.e., summarized by 1,000 points). Each worker is randomly assigned a rank in the error distribution from 1 to 1,000.

educated workers increased, the returns to college education might decrease.

We begin by using ordinary least squares (OLS) to estimate a wage equation for each racial, ethnic, and sex group where the dependent variable is the natural logarithm of hourly wages and the independent variables are indicators for less than a high school diploma, some college education, a bachelor's degree, and education beyond a bachelor's degree. The equation also controls for a quadratic in potential experience (i.e., age less education less 6).[3] Using the estimated coefficients, we then simulate the distribution of wages for each group, if they were to have the same distribution of education as do whites of the same sex. The simulation also matches the distribution of potential experience to that of whites, but because the estimates are age-adjusted, any differences in potential experience are due to differences in education.[4]

We estimate the effects of education first, before adding occupation and industry indicators. By using this order, we assign primary importance to education, which we believe is a more fundamental and primary choice. The importance of occupation is calculated as the total explained by both education and occupation less what is explained by education alone.

To determine the importance of occupation differences, we repeat the OLS estimation of the wage equation adding over 40 indicators of occupation and 11 indicators of industry. The model is estimated separately for each racial, ethnic, and sex group at the national level. The education and potential experience variables are fully interacted with an indicator for California. Because of the small sample size within groups, the coefficient estimates for occupation and industry are based on the national sample. As a check on this method, we also estimate the same model at the state level allowing the coefficients on occupation and industry to vary by sex but not by racial or ethnic group. This alternative model produces results similar to those reported in Chapter 4 except that

_____

[3]These equations are also used to estimate the predicted wage gap for the full population presented in Figure 2.7.

[4]The controls for potential experience improve the fit of the model because the age adjustments are based on five-year groups (because of the small sample size) rather than on single-year groups.

education and occupation together explained about 70 percent of the wage gap for Hispanic women as opposed to the full wage gap as reported in Figure 4.3.

We also estimate a state-level model with occupation aggregated into 11 major categories where the occupation coefficients varied by racial, ethnic, and sex group. This model produces similar results to those reported in Chapter 4 for men. Under this model, the wage gaps for African American and Asian women are fully explained by education and occupation, whereas for Hispanic women the gap is only half explained. However, we believe that this alternative model is flawed because the aggregated occupation categories combine occupations that have markedly different earnings levels across groups, especially for Hispanics.

We estimate the importance of union membership and government employment by adding these indicators to the national model estimated separately for each racial, ethnic, and sex group. As before, education and potential experience are fully interacted with a California indicator. Union membership and government employment are interacted with a California indicator for all groups except Asians. For Asians, we use the national coefficients for union membership and government employment because the sample of Asian workers in California is too small to produce precise and meaningful estimates. Simulations from this model are not substantially different from the results using only education and occupation. We also estimate this model with five regional indicators for California (San Francisco Bay Area, Los Angeles region, San Diego region, Sacramento region, and remaining areas). When we simulate relative wages if each racial and ethnic group were to match the regional distribution of white workers, the results are not substantially different from those reported in Chapter 4 for Hispanics and African Americans. For Asian workers, regional simulations reduce their relative wages substantially because a large share of Asians live in the San Francisco Bay Area where earnings are high. We believe that the regional simulations are flawed in that regional differences in earnings reflect unmeasured characteristics of workers rather than simply an effect of living in a particular region.

We investigate the determinants of the change in the wage gap during the 1990s using a similar strategy. We simulate the distribution

of wages in 2000 as if the distribution of each characteristic (e.g., education) has not changed since 1989. By comparing the simulated relative wages to actual relative wages in 2000, we can assess the importance of changes in each characteristic. For analyzing the difference in wage gaps between California and the rest of the nation, we simulate relative wages if, for each California group, the distribution of each characteristic matches that of the rest of the United States.

Appendix C

Wage Gaps Throughout the Distribution

In this study, we measure wage gaps at the middle of the wage distribution for each group (i.e., the median). In this appendix, we compare wages across racial and ethnic groups for low- and high-earning workers. The magnitudes of the wage gaps vary at different points of the distribution, but the basic story remains the same.

Hispanic men and women had relative wages of about 80 cents per dollar in the middle of the distribution (see Figure C.1, top panel). Relative wages were somewhat higher at the bottom of the distribution—about 85 cents per dollar at the 10th percentile. For our sample of full-time workers, even the 10th percentile is not driven directly by the minimum wage. At the 10th percentile, Hispanic men earned $8.40 compared to $10.00 for white men. Hispanic women earned $7.30 compared to $8.40 for white women. Hispanic relative wages were lowest at the high end of the distribution—at the 90th percentile, Hispanics earned about 75 cents per dollar. Throughout the distribution, education and occupation were important determinants of wage gaps for Hispanics. If their education and occupation were to match that of whites, their wages would have been within a few cents of white worker wages at the high-earning end of the distribution and higher than white workers' wages at the low-earning end of the distribution.

African American men earned 74 cents per dollar earned by white men at the middle of the distribution. Their relative wage was highest at the 10th percentile (81 percent) and lowest at the 90th percentile (71 percent). African American women had a higher relative wage of 86 cents per dollar in the middle of the distribution. Similar to other groups, their relative wage was highest at the 10th percentile (91 percent) and lowest at the 90th percentile (81 percent). For African Americans,
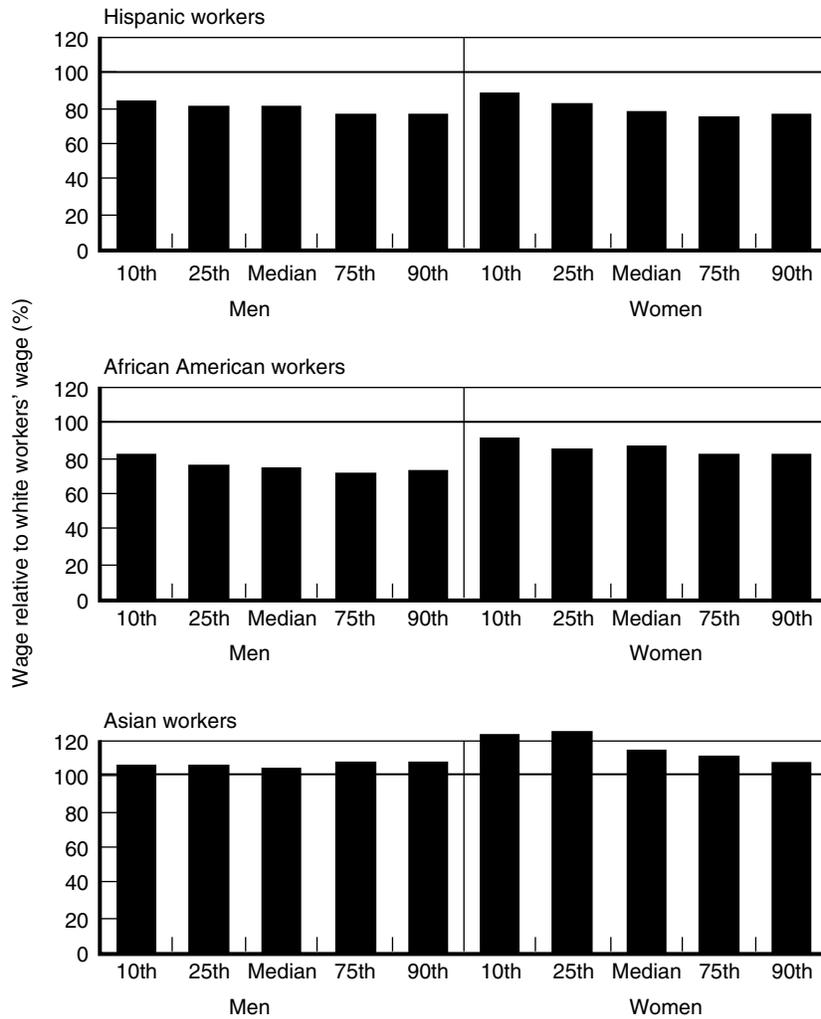
Hispanic workers

African American workers

Asian workers

Wage relative to white workers' wage (%)

SOURCE: Authors' calculations from the CPS (1999–2001).
NOTE: Calculations are based on median hourly earnings for U.S.-born, full-time California workers, ages 25–54, adjusted for age differences.

Figure C.1—California Wage Gaps Throughout the Distribution, 2000

education and occupation can explain nearly all of the wage gaps with whites at the 10th percentile. At the 90th percentile, African American wage gaps remain substantial even when we adjust for education and occupation.

Asian men earned $1.05 to $1.08 per dollar earned by white men throughout the distribution. Asian women earned substantially more than white women at the 10th percentile (123 percent) and somewhat more than white women at the 90th percentile (106 percent). For Asian men, their earnings advantage throughout the distribution would disappear if their education were to match that of white men. For Asian women, their earnings advantage remains even if we match their education and occupation to white women, particularly at the median and below.

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