

Are comparable worth policies an appropriate remedy for both race/ethnic and sex discrimination? The author's findings question whether similar processes of devaluation are driving the sex and race/ethnic pay gap. The National Longitudinal Survey of Youth is used to assess the effects of both the sex and race/ethnic composition of occupations (defined by cross-classification of occupation and industry) on wage levels. The results indicate that the percentage of White women in an occupation has a negative effect of the wage levels of most groups. The percentage of Black women, Latina women, Black men, and Latino men do not have consistently negative effects on wage levels, even when testing for more geographically localized effects. It is concluded that occupational devaluation does not contribute to the race/ethnic gap in pay in a manner analogous to that found from occupations dominated by females. Thus, comparable worth policies are not likely to help reduce the race/ethnic gap in pay.

Devaluing Women and Minorities

The Effects of Race/Ethnic and Sex Composition of Occupations on Wage Levels

LORI L. REID

University of Michigan

Previous research has explored the applicability of comparable worth policies for ameliorating sex discrimination and race/ethnic discrimination. Applying comparable worth to sex and race/ethnicity assumes that similar processes are driving the sex and race/ethnic pay gap. However, some have questioned how similar the processes are that drive sex and race/ethnic discrimination and whether comparable worth policies can benefit people of color, particularly women of color (Dill, Cannon, & Vanneman, 1987; Malveaux, 1984; Scales-Trent, 1984). Prior research has shown that the sex composition of an occupation is an important determinant of earnings, indicating that the devaluation of occupations dominated by females is a

Author's Note: *Direct all correspondence to Lori L. Reid, Institute for Social Research, University of Michigan, Ann Arbor, MI 48106-1248 (llreid@umich.edu). I would like to thank Paula England, the Work and Occupations editor (Daniel Cornfield), and the anonymous reviewers for their comments and suggestions.*

WORK AND OCCUPATIONS, Vol. 25 No. 4, November 1998 511-536
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significant component of sex discrimination in earnings. However, the research is less clear about the importance of the race/ethnic composition of an occupation for earnings. This raises the question of whether the process of race/ethnic discrimination in earnings operates in the same fashion as it does for sex—by devaluing occupations concentrated with racial and ethnic minorities. If this process is not a part of the race/ethnic discrimination that affects earnings, it suggests that comparable worth policies are not an effective means for addressing race/ethnic discrimination.

This analysis uses national data and looks at the effects of both the sex composition and the race/ethnic composition of an occupation on wage levels. I use more detailed occupational categories than past research; my categories include detailed occupations within detailed industries. My primary interest is in determining whether the process of devaluation is common to both sex and race/ethnic discrimination processes. To address this issue, I ask two questions: Does a high percentage of women in an occupation lower the starting wages in that occupation (I used more detailed compositional measures than past research)? Likewise, does a high percentage of either Blacks or Latinos/Latinas in an occupation lower the starting wages in that occupation?

Because occupations are segregated to a large degree by sex and to some degree by race/ethnicity, the sex and race/ethnic segregation of occupations play a role in creating the sex gap and race/ethnic gap in pay. Occupations that are filled predominantly by women or racial and ethnic minorities pay less than occupations filled predominantly by men or Whites. One mechanism that might cause this to occur is that the wages for an entire occupation are set lower (the occupation is devalued) because it is filled predominantly by and identified with women or a particular racial/ethnic minority. However, this mechanism may be relevant only for explaining the lower wages of women, whereas other mechanisms are relevant for explaining the lower wages of racial and ethnic minorities. Another possible discriminatory mechanism is that women and minority members may be subjected to hiring discrimination so that they become concentrated in less desirable occupations that pay lower wages (for reasons other than the race/ethnic or sex composition of the occupation).

If female or minority occupations are devalued, what is the mechanism through which the devaluation occurs? Devaluation could occur through a process whereby the cultural devaluation of a group in the larger institutional or societal culture is transferred to the occupations filled predominantly by that group. Organizational members who play a role in setting wages for occupations may make errors in the evaluation of the worth of an occupation to the organization as a whole due to the normative devaluation of the

members associated with that occupation (England, 1992). Steinberg (1990) suggests that gender bias becomes embedded in definitions of skill used in job evaluation systems due both to the greater political power of men to exert their definitions of skill and to cultural assumptions that devalue skills associated with jobs that women perform. These job evaluation systems are then used to set wages that benefit men. Acker (1989) argues that gender inequality is such an important part of the foundation of organizational techniques and hierarchy that any attempt to alter the evaluation of women's jobs risks upsetting the entire organizational hierarchy. Thus, cultural assumptions about gender inequalities are not only built into organizational structures from the beginning, but they are a necessary support for the continued existence of current organizational structures.

If women and minorities experience devaluation and hiring discrimination, both comparable worth policies and policies that address hiring discrimination are relevant for sex and racial/ethnic inequality. However, if occupational devaluation is not a process that occurs for racial/ethnic minorities, the relevance of comparable worth policies for minorities is questionable. Below, I examine in more detail the literature that has led scholars to conclude that predominantly female occupations are devalued when wages are set. I also consider what past research can tell us about whether the devaluation of occupations associated with racial and ethnic minorities is important in explaining the race/ethnic gap in pay.

DEVALUATION

Predominantly female occupations pay less than predominantly male occupations net of differences in skill, experience, and working conditions (Baron & Newman, 1989; England, 1984, 1992; England, Chassie, & McCormack, 1982; England, Farkas, Kilbourne, & Dou, 1988; England & McLaughlin, 1979; Jacobs & Steinberg, 1990; Parcel, 1989; Pfeffer & Davis-Blake, 1987; Sorensen, 1989; Steinberg, Haignere, Possin, Chertos, & Treiman, 1986; Tomaskovic-Devey, 1993; Treiman, Hartmann, & Roos, 1984). These findings support the view that female occupations have lower wages because they are devalued by the presence of women.

Some researchers have argued that discriminatory wage levels also exist in occupations concentrated with race/ethnic minorities (Berheide, Chertos, & Steinberg, 1987; Dill et al., 1987; Remick, Ginorio, & Britz, 1987; Ross, 1987; Tomaskovic-Devey, 1993). Most minority women work in occupations that are dominated by women. However, White women and women of color are also segregated from one another to some degree. For example, whereas

all women are concentrated in clerical positions, Black and Native American women are more concentrated in service occupations, Latina women as machine operators, and Asian women in service and technical occupations (Dill et al., 1987). Minority men tend to be segregated in different occupations than those held by women or White men. Black, Latino, and Native American men are concentrated in some of the lowest paid blue-collar occupations.

The wage levels of minority women are lower than that of White females, even after controlling for education and experience (Corcoran & Duncan, 1979; Dill et al., 1987). This suggests that some form of race/ethnic discrimination is occurring. Cotton (1988) finds that Black female wage earners face greater wage discrimination than White women or Black men, and concludes that sex discrimination is more problematic than racial discrimination for Black women, although both are important. Because minority women are subject to both sex and race/ethnic discrimination, they have the lowest wages of any sex and race/ethnic group (Dill et al., 1987). Occupations with high concentrations of minority women are among the lowest paying occupations in the labor force (for examples of low paying occupations with high concentrations of minority women, see Dill et al., 1987).

Nonetheless, it is questionable whether the process by which occupations concentrated with minorities come to have low wage levels is the same as that by which female occupations come to have low wage levels. Because minority women are concentrated in female occupations, a large part of the lower pay of their occupations may be due to the effects of sex rather than race/ethnic composition. In addition, it is unclear whether race/ethnic discrimination takes the form of higher proportions of minorities in an occupation having a negative influence on wages, or some other form of discrimination (such as in hiring, transfer, or promotion) wherein minorities are excluded from better-paying jobs and concentrated in jobs that are relatively unskilled and low paying. If it is processes of social closure such as discrimination in hiring, transfer, and promotion rather than the devaluation of occupations dominated by minorities that is driving the lower wages of minorities, then we would not expect the percent minority in an occupation to negatively affect wage levels net of occupational skills and working conditions. Processes of social closure involve excluding minorities from higher paying and higher skilled positions and thereby force them into positions that are low paying because they require low skill levels. Thus, processes of social closure suggest that occupations concentrated with minorities are low paying because they require low levels of skill. Logically, the progression is such that the position is low paying and low skilled, and then becomes concentrated with minorities. The process of devalu-

ation, on the other hand, suggests that occupations concentrated with minorities are first concentrated with minorities, and then become low paying because they are disproportionately filled by and associated with minorities.

There are also empirical reasons to question whether the race/ethnic composition of occupations affects their pay. Some research using national data has not found a significant effect of the percent minority on wage levels net of working conditions, occupational skill, education, (estimated) experience, and industry (England, 1992; Filer, 1989). One study (Parcel, 1989) using national level data found a significant negative effect of percent Spanish speaking in an occupation on the average wage level of women (but not men), net of job content (skill and working conditions), education, and (estimated) experience, but found no significant effects of percent Black. Also using national level data, Sorensen (1989) found a significant negative effect of the percent minority in an occupation on the wage levels of White men, but not on the wages of the three other race/sex groups. For each 10 percentage point increase in the percentage of minorities in an occupation, the wages of White men decline by 4.9%. These effects were net of differences in education, (estimated) experience, job tenure, working conditions, and industrial characteristics.

Hirsch and Schumacher (1992) also analyze the effects of the racial composition of jobs on wages using national level data. They find the percent Black of jobs has a negative and significant effect on the wages of Black men and women and White men and women. However, their models do not include any measures for job skills. Given that the racial composition of occupations may be correlated with skill level in an occupation, it is important to include measures for skill level in the wage model so that the racial composition measures do not pick up the unmeasured effects of skill level. Without job skill measures, the significant coefficients for racial composition in the analysis of Hirsch and Schumacher may be due to the skill level of the occupations in which Blacks are concentrated (which could indicate hiring discrimination) rather than effects of the racial composition of occupations.

Using data from North Carolina, Tomaskovic-Devey (1993) found that although the effects of the race composition of jobs (measured at the firm level) were weaker than the effects of the sex composition of jobs, the percent Black in a job did have a significant negative effect on wages for both men and women (controlled for human capital, job characteristics, and firms' resources). However, once the race and sex of individuals were controlled in the models, the coefficients for percent Black were no longer significant. If race differences in wages within occupations are not controlled (either by using separate equations for each race group or by controlling for race within the pooled equation), then significant coefficients for percent Black in an

occupation may be attributable to wage differences between Blacks and Whites within the same occupation rather than the devaluing of wages for an entire occupation because it contains a large percent of Blacks.¹ Thus, when controlling for all relevant variables, Tomaskovic-Devey does not find significant effects for the percent Black in a job on wage levels.

Steinberg, Haignere, Possin, Chertos, and Treiman (1986) find no effect of percent minority on wages using data from New York state civil service jobs. Remick et al. (1987), using data from Washington state civil service jobs, find that the percent White female and the percent Black male of an occupation each have a negative influence on wages net of skill, effort, responsibility, and working conditions. For a 1% increase in the proportion of Black males in an occupation, salary decreases by about 1.7%, whereas for a 1% increase in the proportion of White females in an occupation, salary drops by .4%.

Thus, overall, past research has produced mixed results in the attempt to resolve the issue of whether occupations or jobs pay lower wages because they are associated with race/ethnic minorities. The research on the racial and ethnic composition of occupations using national level data is inconclusive for the following reasons: (a) Much of the research has found no significant effect of racial/ethnic composition on wages; (b) the studies that have found a significant effect of racial/ethnic composition have generally only found it for one of four race/sex groups in the sample. The exception to this is the Hirsch and Schumacher study, but it does not use as stringent a set of controls as other studies. These inconsistent findings in regard to the effects of race/ethnic composition on wages point to the need for further exploration of this issue.

One possible explanation for the mixed findings in regard to the effects of race/ethnic composition is that devaluation operates more locally for minorities. Minorities make up a small proportion of the labor force. In 1988, Blacks composed about 10% of employed civilians and Hispanics made up about 7% (U.S. Bureau of the Census, 1990). Therefore, minorities do not become concentrated at very high levels in occupations nationally. Minorities do not make up as large a proportion of the national labor force as women, and there are large regional differences in the proportion of minorities within particular occupations.² For example, an occupation like janitor may be 95% Black in communities with a large Black population, 95% White in communities that are mostly White, and fairly integrated nationally, with a percent Black that is slightly above the 10% we would expect under proportionate representation. This level of minority presence will not lead the occupation to become associated with Blacks nationally. However, locally, it may be

sufficiently concentrated with Blacks so as to become seen as a Black job. We can think of many occupations that are consistently filled with women in all localities in the nation, whereas there are few occupations that are consistently associated with a particular minority group in all localities in the nation. For instance, a few occupations that are predominantly filled by women across the country are registered nurse (95% female), secretary (99% female), and librarian (85% female) (U.S. Bureau of the Census, 1990). However, it is difficult to think of many examples for any minority group across the country. A few examples that have a disproportionate concentration of minorities nationally are household cleaners and servants (32% Black, 22% Hispanic); nursing aides, orderlies, and attendants (34% Black); and farm workers (23% Hispanic).

Even given these differences in the situation of women and minorities, it is conceivable that the process of devaluing occupations concentrated with minorities could work similarly to the process of devaluing female dominated occupations, but only on a more local level. Because certain minority groups have a greater concentration in some regional areas, they may therefore represent a large enough portion of the local labor market to occupy occupations that are predominantly filled by members of their race/ethnic group in that regional area. Thus, minority members may predominate in certain occupations only in geographical locations in which they are concentrated, and the process of devaluing occupations dominated by minorities may work similarly to the process of devaluing occupations dominated by females, but only in a subset of local areas. In this case, we would expect the percent minority in an occupation to have a negative effect on the wage levels for that occupation only in localities with a high percentage of minorities in the population, because it is only in such localities that minorities are numerous enough to predominate in any occupation.³ Geographical variables indicating the percent of the county population that is Black or of Spanish origin will be included in the present study and interacted with occupational composition to examine whether there are localized effects of race/ethnic composition on wage levels.

ALTERNATIVE EXPLANATIONS FOR THE LOW WAGES OF FEMALE AND MINORITY DOMINATED OCCUPATIONS

The neoclassical economic view explains pay differentials between female and male dominated occupations by reference to differences in human capital between women and men (England, 1992; England et al., 1988; Polachek, 1981). Previous research indicates that racial and ethnic differences

in human capital explain very little of the race/ethnic gap in pay (Corcoran & Duncan, 1979; Cotton, 1990; Gyimah-Brempong & Fichtenbaum, 1993). Human capital theory also predicts that occupations that require more skills will pay higher wages (England, 1992). Thus, measures of education, experience, and occupational skills will be included as control variables in the present study.

Previous research has analyzed the importance of compensating differentials in influencing wage levels (England et al., 1988; England, Herbert, Kilbourne, Reid, & Megdal, 1994; Filer, 1989; Jacobs & Steinberg, 1990; Kilbourne, England, Farkas, Beron, & Weir, 1994). Filer (1989) found that the effects of sex composition on wage levels disappears when human capital and compensating differential factors are controlled. Other research has found that female occupations pay less even when undesirable working conditions are taken into consideration (England et al., 1988, 1994; Jacobs & Steinberg, 1990). In fact, some research has indicated that undesirable working conditions actually have a negative effect on wages (Jacobs & Steinberg, 1990). Given the fact that previous research has not resolved the importance of compensating differentials for wage levels, measures will be included as control variables in the present study.

Proponents of the industrial segmentation perspective suggest that wage levels are influenced by the sectoral structure of the economy (Beck, Horan, & Tolbert, 1978, 1980; Hodson & Kaufman, 1982). Although other research has questioned this conclusion (Bridges, 1980; Coverdill, 1988), previous research has shown that some of the sex gap in pay and some of the race gap in pay is the result of the concentration of women and racial minorities in peripheral industries (Beck et al., 1978, 1980; Hodson & England, 1986). Although the issue is unresolved, it seems wise to control for industrial characteristics. The present study will use three-digit industrial category dummies and a union dummy to control for these effects.

This analysis is an improvement on past research in two ways. First, the occupational categories for which I measure sex and race/ethnic composition are based on the cross-tabulation of detailed (three-digit) occupation by detailed (three-digit) industry categories. Thus, they are much more detailed than measures used in previous research that were based on occupational categories not specific to industry. Recent research (Petersen & Morgan, 1995) indicates that the sex gap in pay at the job level is small compared to the sex gap in pay at the occupational level. This could suggest that more detailed measures of the sex composition of jobs would not support previous findings about the negative effect of the percent female in an occupation on wages. Although my measures are not as detailed as job level measures, they are an improvement over the occupational level measures used in previous

research, and therefore they provide more accurate measures of the sex and racial composition of occupations.

A second way in which this analysis improves on past work is that it combines national level data with the use of geographical measures to test for localized effects of race/ethnic composition. Thus, we get the advantage of generalizability that comes from national data, yet race/ethnic composition is interacted with geographical location to assess whether devaluation of occupations containing a concentration of minorities occurs only within areas with a relatively high proportion of minorities in the population.

DATA AND METHODS

I use data from the 1979-1987 annual interviews of the National Longitudinal Survey of Youth (NLSY). Sample members in this longitudinal data set were 14 to 21 years of age as of January 1, 1979, for the first survey wave and 22 to 29 years of age for the 1987 survey wave. These data (along with measures taken from other data sets to be described below) were arranged by the Center for Human Resource Research at Ohio State into a pooled set of spells. The unit of analysis is an individual during the time he or she was working for a specific employer. This unit is called a "job spell." Thus, if an individual has switched employers at any point during the survey, each job spell for that individual counts as a separate unit. For each job spell, there are variables for occupational characteristics and wage at the first survey year after the job was started, and for each successive year after that up to 9 years. Only the variables associated with the first survey in each job spell are used in this analysis.⁴

I use ordinary least squares multiple regression for the analysis. The focus is on estimating the additive effects of percent female and percent minority on starting wages, operationalized as the wage at the first survey wave for each job spell. Separate equations are estimated by race/ethnicity and sex, yielding six equations. Only spells in which the respondent was working full-time at the time of the first survey are included in the analysis.

The equation for the analysis is:

$$W_{ij} = B_0 + B_1C_{ij} + B_2O_{ij} + B_3X_{ij} + B_4R_{ij} + B_5I_{ij} + U_{ij}$$

where W represents the hourly wage for individual I in her or his j th job spell, C represents a set of occupational sex and race/ethnic composition variables for individual I in her or his j th job spell, O represents a set of occupational *Dictionary of Occupational Titles* (DOT) variables, X represents a set of

individual level variables, R represents a set of county population race/ethnic composition variables, and I represents a set of industry control variables.

The dependent variable for the regressions is the hourly wage reported at the first survey date after the job spell began. The wage is the hourly rate of pay in dollars. Wage, sex, and race/ethnicity are taken from the NLSY data set (Center for Human Resource Research, 1983). Race/ethnicity have been combined into the categories (non-Hispanic) White, (non-Hispanic) Black, and Latino/Latina using a variable indicating the origin or descent of each respondent and a variable indicating the racial/ethnic cohort of each respondent (Hispanic, Black, or non-Black and non-Hispanic).⁵ The independent variables used in the analysis include measures for the sex and race/ethnic composition of a respondent's occupation-by-industry category (hereafter, called occupation) as well as controls for human capital, job skills, working conditions that may require compensating differentials, county-level race/ethnic composition of the population, year of start date for job, and industry. The variables of primary interest in testing the theory that wage levels in occupations predominantly filled by women or minorities are discriminatory because of devaluation are the sex and race/ethnic composition variables. The measures for sex and race/ethnic composition were constructed from data pooled from the 1976 through the 1982 Current Population Survey. The measures include the percentage of White females, percentage of Black females, percentage of Latina females, percentage of Black males, and percentage of Latino males.⁶

Control variables for human capital are taken from the NLSY data set (Center for Human Resource Research, 1983). These include measures of experience and education. Experience is the total work experience in weeks, at the date of interview, after the spell started, since January of 1978, a year before the first-wave survey. Education is the highest grade completed by the time of the first interview after the beginning of the job spell. (It is not necessary to control for seniority because the dependent variable is wage at the first interview after the person started work at the organization.)

Control variables for job skills and working conditions are based on variables from the fourth edition of DOT (U.S. Department of Labor, 1977) coded to 1970 census occupational categories (U.S. Bureau of the Census, 1971). (For details on how DOT variables were coded to 1970 occupational categories, see Roos & Price, 1981.) The variables included as controls are those measures of occupational skill demands identified by England et al. (1982) as those on which women and men are differentially placed across occupations. These variables include the occupation's requirement for com-

plexity with data, complexity with people, complexity with things, specific vocational preparation, and strength.⁷

The two control variables for compensating differentials are also based on variables taken from the DOT.⁸ Hazards is a measure of the percentage of workers within a particular occupation for whom the job involves definite risk of bodily injury. Performance under stress is a measure of the percentage of workers in a particular occupation who are required to perform under stress when confronted with emergency, critical, unusual, or dangerous situations.

The variables for race/ethnic composition of the county population come from the NLSY data set. Two variables are used that locate each person in a specific county for each job spell. One variable indicates the percentage of the county population that is Black and the second variable indicates the percentage of the county population that is of Spanish origin. These variables are included in some of the regressions with a series of interaction terms in which the percent Black or percent Spanish origin in the county of residence for the respondent is interacted with the national race/ethnic and sex composition of the occupation held. Thus, we can discern whether working in a county with a higher percent Black or Spanish origin population makes the effect of race/ethnic composition on wage levels larger.

A measure for union coverage indicating whether the respondent was covered by a collective bargaining agreement in the present job was also included in the models.⁹ Given higher rates of unionization among men and Blacks, this variable is included so that the effects of sex or race/ethnic composition do not spuriously contain the effects of greater unionization levels in jobs in which males or Blacks predominate (Defreitas, 1993).

The variables included as controls for industry were dummy variables for each three-digit 1970 census industry categories (U.S. Bureau of the Census, 1971). However, in some cases, certain of the industry categories had no members from a specific race/ethnic-sex group. Thus, those industrial categories were left out of the regression model for that specific group. Therefore, the number of industry categories included in the regression model for each group varied slightly. These variables are included to control for additive effects of industry on wages that affect all occupations in an industry, via the sort of marginality discussed by industrial segmentation theorists.

The variables included as controls for inflation and real wage changes over time were a series of ten dummy variables indicating the year between 1978 and 1987 of the start date for the job spell.

RESULTS

Table 1 presents the mean values for the six race/ethnic-sex groups for all of the variables of interest. To correct for the oversampling of certain racial and ethnic minorities, members of the military, and poor people in the original NLSY survey, the sampling weight was used to calculate means.

The results from unweighted regression analyses for each group are presented in Table 2.¹⁰ The regression coefficients presented in Table 2 are those from models in which the dependent variable is hourly wage. Analogous models using logged hourly wage as the dependent variable were also computed. These results are not presented because the basic substantive conclusions were the same as those from the nonlogged models.¹¹

EFFECTS OF RACE/ETHNIC AND SEX COMPOSITION ON WAGES

Model 6 in Table 2 shows the results from the regression for White males. The percent White female in a man's job has a negative effect on his hourly wage. For every 1% increase in the percent White female in a man's job, the hourly rate of pay for White men decreases by about \$0.01. Thus an increase in the percent White female in a man's job of 80 percentage points would cost a White man about \$0.80 an hour in pay. Assuming a work week of 40 hours, this translates into a loss of a little over \$1,600 a year. For example, an 80 percentage point increase in the percent White female of a predominantly male occupation such as electrical engineer would cost males \$0.80 an hour in pay. Correspondingly, an 80 percentage point decrease in the percent White female of a predominantly female occupation such as librarian would increase male wages by \$0.80 an hour.

Models 1, 2, and 5 in Table 2 show that Black women, Black men, and White women also lose close to a penny in hourly wage per 1% increase in the percent White female in their respective jobs. Thus, the effect of the percent White female in a job is approximately the same for all of these groups. Models 3 and 4 show that the effect of the percent White female in a job is not significant for either Latino men or Latina women. This may indicate that the effect of the percent White female in a job does not hold for Latino/Latinas, or that the smaller number of Latino/Latinas in the sample led to inadequate statistical power for significance.

Table 2 shows that the percent Black female, percent Latina female, and percent Black male in a job do not have significant effects on wages for any group except for White females. White females lose between \$0.01 and \$0.02

TABLE 1: Mean Values and Standard Deviations (in parentheses) for Variables by Race/Ethnic-Sex Group

<i>Variables</i>	<i>Black Women</i>	<i>Black Men</i>	<i>Latina Women</i>	<i>Latino Men</i>	<i>White Women</i>	<i>White Men</i>
Industry by occupation compositional variables						
% White female	58.10 (25.25)	19.49 (23.93)	60.72 (26.95)	17.42 (22.95)	61.25 (27.59)	17.17 (22.80)
% Black female	9.44 (9.41)	3.95 (7.28)	6.80 (7.94)	2.63 (5.43)	6.03 (7.27)	2.32 (5.75)
% Latina female	3.91 (5.05)	1.68 (3.61)	3.77 (5.75)	1.69 (3.97)	3.04 (4.85)	1.06 (2.79)
% Black male	3.14 (7.77)	9.33 (10.66)	2.42 (5.99)	7.39 (8.60)	2.22 (4.76)	6.96 (9.11)
% Latino male	1.77 (4.92)	5.92 (6.85)	1.91 (4.54)	6.88 (8.96)	1.56 (4.34)	5.62 (7.11)
Occupational DOT variables						
Complexity with data	4.15 (1.38)	3.60 (1.43)	4.30 (1.33)	3.89 (1.54)	4.49 (1.40)	4.16 (1.62)
Complexity with people	1.54 (1.20)	0.99 (0.99)	1.56 (1.20)	1.03 (1.15)	1.71 (1.31)	1.17 (1.22)
Complexity with things	3.57 (1.97)	3.45 (2.00)	3.61 (2.01)	3.82 (2.05)	3.53 (2.04)	3.91 (2.10)
Specific vocational preparation	4.26 (1.48)	4.17 (1.64)	4.44 (1.45)	4.53 (1.71)	4.66 (1.54)	4.82 (1.76)
Strength	2.08 (0.75)	2.93 (0.74)	1.99 (0.75)	2.89 (0.73)	1.94 (0.72)	2.80 (0.79)
Performance under stress	12.96 (27.35)	6.63 (20.68)	7.79 (21.16)	4.52 (17.03)	9.14 (23.62)	4.55 (15.95)
Hazards	10.60 (23.80)	31.58 (35.58)	8.50 (20.58)	31.19 (35.37)	8.11 (20.88)	30.53 (35.79)
Individual level variables						
Education	12.67 (1.85)	11.73 (1.93)	11.72 (2.32)	11.14 (2.25)	12.79 (2.09)	12.28 (2.19)
Experience (in weeks)	159.50 (105.98)	179.17 (110.95)	167.38 (109.45)	189.40 (111.70)	195.49 (114.53)	200.45 (118.56)
Union	0.20 (0.40)	0.25 (0.43)	0.14 (0.34)	0.18 (0.39)	0.11 (0.31)	0.15 (0.36)
Age	18.12 (2.23)	17.97 (2.27)	17.95 (2.25)	17.82 (2.29)	17.98 (2.19)	18.08 (2.24)
Wage	4.44 (2.20)	5.05 (2.48)	4.61 (2.33)	5.43 (3.00)	4.75 (2.44)	5.78 (3.15)
Number of observations	2,249	3,251	1,476	2,177	6,127	7,809

NOTE: DOT = *Dictionary of Occupational Titles*.

TABLE 2: Regression Coefficients for Models Predicting Hourly Wage for Each Race/Ethnic-Sex Group

<i>Model</i>	1	2	3	4	5	6
<i>Independent Variables</i>	<i>Black Women</i>	<i>Black Men</i>	<i>Latina Women</i>	<i>Latino Men</i>	<i>White Women</i>	<i>White Men</i>
Industry by occupation compositional variables						
% White female	-.007** (3.01)	-.008** (3.29)	-.001 (.17)	-.001 (.28)	-.007** (4.72)	-.008** (4.36)
% Black female	-.007 (1.57)	-.005 (.83)	-.012 (1.34)	-.013 (1.10)	-.011** (3.07)	.000 (.08)
% Latina female	-.005 (.58)	-.022 (1.86)	-.011 (1.10)	-.002 (.13)	-.018** (3.33)	-.006 (.56)
% Black male	.002 (.38)	-.001 (.29)	.001 (.07)	-.012 (1.58)	-.015* (2.47)	.001 (.19)
% Latino male	.003 (.32)	-.016** (2.72)	.033 (1.87)	-.001 (.10)	-.011 (1.58)	.003 (.61)
Occupational DOT variables						
Complexity with data	.178* (2.32)	.285** (3.80)	.053 (.47)	.103 (.98)	.141** (2.77)	-.002 (.04)
Complexity with people	-.188** (3.63)	.118* (2.11)	-.059 (.85)	.153* (1.96)	-.098** (3.20)	.005 (.14)
Complexity with things	-.017 (.73)	-.047 (1.60)	-.019 (.58)	-.021 (.49)	-.030* (2.03)	-.055** (2.68)
Specific vocational preparation	.205** (3.57)	-.039 (.54)	.176* (2.06)	.049 (.48)	.119** (3.01)	.210** (4.02)
Strength	-.187* (2.16)	-.235** (2.96)	-.174 (1.33)	-.098 (.82)	-.083 (1.42)	-.245** (4.00)
Performance under stress	.010** (5.19)	.000 (.13)	.009** (2.88)	-.002 (.35)	.006** (4.28)	.001 (.37)
Hazards	-.001 (.22)	.003 (1.74)	.003 (.80)	.005 (1.94)	-.002 (1.05)	.000 (.37)
Individual level variables						
Education	.154** (6.61)	.150** (6.98)	.098** (3.80)	.113** (4.15)	.172** (13.00)	.197** (13.91)
Experience (in weeks)	.005** (9.62)	.005** (10.46)	.006** (8.15)	.007** (9.63)	.004** (12.24)	.006** (17.01)
Union	.363** (4.05)	.761** (8.89)	.663** (4.55)	1.654** (11.58)	.361** (4.74)	1.553** (19.76)
Age	.035 (1.86)	.044* (2.33)	.051* (2.30)	.149** (5.44)	.057** (4.61)	.118** (8.39)
Intercept	-.505 (.83)	.027 (.05)	.181 (.23)	-2.009** (2.61)	-.447 (1.19)	-1.749** (4.42)
<i>N</i>	2,249	3,251	1,476	2,177	6,127	7,809
<i>R</i> ²	.489	.412	.488	.425	.464	.417

NOTE: DOT = *Dictionary of Occupational Titles*. Absolute values of *t* statistic are shown in parentheses under the coefficients. A series of dummy variables controlling for industry and a series of dummy variables for years 1978 to 1987 (to control for inflation and annual changes in real wages) were included in all of the models, although their coefficients are not shown in the table.

*Significant at .05 level, 2-tailed test. **Significant at .01 level, 2-tailed test.

an hour in wages for every 1% increase in the percentage of these groups in their jobs. The effect of percent Latino male in a job is significant only for Black males. Black males lose \$0.02 an hour in wages for every 1% increase in the percent Latino male in their jobs.

The most consistent effects of the race/ethnic and sex composition variables are those for the percent White female in an occupation. The percent White female in an occupation has a negative effect on wage levels of approximately equal magnitude for White women and men and Black women and men. Thus it is clear that the percent White female in an occupation has a negative effect on wages. The percent Black female and male in an occupation and percent Latina female and Latino male in an occupation, conversely, have very inconsistent results. When these coefficients are significant, they are negative, indicating a negative effect on wages. However, none of the coefficients for these variables are consistently significant for a majority of the groups. Thus, I conclude that there is no consistent negative effect on wages of the percent Black female or male or the percent Latina or Latino in an occupation.

Thus far, there is not consistent evidence that the race/ethnic composition of occupations has a negative effect on wages controlling for education, experience, working conditions, and occupational skill. It is possible that the race/ethnic composition of occupations does have a significant negative effect on wages that does not show up in the models in Table 2 given that these models attempt to assess the influence on wage levels of the independent variables separately for each race/ethnic/sex group. An inspection of Table 2 shows that the majority of the race/ethnic composition variables are negative though nonsignificant. This could indicate that the lower number of observations associated with estimating separate equations for each race/ethnic/sex group is responsible for the nonsignificance of the race/ethnic composition coefficients. Therefore, I estimate a pooled model identical to those in Table 2, but one in which all race/ethnic-sex groups are pooled into one model and dummy variables for individuals' race, ethnicity, and sex are added. These results are shown in Model 1 of Table 3. The results do not indicate that the percent Black or percent Latino/Latina in an occupation have significant negative effects on wages. Of the race/ethnic/sex composition variables, percent White female, percent Black female, and percent Latina female have a significant negative effect on wage level. Given that percent Black male and percent Latino male are not significant, there is no reason to interpret the significance of percent Black female and percent Latina female as evidence of a negative effect of minority concentration on wages. Rather, I interpret them as evidence of a negative effect of female concentration on wages.

TABLE 3: Regression Coefficients for Pooled Models Predicting Hourly Wage

<i>Model</i>	<i>1</i>	<i>2</i>
<i>Independent Variables</i>	<i>Pooled Sample</i>	<i>Pooled Sample</i>
Industry by occupation compositional variables		
% White female	-.007** (8.31)	% female -.006** (9.19)
% Black female	-.006** (2.73)	% Black -.001 (.816)
% Latina female	-.012** (3.24)	% Latino/Latina -.004 (1.79)
% Black male	-.003 (1.30)	
% Latino male	-.003 (1.24)	
Occupational DOT variables		
Complexity with data	.107** (3.91)	.108** (3.95)
Complexity with people	-.038 (2.05)	-.038 (2.08)
Complexity with things	-.044** (4.75)	-.044** (4.73)
Specific vocational preparation	.135** (5.62)	.136** (5.65)
Strength	-.166** (5.41)	-.165** (5.38)
Performance under stress	.005** (6.03)	.005** (6.09)
Hazards	.000 (.49)	.000 (.50)
Individual level variables		
Education	.166** (22.00)	.166** (21.99)
Experience (in weeks)	.005** (28.15)	.005** (28.15)
Union	.976** (25.02)	.976** (25.01)
Age	.090** (12.45)	.090** (12.48)
Intercept	-.725** (3.49)	-.744** (3.61)
<i>N</i>	23,089	23,089
<i>R</i> ²	.406	.406

NOTE: DOT = *Dictionary of Occupational Titles*. Absolute values of *t* statistic are shown in parentheses under the coefficients. A series of dummy variables controlling for industry and a series of dummy variables for years 1978 to 1987 (to control for inflation and annual changes in real wages) were included in all of the models, although their coefficients are not shown in the table.

**Significant at .01 level, 2-tailed test.

However, as a further check on this interpretation, I also test a pooled model substituting percent female (percent of Black, Latina, and White women in an occupation), percent Black (percent of Black women and men in an occupation), and percent Latino/Latina (percent of Latina women and Latino men in an occupation) for the race/ethnic/sex specific compositional variables. These results are shown in Model 2 of Table 3. They provide no support for the argument that race/ethnic composition has significant effects on wage levels. The only compositional variable significant in the model is percent female. This suggests that the significance of percent Black female and percent Latina female in the previous pooled model is better interpreted as evidence of the negative effect of percent female rather than percent minority.

EFFECTS OF THE INTERACTION OF GEOGRAPHICAL PLACEMENT AND RACE/ETHNIC/SEX COMPOSITION ON WAGE LEVELS

The results from the previous regressions do not give a clear indication that jobs containing higher proportions of Black or Latino men or Black or Latina women have lower wages, net of other factors. Yet, it is quite possible that the effects of percent minority in an occupation on wage levels may be difficult to discern at the national level given the low proportion of racial and ethnic minorities in the economy as a whole and their uneven distribution across geographical areas. Therefore, variables measuring the percent Black and percent Spanish origin in the county of residence for a respondent, interactions between these variables, and the various race/ethnic and sex composition variables were added to the previous models. The interactions were added as an attempt to get at more geographically localized effects of the race/ethnic composition of occupations on wage levels. The idea is that it may be only in counties with a high proportion of Blacks or Latinos/Latinas in the population that the racial/ethnic composition of occupations is able to attain a high enough level to become associated with Blacks or Latinos/Latinas in the local labor market. Thus, it may be only in counties with a high proportion of Blacks or Latinos/Latinas in the population that we see the effects of the racial/ethnic composition on wage levels. The coefficients on the interactions of county-level race/ethnic composition of the population with occupation compositional measures involving minorities are shown in Table 4.¹²

We would expect to find a negative coefficient from the interaction of compositional variables involving Blacks or Latinos/Latinas with a variable

TABLE 4: Regression Coefficients for Geographical Location and Interaction of Geographical Location With Race/Ethnic and Sex Composition

<i>Model</i>	1	2	3	4	5	6
<i>Independent Variables</i>	<i>Black Women</i>	<i>Black Men</i>	<i>Latina Women</i>	<i>Latino Men</i>	<i>White Women</i>	<i>White Men</i>
PBCNT	.683* (2.09)	-.275 (.82)	1.967* (2.42)	.935 (1.11)	.925** (3.08)	-.258 (.80)
PSCNT	2.900** (4.07)	1.670* (2.24)	-.823* (2.50)	-1.291** (3.50)	2.411** (6.67)	1.346** (2.69)
PFBPB	.014 (.61)	.067 (1.91)	-.002 (.03)	-.084 (.80)	-.052 (1.64)	.043 (1.12)
PFLPL	-.178 (1.32)	.023 (.14)	.038 (.97)	.123 (1.59)	-.049 (1.09)	-.078 (.59)
PMBPB	-.074* (2.18)	-.023 (1.14)	-.025 (.21)	-.042 (.68)	-.050 (1.15)	.009 (.31)
PMLPL	-.096 (.41)	.068 (.81)	.039 (.68)	.000 (.01)	-.048 (.56)	.128* (2.25)
Intercept	-.861 (1.40)	.064 (.11)	.140 (.17)	-1.642* (2.07)	-.620 (1.65)	-1.751** (4.42)
<i>N</i>	2,249	3,251	1,476	2,177	6,127	7,809
<i>R</i> ²	.496	.417	.497	.431	.470	.420

NOTE: PBCNT = the percentage of county population that is Black; PSCNT = the percentage of county population that is of Spanish-origin; PFBPB = interaction of percent Black female with percent Black in the county; PFLPL = interaction of percent Latina female with percent Spanish-origin in the county; PMBPB = interaction of percent Black male with percent Black in the county; PMLPL = interaction of percent Latino male with percent Spanish-origin in the county. Absolute values of *t* statistic are shown in parentheses. All variables included in the models in Table 2 were also included in these models although their coefficients are not presented.

*Significant at the .05 level, two-tailed test. ** Significant at the .01 level, two-tailed test.

indicating the percent Black or percent Spanish origin in a county if the percent Black or Latino/Latina in an occupation has a negative effect on wage levels only (or more strongly) in counties with higher proportions of minorities. The negative coefficient on the interaction terms would indicate that in counties with more Blacks or with more Latinos/Latinas, the percent Black or Latino/Latina in an occupation has a more negative effect on wage levels than in counties with less Blacks or less Latinos/Latinas in the population. For instance, the interaction of percent Latina female in an occupation with the percent of the county population that is of Spanish origin (PFLPL) in Table 4 shows that the coefficient is negative in the White male equation. If the coefficient were significant, this would indicate that for White males working in counties with more of the population of Hispanic origin, the effect

of the percent Latina female in White men's jobs on wages is more negative than it is in counties with a population that is less Hispanic.

However, an examination of Table 4 indicates that, overall, the results from the interaction of county-level race/ethnic composition of the population and the composition of race/ethnic minorities in an occupation do not give a clear picture of greater devaluation of occupations due to higher proportions of race/ethnic minorities for respondents living in counties with more minorities. Only 2 of the 24 coefficients on the interactions are significant, and only 1 of these is in the direction predicted (negative). Thus, the results from these regression models do not support the contention that occupations with higher proportions of Blacks and Latinos/Latinas have negative effects on wages similar to the effects of occupations with higher proportions of women, even in counties where Blacks or Latinos/Latinas compose a greater proportion of the population.¹³

CONCLUSION

Comparable worth policies are predicated on the existence of a process of devaluation in which occupations are devalued solely by the presence of women or people of color in the occupation. I find evidence that occupations are devalued by the presence of women but fail to find any supporting evidence that occupations are devalued by the presence of minorities. Given the lack of evidence that occupations are devalued by the presence of minorities, the effectiveness of comparable worth policies for addressing race/ethnic discrimination must be questioned. My findings add support to findings of previous research showing that the percent female of an occupation affects wages negatively. The fact that the measure of percent female used in this study is a much more detailed measure than has been used in past research provides additional evidence in support of the theory that jobs dominated by females are devalued by their association with women.

There is no consistent evidence here to indicate that occupations that are concentrated with minorities are devalued due to their association with minorities. Further, there is no evidence that occupations containing a higher proportion of minorities are devalued in smaller, more localized labor markets (in geographical regions where minority members are concentrated). This suggests that the process of devaluing women plays out differently in the labor market than the process of devaluing minorities. Specifically, it does not appear that the wages of occupations concentrated with minorities are set low because the occupation is identified as a Black person's job or a

Latino/Latina's job in a manner analogous to identifying occupations dominated by females as a woman's job.

One possible reason for the lack of local level effects of the race/ethnic composition of occupations in this analysis may be attributed to a lack of sufficiently detailed measures for race/ethnic composition. Measures of race/ethnic composition specific to jobs rather than occupations would provide more detailed measures; however, such measures at the firm level are not available. I believe using interactions between occupational racial/ethnic composition and county racial/ethnic composition provides a reasonable proxy for more detailed measures of race/ethnic composition. Similarly, using a measure of the percentage of Blacks or persons of Hispanic origin in the Standard Metropolitan Statistical Area (SMSA) of residence for respondents would provide a measure for a smaller, more local geographical region than the current measure based on county of residence. However, the drawback of such measures is that they exclude people living in rural settings.

I suggest an alternative substantive explanation. I do not suggest that racial and ethnic minorities are not devalued in the broader culture. Rather, I suggest that because minorities do not make up a large enough proportion of the labor market to predominate in occupations in most geographical areas, the cultural devaluation of minorities creates a different kind of labor market discrimination against minorities than is created by the cultural devaluation of women. For women, one result of their devaluation in the broader culture is that occupations that become filled predominately by women are devalued because of their association with women. In institutional processes of establishing wage levels for occupations, occupations considered to be women's jobs are viewed as less important and given lower wages. The process is one where entire occupations are viewed as women's work and consequently devalued.

This process is not possible for minorities because they do not represent a large enough proportion of the population to predominate in occupations to the extent that women do. Entire occupations do not become associated with a particular minority or minorities nationally. Those occupations in which minorities are concentrated must also be filled to a large extent by Anglo members in many geographical locations and, to some extent, in all geographical locations. Thus, occupations cannot become race/ethnic typed in the same way or to the same extent that occupations can become sex typed. As opposed to identifying an occupation as a Black job, the process is more likely to be one where minorities are seen as appropriate only for certain kinds of occupations.

What this suggests is that the lower proportion of minorities in comparison to women may make the process of devaluing minorities in the broader

culture proceed more by hiring discrimination and exclusion from certain jobs, as well as from attaining certain types and levels of skill than by lowering the wages of entire occupations because the occupations are filled by minorities. The argument about hiring discrimination and discriminatory job assignment suggests that racial/ethnic minorities (and women) are excluded from certain jobs because those jobs are higher skilled and higher paying than other jobs. The causal order is such that discriminatory job assignment forces minorities to take jobs that are low skill and/or already have low wages. It is important that we do not confuse the mechanisms driving hiring discrimination with those driving cultural devaluation. Hiring discrimination suggests that jobs will be low paying (and low skill) before racial/ethnic minorities or women obtain them. Cultural devaluation suggests that jobs will become low paying after (and because) minorities or women obtain them.

This suggests that future research should focus on identifying the mechanisms that exclude people of color from higher paying occupations. Moss and Tilly (1996) find evidence that many employers associate Black men with a lack of "soft" skills, and they are reluctant to hire Black men. Although Moss and Tilly do not focus exclusively on exclusion from higher paying occupations, this type of research that attempts to identify the exact processes behind hiring discrimination, or other forms of exclusion such as discrimination in promotion, will be effective in identifying important aspects of the dynamic of income determination for people of color. In particular, research that attempts to gauge the way in which employers act as barriers and conduits to work for people of color and women will reveal much about labor market dynamics that affect income.

Hiring discrimination and discriminatory job assignment may also victimize women in the labor market. But, it may be more important in determining the lower wage levels experienced by minorities than it is in the process of devaluation by which comparable worth policies are directed. To the extent that women of color share a similar job structure with White women, they should benefit from comparable worth policies. However, the extent of the benefit is limited by the similarity in jobs. Although comparable worth policies are clearly important for addressing the sex discrimination that women, including women of color, face in the labor market, policies directed at hiring discrimination or other forms of discriminatory job assignment would seem to be more important than comparable worth policies for addressing the race/ethnic discrimination that men and women of color face in the labor market.¹⁴

NOTES

1. For example, if all Blacks earned \$5 an hour while all Whites earned \$10 an hour, the percent Black in an occupation will have a negative effect on wages due to the occupation wage differences between Blacks and Whites. This is quite different from arguing that the wages for everyone within an occupation, including Whites, will be lower because that occupation is associated with Blacks. In this example, all Blacks earn less than Whites regardless of occupation. If this is driving the effects of percent Black in a model, there is no evidence to support the contention that occupations filled predominantly by minorities are devalued by their association with minorities.

2. Minorities may not need to predominate in occupations at quite as high a level as women do to become associated with an occupation. The threshold level for the concentration of a group in an occupation to result in the association of that group with the occupation may be lower than levels typically associated with predominance (70%). Minority concentration may be sufficient for the association of a minority group with an occupation. Some have suggested concentrations as low as 20% to 30% may be sufficient (Sorensen, 1989). However, it is clear that some level of concentration is necessary for an occupation to become associated with a minority group. It is likely that these levels are higher than those that would represent occupational integration given the low proportion of the national population that minority groups represent.

3. This explanation is distinct from explanations that hypothesize a specific association between the relative size of a minority population and the wages that minorities receive. Other scholars have hypothesized either a positive association or an inverse association between the relative size of a minority population and their wages (Blalock, 1967; Tienda & Lii, 1987). These explanations suggest that the relative size of a minority group in the local population will either increase or decrease the wages of all minorities in the local population. My explanation suggests something quite different—that the relative size of a minority population interacts with the percent minority in an occupation to affect the wages of all persons in the occupation.

4. I use the spell data structure for this analysis for two reasons. First, using only starting wage as opposed to wages that occur throughout the duration of a job provides an assessment of the effects of race/ethnic and sex composition that is not affected by wage trajectories. Thus, the effects of race/ethnic and sex composition will not be confounded with any tendency for employers to grant steeper returns to seniority in jobs dominated by White males, something that should be studied separately. Second, using the spell data structure grants a much larger number of observations. This is particularly helpful in producing an adequate number of observations for minority groups. If the National Longitudinal Survey of Youth (NLSY) individuals were the units of analysis, the number of observations for employed Black women and men and Latino women and men would be too small to perform reliable statistical analyses. Later papers will use this spell data to focus on effects of race/ethnic and sex composition on wage trajectories within the same job spell.

5. The category White includes persons coded non-Black, non-Hispanic on the racial/ethnic origin variable and non-Asian, non-Native American on the racial/ethnic screener variable. The category Black includes persons coded Black on the racial/ethnic origin variable and non-Hispanic, non-Asian, non-Native American on the racial/ethnic screener variable. The Latino/Latina category includes persons coded Hispanic on the racial/ethnic origin variable and non-Black, non-Asian, non-Native American on the racial/ethnic screener variable.

6. These measures are based on the race/ethnic and sex composition of a cross classification of three-digit census occupation and three-digit census industry, and represent a weighted average for each year from 1976 to 1982. Thus, the measure for percent White female for a

particular job spell represents the percentage (calculated from 1976 to 1982 from the Current Population Survey) that White females constitute of the three-digit occupational category within a 3-digit industrial category in which the NLSY respondent worked. The cross-tabulation of detailed occupation and industry categories creates such a large number of occupation by industry cells that some cells are likely to contain a very small number of observations. However, these are also the cells that are least likely to occur in the NLSY.

7. Complexity with data is a measure of the level of complexity at which a worker must function in relation to data, rated on a 7-point scale of 0-6. Complexity with people is a measure of the level of complexity at which a worker must function in relation to people, rated on a 9-point scale of 0-8. Complexity with things is a measure of the level of complexity at which a worker must function in relation to things, rated on an 8-point scale of 0-7. Specific vocational preparation is a measure of the amount of time required to learn the necessary information and techniques to adequately perform the duties of an occupation, where the learning is of the type typically received on the job or in vocational training, but not in general high school or college training. Specific vocational preparation is rated on a 9-point scale of 1-9. Strength is a measure of the physical demand required of a worker in an occupation, rated on a 5-point scale of 1-5. All variables are coded such that a higher score represents more of the named concept.

8. After estimating models with a fuller set of controls for compensating differentials (including variables indicating demands for climbing, stooping, reaching, talking, seeing, working outdoors, working in the cold, working in the heat, working in wet conditions, and working in noise), I eliminated those controls that did not contribute to the estimation of the model for any of the six race/ethnic/sex groups.

9. This variable comes from the NLSY data set and is a dummy variable coded 1 when the respondent was covered by a collective bargaining agreement and 0 when he or she was not.

10. Regressions weighted by sampling weight to correct for the oversampling of certain minorities and poor people in the original NLSY survey, regressions weighted by length of job spell, and regressions weighted by both sampling weight and length were also calculated. However, substantive interpretations were unchanged. Thus, only the coefficients from the unweighted models are reported.

11. Regression analyses testing for nonlinear forms of race/ethnic and sex composition and regression analyses testing for interaction effects between race/ethnic and sex composition variables and control variables were undertaken. These results are not presented because there was no evidence that race/ethnic or sex composition had nonlinear effects on wage levels or that the effects of any of the independent variables varied systematically by the level of race/ethnic or sex composition of occupations. Regression analyses controlling for length of job spell and interacting length of job spell with other variables were also computed to see whether spells of short duration were biasing results. There were no significant interaction effects between length of job spell and any of the race/ethnic or sex composition variables. Interaction effects between length of job spell and experience were significant for four of the six groups while interaction effects between length of job spell and education were significant for two of the six groups. In each case, returns to human capital were greater in longer spells. The interaction effects between length of job spell and all the other independent variables were not consistently significant. (Length of job spell was not interacted with three-digit industry categories or the year dummy variables.)

12. Only the coefficients for the county-level race/ethnic composition variables and the interaction effects are presented in the table. Other coefficients are not presented in the table as they are essentially the same as those presented in Table 2.

13. Similar regressions were also run testing for interaction effects of geographical location with the nonlinear (dummy) variables for race/ethnic and sex composition in a pooled model.

These results are not presented because the results are very similar to those for Table 4. No clear pattern of more negative effects of percent Black or percent Latino/Latina in counties with a higher proportion of Blacks or Latinos/Latinas in the population were discernable.

14. For a discussion of the various policies, both public and private, directed at ameliorating the effects of hiring discrimination, see Moss and Tilly (1996).

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