Wage Discrimination over the Life Course: A Comparison of Explanations

DAVID J. MAUME, JR., *University of Cincinnati*

Explanations of inequality usually diverge into two camps. The persistent inequality perspective suggests that all blacks and women face discriminatory barriers across their careers, while the cohort explanation contends that younger blacks and women are closer to wage parity with white men than are their older counterparts. Using longitudinal data from the Panel Study of Income Dynamics, this study estimates minority wage gaps (relative to white men) for three cohorts of black men, white women, and black women. Findings show that in early years younger minorities were significantly closer to wage parity with white men than were older cohorts. Yet, none of the cohorts gained ground on white men over their careers, and instead the majority of cohorts suffered significant wage erosion. Moreover, in a decomposition analysis of the average career wage, the majority of the gaps are attributable to unexplained factors (i.e., discrimination), rather than to compositional differences between white men and the other groups. On balance, the findings are more consistent with the persistent inequality perspective.

Explanations for wage inequality between white men and other demographic groups remain hotly contested, even after decades of research. Some argue that bias against women and minorities is declining and/or negligible, while others contend that discrimination on the basis of race and gender continues to affect the labor market. These differing perceptions of change provide a foundation for two competing explanations. The *persistent inequality* perspective holds that women and black men face historically enduring discriminatory barriers, which worsen over their work lives. In contrast, the *cohort* explanation posits that systematic discrimination against women and blacks is on the wane; hence, recent cohorts of women and black men are closer to wage parity with white men than were preceding counterparts. In addition, the cohort explanation finds, within these recent cohorts, wage disparities tend to decrease over the career. In this article, I first review the research literatures supporting these competing viewpoints. Then, using a longitudinal analysis of multiple cohorts, I empirically evaluate the relative merits of the persistent inequality and cohort perspectives for explaining wage inequality.

Competing Perspectives

Persistent Inequality

Proponents of the *persistent inequality* perspective claim that racial and gender bias have not been purged successfully from the labor market. Their research attempts to demonstrate

The author wishes to thank Steve Carlton-Ford, Paula Dubeck, Sarah Beth Estes, Jim Holstein, Tom Jenkins, Annulla Linders, Jennifer Malat, Neal Ritchey, and anonymous *Social Problems* reviewers for their comments on earlier versions of this article, and Wendy Harmon Doran and Magdalena Szaflarski for their research assistance. Direct correspondence to: David J. Maume, Jr., Department of Sociology, P.O. Box 210378, University of Cincinnati, Cincinnati, OH 45221-0378. E-mail: david.maume@uc.edu.

***Social Problems*, Vol. 51, Issue 4, pp. 505–527, ISSN 0037-7791, electronic ISSN 1533-8533.**

that at various points in the employment relationship, employers favor white men over women and blacks. They contend that despite the implementation of anti-discrimination legislation and affirmative action (Edelman 1992), women and blacks continue to face discrimination in the "pipeline" that funnels workers up a firm's hierarchy.

The persistent inequality perspective holds that all women and black men face the same barriers in achieving parity with white men, regardless of when they started their careers. Moreover, this approach holds that there will be uniform *within*-cohort erosion in minority earnings, relative to white men, over the life course. This uniform erosion would be caused by organizational practices that privilege white men over other groups, resulting in white men gaining faster and more widespread access to high-paying jobs (England 1992). There is some empirical support for this point. For example, Rachel Rosenfeld (1980) found a small wage gap between white men and other groups at labor market entry, but the wage gaps increased steadily over time. Similarly, in a longitudinal analysis of M.B.A. graduates, racial and gender gaps in pay were minimal in the first job, but grew over time (Olson and Frieze 1987).

One indicator of employer preference for white men over women and blacks is their initial job assignment, which helps to predict later career success. Rosabeth Moss Kanter's (1977) classic study of Indsco showed that women, in contrast to men, were isolated in their early job assignments and denied the training needed to advance their careers. Later research confirmed that men are more likely than women to be placed in high-pressure jobs with the firm's profitability at stake (Ohlott, Ruderman, and McCauley 1994). Sharon Collins (1989) found similar barriers confronting blacks. Collins interviewed black executives in Chicago who, when asked to reflect on their careers, reported that early on they were channeled into "racialized" jobs that linked the concerns of the black community to the firm or that monitored the firm's affirmative action compliance. Such racialized assignments pigeon-hole minority executives as specialists in minority issues, and as outsiders to the firm's overall goals and strategies. Consequently, blacks are less likely to be considered for promotion to higher-level jobs (Benjamin 1991; Jones 1986).

In addition to initial job assignment, persistent inequality researchers point to the scarcity of mentors as a factor that impedes the careers of women and minorities (Naff and Thomas 1994). Studies show that protégés receive higher pay and more promotions than do those without mentors (Chao 1997; Dreher and Ash 1990). Fewer women and black men than white men report having mentors within their firm (Ragins and Cotton 1991). Moreover, among those with a mentor, women and black men are more likely than white men to report discomfort with their mentor, and the relationship is more likely to end acrimoniously (Ragins and Scandura 1997; Thomas 1990).

Researchers have found that inequality also persists in performance reviews.[1] Supervisor evaluations provide an important source of feedback to the worker and predict the quality of future job assignments and pay (for a review, see Bartol 1999). Studies of race and gender differences in performance ratings tend to show that women and black men receive lower ratings from supervisors than do white men, suggesting supervisors' bias against these groups (Ilgen and Youtz 1986; Kraiger and Ford 1985; Tsui and Gutek 1984).

The persistent inequality perspective also finds support in cross-sectional data that show the promotion process varies by race. Even in firms with greater minority representation or with internal promotion ladders, blacks received fewer promotions than whites (Baldi and McBrier 1997). Longitudinal analyses produce similar findings. Blacks are less likely than whites to reach professional, technical, and managerial jobs (Wilson, Sakura-Lemessy, and West 1997). Event-history methods also have been used to examine upward wage mobility and movement into managerial jobs (Maume 1999a, 1999b). These studies show, in the pres-

1. While the above discussion on initial job assignment or mentorship apply mostly to white-collar careers, performance reviews are conducted for most workers (Edwards 1979).

ence of individual and work-related controls, white men's speed of ascent into managerial positions and higher-paying jobs has exceeded that of women. While black men fared better than women, they too lagged behind white men in career advancement.

Citing the evidence above, many scholars contend that discrimination leads to persistent earnings gaps between white men and other groups (e.g., see Benjamin 1991). There is, of course, some evidence of a narrowing wage gap. Census data, for example, show that among full time workers the gap between the median weekly earnings of blacks and the median weekly earnings of whites narrowed from 1960 to 1980 (Farley 1984). But this trend has stalled. In 1999, blacks made only 78 percent of what their white counterparts earned. Similarly, among white full-time workers, median weekly earnings of women were 76 percent of men's earnings in 1999 (U.S. Bureau of the Census 2000 [Table 696]). A comprehensive review of multivariate analyses of racial and gender wage differences is beyond the scope of this study. However, others who have undertaken this task conclude that racial and gender wage disparities persist after accounting for individual characteristics and structural locations in employment (for a review of gender inequality, see England 2001; for a comprehensive treatment of racial inequality, see Anderson and Massey 2001).

The Cohort Approach

Those who contest the persistent inequality perspective contend that racial and gender differences in rewards stem from the combination of several cohort effects that disguise a more open labor market for younger workers. William Julius Wilson (1980, 1989) first invoked this argument in response to critics of his thesis on the "declining significance of race." In response to studies showing that blacks lagged far behind whites in access to good jobs with high pay (e.g., see Landry 1987; Willie 1989), Wilson noted that point estimates of the relative status of blacks were biased by the inclusion of older blacks who had suffered discrimination in the past. Wilson (1980, 1989) suggested that younger blacks face a more open labor market, and enjoy greater income parity with whites.

Of course, economists have long contended that discrimination is absent from the labor market because it is inefficient. In a competitive economy, wage discrimination should lessen as biased employers are driven out of business by their above-average labor costs. If this theory were correct, not only would younger cohorts exhibit lower wage inequality (as a consequence of historical change), but also the wages of *all* minority workers would gain on those of white men as their careers progressed—a consequence of decreasing racism and sexism in labor market practices. Indeed, some analysts claim favoritism of white men no longer typifies American society, and women and blacks with sufficient stocks of human capital have reached parity with white men (e.g., on racial inequality, see Thernstrom and Thernstrom 1997; on gender inequality, see Furchtgott-Roth and Stolba 1999).

Some analysts have tested the cohort perspective by examining cross-sections of the labor market at different times; these studies report a declining temporal change in the effect of race on earnings. One such study found the net hourly wage disadvantage for blacks declined from 19 to 12 percent between 1960 and 1980 (Farley 1984). A recent study including data for 1990 found that the racial gap in weekly wages narrowed to 15 percent, down from 34 percent in 1950 (Sakamoto, Wu, and Tzeng 2000). Francine D. Blau and Andrea H. Beller (1988) took a similar approach in examining the changing gender gap in pay. They estimated separate wage attainment models by gender and found that from 1971 to 1981 the percentage of female-to-male wages increased from 63 to 70 percent among whites, and increased from 69 to 79 percent among blacks (Blau and Beller 1988:523).

Analysts specifically comparing the experiences of younger and older cohorts generally produce findings that support the cohort perspective. Indeed, in one sample of college graduates, blacks had better jobs and higher incomes than whites (Son, Model, and Fisher 1989). However, Reynolds Farley and Walter R. Allen (1987) compared those entering the labor

force before and after the civil rights era and found only modest improvements in wages of black men vis-à-vis those of white men, a gap that was constant across different levels of education. Among women, however, younger blacks had gained on, and sometimes exceeded, the socioeconomic position of whites, especially among the college educated.

Similarly, comparing different cohorts shows an improving labor market for young women. For example, June O'Neill and Solomon Polachek (1993) estimated that the gender gap in wages declined one percent per year from 1977 to 1989, and that increased schooling and work experience largely explained the wage gap among younger workers compared with older workers. Examining career trajectories of three cohorts of engineers, Laurie A. Morgan (1998) found the effect of being female was consistently near zero among young women (estimating wage regressions across time), but being female depressed wages of the oldest cohort by 10 to 15 percent. These results suggest that the level of gender inequality depended on *when* women entered the profession, and that wage differentials remained constant over the life course. Of course, Morgan's sample of professional women is quite distinctive, leading her to call for more research on women in other lines of work (Morgan 2000).

Testing Competing Hypotheses

In an attempt to adjudicate between the persistent inequality and cohort perspectives on racial and gender differences in earnings, I adopt Morgan's (1998) multi-cohort longitudinal research design. Because multiple cohorts are included in the sample, reductions in discrimination implied by cohort theorists can be inferred from smaller attainment differences in younger cohorts.[2] Also, because my sample is followed over time, it is possible to observe whether earnings inequality increases or decreases over the life cycle. Therefore, two competing hypotheses will be evaluated in this article:

Hypothesis 1: A persistent inequality effect can be inferred when wage gaps for women and black men (vis-à-vis white men) widen over time, irrespective of cohort membership.

Hypothesis 2: A cohort effect on inequality can be inferred from lower levels of racial and gender inequality among younger cohorts than among older cohorts, and wage differentials will remain constant or narrow over the life course.

Research Design

Data

Data for this study were taken from the Panel Study of Income Dynamics (PSID), a data source uniquely suited for this study because of its longitudinal inclusion of workers at all stages of the life course. Workers between 25 and 49 years of age were initially observed in 1980, and observed again in 1984, 1988, and 1992 (the latest year for which complete data on all variables were available).[3] Workers aged 25 to 49 were in their prime earnings years, between finishing their schooling and reaching retirement age by 1992. Those selected for the sample were either household heads or spouses; other adults in the

2. Cohort arguments claim that point estimates of inequality from cross-sectional samples (or from retrospective interviews) cannot detect an improving labor market for younger workers. If a cohort effect is operating, younger workers will face fewer career obstacles than will older workers. As discrimination barriers are removed, racial and gender inequality should be lowest for younger workers and highest for older workers (who suffered discrimination in the past).

3. In the PSID, certain key variables are measured in arrears (e.g., income and hours worked), while others are measured in the current survey year (e.g., employment status and tenure). Thus the 1993, 1989, 1985, and 1981 survey years provided information on the respondent's income and hours worked in 1992, 1988, 1984, and 1980, respectively.

family were eliminated because the PSID failed to record detailed data on their employment situations.[4]

At its inception in 1968, the PSID oversampled low-income respondents. The PSID provides weights to correct for sample composition and for attrition that occurs over time. In addition, original sample members (and their children) have known probabilities of selection into the sample, but new entrants into the PSID (usually by marriage to original sample members) have unknown probabilities of sample inclusion. For this reason, the PSID gives non-sampled individuals a weight of zero. Thus, applying PSID weights will reduce the number of cases available for analysis (by approximately 25 percent, in this case). Because analyses presented in the next section rely on samples defined by race and gender, I opted to forgo weighting in order to maximize sample sizes. Fortunately, analyses of the PSID have shown that sampled and non-sampled respondents in the PSID resemble each other on many demographic traits (Becketti et al. 1988), and that properly-specified models produce accurate results irrespective of weighting (Hill 1992). Nevertheless, I performed supplementary analyses which determined that the relationships shown below were similar for sampled and non-sampled individuals in the PSID.[5] These and all other supplemental analyses not shown in this study are available to readers upon request.

Defining Cohorts

Beginning in 1985, all heads and spouses were asked to provide the dates when they completed various levels of schooling, allowing the cohorts in this analysis to be defined by the year respondents completed their highest level of schooling.[6] This procedure is preferable to defining cohorts by birth year, because government policy on the labor market changed markedly over time (Cancio, Evans, and Maume 1996; Wilson 1980). I defined three cohorts, the oldest of which completed their schooling prior to 1964, when overt discrimination was still widely practiced. The middle cohort completed their education between 1964 and 1972, when employers changed their employment practices after the passage of anti-discrimination legislation (Burstein and Edwards 1994). Finally, the youngest cohort finished their schooling after 1972, when equal opportunity and affirmative action procedures were institutionalized into employment practices (Edelmen 1992).

4. In addition to these restrictions, respondents also had to identify themselves as either white or black because few Hispanics and Asians were present in the early years of the PSID. The PSID added a Hispanic sample in 1990, but there were not enough repeated observations to examine the career dynamics of Hispanics.

5. That is, in the 1980 survey year I split the sample into four groups defined by race and gender to detect race and gender differences in the impact of sample weights on estimated models. Using the control variables shown in Appendix A (including two controls for cohort membership), I re-estimated the wage attainment models with the inclusion of a binary variable coded "1" for having a positive weight, and coded "0" for having a zero weight. To these models I added the interaction of the weight status with the 23 predictors shown in Appendix A. I repeated this analysis for the 1992 survey year. Only 9 of the 184 interaction terms (23 predictors $\times$ 4 race-sex groups $\times$ 2 years) were statistically significant. Moreover, in comparing models with and without the interaction terms, *none* of the eight F-tests of the increments to r-square were statistically significant. From these results, it is reasonable to conclude that the wage determination process does not vary with the weight status of the respondent.

6. Respondents who became new heads or spouses after 1985 were asked these questions in the appropriate year. For 1980 and 1984 respondents missing from the sample in 1985 and later years, the year they completed their schooling was estimated by subtracting the number of years of completed schooling (plus six, to account for pre-school years) from the respondent's age in 1980. Most respondents who obtained a certificate at a vocational or training school did so in lieu of a high school diploma or G.E.D. degree. The year they received this certificate was taken as the year they completed their formal schooling. Finally, a small number of people obtained further schooling after beginning their careers. For example, four percent of high school graduates in 1980 had completed their college educations by 1992. Rather than deleting these cases, these individuals were retained in the sample, and cohort membership was defined by the year they began working full-time as a prime-age worker (i.e., 25 years of age or older).

Dependent Variable

The dependent variable is the respondents' *hourly wage* on their main job. When respondents were paid a salary, PSID researchers divided the annual salary figure by 2000 to estimate the hourly wage. This measure excludes money received from government transfers, investments, and gifts or loans. Then, to examine the relative position of women and black men in real terms, hourly wages in 1980, 1984, and 1988 were inflated to 1992 dollars using the Consumer Price Index.

Researchers typically take the natural logarithm of hourly wage to reduce the skew in the dependent variable, but this can affect a researcher's substantive conclusions. Comparatively, logging the hourly wage pulls more of the high-income cases into the middle of the distribution, which may under-estimate the degree of racial and sexual inequality (since white men are more likely than others to be located in the right tail of the income distribution). Alternatively, logging the hourly wage in regression analyses reduces heteroskedasticity and increases the efficiency of slope estimates (Hodson 1985). Thus, in the analyses that follow, the log of hourly wage will be used to estimate minority wage residuals, with the understanding that these are probably lower-bound estimates of inequality between white men and other groups.

Methodology

To examine temporal patterns in racial and gender inequality, the following model will be estimated:

$$log\ (wage_i) = \beta_0 + \beta_1\ Cohort_i - \beta_2\ Minority\ Group_i + \beta_3\ Minority\ Group_i \times \mathrm{Cohort}_i + \beta_4\ Control\ Variables_i \quad (1)$$

in which *log* (*wage*$_i$) was defined above; *Cohort*$_i$ is a vector of two dummy variables for membership in one of the three educational cohorts; *Minority Group*$_i$ is a vector of three dummy variables indicating self-identification as either a black man, black woman, or white woman; and *Minority Group*$_i$×Cohort$_i$ is a vector of interactions between cohort and minority group.

Equation 1 will be estimated 12 times, once in each of the four survey years, alternating all three cohorts as the reference group. The resulting values of β_2 (expected to be negative) show the proportionate decrement in wages for minority groups relative to white men *in the reference cohort.* Change in the β_2 values between 1980 and 1992 will reveal temporal increases or decreases in inequality. The cohort perspective suggests β_2 values will approach zero over time (especially for the youngest cohort), while the persistent inequality perspective predicts β_2 values will decline over time for every cohort. Values of β_3 show the marginal wage effects of being in one cohort relative to the reference cohort in a given minority group. Significant values of β_3 would support a cohort interpretation of inequality if older black men and women suffered larger earnings gaps relative to white men than did their younger counterparts. By contrast, insignificant β_3 values would support a pattern of persistent inequality.

Control Variables

Many analysts infer discrimination from a significant minority-group residual wage effect (i.e., the β_2 slopes from Equation 1) after controlling for relevant predictors of pay. Predictors of pay typically include individual-level (or "supply-side") traits that people bring to the labor market when they seek work, such as educational credentials, experience, and familial characteristics that affect work effort. Other analysts go on to include job-level (or "demand-side") predictors of pay, such as occupation, industry, supervisory responsibility, and demographic composition of the job. But the choice of predictors is debatable because

they affect the magnitude of wage residuals. For example, if employer discrimination affects access to good jobs, the inclusion of demand-side predictors of pay in wage attainment models will reduce the size of wage residuals for women and black men. However, economists contend that racial and gender variation in employment across jobs and industries reflects rational choices on the part of individuals (e.g., see Filer 1990). Because this article cannot resolve these debates, I opt for the prudent strategy of estimating the size of minority wage residuals in models limited to supply-side predictors, and then adding in demand-side predictors of pay.

Supply-side control variables in this analysis include a vector of four binary variables for *completed schooling* (dropped out of high school, some college, bachelor's degree, and graduate or professional degree, versus the reference category of high school graduate). In addition, to capture family background effects on attainment, the models included a control for *parent's years of schooling* (defined by the higher value of the father's or mother's years of completed schooling).

The skills and experience of a worker were controlled by years of *tenure with current employer,* and years of *labor force experience* since age 18.[7] *Tenure with current employer* captures the accumulation of firm-specific skills that can boost pay, while years of *labor force experience* captures the accumulation of general skills (Wellington 1994). The analytic models will also include the squared values of these measures to capture ceiling effects on wages. Those who *work full time* (35+ hours per week) are likely to be paid higher wages than those who work part time; thus, the models include a binary control for working full-time. Since wages can vary by geographic location, the models include binary controls for whether a worker *resides in the South* and/or *resides in a metropolitan area.* Familial variables may also affect career commitment, thus necessitating the inclusion of binary controls for being *married* and the *number of children* in the family (capped at 5 to reduce the influence of outliers).

Unfortunately, like most secondary datasets, the PSID lacks complete measures of employer behavior that produce inequality (e.g., initial job assignments, the presence of mentors, and the results of supervisor evaluations). Rather, this study will control for employment situations that reflect (albeit imperfectly) employer actions that usually privilege white men. The demand-side predictors of pay include binary variables for having a *supervisory occupation* or a *public sector occupation* (where wages are higher for minority groups; see Hodson and Kaufman 1982), or a *job covered by union contract.*

In addition, three measures of occupational context were constructed. First, Donald Tomaskovic-Devey (1993) argues that the status composition of a job influences its wage rates. Thus, the *percentage of white males* employed in the respondent's occupation was controlled, with the expectation that this measure will positively affect earnings.[8] Second, an occupation's *cognitive skill requirements* and its exposure to *hazardous working conditions* have also been shown to affect wage rates (for a review see England 1992). Regarding the latter, Randall K. Filer (1990) contends that dangerous jobs must pay more to attract incumbents, and that men are more likely than women to risk injury in exchange for a higher wage. Following the example of Paula England (1992), these two measures were constructed by scaling job-level measures from the *Dictionary of Occupational Titles* (DOT) that are averaged at the occupation level. The summary scales were then matched to the occupations of PSID respon-

7. A few cases had values on the tenure and experience variables that exceeded the potential number of working years as an adult (defined as the respondent's age minus 18). To retain these cases in the analysis, outliers on the tenure and experience measures were recoded to potential number of working years as an adult. In addition, when years of experience was replaced by a measure of years out of the labor force (to capture the erosion of work-related skills), the results were similar to those shown in this study.

8. The year-specific demographic composition of occupations was calculated using the 1980, 1984, 1988, and 1992 versions of the March supplements to the Current Population Survey (CPS). After calculating the percentage of white men in each occupation, this variable was merged onto the occupations held by PSID respondents.

dents.[9] With controls for the demographic composition of the occupation, cognitive skill requirements, and exposure to hazardous working conditions, it was unnecessary to include in the analytic models a full vector of dummy controls for occupation and industry.[10]

Accounting for Selection Bias

Due to the sample attrition typically suffered by longitudinal samples, of the 2,999 cases available for analysis in 1980, only 2,183 individuals were observed in 1992 (see Table 1 below). As long as sample attrition is a random process, the results are unbiased. But, sample selection criteria are often relevant in examining wage inequality. To be included in these analyses, respondents had to work for an employer and earn a paycheck, thereby excluding volunteers, self-employed workers, job hunters, and those who were off the job market. Some of the restrictions were implemented for practical reasons (e.g., many predictors of pay have missing values for non-working respondents), while other restrictions were invoked for substantive reasons (e.g., the concept of pay discrimination is inapplicable to volunteers and exclusively self-employed workers).

Yet, if the selection criteria correlate with earnings, then the estimation of the wage residuals in regression models will be biased. For example, women and black men who encounter discrimination may get discouraged and leave the labor force. Selecting those working for pay may result in a sample that excludes individuals who have suffered pay discrimination and underrepresents estimates of wage discrimination. Similarly, white men who earn high wages early in their careers may accumulate enough resources to allow them to retire early or start their own businesses. If so, these high-earning white men would be excluded from the sample, thereby underrepresenting the estimates of discrimination. In sum, while the selection criteria used here probably produce lower-bound estimates of inequality, selection criteria were taken into account prior to estimating Equation 1.

This was accomplished by estimating four Heckman equations (1979), one for each of the four survey years. Respondents meeting selection criteria in a given year received a score of "1," while excluded respondents received a score of "0." Using logistic regression, models including demographic, human capital, and class-related factors were estimated to determine the likelihood of meeting sample selection criteria in each of the four observation years. Because our interest lies in estimating the size of the minority earnings residuals, the results of the sample selection analyses are not shown.[11]

9. The DOT measures of *cognitive skills requirements* include complexity in working with data, general educational development (which is itself a measure of reasoning, language, and mathematical skills) on the job, training time to do the job, and the average intelligence and numeric aptitude of job incumbents. These ordinal measures were standardized prior to creating the summed scale ($\alpha = .97$). The *hazardous working conditions* index was constructed in a similar manner by summing the standardized values of the percentage of occupational incumbents who need to stoop and/or climb on the job, and the percentage exposed to hazardous working materials ($\alpha = .88$).

10. The models shown in Appendix A were re-estimated after replacing the three composite scales with a vector of seven binary controls for *occupation* (sales occupations were included in the reference category) and eight binary variables for *industry* (with the trade sector as the excluded category). Many of the binary measures for occupation and industry were statistically insignificant, and the r-square values from these models were similar to the values shown in Appendix A.

11. Year-specific predictors of sample inclusion were age, education, parent's years of schooling, years out of the labor force, resides in South and/or resides in metropolitan area, number of children, and experiencing a birth in the past year. In addition, the models included binary controls for suffering a *health condition* limiting the ability to work, being married to an *employed spouse*, or *moving in the prior year.* Because economic status can affect labor force participation, *taxable household income in the prior year* was also controlled. To allow for gender differences in the effects of family-related measures on sample inclusion, separate models were estimated for men and women (with the inclusion of a binary control for *race*). Results showed that having a *health problem* negatively affected the log odds of inclusion in the sample, while *taxable household income in the prior year* positively affected sample inclusion. In the presence of controls, *black* respondents were more likely to be included in the sample in every case but for women in 1992. Variables for resides in South, resides in metropolitan area, and moving in the previous year had inconsistent effects on sample inclusion. The remaining variables affected sample inclusion differently for men and women. For example, the number of

After estimating the year-specific equations, the predicted *probability of selection* into the sample was calculated, and then added as a control variable into the wage attainment regressions. This procedure enabled the estimation of levels of racial and gender discrimination in wages among respondents who worked for a boss for pay.[12] When correcting for sample selection bias, Christopher Winship and Robert Mare (1992) caution against possible distortions from heteroskedasticity produced by the addition of the selection covariate into the prediction equation. Following their advice, I estimated the wage equations shown in Appendix A with weighted least squares (WLS), in which the cases in the four wage attainment equations were re-weighted by the values on the selection covariate. Results from WLS analyses were substantively similar to those from OLS models, but with the added advantage of more efficient slope estimates in WLS.

Results

Career Trends in Racial and Gender Wage Inequality

Data were analyzed to determine whether cohort and minority group membership significantly affect pay in the presence of supply- and demand-side controls for wages. Appendix A presents year-specific results (and means on predictors) from models in which the *youngest* cohort is the reference cohort.[13] The bold coefficients in Appendix A are the minority wage differentials (i.e., the β_2 coefficients from Equation 1) for the youngest cohort of each minority group relative to young white men. These coefficients were transferred into the lower panel of Table 1, which summarizes the results of estimating Equation 1 after allowing

children, giving birth, marriage to a working spouse, and prior years out of the labor force negatively affected women's log odds of meeting sample selection criteria in all or most years, but in almost every case had no effect on men's selection status. Similarly, educational attainment increased women's chances of inclusion in the sample, but had no effect for men. Age and parent's educational attainment negatively affected men's likelihood of sample inclusion, but had inconsistent effects for women.

12. Failing to correct for selection bias does indeed bias downward the estimates of wage discrimination against women and black men, particularly in the later years of the study. For example, for 1992, the uncorrected estimates of wage discrimination for the younger cohorts of black men, white women, and black women were 46, 25, and 30 percent smaller than the values shown in Table 2. Despite the need to control for sample selection, Winship and Mare (1992) warn researchers that using the Heckman correction for selection bias may produce distortions because of similar predictors in the selection equation and in the wage attainment equation, and/or when the distribution of the selection covariate departs from normality. Stolzenberg and Relles (1997) contend that intuition about the effects of selection bias should be the most important determinant of whether to use the two-step Heckman correction, even in situations when a certain amount of overlap in the selection and prediction equations is expected (as in this case, when human capital variables determine *both* the decision to seek work and how much one is paid). Even so, I examined the distribution on the selection covariate and observed approximately 20 outliers at the left tail of the distribution in each survey year. I recoded these outliers to the value of the fifth percentile (i.e., a predicted probability of sample inclusion of .25). At that point, a visual inspection of the distribution of the selection covariate superimposed upon a normal curve revealed no serious departures from normality.

13. While not the focus of this article, most of the effects of the predictor variables support findings from previous research. Among the demand-side predictors, having managerial authority increased pay in all or most years, as did working in an occupation that was typed male, demanded high cognitive skills, or was covered by a union contract. The effects of working in the public sector and/or in a hazardous occupation inconsistently affect the log of hourly wage. Among the supply-side predictors, the probability of meeting sample selection criteria, respondent's and parent's educational attainment, tenure, metropolitan residence, and being married positively affected wages (logged) in all or most years. Similarly, residence in the South had a negative effect on wages in every year but 1992. Somewhat surprisingly, working full-time, and years of work experience had inconsistent effects on the log of hourly wage, as did respondents' number of children. Given the presence of controls for minority group status and their interactions with cohorts, the main effects of being in the middle or mature cohorts are for white men and show no significant earnings differences with the younger cohort of white men. In regards to marital status and number of children, I created interactions between these variables and being female. Unfortunately, adding these interactions into the model in Appendix A introduced some instability into the results, tipping coefficients on the interaction terms, increased standard errors for the race-gender binary variables. For this reason, I dropped the female×family characteristics interactions from the models shown in Appendix A.

Table 1 • *WLS Estimates of Proportionate Gap in Log of Hourly Wage (in cents per hour), by Year, Group, Cohort, and Model Specification*

	1980	*1984*	*1988*	*1992*	*Change*
1. Supply-side controls only					
Black men					
Young cohort (post 1972)	−0.1865 (0.032)[a]	−0.2911 (0.034)[a]	−0.3628 (0.040)	−0.3551 (0.045)	−0.1685[b]
Middle cohort (1964–72)	−0.2110 (0.030)[a]	−0.2869 (0.033)[a]	−0.3291 (0.039)[a]	−0.3168 (0.044)[a]	−0.1058[b]
Mature cohort (before 1964)	−0.3508 (0.035)[c,d]	−0.4471 (0.039)[c,d]	−0.4465 (0.048)[d]	−0.4597 (0.054)[d]	−0.1089[b]
White women					
Young cohort (post 1972)	−0.2206 (0.028)[a]	−0.2186 (0.028)[d]	−0.3113 (0.030)[a]	−0.3945 (0.031)[d]	−0.1739[b]
Middle cohort (1964–72)	−0.2186 (0.031)[a]	−0.1496 (0.030)[a,c]	−0.2654 (0.033)[a]	−0.3049 (0.034)[c]	−0.0863[b]
Mature cohort (before 1964)	−0.2966 (0.034)[c,d]	−0.2850 (0.036)[d]	−0.4157 (0.043)[c,d]	−0.3744 (0.049)	−0.0778
Black women					
Young cohort (post 1972)	−0.3624 (0.034)[a]	−0.4411 (0.035)[a]	−0.4433 (0.039)[a]	−0.4424 (0.043)[a]	−0.0800
Middle cohort (1964–72)	−0.3447 (0.033)[a]	−0.4368 (0.033)[a]	−0.4344 (0.040)[a]	−0.4869 (0.042)[a]	−0.1422[b]
Mature cohort (before 1964)	−0.5201 (0.036)[c,d]	−0.5860 (0.039)[c,d]	−0.6638 (0.047)[c,d]	−0.6133 (0.054)[c,d]	−0.0932
Number of cases	3,044	2,835	2,560	2,231	
R-square	0.477	0.534	0.506	0.530	
2. Supply- and demand-side controls					
Black men					
Young cohort (post 1972)	−0.1281 (0.031)[a]	−0.2191 (0.033)[a]	−0.3184 (0.039)	−0.2725 (0.043)	−0.1444[b]
Middle cohort (1964–72)	−0.1789 (0.028)[a]	−0.2039 (0.032)[a]	−0.2703 (0.040)	−0.2485 (0.042)	−0.0696
Mature cohort (before 1964)	−0.2832 (0.033)[c,d]	−0.3411 (0.038)[c,d]	−0.34504 (0.047)	−0.3313 (0.051)	−0.0481
White women					
Young cohort (post 1972)	−0.1343 (0.027)[a]	−0.1592 (0.028)[d]	−0.2416 (0.031)	−0.3233 (0.032)[d]	−0.1890[b]
Middle cohort (1964–72)	−0.1454 (0.031)[a]	−0.1026 (0.030)[a,c]	−0.2107 (0.034)[a]	−0.2491 (0.035)[c]	−0.1036[b]
Mature cohort (before 1964)	−0.2200 (0.034)[c,d]	−0.1592 (0.036)[d]	−0.2768 (0.043)[d]	−0.2821 (0.049)	−0.0621
Black women					
Young cohort (post 1972)	−0.2608 (0.034)[a]	−0.3427 (0.035)	−0.3498 (0.040)[a]	−0.3681 (0.042)	−0.1074[b]
Middle cohort (1964–72)	−0.2588 (0.033)[a]	−0.2965 (0.034)[a]	−0.3154 (0.042)[a]	−0.3643 (0.042)	−0.1055[b]
Mature cohort (before 1964)	−0.3967 (0.035)[c,d]	−0.3686 (0.039)[d]	−0.4498 (0.048)[c,d]	−0.4361 (0.054)	−0.0394
Number of cases	2,999	2,752	2,427	2,183	
R-square	0.558	0.604	0.558	0.586	

Notes: Each of the cross-sections includes individuals working for a boss and receiving pay. Estimation equations include non-omitted age cohorts and minority group interactions with non-omitted cohorts, in addition to the controls shown in Appendix A. All WLS slopes are more than twice their standard errors (shown in parentheses).

[a] Coefficient is significantly different from mature cohort, $p < .05$, 1-tailed test.

[b] Denotes significant difference between 1980 and 1992 slopes, $p < .05$, 1-tailed test

[c] Coefficient is significantly different from youngest cohort, $p < .05$, 1-tailed test.

[d] Coefficient is significantly different from middle cohort, $p < .05$, 1-tailed test.

all cohorts to serve as the reference category. Panel 1 of Table 1 presents similar results when the wage attainment equations were limited to the supply-side predictors. Compared with Panel 1, sample sizes are slightly smaller in Panel 2 due to the presence of missing data on the demand-side variables included in the estimation models.

All coefficients shown in Table 1 are more than twice their standard errors, denoting statistically significant effects on the dependent variable. These coefficients can be interpreted as the proportionate gap in hourly wage relative to white men for a given cohort, in a given minority group, in a given year. Superscripts denote instances when wage gaps differed significantly between cohorts within a given minority group (i.e., the β_3 slopes in Equation 1 were statistically significant). Finally, the last column in Table 1 shows the change in wage residuals over the 12-year period, with superscripted values indicating significant differences between the 1992 and 1980 slopes. Since both perspectives make bold claims about the trends in inter- and intra-cohort differences in wages, these arguments were evaluated with one-tailed tests of significance to increase the chances of finding support for a given perspective.

Beginning in Panel 1 of Table 1, the results show limited support for the cohort perspective in 1980 (Hypothesis 2), while providing stronger evidence that all three groups experienced persistent and growing wage inequality relative to white men over the life course (Hypothesis 1). Starting in 1980, it is true that younger minorities were significantly closer to wage parity with their white male counterparts than were those in the mature cohorts. For example, black men who entered the labor market after 1972 earned 18.65 percent less per hour than white men in the same cohort. This figure contrasts starkly with a 35.08 percent wage gap observed among mature black men. Not only are these earnings differentials themselves significant (i.e., the β_2 coefficients from Equation 1), but the inter-cohort *differences* between the slopes are also statistically significant (i.e., the β_3 coefficient for the mature cohort*black male interaction in Equation 1), as denoted by the superscripts.

A similar pattern is observed among women, in that wage gaps are significantly smaller in younger cohorts compared with those in the mature cohorts. Among mature white women, the wage gap of nearly 30 percent is approximately eight percent larger in magnitude than the wage gaps for the younger and middle cohorts (both at approximately 22 percent). Among mature black women, inter-cohort differences in wage residuals are even larger (approximately 16 percent vis-à-vis the younger cohort, and approximately 18 percent relative to the middle cohort). Moreover, the pattern of mature cohorts suffering significantly larger wage differentials than the younger and/or middle cohorts holds until 1992 for African Americans, and until 1988 for white women. The only deviation from this pattern was for white women in 1992, which shows a significant inter-cohort difference in wage residuals between the younger and middle cohorts.

Yet, by reading across the rows in Panel 1, the cohort explanation of inequality is increasingly contradicted as careers unfold. These figures reveal the *intra*-cohort trend in wage residuals, which is consistent with the persistent inequality perspective. That is, over time, none of the cohorts approached wage parity with their white male counterparts. Rather, the last column in Panel 1 shows that six of the nine cohorts completed the observation period in 1992 significantly farther behind their white male counterparts than where they started in 1980. For example, in 1980 black men in the younger cohort earned 18.65 percent less per hour than younger white men, a gap that widened to 35.51 percent by 1992. This temporal erosion in black men's relative wage position (of 16.85 percent) is statistically significant. Similarly, younger white women fell significantly further behind younger white men (by 17.39 percent) over the course of their careers, while black women in the middle cohort suffered a 14.22 percent relative wage decline over the 12-year period.

Three cohorts (white and black women in the mature cohort, and young black women) also lost ground to white men from 1980–1992, but the decline in wage residuals failed to reach statistical significance. The women in these cohorts started the observation period with large attainment deficits relative to mature white men, and their position in 1992 was not sig-

nificantly different. Yet, the magnitude of wage erosion in these cohorts is more than trivial. Declines of 7 to 9 percent in relative wage inequality hardly support the claim that race and gender biases have been successfully purged from the labor market.

Panel 2 displays observed wage residuals in models that add in controls for employment situations of workers (full results are shown in Appendix A). Some researchers contend that individuals sort themselves into jobs that result in white men earning more than other groups; other analysts contend that employers control access to high-paying jobs. In either case, it is clear that individual incomes are determined jointly by the matching of workers to jobs, and by the payment schedules attached to given jobs (Sørensen 1983). If there is systematic racial and gender differentiation in the matching of workers to jobs (for any reason), then controlling for workers' employment conditions should reduce the magnitude of earnings residuals obtained from wage attainment models. Even so, the purpose of this article is to examine the temporal *change* in earnings residuals over time, to determine if the patterns observed in Panel 1 hold up once workers' employment contexts are controlled.

Indeed, earnings residuals are clearly smaller in Panel 2 for every cohort of every minority group in every year. Yet, the pattern of results shown in Panel 1 is replicated in Panel 2. First, within minority groups, wage residuals are generally smaller for more recent cohorts than for mature cohorts. Second, five of the nine cohorts lose significant ground relative to white men over the 12-year period. Third, in the four cohorts in which the temporal erosion of relative wages failed to reach statistical significance, the observed declines are more than trivial (and certainly do not show an upward trend toward wage parity). The similarity in the results shown in Panels 1 and 2 lend additional support to Hypothesis 1, that significant and growing minority wage differentials over the life course typify a pattern of persistent inequality in the labor market.

Two Potential Criticisms

While these findings are more supportive of the persistent inequality perspective, it is necessary to acknowledge two arguments that may weaken or contradict this conclusion. First, the wage residuals shown in Table 1 could be biased by the failure to include important predictor variables. For example, one study explained away most of the gender gap in wages after controlling for major field of study and mental aptitude (Marini and Fan 1997). In a related argument, some analysts claim that racial wage inequality is explained away once appropriate controls for cognitive skill differences are taken into account (e.g., see Neal and Johnson 1996). And more recently, Catherine Hakim (2000) has argued that family background and socialization experiences influence career preferences, which in turn determine gender differences in pay and promotion opportunities. No doubt, there are other covariates that, because of data limitations, are excluded from the wage attainment models estimated in this study. Rather than lamenting data limitations, however, it is preferable to empirically correct the results for these unmeasured influences.

A second potential criticism could be directed at the explanation of intra-cohort declines in wage residuals. The persistent inequality perspective argues that organizational impediments (of the type discussed in the literature review) accumulate over time, causing *all* women and blacks to lag behind white men in pay. Yet, it is also possible that the erosion of relative wages seen in Table 1 result from a period effect unique to the early 1980s. Indeed, deindustrialization during the 1982 recession has been implicated as a cause of rising inequality later in the decade (Levy and Murnane 1992). Silvia Cancio, David Evans, and David Maume (1996) point to declining enforcement of equal opportunity legislation during the Reagan administration as a cause of increased racial disparities in pay. If these arguments are correct (and they will be revisited in the concluding section of the article), they may explain why all minority cohorts lost ground to white men over the observation period, and contradict the explanation offered above. Of course, it would be preferable to eliminate period

effects from longitudinal analyses of wage inequality so that the wage deterioration observed in Table 1 can be attributed to organizational impediments that accumulate over the career.

Fixed-Effects Models/Decomposition of Wage Gaps

The problems of omitted variable bias and period effects can both be taken into account by estimating a fixed-effects model. The fixed-effects model takes advantage of the longitudinal nature of the data by treating the four survey years as independent samples and pooling the respondents into a single file. The resulting "person-year" data file is now comprised of individuals who are repeatedly observed across time. All variables in the wage analysis are adjusted by subtracting the person mean (across years) and the year mean (across individuals) from individual values, and then adding the grand mean from the person-year file to the resulting difference. Fitting a model with variables adjusted in this manner produces identical results to those obtained from OLS if one were controlling for individual and period influences by adding dummy variables for each person and each year (with appropriate reference categories). The resulting fixed-effect estimators control for stable unmeasured year-specific and person-specific influences on the dependent variable. These stable influences include period effects, and the effects of family background, socialization influences, stable career preferences, cohort membership, cognitive skills, major field of study, and first-job assignment. Thus, the fixed-effects model estimated below will reveal how changes in predictors affect the average wage between 1980 and 1992 (see England et al. 1988 and Kilbourne, England, and Beron 1994 for examples of estimating inequality using this technique).

Appendix B shows the results of the fixed-effects model specification, by race and gender. Since cohort membership and parent's education are constant over the career, their effects (as well as all stable unmeasured influences of the kind mentioned above) are included in the constant term, which is the sum of the fixed effects. All variables in the model are treated as time-varying covariates, and their slopes can be interpreted as effects on the average career wage due to unit changes in predictors (see note 6 for information on respondents who continued their educations while pursuing their careers). Besides the metric coefficients, each variable's *t*-value and grand-mean in the person-year file are shown for each group. The bottom of the table shows the number of person-years on which these analyses are based, in addition to measures of the model's fit and the mean hourly wage (logged) over the 12-year period.

The information in Appendix B can be used to perform a standard decomposition of the wage gap (Jones and Kelley 1984). That is, if over their careers white men earn more than the other groups, one possible explanation could be that white men possess higher stocks of human capital and/or are more successful in securing employment that yields high wages. This would be reflected in mean differences in predictors. A decomposition analysis multiplies differences in means by respective minority slopes to determine how much of the wage gap is due to compositional differences between white men and other groups.[14] The remain-

14. In decomposing the wage gap between white men and other groups, many analysts estimate the portions due to differences in means, differences in slopes, and differences in constants. Jones and Kelly (1984) recommend summing the components for the differences due to slopes and constants to estimate the *unexplained* portion of the wage gap. This is because the variables used in regression analysis often have no fixed zero points, which can affect estimates of the slopes and constants depending on the measurement strategy for a predictor (e.g., the choice of a reference category for a vector of dummy variables). Measurement choices will not affect the *sum* of the intercepts and slopes components, however. Thus, I will take the differences in predictor means and multiply this quantity by the slopes for respective minority groups (see Appendix B). Other analysts go on to multiply mean differences by the slopes for white men, or a common slope that is the weighted average between white men and other groups. But, Jones and Kelley recommend that theoretical considerations should govern the choice of slopes to use in performing a decomposition analysis. In choosing minority slopes for the decomposition, I adopt their "deprivation model," which theorizes that minority characteristics are undervalued in the labor market, and the appropriate remedy to achieve equality is to raise minorities to the higher earnings of white men. Conversely, multiplying by white male slopes estimates a "privilege model," which suggests that white men are overpaid, and the appropriate remedy to achieve inequality is to reduce the earnings of white men. Choosing a common slope takes a middle position between these two theoretical arguments/remedies.

Table 2 • ***Decomposition of the Gap in Average Career (logged) Relative to White Men, By Group and Model Specification***

	Black Men		*White Women*		*Black Women*	
	Amount	*%*	*Amount*	*%*	*Amount*	*%*
1. Supply-side controls only						
Probability of selection	−0.0496	−14	0.0297	7	−0.0084	−1
Completed schooling						
High school dropout	−0.0005	0	0.0007	0	0.0039	1
Some college	0.0010	0	0.0004	0	0.0012	0
Bachelor's degree	−0.0036	−1	0.0024	1	0.0037	1
Graduate/professional degree	0.0042	1	0.0054	1	0.0176	3
Labor force experience	0.0011	0	0.0100	2	0.0116	2
Experience squared	−0.0009	0	0.0007	0	−0.0032	−1
Tenure with current employer	−0.0031	−1	0.0632	14	0.0345	5
Tenure squared	−0.0017	0	−0.0350	−8	−0.0233	−4
Works full time	0.0001	0	0.0220	5	0.0036	1
Resides in South	0.0123	3	0.0002	0	0.0781	12
Resides in metropolitan area	−0.0078	−2	0.0004	0	0.0090	1
Married	0.0049	1	0.0056	1	0.0050	1
Number of children	0.0004	0	0.0002	0	−0.0008	0
Amount explained	−0.0432	−12	0.1058	24	0.1323	21
Amount unexplained	0.4015	112	0.3307	76	0.5016	79
Total gap	0.3583	100	0.4365	100	0.6339	100
2. Supply- and demand-side controls[a]						
Probability of selection	−0.0441	−12	0.0294	7	−0.0083	−1
Completed schooling						
High school dropout	−0.0009	0	0.0002	0	0.0041	1
Some college	0.0007	0	0.0005	0	0.0007	0
Bachelor's degree	−0.0128	−4	0.0027	1	0.0043	1
Graduate/professional degree	−0.0018	−1	0.0048	1	0.0179	3
Labor force experience	0.0006	0	0.0090	2	0.0143	2
Experience squared	0.0006	0	0.0005	0	−0.0041	−1
Tenure with current employer	−0.0038	−1	0.0583	13	0.0321	5
Tenure squared	−0.0010	0	−0.0324	−7	−0.0237	−4
Works full time	0.0001	0	0.0191	4	0.0022	0
Resides in South	−0.0245	−7	0.0004	0	0.0815	13
Resides in metropolitan area	−0.0083	−2	0.0003	0	0.0080	1
Married	0.0035	1	0.0058	1	0.0058	1
Number of children	0.0001	0	0.0005	0	−0.0006	0
Supervisory occupation	0.0056	2	0.0032	1	0.0028	0
Public sector occupation	0.0000	0	0.0023	1	−0.0004	0
Job covered by union contract	−0.0131	−4	0.0092	2	0.0040	1
Percent white males in occupation	0.0035	1	0.0284	7	0.0463	7
Cognitive skills requirements	0.0259	7	0.0083	2	0.0241	4
Hazardous working conditions	0.0031	1	0.0094	2	0.0101	2
Amount explained	−0.0665	−19	0.1597	37	0.2209	35
Amount unexplained	0.4214	119	0.2756	63	0.4101	65
Total gap	0.3549	100	0.4353	100	0.6310	100

[a] See Appendix B for values used in decompositions.

ing portion of the wage gap is "unexplained," and is usually attributed to employer discrimination. Table 1 suggests that minorities lose ground against white men over their careers. A decomposition analysis will reveal how much of this inequality can be apportioned to these "explained" and "unexplained" components.

Table 2 reports the results of the decomposition analysis. Panel 1 of Table 2 shows decomposition results from models that exclude demand-side determinants of pay, while Panel 2 is based on models that include these predictors (see Appendix B). At the bottom of both panels the size of the wage gaps is shown decomposed into its components (these amounts differ slightly because of missing data on some of the demand-side predictors used in the decompositions in Panel 2). For each predictor, the figures in Table 2 show the amount of change (in absolute and percentage terms) in the log of the hourly minority wage that would occur if minorities resembled white men. Summing down these figures shows how much of the wage gap would be explained by equalizing compositional differences between white men and minorities. Of course, our interest lies in the remaining "unexplained" portion of wage gaps, which implicates employer discrimination as a factor in career inequality in wages. Support for the persistent inequality perspective would be found in relatively large unexplained portions of the wage gaps.

Starting in Panel 1, the results for women are rather straightforward. The most important factors determining wage inequality relative to white men are the main effects of tenure for white women and Southern residence for black women. That is, if white women have tenure with their current employer at least equal to that of white men (see the means in Appendix B), white women would be 14 percent closer to the wages of white men. The −8 percent figure for the tenure-squared term reflects the fact that women have shorter tenures with their employers, and white women reach their earnings peaks more rapidly than do white men (evidenced by their larger slope on the tenure-squared term; see Appendix B). Similarly, the wage gap would be narrowed by 12 percent if the likelihood of black women living in the South decreased to match that of white men. Differences in the likelihood of meeting sample criteria (i.e., working for a boss for a wage) accounts for seven percent of the wage gap suffered by white women. The remaining predictors account for rather trivial portions of the wage gaps between white men and the two groups of women. Importantly, if they resembled white men on *all* human capital predictors, white women and black women would be 24 and 21 percent closer to the wages of white men, respectively. Thus, 76 percent of the gender gap in wages among whites is due to differences in employer actions that privilege white men over white women. Among black women, employer discrimination accounts for 79 percent of the gap in wages vis-à-vis white men.

For black men, the portion of the wage gap explained by worker characteristics is −12 percent, suggesting that if black men resembled white men across their careers, black men's average wage would be 12 percent farther *behind* the average wage of white men. This is almost entirely due to the fact that black men exceed white men in the probability of sample selection (see Appendix B). Substantively, this result suggests that white men can earn high wages even with a history of a weak attachment to a paying job working for a boss. Among black men, however, it is more important that they meet sample selection criteria to earn high wages. The remaining predictors account for rather trivial portions of the wage gap, suggesting that black men largely resemble white men on human capital predictors of pay. Rather, the entire wage gap (and then some) is attributable to employer actions that favor white men over black men.

The pattern of results is essentially unchanged when the decompositions are recalculated with the inclusion of the demand-side predictors (see Panel 2). It is true that the more favorable employment situations of white men account for a non-trivial portion of the wage gaps. For example, if white and black women worked in jobs with as many white-male coworkers as do white men, both groups would be seven percent closer to the average career wage of white men. After including all demand-side predictors, Panel 2 shows a larger portion of the

female wage gaps can be attributed to compositional differences between white men and white and black women (37 percent for white women; 35 percent for black women). Nevertheless, the unexplained portions of wage gaps far exceed the explained portions. That is, 63 and 65 percent of white women's and black women's respective gap in wages relative to white men remains unexplained. Among black men, 119 percent of the wage gap is attributable to unexplained factors, which occurs because the explained portion of the wage gap is negative. That is, if black men resembled white men on predictor variables, their earnings would decline. Similar to the findings in Panel 1, this situation results from the greater importance for black men to meet sample selection criteria (in terms of their larger mean and slope compared with white men) in order to earn high wages. For our purposes, however, the important point is that in explaining the racial wage gap among men, the unexplained component is far larger than the explained component. These decompositions were performed on models that accounted for unmeasured stable influences on career wages, such as cognitive skills, field of study, and employment preferences. Therefore, this finding lends added weight to the conclusion that employer discrimination over the course of a career accounts for the majority of the observed wage differences between white men and minority groups.

Discussion

Some contend that since the 1960s, extensive social change has dramatically improved the socioeconomic positions of women and blacks. Given the institutionalization of equal opportunity and affirmative action mandates in the employment practices of firms, the labor market now affords greater opportunities for women and minorities. Research from repeated cross-sections (e.g., from Census data) typically shows declining wage residuals for minority groups, signaling a reduction in discrimination against women and minorities, especially among more recent entrants into the labor market. But, because these studies were restricted to cross-sectional samples, they cannot examine relative inequality over the life course of individuals. Furthermore, those who dispute these arguments contend that the labor market is characterized by persistent inequality, in which *all* minorities suffer deteriorating wages relative to white men over the course of a career, irrespective of cohort membership.

This study has tested these propositions by examining changes in the relative wages of black men, white women, and black women using longitudinal data from 1980 to 1992. Among the three cohorts defined, based on the year respondents completed their schooling, in 1980 younger minorities indeed enjoyed lower levels of inequality relative to white men than did their older counterparts. But, the temporal trend in wage residuals showed that cohorts generally lost ground relative to white men over the 12-year period. Moreover, in analyses that accounted for period effects and for unmeasured stable influences on career wages, decompositions showed that discrimination accounted for the majority of the observed wage gaps between white men and minorities. On balance, these findings call into question a cohort explanation of inequality, and support instead a persistent inequality perspective.

Conclusion

The findings of this study are consistent with organizational studies showing that white men surpass women and black men over the course of their careers, resulting in the growth of racial and gender wage gaps over time. Yet, macroeconomic studies of the labor force show reductions in the level of inequality, findings that are perhaps inconsistent with those of this study.

But, the findings of this study *are* consistent with racial inequality trends among men. That is, there are numerous analyses showing that black men lost ground to white men during

the 1980s (for reviews, see Darity and Myers 1998; Levy and Murnane 1992). Partial explanations for this trend focus on deindustrialization and reemphasis on skills. Over the last three decades high-paying manufacturing jobs have relocated overseas, and, consequently, educational skills increasingly are rewarded in a service-oriented society. If black men are more likely to lose high-paying jobs in the manufacturing sector, but lag behind white men in having the educational credentials needed to secure good jobs in the service sector, then racial inequality among men will increase. These factors cannot completely account for increasing racial inequality among men, however. Some studies have pointed specifically to increasing racial discrimination in the 1980s, largely resulting from the Reagan administration's negligence in enforcing equal employment legislation and affirmative action mandates (Cancio et al. 1996; Darity and Myers 1998; Mason 2000). Whatever the explanation, there is no doubt that among men, racial inequality increased in the 1980s. The findings of this study are consistent with that trend.

While this study's findings may contrast with macroeconomic trends showing reduced gender inequality, closer examination serves to reconcile this article's findings with prior research. If earned income is the joint result of matching individuals to jobs and setting pay scales for job incumbents, most studies of gender inequality have focused on the first part of this process, not the second. Conventional wisdom suggests that women's increased job attachment (e.g., work experience, employer tenure, and hours worked) has increased female earnings in the aggregate, and has precipitated the declining gender wage gap in the 1980s (Blau and Beller 1988; O'Neill and Polacheck 1993; Wellington 1994). One study questioned the conventional wisdom, and found greater support for the notion that reduced gender inequality resulted from men's losses, not women's gains (Bernhardt, Morris, and Handcock 1995). That is, men (more so than women) lost high-wage manufacturing jobs and took lower-paying jobs in the service sector, to which women had been largely confined. This caused men's earnings to decline in the aggregate, thereby reducing gender inequality in the 1980s. In the larger context, men as a group may be suffering job insecurity and lower earnings. But men who remain continuously employed over their careers conceivably would receive more rapid and more frequent pay increases than would women. The cumulative effects of these events would result in greater gender inequality in pay over the life course. This study, of course, is more concerned with differential pay scales after job attachment is taken into account, via the control for sample selection. Observing cohorts over a 12-year period, this study finds that women steadily lost ground to white men. Such a finding, consistent with findings from organizational studies cited earlier, can coexist with other studies showing aggregate reductions in gender inequality.

Yet, these results contrast strikingly with Morgan's (1998) findings on the gender gap in wages. This difference is noteworthy because this study replicated her multi-cohort longitudinal analytic design, with a sample observed in approximately the same time period. Morgan (1998) found flat wage differentials between women and men over time—whereas I found widening wage deficits—particularly among the youngest cohort, in which wage inequality was essentially zero—whereas I found significant earnings differentials among younger cohorts of women. The contrasting findings may be due to reliance on different samples. Morgan (1998) studied engineers, a profession generally considered hostile to women. Yet, engineers often work in firms that rely on government contracts, and who integrate affirmative action goals into their employment practices (McIlwee and Robinson 1992). In the face of high demand for, but low supply of, female engineers, employers bid up wages in the 1970s to recruit the few available women in the field (Morgan 2000:320). Of course, Morgan analyzed the dynamics of the glass ceiling, so her sample of women in a high-wage profession is appropriate. In contrast, employers where many women work, in restaurants, nursing homes, retail outlets, and the like, have likely never bid up wages to recruit female employees. Therefore, compared with a sample from a high-wage profession, a cross section of the labor

force is more likely to uncover a larger gender gap in pay, which widens over time. This study uses just such a cross-sectional sample.

While this article describes minority wage deterioration relative to white men from 1980 to 1992, it cannot speak with authority about wage differentials after 1992. Elsewhere I have argued that government's commitment to finding and rooting out discrimination is episodic, rising in the 1970s and then declining in the 1980s (Cancio et al. 1996). If so, it is possible that PSID respondents may have improved their position relative to white men in the 1990s, owing in part to the Clinton administration's support for equal opportunity policies. It is possible that the wage gap may have again begun to shrink in the past decade. This caveat points clearly to the need for additional longitudinal research that includes cohorts who began their careers in the 1990s. The goal of future research should be to determine whether or not the patterns of inequality observed through the 1980s are evident now and to discern, if possible, the pattern of inequality that can be anticipated in the future.

Finally, some readers may have noted the rather large wage differentials found in this study. Recall that without *complete* controls for employer behavior and workplace context, the wage residuals estimated here cannot fully capture the effects of employer discrimination on wages. Missing from these analyses are proper controls for factors such as on-the-job training experiences, participation in visible and important projects, relations with supervisors and coworkers, results from annual evaluations, and criteria in setting pay scales. The effects of such dynamics, which can change over the course of a career, were discussed in the literature review, but the PSID data (as with most datasets) lack controls for employer actions. Barbara F. Reskin (2003) calls for increased attention to these mechanisms of inequality, all of which have been implicated in convenience samples as ways in which bias against women and minorities are manifested. The challenge now is to collect representative longitudinal data that include measures of employer behavior and organizational practices affecting career dynamics. Only by collecting complete demand-side data over time can we fully understand the mechanism of inequality and accordingly devise policies to combat it.

Appendix

Table A • *WLS Determinants (and means) of Log Hourly Wage in 1992 Cents Per Hour, by Year*

	1980			1984			1988			1992		
	Slope	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*
Intercept	5.935	93.61	—	5.871	88.47	—	5.767	70.92	—	5.773	70.86	—
Middle cohort (1964–72)	0.020	0.88	0.36	0.012	0.36	0.27	0.055	1.30	0.25	−0.040	−1.29	0.36
Mature cohort (before 1964)	0.044	1.43	0.29	−0.036	−1.52	0.37	−0.017	−0.56	0.36	0.043	0.95	0.25
Black male	**−0.128**	**−4.20**	**0.17**	**−0.219**	**−6.73**	**0.19**	**−0.318**	**−8.17**	**0.17**	**−0.272**	**−6.39**	**0.14**
Black male × middle cohort	−0.051	−1.23	0.07	−0.138	−3.02	0.06	−0.051	−0.89	0.05	0.026	0.44	0.05
Black male × mature cohort	−0.149	−3.34	0.05	0.009	0.21	0.07	0.028	0.55	0.07	−0.043	−0.67	0.04
White female	**−0.134**	**−4.93**	**0.28**	**−0.159**	**−5.73**	**0.25**	**−0.242**	**−7.79**	**0.31**	**−0.323**	**−10.13**	**0.36**
White female × middle cohort	−0.012	−0.35	0.09	−0.010	−0.24	0.07	−0.062	−1.24	0.07	0.064	1.50	0.12
White female × mature cohort	−0.086	−2.22	0.08	0.063	1.69	0.08	0.035	0.82	0.10	0.056	1.07	0.09
Black female	**−0.261**	**−7.73**	**0.17**	**−0.343**	**−9.71**	**0.18**	**−0.350**	**−8.68**	**0.18**	**−0.368**	**−8.68**	**0.17**
Black female × middle cohort	0.002	0.04	0.06	−0.061	−1.32	0.06	−0.139	−2.49	0.05	0.000	0.01	0.06
Black female × mature cohort	−0.124	−2.77	0.06	0.040	0.94	0.07	0.020	0.40	0.06	−0.049	−0.79	0.05
Probability of selection	0.658	10.70	0.73	1.115	14.60	0.71	1.102	12.92	0.73	1.219	15.71	0.69
Completed schooling												
High school dropout	−0.128	−7.31	0.22	−0.097	−5.16	0.20	−0.087	−3.67	0.18	−0.083	−3.25	0.17
Some college	0.090	4.96	0.18	0.064	3.41	0.19	0.098	4.40	0.24	0.053	2.27	0.23
Bachelor's degree	0.148	6.51	0.14	0.162	7.18	0.14	0.189	6.82	0.15	0.232	7.78	0.13
Graduate/professional degree	0.216	6.74	0.05	0.227	7.16	0.06	0.263	7.56	0.08	0.281	8.59	0.13
Parent's years of schooling	0.005	2.58	10.73	0.007	3.25	10.75	0.014	5.18	10.73	0.018	6.08	10.91
Tenure with current employer	0.011	3.71	4.47	0.018	6.67	7.38	0.020	6.93	9.68	0.022	7.48	10.98
Tenure squared	0.000	−2.29	44.57	0.000	−3.58	99.71	0.000	−2.56	153.57	0.000	−3.55	194.79
Labor force experience	0.010	2.71	10.10	0.007	1.97	10.45	0.005	0.94	17.80	−0.006	−1.20	17.44
Experience squared	0.000	−0.53	144.40	0.000	−0.76	152.30	0.000	−0.93	367.00	0.000	1.66	356.67
Works full-time	0.105	5.10	0.88	0.055	2.64	0.87	0.028	1.07	0.89	−0.010	−0.41	0.86
Resides in South	−0.074	−5.34	0.46	−0.074	−5.11	0.47	−0.045	−2.68	0.47	−0.010	−0.54	0.44
Resides in metropolitan area	0.069	4.89	0.71	0.062	4.56	0.60	0.089	5.61	0.57	0.093	5.67	0.55
Married	0.108	6.68	0.77	0.111	6.70	0.75	0.121	6.25	0.74	0.094	4.71	0.75
Number of children	0.021	3.79	1.43	0.001	0.09	1.40	−0.004	−0.58	1.25	−0.003	−0.42	1.01
Supervisory occupation	0.027	1.15	0.10	0.127	5.90	0.11	0.101	4.25	0.13	0.102	4.18	0.14
Public sector occupation	0.031	1.42	0.08	0.027	1.23	0.09	0.000	−0.01	0.08	0.104	3.72	0.09
Job covered by union contract	0.172	11.70	0.27	0.167	10.77	0.28	0.143	7.50	0.25	0.147	7.30	0.25
Percent white males in occupation	0.004	9.02	50.31	0.002	6.44	48.73	0.002	5.43	45.60	0.001	2.81	44.36
Cognitive skills requirements	0.018	6.27	−0.66	0.029	14.66	−0.44	0.026	10.72	−0.16	0.034	13.04	−0.06
Hazardous working conditions	−0.042	−6.01	−0.39	−0.002	−0.70	−0.25	−0.008	−2.10	−0.40	0.001	0.29	−0.55
R-square		0.558			0.604			0.558			0.586	
Number of cases		2,999			2,752			2,427			2,183	
Mean hourly wage (log)		6.979			7.043			7.063			7.064	

Appendix

Table B • *Fixed-Effects Determinants (and means) of Average Career Wage (in cents per hour, logged), by Group*

	White Men			*Black Men*			*White Women*			*Black Women*		
	Slope	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*	*Slope*	*t-value*	*Mean*
Constant	6.4403	95.84	—	6.2766	48.82	—	6.3647	115.99	—	6.4493	65.72	—
Probability of selection	0.7766	10.12	0.70	0.3974	3.24	0.81	0.3929	6.48	0.63	0.2610	3.19	0.74
Completed schooling												
High school dropout	0.0076	0.20	0.15	0.0045	0.09	0.35	0.0073	0.15	0.12	−0.0295	−0.74	0.29
Some college	−0.0195	−0.73	0.22	0.0174	0.46	0.18	0.0482	1.69	0.22	0.0131	0.40	0.17
Bachelor's degree	0.1137	2.92	0.19	−0.0963	−1.36	0.06	0.0815	1.76	0.16	0.0337	0.38	0.06
Graduate/professional degree	0.2004	4.62	0.11	−0.0203	−0.21	0.02	0.1857	3.39	0.09	0.1999	1.93	0.02
Labor force experience	0.0072	4.60	15.03	0.0009	0.33	14.32	0.0026	1.12	11.56	0.0062	2.26	12.71
Experience squared	−0.0002	−2.45	104.95	0.0000	0.24	83.25	0.0000	0.16	76.94	−0.0002	−1.29	80.85
Tenure with current employer	0.0122	5.69	8.77	0.0171	4.73	8.99	0.0210	6.84	5.99	0.0207	5.05	7.21
Tenure squared	−0.0003	−4.20	141.28	−0.0004	−3.21	138.68	−0.0005	−5.09	78.23	−0.0005	−3.51	97.54
Works full time	−0.0131	−0.50	0.96	0.0138	0.36	0.95	0.0847	5.09	0.74	0.0161	0.61	0.82
Resides in South	0.0441	1.37	0.32	0.0601	0.77	0.73	−0.0963	−1.98	0.32	−0.2042	−2.72	0.72
Resides in metropolitan area	−0.0773	−4.87	0.55	0.0737	1.97	0.67	−0.0337	−1.66	0.56	−0.0432	−1.15	0.74
Married	0.0504	2.71	0.86	0.0322	1.07	0.75	0.0663	2.95	0.78	0.0166	0.60	0.52
Number of children	0.0197	3.56	1.33	−0.0006	−0.07	1.51	0.0020	0.26	1.10	0.0085	0.95	1.41
Supervisory occupation	0.0604	3.79	0.18	0.0444	1.04	0.05	0.0451	1.83	0.11	0.0204	0.47	0.05
Public sector occupation	−0.0153	−0.57	0.09	−0.0044	−0.11	0.09	0.0952	2.42	0.07	−0.0250	−0.52	0.08
Job covered by union contract	0.1296	7.31	0.29	0.1592	6.34	0.37	0.0797	3.22	0.18	0.0721	2.65	0.24
Percent white males in occupation	0.0005	1.72	65.97	0.0012	2.45	62.96	0.0007	1.99	27.89	0.0012	2.54	26.91
Cognitive skills requirements	0.0153	7.15	0.84	0.0080	2.30	−2.39	0.0132	4.57	0.22	0.0079	2.08	−2.21
Hazardous working conditions	0.0001	0.03	0.07	−0.0038	−0.81	0.86	0.0063	0.83	−1.44	0.0134	1.81	−0.69
R-square		0.330			0.262			0.418			0.287	
Number of person-years		3,745			1,661			3,264			1,781	
Number of workers		1,303			588			1,282			693	
Mean of (log) hourly wage		7.310			6.955			6.875			6.679	
Wage gap with white men		—			0.355			0.435			0.631	

References

Anderson, Elijah and Douglas S. Massey. 2001. *Problem of the Century: Racial Stratification in the United States*. New York: Russell Sage Foundation.

Baldi, Stéphane and Debra Branch McBrier. 1997. "Do the Determinants of Promotion Differ for Blacks and Whites? Evidence from the U.S. Labor Market." *Work and Occupations* 24:478–97.

Bartol, Kathryn M. 1999. "Gender Influences on Performance Evaluations." Pp. 165–78 in *Handbook of Gender & Work*, edited by Gary N. Powell. Thousand Oaks, CA: Sage.

Becketti, Sean, William Gould, Lee Lillard, and Finis Welch. 1988. "The PSID after Fourteen Years: An Evaluation." *Journal of Labor Economics* 6:472–92.

Benjamin, Lois. 1991. *The Black Elite.* Chicago: Nelson-Hall.

Bernhardt, Annette, Martina Morris, and Mark S. Handcock. 1995. "Women's Gains or Men's Losses? A Closer Look at the Shrinking Gender Gap in Earnings." *American Journal of Sociology* 101:302–28.

Blau, Francine D. and Andrea H. Beller. 1988. "Trends in Earnings Differentials by Gender, 1971–1981." *Industrial and Labor Relations Review* 41:513–29.

Burstein, Paul and Mark Evan Edwards. 1994. "The Impact of Employment Discrimination Litigation on Racial Disparity in Earnings: Evidence and Unresolved Issues." *Law & Society Review* 28:79–111.

Cancio, Silvia A., T. David Evans, and David J. Maume, Jr. 1996. "Reconsidering the Declining Significance of Race: Racial Differences in Early Career Wages." *American Sociological Review* 61:541–56.

Chao, Georgia T. 1997. "Mentoring Phases and Outcomes." *Journal of Vocational Behavior* 51:15–28.

Collins, Sharon. 1989. "The Marginalization of Black Executives." *Social Problems* 36:317–31.

Darity, William, Jr. and Samuel Myers, Jr. 1998. *Persistent Disparity: Race and Economic Inequality in the United States Since 1945.* Northampton, MA: Elgar.

Dreher, George F. and Ronald A. Ash. 1990. "A Comparative Study of Mentoring among Men and Women in Managerial, Professional and Technical Positions." *Journal of Applied Psychology* 75:539–46.

Edelman, Lauren. 1992. "Legal Ambiguity and Symbolic Structures: Organizational Mediation of Civil Rights Law." *American Journal of Sociology* 97:1531–76.

Edwards, Richard C. 1979. *Contested Terrain.* New York: Basic Books.

England, Paula. 1992. *Comparable Worth: Theories and Evidence.* New York: Aldine de Gruyter.

———. 2001. "Gender and Access to Money: What Do Trends in Earnings and Households Tell Us?" Pp. 131–53 in *Reconfigurations of Class and Gender*, edited by Janeen Baxter and Mark Western. Stanford, CA.: Stanford University Press.

England, Paula, George Farkas, Barbara Stanek Kilbourne, and Thomas Dou. 1988. "Explaining Occupational Sex Segregation and Wages: Findings From a Model with Fixed Effects." *American Sociological Review* 53:544–58.

Farley, Reynolds. 1984. *Blacks and Whites: Narrowing the Gap?* Cambridge: Harvard University Press.

Farley, Reynolds and Walter R. Allen. 1987. *The Color Line and the Quality of Life in America.* New York: Oxford University Press.

Filer, Randall K. 1990. "Compensating Differentials and the Male-Female Wage Gap: A Comment." *Social Forces* 69:439–78.

Furchtgott-Roth, Diana and Christine Stolba. 1999. *Women's Figures: An Illustrated Guide to the Economic Progress of Women in America.* Washington, DC: American Enterprise Institute Press.

Hakim, Catherine. 2000. *Work-Lifestyle Choices in the 21st Century: Preference Theory.* New York: Oxford University Press.

Heckman, James J. 1979. "Sample Selection Bias as Specification Error." *Econometrica* 47:153–61.

Hill, Martha S. 1992. *The Panel Study of Income Dynamics: A User's Guide.* Newbury Park, CA: Sage.

Hodson, Randy. 1985. "Some Considerations Concerning the Functional Form of Earnings." *Social Science Research* 14:374–94.

Hodson, Randy and Robert L. Kaufman. 1982. "Economic Dualism: A Critical Review." *American Sociological Review* 47:727–39.

Ilgen, Daniel R. and Margaret A. Youtz. 1986. "Factors Affecting the Evaluation and Development of Minorities in Organizations." Pp. 307–37 in *Research in Personnel and Human Resource Management: A Research Annual*, vol 4, edited by K. Rowland and G. Ferris. Greenwich, CT: JAI.

Jones, Edward W., Jr. 1986. "Black Managers: The Dream Deferred." *Harvard Business Review* 64:84–93.

Jones, F. L. and Jonathan Kelley. 1984. "Decomposing Differences Between Groups: A Cautionary Note on Measuring Discrimination." *Sociological Methods and Research* 12: 323–42.
Kanter, Rosabeth Moss. 1977. *Men and Women of the Corporation.* New York: Basic Books.
Kilbourne, Barbara, Paula England, and Kurt Beron. 1994. "Effects of Individual, Occupational and Industrial Characteristics on Earnings: Intersections of Race and Gender." *Social Forces* 94:1149–76.
Kraiger, Kurt and J. Kevin Ford. 1985. "A Meta-analysis of Ratee Race Effects in Performance Ratings." *Journal of Applied Psychology* 70:56–65.
Landry, Bart. 1987. *The New Black Middle Class.* Berkeley: University of California Press.
Levy, Frank and Richard J. Murnane. 1992. "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations." *Journal of Economic Literature* 30:1333–81.
Marini, Margaret Mooney and Pi-Ling Fan. 1997. "The Gender Gap in Earnings at Career Entry." *American Sociological Review* 62:588–604.
Mason, Patrick L. 2000. " Persistent Discrimination: Racial Disparity in the United States, 1967–1988." *American Economic Review* 90:312–16.
Maume, David J., Jr. 1999a. "Glass Ceilings and Glass Escalators: Occupational Segregation and Race and Sex Differences in Managerial Promotions." *Work and Occupations* 26:483–509.
———. 1999b. "Occupational Segregation and the Career Mobility of White Men and Women." *Social Forces* 77:1433–59.
McIlwee, Judith and John Robinson. 1992. *Women in Engineering: Gender, Power, and Workplace Culture.* Albany: State University of New York Press.
Morgan, Laurie A. 1998. "Glass-Ceiling Effect or Cohort Effect: A Longitudinal Study of the Gender Earnings Gap, 1982 to 1989." *American Sociological Review* 63:479–93.
———. 2000. "Is Engineering Hostile to Women? An Analysis of Data from the 1993 National Survey of College Graduates." *American Sociological Review* 65:316–21.
Naff, Katherine C. and Sue Thomas. 1994. "The Glass Ceiling Revisited: Determinants of Federal Job Advancement." *Policy Studies Review* 13:249–72.
Neal, Derek and William R. Johnson. 1996. The Role of Pre-Market Factors in Black-White Wage Differences." *Journal of Political Economy* 104:869–95.
Ohlott, Patricia J., Marian N. Ruderman, and Cynthia D. McCauley. 1994. "Gender Differences in Managers' Developmental Experiences." *Academy of Management Journal* 37:46–67.
Olson, Josephine E. and Irene H. Frieze. 1987. "Income Determinants for Women in Business," Pp. 173–206 in *Women and Work: An Annual Review*, vol. 2, edited by Anne H. Stromberg, Laurie Larwood, and Barbara A. Guteck. Beverly Hills, CA: Sage.
O'Neill, June and Solomon Polachek. 1993. "Why the Gender Gap in Wages Narrowed in the 1980s." *Journal of Labor Economics* 11:205–28.
Ragins, Belle Rose and John L. Cotton. 1991. "Easier Said than Done: Gender Differences in Perceived Barriers to Gaining a Mentor." *Academy of Management Journal* 34:939–51.
Ragins, Belle Rose and Terri Scandura. 1997. "The Way We Were: Gender and the Termination of Mentoring Relationships." *Journal of Applied Psychology* 82:945–53.
Reskin, Barbara F. 2003. "Including Mechanisms in our Models of Ascriptive Inequality." *American Sociological Review* 68:1–21.
Rosenfeld, Rachel. 1980. "Race and Sex Differences in Career Dynamics." *American Sociological Review* 45:583–609.
Sakamoto, Arthur, Huei-Hsia Wu, and Jessie M. Tzeng. 2000. "The Declining Significance of Race among American Men during the Latter Half of the Twentieth Century." *Demography* 37:41–51.
Son, Soo, Suzanne W. Model, and Gene A. Fisher. 1989. "Polarization and Progress in the Black Community: Earnings and Status Gains for Young Black Males in the Era of Affirmative Action." *Sociological Forum* 4:309–27.
Sørensen, Aage B. 1983. "Sociological Research on the Labor Market: Conceptual and Methodological Issues." *Work and Occupations* 10:261–87.
Stolzenberg, Ross M. and Daniel A. Relles. 1997. "Tools for Intuition about Sample Selection Bias and Its Correction." *American Sociological Review* 62:494–507.
Thernstrom, Stephen and Abagail Thernstrom. 1997. *America in Black and White: One Nation, Indivisible.* New York: Simon and Schuster.
Thomas, David A. 1990. "Mentoring and Irrationality: The Role of Racial Taboos." *Human Resource Management* 28:279–90.

Tomaskovic-Devey, Donald. 1993. *Gender and Racial Inequality at Work: The Sources and Consequences of Job Segregation.* Ithaca: ILR Press.

Tsui, Anne S. and Barbara A. Gutek. 1984. "A Role Set Analysis of Gender Differences in Performance, Affective Relationships, and Career Success of Industrial Middle Managers." *Academy of Management Journal* 27:619–35.

U.S. Bureau of the Census. 2000. *Statistical Abstract of the United States, 1999.* Washington, DC: Government Printing Office.

Wellington, Allison. 1994. "Accounting for the Male/Female Wage Gap Among Whites: 1976 and 1985." *American Sociological Review* 59:839–48.

Willie, Charles V. 1989. *Caste and Class Controversy on Race and Poverty.* New York: General Hall Publishers.

Wilson, George, Ian Sakura-Lemessy, and Jonathan P. West. 1997. "Reaching the Top: Racial Differences in Paths to Upper-Tier Occupations." *Work and Occupations* 26:165–86.

Wilson, William Julius. 1980. *The Declining Significance of Race: Blacks and Changing American Institutions.* 2d ed. Chicago: University of Chicago Press.

———. 1989. "The Declining Significance of Race: Revisited but Not Revised." Pp. 22–36 in *Caste and Class Controversy on Race and Poverty,* 2d ed., edited by Charles V. Willie. Dix Hills, NY: General Hall, Inc.

Winship, Christopher and Robert Mare. 1992. "Models for Selection Bias." *Annual Review of Sociology* 18:327–50.