Systems of Gender, Race, and Class Inequality: Multilevel Analyses*

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Abstract

Research on gender stratification has sometimes neglected how gender inequalities may vary by race/ethnicity and class. This research investigates the chances that white, African American, Hispanic, and Asian women and men reach the 10th, 25th, 50th, 75th, and 90th percentiles of white male earnings. It evaluates how these chances have varied across time since 1965 and across U.S. metropolitan areas in 1990. In general, the results show a substantial uniformity of gender differences across all four racial/ethnic groups and at each earnings level. While there are important exceptions to these general patterns, the permeability of racial and earnings boundaries to gender dynamics is quite impressive. Similarly, gender boundaries are quite permeable to macro-level racial inequality.

It is now practically a truism that gender inequalities ought to be studied in the context of other dimensions of stratification: race, ethnicity, and class for instance (Brewer 1993; Dill 1983; Glenn 1987; Hill Collins 1990; King 1988). Gender, race, and class are interacting "systems of domination that affect access to power and privileges, influence social relationships, construct meanings, and shape people's

* *Authors are listed alphabetically to reflect equal contributions. Financial support for this research was provided by grants from the National Science Foundation (SBR-9422546, SBR-9870949, SBR-9870980, and SBR-9871204). Brenda Kowalewski and JoAnn DeFiore provided important contributions at an early stage of this work. We also thank Matt Bramlett, David Consiglio, and Cindy Larison for programming assistance. An earlier version of this article was presented at the 1998 annual meeting of the American Sociological Association in San Francisco.**Direct correspondence to Reeve Vanneman, Department of Sociology, University of Maryland, College Park, MD 20742. E-maiL: reeve@cwmills.umd.edu.*

everyday experiences" (Chow 1996:xix). Past analyses of inequality often abstracted one of these dimensions for study, but people do not experience either gender or race or class per se; rather they experience inequality as an African American female school teacher or as a white male steelworker. Analyses of any one of these dimensions taken out of this context distorts people's lived experience.

However, we lack a macro-level theory of the race-class-gender intersection. The importance of gender, race, or class in determining individual outcomes may vary independently of the others, the variation depending on the specific topic studied, the reference group, and the sociohistorical context (King 1988:48). That is, while gender, race, and class all matter for individual outcomes, the salience of one over another is an empirical question. If we are to study gender, race, and class as joint processes, then we must also ask to what extent systems that privilege being male also privilege whiteness and class domination? Across systems, do these types of privilege tend to covary: Are sexist systems also more racist and class-divided? or, Does the extent of each privilege vary independently of the other privileges?

Among the most intriguing findings of recent inequality research are the diverging trends of economic inequality by gender, class, and race. A number of measures of gender inequality in the labor market demonstrate a decline over the past few decades (Bianchi 1995; Cotter et al. 1995a; Jacobs 1989; King 1992; O'Neill & Polachek 1993). However, during this same period, class inequalities have increased (Gordon 1996) and race inequalities have shown a mixed pattern (Jencks 1992). In addition to these between-group changes, within-group inequalities have also increased (among men see Levy 1995; Levy & Murnane 1992; among women see Anderson & Shapiro 1996; Smith 1991).

The divergent patterns of these changes highlight the need to examine labor-market inequalities in the joint context of gender, race, and class. In this article, we compare labor markets in the degree to which race and gender structure earnings inequality at multiple points along the earnings distribution. Specifically, we address four questions: (1) How have white, African American, Hispanic, and Asian women and African American, Hispanic, and Asian men varied in their chances to earn at white men's 10th, 25th, 50th, 75th, and 90th percentiles? (2) To what extent are the gender disadvantages of white women shared by women of color? (3) To what extent are the racial/ethnic disadvantages of minority men shared by minority women? and (4) To what extent are gender disadvantages correlated with racial/ethnic disadvantages across labor markets?

Although the race-gender-class intersection framework argues for the integration of all three stratification dimensions in one analysis, we take a simplified approach in this article. We focus primarily on gender and race as covariates of earnings inequality. Class is only indirectly incorporated into our analyses by examining the effects of gender and race at various points along the earnings distribution. This approach may distort the effects of class, as earnings levels are neither a

theoretically satisfying measure of class position nor an empirically adequate measure of socioeconomic status. Earnings levels are, however, indicative of individuals' positions within labor markets, an important source of inequality.

Race-gender-class intersection approaches are also not very specific about what structural mechanisms link inequalities across dimensions. A large literature has developed about how class inequalities exacerbate racial inequalities (e.g., Baron 1971; Tomaskovic-Devey & Roscigno 1996; Wilson 1978), but these approaches have not fully incorporated processes of gender stratification. There are, in fact, many unexplained questions about how gender inequalities are linked to class and race. Blau and Kahn (1996) note that the U.S. gender earnings gap is especially large in cross-national perspective because the entire U.S. earnings distribution is so spread out. But this just makes more paradoxical the opposite time trends in overall earnings inequality and the gender earnings gap. Szymanski (1976), in one of the few studies of the interconnections between systems of gender and racial inequality, explains a negative cross-state correlation between gender and racial earnings inequality as the substitutability of cheap female labor and cheap minority labor in contemporary capitalism — if one type of cheap labor is available, then the other inequality is less pronounced. But minority men and white women are so segregated from each other in the occupational structure that this explanation seems unconvincing. Cohen (1998b) proposes that the availability of cheap minority labor helps expand the household service sector that permits middle-class white women to stay in the labor force. This is a more specific linkage between gender, class, and race systems, but we don't yet know whether it is large enough to generate the substantial negative correlations that Szymanski uncovered.

We can expect race, class, and gender systems of inequality to covary in part because they are consequences of common or competing causes. Normative, political, and industrial sources of inequality are especially important to consider. From one perspective, sexism and racism may be considered similar aberrations from a normative universalism. Thus, attitudes toward one disadvantaged group (e.g., women) are correlated with attitudes toward others (e.g., African Americans) (see Jackman 1994:252; Kluegel & Smith 1986:241). At the macro level, racial and gender norms are even more correlated than across individuals.[1] If norms are the primary source of economic inequalities, then we would expect a positive correlation of racial and gender inequalities across time and space.

Similarly, differential enforcement of equal employment laws across labor markets might produce positive correlations of racial and gender inequalities across labor markets. If enforcement is equally strict against racial and gender discrimination but varies across the country, we might expect areas with stricter enforcement to have both smaller gender-earnings gaps and smaller racial-earnings gaps.

The industrial structure of a labor market could lead to either positive or negative correlations of racial and gender inequalities. Public-sector employment

tends to have both lower racial and lower gender inequalities so that labor markets with high public-sector employment (e.g., state capitals) might produce a positive correlation between gender and racial inequality. On the other hand, durable goods manufacturing has provided well-paying jobs for minority men but has tended to exclude women, so that industrial concentrations as are found in the "rust belt" may produce negative correlations between racial and gender inequality.

In sum, while intersection theory has made a persuasive case about the need to consider linkages across gender, race, and class, and the few empirical results suggest that such linkages play an important role in determining inequalities, the field is still undertheorized in specifying how one system of stratification depends on another.

Gender Earnings Inequality

The female-to-male earnings ratio is often used to describe the degree of gender stratification in the labor market. After having remained stable for most of the twentieth century, the ratio of women's to men's median earnings among full-time, year-round workers increased from 57% in 1973 to 74% in 1997 (U.S. Census 1998). A race-class-and-gender intersection approach to these changes would ask to what extent the increasing gender equality extends to women of color as well as to white women, and to working-class women as well as to middle-class women.

Studies that have disaggregated the gender earnings ratio by race have found that the increases over the last few decades were not limited to white women; African American, Hispanic, and Asian women also improved their earnings relative to white men (Cotter et al. 1995b) and same-race men (England & Browne 1992).

Studies examining earnings inequalities at places other than the mean or median are scant but increasing. Much of the complexity of the earnings distribution is lost by condensing all the differences into a single statistic (Morris, Bernhardt & Handcock 1994). Racial and gender differences at the 10th percentile may look quite different from racial and gender differences at the 90th percentile. For example, discussions of a "glass ceiling" on women's advancement suggest that gender discrimination is more severe at higher earnings levels. This principle is well recognized in cross-national studies of earnings inequality. Schwartz and Winship (1980), for example, show that the use of a single Gini statistic ignores the fact that inequality curves of ten out of fourteen countries cross at one or more points along the income distribution so that nations with similar Gini statistics may have very different types of inequality distributions. The analogous criticism should be made of the gender earnings ratio. Two racial/ethnic groups with similar median gender earnings ratios might still show quite different patterns of inequality at lower or upper ends of the distributions. Disaggregating earnings into deciles or quantiles can allow greater descriptive and inferential detail about changes and

patterns in earnings inequalities and allow for testing more complex theories of inequality (Morris, Bernhardt & Handcock 1994).

Bernhardt, Morris, and Handcock (1995) expand the scope of gender inequality research to look at the full distribution of men's and women's earnings. Using March CPS data to look at the relative distribution of earnings among women and men, they conclude that white and black women's earnings gains over the last two decades have occurred largely at the bottom of the earnings distribution among low earners but not at the top percentiles. Blau and Kahn (1997), using PSID data, also find that the gender gap decreased more among low-wage than among high-wage workers. Fortin and Lemieux (1998), on the other hand, using CPS outgoing rotation data from 1979 and 1991, find relatively small changes at lower ends of the earnings distributions around the 10th percentile, but larger and more nearly uniform changes above the 25th percentile (perhaps declining somewhat above the 75th percentile). These findings suggest important class interactions with gender equality and reinforce the intersection theory argument that gender inequalities should not be studied in isolation but only for specific race and class groups.

However, the pattern of changes in gender-earnings inequality may not be as complex as suggested by this research. A reanalysis of March CPS data that defined earnings inequalities as logged odds rather than percentages found that the improvements in women's earnings have been remarkably broad-based: white and black women's chances to reach white men's earnings levels increased at all points along the earnings distribution at a similar pace over the last two decades (Cotter et al. 1997). Thus, it is an empirical question to what extent changes in gender inequalities vary by race and class. Similarly, it is an empirical question to what extent changes in racial inequality vary by gender and class. We turn now to those questions.

Methods

The following analysis compares the likelihood that white, African American, Hispanic, and Asian women and African American, Hispanic, and Asian men will earn as much as white men at five earnings percentiles. To the extent the gender or race inequalities at the upper end of the earnings distribution are distinct from the inequalities at the lower end, we would have empirical support for the necessity of studying gender in the context of total stratification. We compare the earnings trends of each group over the last three decades and analyze the relative position of each group across U.S. metropolitan areas in 1989. First, we compare the gender * race groups across the five percentile levels, controlling for background characteristics. Next, we investigate how gender inequality is correlated with racial inequality across labor markets to test whether the systems of gender inequality and racial inequality

act jointly to determine earnings; if so, then we have further support for studying labor-market inequality in the context of gender, race, and class.

LONGITUDINAL DATA

Data for the longitudinal analyses are taken from the 1965-1998 March Current Population Surveys (Mare & Winship 1990). The sample is restricted to white, African American, and Hispanic men and women, age 25-54, who worked full-time (35 hours or more in the average week) year-round (50 or more weeks per year) and had positive earnings in the year prior to the survey. Hispanics were identified separately in the CPS beginning in 1972; in surveys before 1972, Hispanics were included with whites and African Americans unless they were designated as "other" on the race question.

CROSS-SECTIONAL DATA

We combine data from the 1% and 5% 1990 Public Use Microdata Samples (PUMS) (U.S. Census 1993b) to construct a sample of white, African American, Hispanic, and Asian men and women, age 25-54, who, in 1989, worked full-time year-round in a metropolitan area and had positive earnings.[2] The resulting sample includes 2,734,777 individuals.

METROPOLITAN AREAS

We compare earnings inequality across 261 metropolitan areas (MAs) that follow the June 30, 1993, definitions (U.S. Census 1993a). MA labor markets are an appropriate unit of analysis. Gender inequalities vary across these areas more than they vary nationally over time (Lorence 1992). The MA data are more consistent and detailed than data available cross-nationally.

Dependent Variables

The five dependent variables used in both the longitudinal and the multilevel analyses correspond to five points along each year's or each MA's white male earnings distribution. These binary variables are coded 1 if the individual's earnings exceed those of the 10th, 25th, 50th, 75th, and 90th white male earnings percentiles calculated for each year or MA. The average earnings at the five percentiles in the 1990 cross section are shown in the first row of Table 1. These values vary substantially across MAs; for example, the cutoff for the 25th percentile ranges from $15,000 in Myrtle Beach, South Carolina, to $29,500 in Anchorage, Alaska. We use white men as the constant comparison group when calculating these dependent variables because we agree with Malveaux (1990) that comparing same

race men and women masks the true degree of inequality in society and because same-race comparisons leave it ambiguous whether different results derive from the different position of minority women and minority men. Same-race comparisons can easily be derived from analyses that compare each race and gender group against a common reference (white males), but the reverse is not true.

Multilevel Design

The cross-sectional analysis of MA labor markets extends OLS regression methods in two ways. First, it utilizes a multilevel design (Bryk & Raudenbush 1992) to estimate the macro-level variation in earnings inequality. Second, it uses logistic analyses to study the odds of being at or above five different points in the white male earnings hierarchy.

The multilevel models incorporate in a single design a standard micro-level logistic earnings function and macro-level equations that allow the coefficients in the earnings function to vary across MAs. In effect, the micro-level logistic earnings equation is estimated separately for each of the 261 MAs, and the coefficients for each MA are determined jointly by the within-MA individual-level model and the across-MA macro model.[3] We are especially interested in the macro-level variation in the race * gender coefficients because these race * gender coefficients measure the relative logged odds of an individual of each race * gender group's being above the white male earnings percentile in its MA.

The full multilevel model for the each white male earnings percentile is:

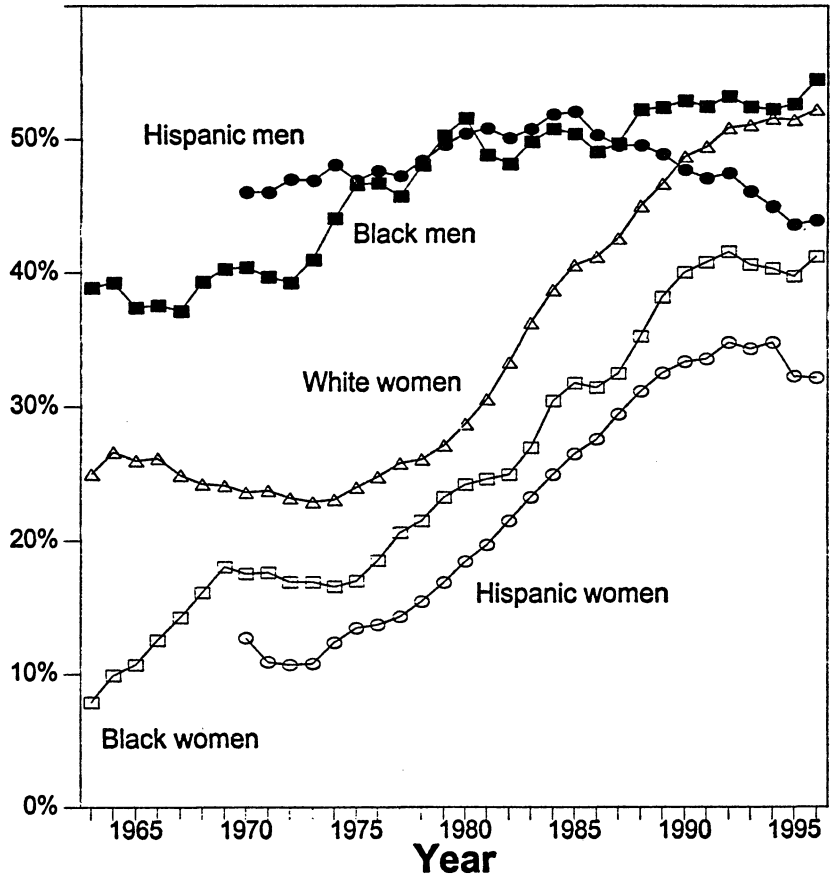
$$\ln\left(\frac{p_{ia}}{1-p_{ia}}\right)=$$

$$\beta_{0a}+\sum_{j=1}^{7}\beta_{ja}*Race*Gender_{jia}+\sum\beta_{ka}*(X_{kia}-\bar{X}_{k..})+\sum\beta_{la}*Gender_{ia}*\left(X_{kia}-\bar{X}_{k..}\right) \quad (1a)$$

$$\beta_{ja}=\gamma_{j0}+u_{ja} \quad (1b)$$

where ln (p_{ia} /1-p_{ia}) is the logged odds that individual i in MA a earned above the white male earnings percentile in that MA; β_{0a} is the intercept for MA a and it equals the logged odds in MA a of the average white male's earning above the white male earnings percentile; β_{ja} are the j race * gender differences (from white men) in logged odds of that race * gender group's reaching the white male earnings percentile in MA a; *race * gender*$_{jia}$ is a vector of seven race- and gender-specific dummy variables for individual i in MA a; β_{ka} is a vector of individual-level coefficients for variables X_{kia} in MA a; β_{la} is a vector of individual-level gender interaction coefficients for variables X_{kia} in MA a; X_{kia} is a vector of k individual-level variables (e.g., education) describing individual i in MA a; $\bar{X}_{k.}$ is a vector

FIGURE 1: 1963-96 Earnings by Race and Gender: Percent above 25th Percentile of White Male Earnings

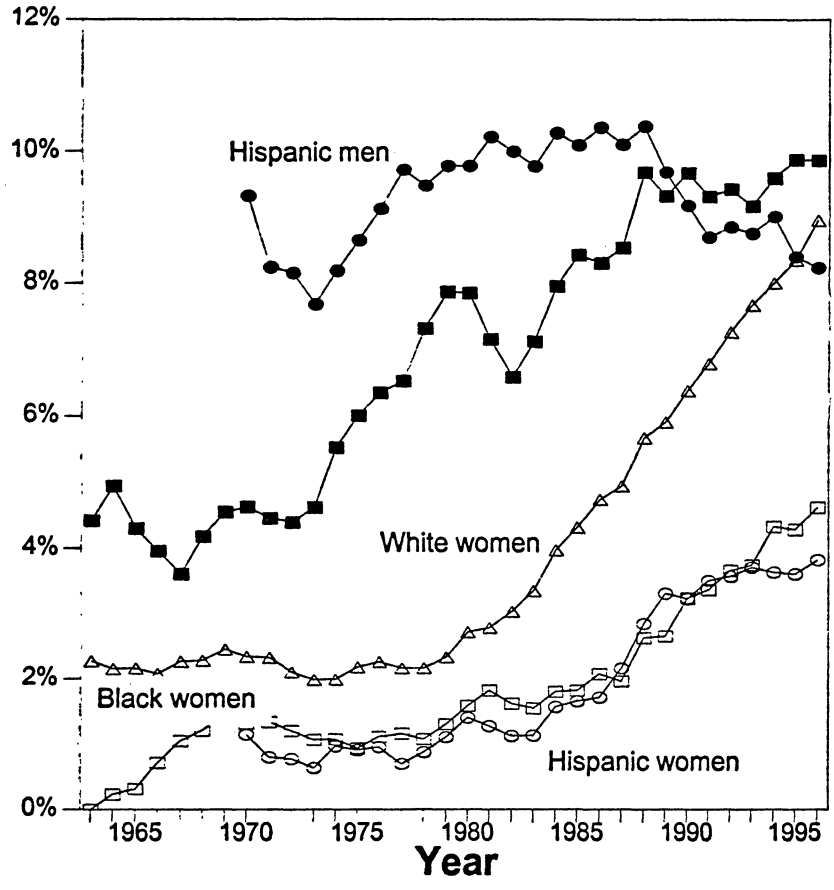


Source: March Current Population Survey, full-time year-round nonfarm workers with positive earnings.

of k grand means of the individual-level variables (i.e., the k individual-level variables are centered at their means so that the differences among the race * gender groups are evaluated at the population means); γ_{j0} is the intercept and u_{ja} is the macro-level error term for coefficient b_{ja} in MA a.

We allow only the intercept and race*gender coefficients to vary across MAs and hold the coefficients for the other variables constant (i.e., set $u_{ja} = 0$). We are especially interested in the covariation of the race * gender residuals across MAs.

FIGURE 2: 1963-96 Earnings by Race and Gender: Percent above 75th Percentile of White Male Earnings



Source: March Current Population Survey, full-time year-round nonfarm workers with positive earnings.

Individual-Level Variables

We include controls for education, potential work experience and its square, marital status, number of children, typical hours worked per week, immigrant status, citizenship status, and English proficiency. The operational definitions of these variables can be found in Appendix A.

Results

TIME TRENDS IN EARNINGS CHANCES

Figures 1 and 2 show the chances of five race * gender groups reaching the white male 25th and 75th percentiles between 1964 and 1995. The pattern for white women is quite similar at the 25th and 75th percentiles: stagnation until the late 1970s and a steady improvement since then. At the lower percentiles, the improvement in white women's relative earnings was substantially assisted by the absolute decline in white men's earnings levels; these women are moving ahead of a standard that has become lower over time. However, the relative gains by white women at the top (especially at the 90th percentile, which is not shown) are particularly impressive given that the top white male percentiles are also experiencing absolute earnings increases over time; these women are catching up with a "moving target."

There are three slight variations between the two earnings levels that deserve comment. (1) At the 25th percentile there is a slight worsening of white women's position in the 1960s — a decline that is even more noticeable at the 10th percentile (not shown). The 1960s were the midst of the "feminization of poverty" (McLanahan, Sorensen & Watson 1989), a phenomenon often attributed to the increasing proportion of single mothers, but which these trends suggest results in part from the relative growth of white women's presence at very low earnings levels. (2) The improvement in white women's chances started somewhat earlier at lower levels: improvement had begun at the white male 25th percentile by the late 1970s (and even earlier at the 10th percentile), but waited until 1980 at the 75th percentile. (3) Improvement for lower-earning white women stagnated again in the 1990s — while higher-earning white women continued to catch up with higher-earning white men. These distinctions between white women's trends at the 25th and 75th percentiles are variations on a similar theme, however, and their distinctions from minority women or especially from minority men are more pronounced.

African American women's earnings chances improved parallel to white women's throughout much of this period, especially in the 1980s, which was the era of most rapid equalization for most women. Again, there are some variations by race and class. The 1960s enabled black women to move out of their relatively high concentrations at low earnings levels; they were the only group able to narrow their difference with white men during this period, as black men's earnings chances just kept pace with white men's while white women's chances worsened at least at lower levels. In contrast, the 1990s have been a period of slight divergence between white and African American women's earnings chances. Black women's gains on white men have been slower than white women's gains at high levels, and the stagnation is more pronounced at lower levels than for white women, so that the gap between their chances and white women's chances has widened. Again, these

TABLE 1: Average White Male Earnings at Each Percentile and the Percentage of Men and Women Earning above Each Percentile, 1990

	White Male Percentile				
	10th	25th	50th	75th	90th
Mean white male earnings (dollars)	13,294	20,034	28,381	39,202	54,701
	Percentage Earning above the White Male Percentile				
White men	90	75	50	25	10
African American men	74	50	24	8	2
Hispanic men	66	42	20	7	2
Asian men	80	62	38	19	8
White women	73	43	18	6	2
African American women	61	31	11	2	1
Hispanic women	51	24	8	2	1
Asian women	67	39	17	6	2

black/white differences are variations on basically similar trends that suggest that similar dynamics have been driving the relative earnings chances of both white and African American women.

Hispanic women show trends similar to those of other women. Their gains on white men in the 1970s and 1980s parallel the gains of white and African American women. In the 1990s Hispanic women's chances of earning at lower or middle levels actually fell — a fate they shared with Hispanic men, but which worsened their position relative to white and even African American women. Increased immigration of low-skilled Hispanics undoubtedly plays a role in the 1990s decline. Greater class inequality among Hispanic women is also evident by comparing the trends at the 25th and 75th percentiles.[4] Hispanic women have always had the worst chances of any racial/ethnic group of escaping low earnings levels, and this became worse in the 1990s. At the 75th white male percentile however, Hispanic women's chances, while small, are nevertheless no worse than African American women's chances.

Although there are interesting variations by race and class in the trends in women's relative earnings chances, the overall direction is quite similar in that all are dominated by the striking trends toward more equal chances that marked the 1980s. It was exactly this period, of course, that saw the unexpected explosion of earnings inequality within gender and racial/ethnic groups, and so the relative improvement on gender equality was accomplished in the face of opposite within group trends. As the gap between top earners and bottom earners widened, women, who were disproportionately at the bottom, still managed to catch up with white

TABLE 2: Logistic Regression Coefficients for Individual-Level Characteristics at the Selected White Male Earnings Percentiles: U.S. MAs, 1990

	10th	25th	50th	75th	90th
Individual-level variables					
Intercept (white male)	2.259	1.056	−.196	−1.676	−3.080
White female	−1.196	−1.404	−1.555	−1.680	−1.712
African American female	−1.467	−1.622	−1.775	−2.120	−2.389
Hispanic female	−1.279	−1.539	−1.700	−1.854	−1.982
Asian female	−1.140	−1.401	−1.452	−1.451	−1.311
African American male	−.748	−.691	−.641	−.749	−.945
Hispanic male	−.309	−.319	−.286	−.358	−.485
Asian male	−.303	−.288	−.235	−.124	−.194
Years of school completed	.220	.285	.346	.405	.433
Gender * years of school	.116	.119	.085	.021	.001†
Experience (potential)	.034	.053	.067	.078	.081
Gender * experience	−.015	−.021	−.028	−.036	−.036
[Experience (potential)]^2 (x 100)	−.034	−.098	−.162	−.192	−.195
Gender * experience^2 (x 100)	−.102	−.141	−.142	−.121	−.079
Hours worked (ln)	.738	1.054	1.351	1.990	2.544
Gender * hours worked	.460	.605	.762	.857	.726
Formerly married	−.738	−.607	−.505	−.457	−.386
Gender * formerly married	.700	.559	.427	.323	.208
Never married	−1.057	−.923	−.852	−.851	−.840
Gender * never married	.936	.832	.742	.652	.501
Number of children	.020	.047	.061	.066	.081
Gender * number of children	−.184	−.192	−.193	−.173	−.106
Citizenship status	.425	.394	.280	.057	−.091
Gender * citizenship	.077	.029†	.071	.235	.280
Immigrant status	−.157	−.141	−.105	−.064	−.028†
Gender * immigrant status	.104	.073	.096	.079	.068†
English proficiency	.334	.363	.371	.363	.300
Gender * English proficiency	−.026	−.061	−.083	−.124	−.204

men, many of whose earnings were now accelerating away from low and even middle levels of pay. The similarity of the gender trends across race and class and their distinction from the class trends suggest that the dynamics of gender stratification are relatively independent of other patterns of stratification. Comparison with the racial inequality trends further strengthens this conclusion.

For African American men it was the 1970s that was the golden era of relative improvement. Black men's chances of reducing the gap with white men improved at almost all earnings levels during this decade. This improvement was interrupted by the "Reagan recession" of the early 1980s. Lower-earning African American men never recovered from that setback, and their earnings continued to fall in parallel with white men's earnings throughout the rest of the 1980s and 1990s, leaving the gap between them and white men about the same in 1995 as it had been in 1980.

TABLE 2: Logistic Regression Coefficients for Individual-Level Characteristics at the Selected White Male Earnings Percentiles: U.S. MAs, 1990

Variance of coefficients across MAs					
Level-1 intercept (white males)	.012	.019	.020	.031	.037
White female	.072	.052	.048	.043	.032
African American female	.137	.091	.083	.023	.022
Hispanic female	.120	.069	.035	.021	.016
Asian female	.300	.072	.050	.041	.081
African American male	.048	.082	.107	.157	.154
Hispanic male	.070	.066	.067	.111	.075
Asian male	.091	.078	.081	.129	.125
Reliability of MA estimates					
Level-1 intercept (white males)	.703	.875	.897	.894	.834
White female	.889	.899	.862	.718	.434
African American female	.646	.578	.433	.192	.061
Hispanic female	.412	.334	.189	.090	.037
Asian female	.391	.246	.169	.163	.097
African American male	.396	.545	.581	.511	.351
Hispanic male	.372	.389	.371	.379	.256
Asian male	.247	.268	.272	.295	.223

Note: All coefficients are statistically significant ($p < .05$), except as indicated by †. All models allow the intercept and seven race*gender coefficients to vary across MAs.

The (few) higher-earning black men did experience a relative recovery in the "Reagan boom" of the mid- to late 1980s, and so African American men's concentrations at higher earnings levels was actually higher in 1990 than in 1980. However, there has been little continued improvement in the 1990s even for higher-earning African American men.

Hispanic men have experienced a quite different history (although the changing composition of this population means that history may not describe the changes for any particular men). Only in the late 1970s did Hispanic men begin to catch up with white men, as had African American men for the full decade before. But the patterns diverged noticeably by the mid-1980s. At all earnings levels, Hispanic men's chances of attaining white men's levels fell for the last decade covered by this study. By the mid-1990s their position was worse than African American men's and worse even than white women's.

Neither of these trends in racial/ethnic inequality resembles the changes in gender inequality. If anything, there may be some evidence of alternation between improvement for women and for minority men. When minority men were improving relative to white men (primarily in the 1970s), women's chances stagnated; and when women's chances finally began to improve in the 1980s,

minority men's chances stopped improving. One shouldn't overemphasize this opposition. At lower earnings levels, everybody was catching up with white men in the late 1970s. And at higher earnings levels, the mid- to late 1980s were relatively good times for all groups except Hispanic men. The most straightforward conclusion is that racial and gender trends are independent of each other, not negatively related. Moreover, the gender trends are especially dramatic during those three decades: the changes not only overshadow the smaller gains made by minority men but are shared quite widely at all income levels and across racial/ethnic boundaries. Hence class and race structure changes in gender earnings inequality were less than might have been expected. This conclusion, while seemingly inconsistent with a gender, race, and class intersection framework, does support what King (1988) and others have argued about the potential salience of one dimension of stratification over another.

Individual-Level Differences by Gender and Race/Ethnicity

The starting point for the cross-sectional MA analysis is, What are the gender and racial/ethnic differences in the probability that an individual's earnings will exceed those of white men? Table 1 presents the percentages of women and men earning above the five white male earnings percentiles in their local labor markets. If all men and women had an equal likelihood of earning above these percentiles, the percentage distribution for all gender and racial/ethnic groups would be the same as that of white men. However, as shown, at each level of white male earnings, far fewer women and minority men earn as much as white men. This finding confirms the dominant labor-market position of white men.

Although all women and minority men are disadvantaged relative to white men, the degree of disadvantage varies across gender and racial/ethnic groups. First, within each racial/ethnic group, women are less likely than men to achieve each white male earnings percentile (the gender disadvantage). Second, within gender groups, a racial ethnic hierarchy exists: the highest percentage achieving each earnings percentile are whites, followed by Asians, African Americans, and finally Hispanics (the racial/ethnic disadvantage). And finally, with two exceptions, minority men do better than women of any racial/ethnic group. The exceptions are Hispanic men, who have worse chances than white or Asian American women at low earnings levels, but better chances than any group of women to achieve higher earnings levels. With these exceptions, the results suggest little interaction between race, class, and gender hierarchies.

The percentages displayed in Table 1 are unadjusted; that is, they do not account for differences in education, work experience, English language ability, marital status, and other factors known to affect earnings. Thus, the percentages may understate or overstate the degree to which women and minority men experience

TABLE 3: Race * Gender Coefficients at the White Male 25th Percentile for the Largest 25 MAs

		Coefficients						
		White Female	African American Female	Hispanic Female	Asian Female	African American Male	Hispanic Male	Asian Male
1	New York	−1.13	−1.33	−1.51	−1.10	−.92	−.84	−.67
2	Los Angeles	−1.08	−1.19	−1.38	−1.30	−.77	−.62	−.57
3	Chicago	−1.33	−1.47	−1.53	−1.32	−.87	−.53	−.88
4	Washington	−1.04	−1.20	−1.10	−1.26	−.78	−.37	−.46
5	San Francisco	−1.14	−1.26	-1.29	−1.31	−.70	−.40	−.50
6	Philadelphia	−1.19	−1.42	−1.48	−.99	−.84	−.74	−.64
7	Boston	−1.12	−1.10	−1.42	−1.23	−.63	−.72	−.60
8	Detroit	−1.35	−1.07	−1.28	−1.12	−.32	−.16	−.02
9	Dallas	−.91	−1.29	−1.21	−.78	−.92	−.51	−.46
10	Houston	−1.02	−1.46	−1.24	−.92	−1.04	−.57	−.81
11	Miami	−.82	−1.16	−1.16	−.85	−1.05	−.60	−.50
12	Seattle	−1.19	−1.27	−1.26	−1.30	−.64	−.34	−.43
13	Atlanta	−.91	−1.31	−1.05	−1.10	−.90	−.34	−.56
14	Cleveland	−1.30	−1.24	−1.22	−1.28	−.54	−.10	−.24
15	Minneapolis	−1.17	−1.27	−1.37	−1.32	−.75	−.39	−.62
16	San Diego	−.98	−1.15	−1.22	−1.42	−.74	−.39	−.63
17	St. Louis	−1.23	−1.33	−1.18	−1.39	−.77	−.10	−.59
18	Pittsburgh	−.95	−.89	−1.03	−.88	−.34	−.19	−.25
19	Phoenix	−.83	−1.05	−.93	−.91	−.85	−.35	−.26
20	Tampa	−.69	−1.03	−.76	−1.16	−.73	−.01	−.47
21	Denver	−.84	−.87	−.84	−.89	−.65	−.33	−.18
22	Cincinnati	−1.11	−1.22	−1.14	−1.05	−.63	−.22	−.22
23	Portland	−.97	−1.08	−.91	−1.14	−.64	−.21	−.28
24	Kansas	−.98	−1.12	−1.01	−1.05	−.71	−.11	−.71
25	Milwaukee	−1.43	−1.43	−1.51	−1.57	−.72	−.40	−.33

Note. Coefficients are the expected Bayesian estimates of level-1 coefficients for each MA.

specifically labor-market disadvantages relative to white men. To test for this, we calculate an individual-level earnings model that includes the usual determinants of earnings; we report these coefficients for each percentile in Table 2. The findings in the first eight rows of the table are broadly similar to those reported above in Table 1. Both gender and racial/ethnic disadvantages are evident at each level of earnings. But the adjusted coefficients show smaller racial/ethnic disadvantages than gender disadvantages. Some of the racial/ethnic disadvantages occur outside the

TABLE 4: Correlations among Gender Inequality Coefficients across MAs

	White Male Percentile				
	10th	25th	50th	75th	90th
White women's coefficients and African American women's coefficients	.497	.338	.287	.445	.163
White women's coefficients and Hispanic women's coefficients	.788	.796	.418	.070	.242
White women's coefficients and Asian women's coefficients	.473	.609	.514	-.293	-.600
African American women's coefficients and Hispanic women's coefficients	.658	.523	.675	.557	.659
African American women's coefficients and Asian women's coefficients	.598	.504	.426	.218	-.203
Hispanic women's coefficients and Asian women's coefficients	.530	.563	.489	.615	-.310

labor market (e.g., in the educational system) and are subtracted out from these adjusted earnings differences. This is especially true for Hispanics, who have the worst earnings chances in Table 1 but who fare better than African Americans after the adjustments.

For three of the four racial/ethnic groups of women (the exception is Asian women), the coefficients become monotonically more negative at higher white male earnings levels. This means that the gender disadvantage is more severe at high earnings levels — evidence of a continuing "glass ceiling" effect on women's earnings. The minority disadvantage varies less than the gender disadvantage across the five earnings percentiles and in no consistent pattern.

In support of the existing literature, our data show that more education and experience, as well as more average hours worked, contribute to a greater probability of exceeding white male earnings levels at both ends of the earnings distribution. But what has not been noticed is that, for men, each of these effects becomes more pronounced at higher earnings levels. For women, the education effects are more constant across earnings levels although stronger than for men, especially at lower earnings levels. (Because the gender * x interaction coefficients represent women's *difference* from men, we must add these to men's coefficients in order to interpret the magnitude of the effect on women. For instance with education at the 10th percentile, the effect on women is .336 [i.e. .220 + .116] while at the 90th percentile it is .434 [.433 + .001]. These two effects are not nearly as different as the effects for men.) The work experience effects are weaker for women, but this may be only because our measure of potential experience captures less of actual experience for

TABLE 5: Correlations between Racial Inequality Coefficients across MAs

	White Male Percentile				
	10th	25th	50th	75th	90th
Across gender					
African American women's coefficients and African American men's coefficients	.832	.784	.715	.576	.328
Hispanic women's coefficients and Hispanic men's coefficients	.644	.566	.701	.801	-.231
Asian women's coefficients and Asian men's coefficients	.800	.534	.328	.713	.193
Across racial/ethnic groups					
African American men's coefficients and Hispanic men's coefficients	.383	.491	.610	.630	.268
African American men's coefficients and Asian men's coefficients	.505	.631	.625	.783	.739
Hispanic men's coefficients and Asian men's coefficients	.503	.536	.650	.726	.602

women than for men. Hours worked is even more important for women than for men and becomes increasingly important at higher earnings levels.

Being formerly or never married lowers the likelihood that men's earnings will exceed each percentile, although these effects are far weaker for women. The effect of children on earnings is slightly positive for men but negative for women, especially at lower earnings levels. U.S. citizenship increases the likelihood of higher earnings, somewhat more for women than men and more at lower levels than at higher levels; for men it has a slight negative effect on reaching the 90th percentile of white male earnings. Being an immigrant or having low English language proficiency are related to lower earnings chances, but both effects are stronger for men and at lower levels of earnings.

Macro-Level Correlations of Gender and Race/Ethnicity Inequality

Thus far, our results show some variations across earnings levels in the conventional patterns found in individual-level studies, but the broad outlines are well known: women and minorities have lower earnings than men even after controlling for most of the important measurable determinants of higher earnings. We now turn to the macro-level questions that are uniquely addressed with our multilevel design. First, we need to note to what extent the gender * race coefficients vary across MAs.

The second panel of Table 2 reports those variances. The white female coefficient at the 10th percentile (–1.196) has a cross-MA variance of 0.072; i.e., a standard deviation of .269. This result suggests that there is substantial cross-MA variation in these coefficients, and that they are always negative. An important point to note for the four sets of female coefficients is that the variances decline at higher percentiles — there is more variance across MAs in the 10th percentile coefficients than in the 90th percentile coefficients. This has implications for analyzing the correlations of these coefficients across MAs: We have less variance to calculate these intercorrelations at the 90th percentile. The final panel in Table 2 reports reliability coefficients, which can be thought of as a ratio of the cross-MA variance of those coefficients as a function of the standard errors of those coefficients within each MA (Bryk & Raudenbush 1992:43). These reliabilities are quite small for several of the female coefficients at higher percentiles, suggesting that it will be difficult to observe consistent MA-level correlations of those coefficients.

The covariation of the gender and racial/ethnic effects across labor markets is illustrated in Table 3. The race*gender coefficients from the 25th percentile model in Table 2 are reported separately for each of the twenty-five largest MAs. We focus on the 25th percentile because more than 50% of the women of each racial/ethnic group earn below the 25th white male earnings percentile (see Table 1). Hence, the 25th percentile appears to be a key point in the earnings distribution. White women do best (relative to white men) in Miami and Tampa; they do worst in Detroit and Milwaukee. African American women have a different pattern: they do best in Denver and Pittsburgh; worst in Chicago and Houston. Hispanic women, like white women, do best in Tampa and, like African American women, worst in Chicago. Asian women do best in Dallas and worst in Milwaukee.

The patterns for minority men are quite different from those for white women. African American, Hispanic, and Asian men do well (relative to white men) in Detroit, which is the worst MA for white women. And African American men do worst in Miami, which is second-best for white women. Minority men also share some advantages and disadvantages with minority women. African American men do well in Pittsburgh, which is good also for African American women, and poorly in Houston which is also bad for African American women. Hispanic men fare well in Tampa like Hispanic women, and they do worst in New York which is also not good for Hispanic men.[5] Asian men do well in Detroit, so well in fact that they almost equal the predicted earnings of white men; but they do worst in Chicago, where their predicted earnings are below even those of African American and Hispanic men.

Are there patterns to these MA-level coefficients? We ask three questions of the cross-MA variation in these coefficients. First, to what extent are the gender disadvantages correlated with each other? That is, are white women especially disadvantaged in the same labor markets that disadvantage minority women? Second, to what extent are the racial disadvantages correlated across gender? For

TABLE 6: Correlations between Gender and Racial Inequality Coefficients across MAs

	White Male Percentile				
	10th	25th	50th	75th	90th
White women's and African American men's coefficients	.033	-.217	-.401	-.361	-.286
White women's and Hispanic men's coefficients	.150	.106	-.241	-.290	-.425
White women's and Asian men's coefficients	.369	.176	-.165	-.680	-.637

example, are places where African American men are especially disadvantaged the same places where African American women are especially disadvantaged? Finally, to what extent are gender disadvantages correlated with racial/ethnic disadvantages? Are places in which women are at a special disadvantage also places where African American, Hispanic, or Asian men are also at a special disadvantage? Or is there a trade-off between gender and racial disadvantages in which one type of disadvantage appears to offset the other? Tables 4 through 6 report the relevant intercorrelations across all 261 MAs for each of the five percentile levels.

Table 4 reports the six correlations among the four female coefficients. These are all positive and moderate to high for the 10th, 25th, and 50th percentiles. MAs where white women are doing better tend to be the same MAs where African American, Hispanic, and Asian women do better as well (although at lower average levels for African American and Hispanic women). Similarly, areas where one group of minority women are doing well are the same areas where other minority women are doing well. This does not mean that race is unimportant for their earnings chances — only that there is no trade-off among minority women such that one group's chances are negatively related to another group's. Our conclusions from the cross-MA comparisons at these lower earnings levels (where most women are found) are thus quite similar to the conclusions from the longitudinal comparisons: gender inequalities are shared across racial/ethnic boundaries.

This pattern of similar gender inequalities across racial/ethnic lines does not hold for the upper end of the earnings distribution. At the 75th and 90th percentiles, the correlations are smaller, and at times negative. For example, in MAs where white women have better chances of exceeding the white male 75th and 90th earnings percentiles, Asian women are *less* likely to exceed those levels. However, we must be somewhat suspect of these correlations at the higher earnings percentiles because of the low reliabilities noted in the bottom panel of Table 2. There is simply not much variance across MAs in the calculated chances of Asian American women reaching the white male 90th percentile because there are so few MAs with many

Asian women earning at these levels that the multilevel MA estimates depend mostly on the (constant) population estimate.[6]

The first panel of Table 5 reports correlations of the racial inequality coefficients between same-race men and women. These correlations are positive and high with only a couple of exceptions, again primarily at the highest earnings percentiles. MAs in which African American women are doing well tend to be the same MAs in which African American men do well; inequality for Hispanic women and Hispanic men, as well as for Asian women and Asian men, is also correlated across MAs. Thus, racial inequalities are shared across gender boundaries even more clearly than gender inequalities are shared across racial boundaries. This is not dissimilar from the longitudinal results: when minority men improved their position, mostly in the 1970s, so did minority women. And when Hispanic men's earnings chances fell in the 1990s, so did Hispanic women's.

The second panel of Table 5 reports the correlations for men across racial/ethnic groups. They correspond for men to the correlations for women reported in Table 4. These correlations are uniformly positive and often quite substantial. In general, areas where one group of minority men are disadvantaged in the labor market are the same areas in which other minority men are disadvantaged. Again, we must remember that the levels of the earnings chances are quite different: Asian men have noticeably higher earnings chances than African American and Hispanic men; but nevertheless MAs where Asian men's chances tend to be relatively below average for the country are the same areas where African American and Hispanic men have below-average chances.

Table 6 reports the extent to which gender inequality among whites is correlated with racial inequality among men (since all the inequality coefficients report differences from white men). These correlations are quite different; they vary between positive and negative and from quite low to rather high. At the 10th and 25th percentiles (levels where many women and minority men are found) the correlations are all quite low. MAs in which white women are doing well relative to white men (low gender inequality) may or may not be areas in which African American, Hispanic, or Asian men are doing well (low racial inequality). At these earnings levels, racial and gender inequality seem independent of each other — neither reinforcing nor offsetting.

The negative, moderately sized correlations for the 50th and 75th percentiles are intriguing. Like Szymanski's results, they suggest that areas with less gender inequality among whites have more racial inequality among men. In MAs where white women are able to achieve a "middle class" income, minority men are particularly disadvantaged (and vice-versa).

We draw two conclusions from these three tables of correlations: Patterns of gender inequality are quite consistent across racial/ethnic groups, especially at the bottom half of the earnings distribution. Similarly, patterns of racial inequality are quite comparable for men and women. Thus, African American women and

Hispanic women earn less than white men both because they are women and because they are minorities. The degree to which gender inequality and racial inequality are themselves correlated appears to be class dependent. That is, at the low end of the earnings distribution, there is little correlation between gender and race inequalities, suggesting gender and race are independent dimensions of stratification. However, at the middle and upper earnings levels, race and gender may be interacting systems of inequality.

Discussion

We began by asking "to what extent do systems that privilege being male also privilege whiteness and class domination?" The time trends and the MA comparisons have suggested that racial and gender inequalities are, for the most part, independent and additive systems of privilege. At least at lower levels of earnings, labor markets that disadvantage one group of women disadvantage them all; and areas that disadvantage minority men also disadvantage minority women. Similarly, when white women improved their earnings relative to white men, generally minority women did also; and when minority men improved their position relative to white men, so did minority women. It would seem that the macro-level causes of gender inequality are not bounded by racial/ethnic lines nor are the causes of racial inequality bounded by gender.

Moreover, the extent of racial and gender earnings inequality is largely uncorrelated. Some labor markets are especially bad for both women and minorities, others are relatively good for both, and still others are good for one but not the other. Similarly, there have been some years when women but not minority men have improved their position relative to white men; other years when minorities improved their position but not white women; and other years when both improved. There appears to be no one general principle that generates (or erodes) privilege for white men.

The additive and independent character of racial and gender inequalities implies that white women are economically disadvantaged relative to white men because they are women; however, white women's earnings inequality is not as great as that of African American and Hispanic women due to the benefits that accrue to white women from their membership in the dominant racial/ethnic group. African American and Hispanic women, on the other hand, are least likely to exceed the five white male earnings percentiles we examined. They are penalized for being both female and nonwhite. Asian women, though, pay less of a penalty for being nonwhite.

The low to negative correlations of racial and gender inequality across MAs raise questions about the importance of normative and political determinants,

causes that might be expected to have similar effects on both types of inequality. This may be the most significant implication of the research results. The evidence is only indirect, but explanations of economic discrimination based on prejudice must face the question of why racial and gender economic inequality are uncorrelated when racial and gender prejudice are so closely related.

Instead, at the macro level, the occupational and industrial structures that affect the demand for black labor (Baron 1971) and for female labor (Cotter et al. 1998), and racial concentrations (Cohen 1998a) and sex ratios (South & Trent 1988) that affect the supply seem more consistently related to the geographic patterns of economic inequality. Those relationships point more toward crowding explanations (Bergmann 1974) as the immediate cause of inequality. Of course, crowding explanations depend on economic segregation based on gender and racial stereotypes, and so the role of prejudice is not negligible, just indirect.

The independence of gender inequality from race and perhaps class inequality at the macro level does not deny the recent insights that have derived from the insistence that at the individual level, people do not experience gender, race, and class inequality as distinct processes; the individual experience of inequality will be different for white women than for African American or other minority women. But the macro-level processes that generate the gender inequality do not seem to heed racial/ethnic boundaries. Nor do the macro-level processes that generate racial and class inequality heed gender boundaries.

At higher levels of earnings, however, this simple additive and independent story may break down, although data limitations may prevent us from making firm conclusions for these groups. First, the pattern of moderate to high intercorrelations of gender inequality across racial/ethnic lines breaks down at high earnings levels. Areas where white women break into the top earnings levels are not necessarily areas where minority women are able to make the same leap. This result suggests that at higher income levels, there may be more interactions between race and gender in determining privilege. However, the trends over time do not show the same interaction; if anything, the trends for white, African American, and Hispanic women are more similar at higher earnings levels than at lower earnings levels.

Second, at higher earnings levels there is some evidence that racial and gender inequalities are not independent but negatively related, as Szymanski (1976) first suggested. If we interpret the residual from the earnings analysis as an index of discrimination, then MAs with less gender discrimination at high levels seem to have more racial discrimination. Industry composition may be an explanation of this negative correlation: "rust belt" areas such as Detroit, Dayton, and Cleveland have less racial inequality and more gender inequality, whereas "sun belt" areas such as Orlando, San Antonio, and Miami are the opposite. But the opposition between racial and gender inequality should not be exaggerated: It is not observed

at lower earnings levels (where most minorities and women are employed), and it is not obvious in the time trends either.

There are, of course, few women who reach the white male 75th and 90th earnings percentiles. Even in the PUMS data, the numbers of minority women who reach these levels are quite small, and so analyzing their distributions across MAs may be especially risky. This is reflected in the low reliabilities of these coefficients reported in Table 2. So the different patterns at higher earnings levels may be due just to the unreliability of the estimates or because systems of inequality actually work somewhat differently among the middle class.

In addition to these two macro-level variations in racial and gender inequalities across earnings levels, the individual-level results show other differences in the earnings functions at different earnings levels. These differences are substantial enough to question the almost universal reliance on ordinary least-squares in analyses of earnings. The determinants of higher earnings are substantially different at lower earnings levels than at higher earnings levels. First, we saw that the gender disadvantage (but not the racial disadvantage) was greater at higher levels of earnings. The much-discussed "glass ceiling" receives empirical support in these results. Second, for men, the human capital variables and hours worked were all more important at higher earnings levels than at lower earnings levels. This is less true for women for human capital, but more true for hours worked. Family status and immigration effects also varied across earnings levels for one, if not both, genders. None of these variations is captured in usual earnings analyses, nor are they incorporated into our theories of earnings and discrimination.

There is ample reason for caution in interpreting all these results. At the individual level, the analyses are handicapped by the limitation to the potential, not actual, work experience that is all that is available from census data. At the macro level, research comparing labor markets as systems of inequality has been far less common than research comparing individuals. The few examples that can serve to guide research have been limited to single dimensions of inequality (for example, the effect of minority concentrations on racial inequality or the degree of occupational gender segregation on gender earnings equality). Asking how different dimensions of inequality interact in macro-level systems to produce privilege and poverty raises the complexity into largely uncharted territory.

Our design of replicating the analyses at each of five different earnings levels precludes a full consideration of how class inequalities covary with racial and gender inequalities. The replication design has allowed us to ask questions about how gender and race may interact with earnings levels (i.e., whether the size of gender and race inequalities vary with earnings levels) but not questions about how class or earnings inequalities covary with gender and race (i.e., not whether the size of gender and racial inequalities vary with earnings inequality).

Nevertheless, the race-class-and-gender critiques of past stratification research compel us to consider these complexities. As social researchers we have typically

simplified the study of inequality by separating the questions into these separate domains without adequately asking whether the systems of inequality themselves act so separately. So perhaps we should be relieved by the results of this first look at these types of questions: the assumption of separate macro-level systems hold up quite well in these analyses. Systems of gender inequality cross race and class lines quite easily; and systems of racial inequality cross gender and class lines even more easily. But there is much more research to be done before we understand the limitations to our usual simplifying assumptions.

Notes

1. For example, using 1972-96 General Social Survey data, responses to whether a person would vote for a well-qualified woman for president are correlated .32 with responses on whether that person would vote for a well-qualified black. But when averaged across 103 MAs, the two items correlate .70.

2. Native Americans are excluded from the analysis due to small sample sizes. This design also omits nonmetropolitan areas, which contain one-fifth of the U.S. population. Earlier research shows that gender inequalities in nonmetropolitan areas resemble those in MAs (Cotter et al. 1996).

3. Multilevel methods use information from both the individual-level units and the aggregation of micro-level units across the whole population, drawing more heavily on the population estimates where micro-level information for a particular MA is sparse and the coefficients for that MA have larger standard errors. Where the within-MA estimates have low standard errors, they are weighted more heavily than the population estimates. Bryk and Raudenbush (1992) provide technical (39-44) and reader-friendly (76-82) discussions of these "empirical Bayes" estimates of the level-one coefficients.

4. Among Hispanics, the class difference is confounded with ethnicity. A higher proportion of women crossing white men's 75th percentile would be of Cuban, South American, and Spanish origin rather than Mexican, Puerto Rican, Central American, or Dominican.

5. Undoubtedly some of these MA-level differences among Hispanics are a result of ethnic differences among Hispanics — e.g., Cubans in Tampa and Puerto Ricans in New York.

6. To be precise, there are 102 MAs with at least one Asian American woman at the white men's 90th percentile and only 733 such women in the entire sample, of whom 234 are in either the New York or the Los Angeles MA. And there are only 85 MAs with at least one Hispanic woman at the white men's 90th percentile, and only 429 in the entire sample, of whom 117 are in either New York or Los Angeles.

APPENDIX A: Definitions of Variables

Variable	Date Source	Definition
Earnings percentiles	1990 PUMS	Five binary variables: 10th percentile, 25th percentile, 50th percentile, 75th percentile, 90th percentile; coded 1 if the individual's earnings exceed those of the subject white male earnings percentile for the MA. (Earnings equal wage and salary income plus self-employment income.)
Gender * Race/ Ethnicity	1990 PUMS	Seven dummy variables: Non-Hispanic white female, Non-Hispanic black female, Hispanic female, Non-Hispanic Asian female, Non-Hispanic black male, Hispanic male, and Non-Hispanic Asian male. (Non-Hispanic white male is the excluded category.)
Marital status	1990 PUMS	Two dummy variables: Formerly married (divorced; separated; widowed; and married, spouse absent) and never married. (Currently married, spouse present, is the excluded category.)
Number of children	1990 PUMS	Number of children in the household.
Education	1990 PUMS	Number of years of school completed.
Experience (potential)	1990 PUMS	Age – years in school – 6.
Citizenship status	1990 PUMS	Dummy variable coded 1 if a U.S. citizen by birth or naturalization; coded 0 if not a citizen of the U.S.
Immigrant status	1990 PUMS	Dummy variable coded 1 if immigrated to the U.S. in any year prior to 1990; coded 0 if not an immigrant.
English proficiency	1990 PUMS	Continuous variable ranging from 1 to 4 with 1 equal to speaks English very well and 4 equal to speaks no English at all.
Hours worked	1990 PUMS	Log of the number of hours usually worked per week in 1989.

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