GENDER, RACE, LOCAL LABOR MARKETS AND OCCUPATIONAL DEVALUATION*

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Many studies find that the gender composition of an occupation influences the earnings of incumbents while failing to find parallel effects for race. We suggest that minority representation does not have the same impact on occupational earnings that gender does for several reasons. We explore whether gender and minority composition effects are evident in local labor markets. Data on the fifty largest occupations in one hundred metropolitan areas culled from the 1990 Census form the basis of our analysis. For incumbents in each occupation, we estimate an individual-level earnings equation with controls for education, age, hours and weeks worked and industry. The gender and race composition of an occupation in each metropolitan area are independent variables. We find that the area-specific gender composition of an occupation sometimes has the expected depressing effect on wages, supporting a local-labor market perspective, while a parallel finding for racial composition is rarely evident.

$\mathbf{F}$emale-dominated occupations pay less than male-dominated fields with similar educational requirements. Many studies find that the higher the representation of women in an occupation, the lower the pay (England 1992; Kilbourne et al. 1994). Other studies focus on the pay of particular jobs, rather than the broad aggregation of jobs that fall into the same occupational classification. These studies find an even more striking relationship between female concentration and low pay (Jacobs and Steinberg 1990, 1995; Tomaskovic-Devey 1993; Petersen and Morgan 1995). This devaluation of feminine work is a significant contributor to the gender gap in wages.

The same issue has been explored with respect to race, yet national studies have not consistently found an effect of minority representation on wages (England 1992). Sorensen (1989) finds minority composition effects for white men but not for other groups and only in some industries. And comparable worth studies conducted within organizations generally fail to find significant effects of race on the earnings of jobs

(Orazem and Mattila 1989; Jacobs and Steinberg 1990; see Baron and Newman 1990 for a counter example). Tomaskovic-Devey (1993) gathered survey data on jobs in North Carolina and finds dramatic evidence of gender effects on wages but few statistically significant race effects. Moreover, most studies find that the inclusion of education in the analysis accounts for much of the race composition effect, while education controls account for little, if any, of the gender composition effect.

Race and gender are often conceptualized similarly because both are classic ascriptive variables. Individuals are born with their race and sex fixed — neither can be altered without undertaking extreme measures. Neither race nor gender is simply reducible to class distinctions. Although cultural stereotypes differ for race and gender, most researchers in this area expect to find similar effects of race and gender representation on wages.

The assumption that race and gender should affect stratification processes in similar ways is held by sociologists of many theoretical persuasions. Studies as diverse as Siegel's (1971) research on occupational prestige, England's (1992) national analysis of comparable worth, Tomaskovic-Devey's (1995) analysis of North Carolina employers and Baron's analysis of the California civil service (Baron and Newman 1990) all explore whether race and gender have parallel effects on earnings processes. The inability of researchers to consistently detect race composition effects on job rewards thus represents a puzzle for the sociological perspective on labor markets.

Race and gender can affect social stratification in many ways. One way is through barriers to access; another way is through the devaluation of jobs in which women and minorities are concentrated. We believe the current findings show that African-American men are allocated into positions established as low status for reasons unconnected with race, while women are highly segregated into positions that are devalued — in part because of women's presence. These different processes, in turn, reflect different levels of educational attainment. Access to high status occupations is constrained for African Americans in part by limited educational attainment. Given women's high educational attainment relative to men, male privilege could not be insured with credential screening alone. Instead, a high level of workplace segregation between men and women and the devaluation of women's fields emerge in order to preserve men's advantage in the workplace.

Still, it is curious that race does not appear to affect the valuation of jobs while gender does. The goal of this paper is to account for the presence of gender devaluation and the absence of consistent evidence of race devaluation. We attempt to explain this puzzle by noting the different demographic distributions of women and African Americans in local and national labor markets. We focus on variation across metropolitan areas in order to highlight the distinctive position of these two groups. We conduct an analysis of 1990 Census data in order to assess the significance of race and sex composition effects in local labor markets.

In the first section we contrast the race and gender composition of occupations. In the second section we develop hypotheses regarding the role of local labor markets in accounting for the devaluation of work. In the third section we discuss the relationship between minority concentration in cities and the race gap in earnings. We then introduce the data employed in this analysis. The results begin with descriptive findings on the distribution of women and minorities across occupations and metropolitan

areas, which are followed by the results of regression analyses designed to test the "local labor market" explanations of race and gender composition effects on wages.

THE RACE AND GENDER COMPOSITION OF OCCUPATIONS

The first reason that gender has a stronger effect on occupational earnings levels than does race is that there is more gender segregation in the labor market. In other words, there is more potential for gender to have an effect because women are more segregated from men than are African Americans from whites. Reskin and Cassirer (1994) calculated indices of dissimilarity from the 1990 Census for a variety of race-by-gender groups (1996, in this volume). They found that 55.3 percent of white women would have to change occupations in order to be distributed in the same manner as white men. For African-American men, the degree of segregation from white men was 30.0. Among African Americans, the level of gender segregation is nearly as high as it is among whites ($D = 51.7$). And among women, the level of racial segregation is slightly lower than it is among men ($D = 26.6$). Sex segregation is much higher than racial segregation no matter what race by sex comparison is employed.

A second way in which gender differs from race is that many female dominated occupations are overwhelmingly female, while no occupations exist in which African Americans comprise the majority of incumbents throughout the country. As we will show below, a number of occupations are *disproportionately* African American, in that African-American men or women constitute a larger share of employment in that occupation than in the labor force as a whole. Yet these occupations are not *predominantly* African American the way many occupations are predominantly female.

Third, African Americans are not evenly distributed across locales, but are instead concentrated in certain metropolitan areas. This means that in some cities, even the occupations with the highest representation of African-American incumbents are overwhelmingly white. Women's labor force participation varies across metropolitan areas, but to a much more limited degree. Consequently, the *most* female-dominated occupations are predominantly female in all areas. (We document these assertions in the results section with data from the 1990 Census.)

These demographic differences are important because many social processes are predicated on the presence of a clear majority of one group. For example, the creation of occupational stereotypes requires a typical incumbent, not simply disproportionate representation of one group. Occupations develop clear gender associations in our culture: even young children can distinguish jobs that are typically performed by women from those typically performed by men (Nemerowicz 1979; Stockard and McGee 1990; McGee and Stockard 1991). These associations are only possible because stereotypically female work is performed overwhelmingly by women in all locales. In contrast, there are fewer cultural stereotypes associated with African-American representation in an occupation. Indeed, we are not aware of any study that asked individuals to judge the race composition of occupations. Thus, it is difficult to label a particular occupation as African American in the same way that it can be done for women because the proportion of African Americans in these occupations varies significantly across cities. (This is not to deny the importance of racial stereotypes, but rather to suggest why these stereotypes are often associated with individual characteristics rather than being linked to occupational roles.)

These distributions also have important implications for recruitment practices. Employers can expect to fill vacancies in female-dominated occupations with women, regardless of the city in which they are located. The exclusive recruitment of one gender is possible only because of the availability of women in all locales. In contrast, recruiting exclusively among African Americans would not be a successful strategy for employers in any occupation, and in many cities would be an extremely foolhardy approach, given the scarcity of locally available African-American employees. Consequently, the recruitment of women into female-dominated occupations can become institutionalized throughout the country in a way that is not possible for African Americans. Thus, employment stereotypes and nationally institutionalized recruitment processes require significant numbers of workers in the targeted group that are evenly distributed throughout the country. The demographics of women's employment fit these requirements, but the case of African Americans does not.

Studies that focus on variation in women's employment across metropolitan areas (Abrahamson and Sigelman 1987; Jones and Rosenfeld 1989) emphasize the importance of demand-level factors in influencing women's employment patterns, although there is evidence for supply effects as well. Thus, the small variation across metropolitan areas that does exist partly reflects the extent of demand for labor in fields designated as requiring female incumbents. In other words, women are available as needed for recruitment in female-dominated positions. Thus, women's availability is even more uniform than the observed level of women's employment in different cities.

These points lead to a view of the devaluation of women's work as an institutional or cultural feature of our social structure. Occupations acquire gender stereotypes that reflect the profile of the typical incumbent (Milkman 1987). Particular features of occupations that emphasize their association with masculine or feminine roles are highlighted. The gender of an occupation becomes one of its defining features, and becomes institutionalized in the national culture and in recruitment processes. As a result, the same occupations are more or less uniformly performed by women throughout the country. (Evidence to support this assertion is provided below.) Once established, the sex label of an occupation becomes a self-sustaining social arrangement. In contrast, the demographics of race make it difficult if not impossible to associate a particular occupation with the racial characteristics of its incumbents. If this understanding of the process of gender devaluation is correct, it would account for the presence of gender effects and the absence of race effects. The devaluation of women's work is an enduring cultural attribute that becomes embedded in a wide variety of institutional arrangements.

Of course, wages are set locally in the United States and not by a national board (as in Australia) or by national collective bargaining (as is the case in Germany). Yet we are suggesting that local decision makers can draw on stereotypes rooted in the national culture to make decisions on who to hire and what jobs are worth. The availability of these occupation-specific stereotypes leads to a different form of wage setting for women as opposed to minorities. In other words, national media reflect a variety of negative stereotypes regarding African Americans as a group, but this does not translate into wage setting for individual occupations. In contrast, the close cultural association between occupations and gender roles leads to the devaluation of work that is assumed to be "women's work."

NATIONAL INSTITUTIONS VERSUS LOCAL LABOR MARKETS

There is one prominent piece of evidence that may appear inconsistent with the institutional view just outlined. Many researchers have noted that occupation captures only a portion of workplace segregation by sex. Job level segregation is much higher than occupational segregation, and job level segregation explains much more of the gender gap in wages than does occupational segregation. Tomaskovic-Devey (1995, p. 24) views gender segregation as a local labor market phenomenon rather than as a national phenomenon:

> Is there some national occupational sex-typing process that sets wage rates? Few social scientists would argue that this is a dominant process in the United States. Wage rates, with few exceptions, are set in local labor markets and are attached to jobs within firms. More compelling are explanations that the observed effects of occupational sex composition on earnings reflect processes that operate at the job level (Reskin 1993).

Tomaskovic-Devey thus contends that job-level processes operating in local labor markets are the principal force behind the devaluation of women's work. Indeed, Tomaskovic-Devey follows Baron and Newman (1990) and Bridges and Nelson (1989) in insisting on the firm-specific nature of decision making with respect to hiring and wage setting.

In our analysis we do not have the data that would allow us to distinguish firm-specific from other local wage-setting practices. But firms respond to their local labor markets, as well as deviating to some extent from the local average (Bridges and Nelson 1989). The present analysis will capture the extent to which wages reflect the local sex and race composition of occupations, recognizing that the wage policies of individual firms will vary around the local mean.

We have outlined two opposing views of the devaluation of women's work, namely national cultural and institutional devaluation on the one hand and local labor market processes on the other. We have suggested that race composition effects on wages are rarely observed because they cannot be embedded in cultural beliefs and national institutions. Race can only affect job valuation through a local labor market process. Yet some analysts claim that the devaluation of women's work is also a local labor market process, and in this way operates in the same way as does race.

We propose to employ variation across cities to obtain some leverage on these questions. Do race and gender affect the valuation of work through local labor market processes? If so, then we would expect that variation across cities in the sex and race composition of particular occupations would be associated with the devaluation of occupations. In other words, within a given occupation, earnings should be lower in those cities with higher representation of women among incumbents of that occupation. Such a finding would support the local-labor markets interpretation of the gender devaluation process. A failure to find such effects would be consistent with the institutional or cultural interpretation of gender devaluation. Similarly, within a given occupation, earnings should be lower in those cities with a higher representation of African Americans among incumbents.

We "test" the national devaluation hypothesis indirectly, by examining the extent of variation across metropolitan areas. Support for this view is based on the lack of evidence for the alternative, local explanation. The less the variation between

locales, the more the evidence is consistent with a national explanation. The more the variation between metropolitan areas, the more the importance theories must place on local factors.

As we note above, Tomaskovic-Devey infers the impact of local labor markets from data on the sex composition of jobs, as opposed to the more common focus on occupations. We propose to assess the effects of local labor markets by examining particular occupations across a range of cities. This strategy enables us to bring census data to bear on the operation of wage-setting practices in particular locales.

RACE AND CITIES

Another line of research focuses on the relationship between race and cities. A number of researchers have examined the effects of minority concentration in metropolitan areas on socioeconomic inequality (Blalock 1956; Reich 1971; Frisbie and Neidert 1977; Parcel and Mueller 1983; Tienda and Lii 1987; Grant and Parcel 1990). These studies treat the metropolitan area as a local labor market. They conclude that income disparities between majority and minority members grow as the concentration of minorities in the labor market increases. Moreover, the incomes of whites rise at the expense of minorities. Tienda and Lii (1987) disaggregated their minority concentration measure into its separate components of percent black, percent Hispanic and percent Asian in each metropolitan area. They found that a higher concentration of African Americans in a local labor market was associated with lower earnings for African Americans, Asians and Hispanics. Whites' income benefitted from an over-representation of African Americans but was unaffected by an over-representation of Hispanics.

There are two principal interpretations of this association. Blalock has suggested a positive relationship between minority presence and discrimination. He maintains that white resistance to minorities grows as minority presence in a city increases. Blalock's approach interprets the association between minority concentration and the race gap in earnings as evidence of increased discrimination against minorities due to the greater threat they pose to whites. Lieberson (1980), in contrast, suggests a demographic alternative that does not depend on increased hostility. He offers a queuing model that predicts increased minority concentration in the lowest status occupations as minority presence increases. Lieberson's approach suggests that the majority's advantage grows as a result of the demography of occupational distribution, not necessarily because of greater resistance to minority groups (Lieberson 1980, p. 298).

A possibility not considered thus far is that minorities are penalized in local labor markets because their occupations are devalued. As we argued above, the demographics of race make it difficult for any occupation to be nationally devalued due to an association with minority incumbents. However, it is possible that a particular occupation that is disproportionately nonwhite in a given locale may be devalued by local labor market processes. There may be a racial bias in the ways wages are set and attached to occupations. England (1992) suggests that this process may be operating in the case of African Americans. She notes that "it is possible that this sort of race bias in wage setting may exist at a local or organizational level but not be revealed by a national analysis such as this" (p. 162).

If this effect is evident, it would be consistent with Blalock's premise that resistance to minorities increases as their presence grows. Such an effect would be inconsistent with Lieberson's notion that the distribution of minorities across occupations by itself accounts for the association between minority concentration and the race gap in earnings.

We do not test Blalock's and Lieberson's hypothesis directly because we do not examine earnings levels in an entire metropolitan area. However, we try to bring their reasoning to bear on the issue of interest here, namely the valuation of particular occupations within local labor markets. In doing so, we follow the example of other studies (Pfeffer and Davis-Blake 1987; Jacobs 1992) that have brought the work of Blalock, Lieberson, Kanter and others to bear in the setting of specific occupations. We delve more deeply than previous research into the effects of minority concentration in city-wide labor markets by examining the effects of African-American representation within particular occupations in particular locales. Does race affect the valuation of particular occupations through local labor market processes? If so, then we would expect that variation across cities in the race composition of particular occupations would be associated with the devaluation of jobs. In other words, within a given occupation, earnings should be lower in those cities with higher representation of African Americans among incumbents. In this sense, we specify and test one specific mechanism that might influence the relationship between race and earnings in a local context.

DATA AND METHODS

Our analysis draws on the 1 in 100 sample of the 1990 Census. We selected only men and women who were employed during 1989, and restricted our sample to African Americans and non-Hispanic whites. Hispanic whites are excluded from the analysis, although we briefly discuss results of additional analyses that included Hispanics as well.

We explored variation in the representation of African Americans and women across metropolitan areas by analyzing the 50 occupations with the largest numbers of incumbents. Each of these represents at least one half of one percent of the labor force. The occupations included in the analysis are listed in Appendix Table 1. We focus on large occupations in order to obtain as many occupations with a reliable race composition for as many metropolitan areas as possible. Our cross-classification of race by detailed occupation by metropolitan area requires a very large sample size to produce results in which we have confidence. Even in the occupations with the largest numbers of African-American men, the numbers of cases become sparse in some of the smaller metropolitan areas.[1]

Maintaining an adequate sample size was also our motivation for limiting the analysis to the 100 largest metropolitan areas. The hundredth metropolitan area included 2,272 respondents (which represents one fifth of one percent of the sample). This means that occupations that represent 1 percent of the labor force will have 23 incumbents in the smallest of our locales. We felt that sampling variability would begin to overwhelm useful information if the samples became much smaller. These 100 metropolitan areas include 55 percent of employed individuals in 1990.

The sample size was 132,347 for white women, 117,033 for white men, 30,406 for African-American women and 24,333 for African-American men. The fact that women constitute the majority of the sample is due to the fact that we selected the largest occupations in the census for analysis, and these tend to be predominantly female. The sample sizes for individual occupations were more modest. For white women, the largest occupation included 24,993 cases, while the smallest included only 11 cases. The median of the 50 occupations included 1,601 white women for inclusion in the regression analysis. For white men, the largest occupation included 10,135 working men, while the smallest included 122 men. The median was 1,785 cases. For African-American women, the smallest occupation included 1 case; the largest, 3,088 cases; the median sample size for an occupation was 287. For African-American men, the largest occupation included 2,178 cases; the smallest included 4 cases and the median was 321.

We also estimated equations on the 20 occupations with the highest proportion of African-American males and on the 20 occupations with the highest proportion African-American female incumbents. These analyses produced the same pattern of results as those reported below.

We used 1990 census data to test the local labor market explanation of gender and race composition effects. Our goal was to assess the impact of locale-specific race and gender composition of occupations on individuals' earnings. For each metropolitan area, we calculated the proportion of women in each of the 50 largest occupations. We assigned this sex composition score to all incumbents in these occupations. We then calculated the proportion of African-American women in each occupation in each metropolitan area and assigned this black-female composition score to all incumbents. Next we calculated black male composition score and assigned it to all incumbents. Finally, we estimated individual level earnings analyses with the metropolitan-area-specific female, black female and black male composition scores as predictor variables. For incumbents in each of the 50 occupations, we estimated an earnings function of the following form:

Log(earnings) = $a + b_1$ (ed) $+ b_2$ (age) $+ b_3$ (hours) $+ b_4$ (weeks) $+ b_5$(female) $+ b_6$ (black-female) $+ b_7$ (black-male) $+ b_{8-17}$ (industry) where "earnings" were annual earnings in 1989 of all men employed one or more hours and one or more weeks in 1989; "ed" was the number of years of schooling completed; "age" was respondents' age in years, "hours" was the number of hours usually worked in 1989, "weeks" was the number of weeks worked in 1989 and "industry" was a vector of 9 industry dummy variables.[2] The variables "female," "black-female" and "black-male" represent the proportion of each of these demographic groups in each occupation in each metropolitan area. The "black-female" variable tests whether the proportion of African-American women in an occupation has the effect of devaluing an occupation above and beyond the effect of female representation. In all earnings analyses, we adjusted the earnings data to take into account variation in the cost of living across metropolitan areas. We deflated earnings using the MSA deflator figures for 1989 developed by Bartik (1993).

We estimated these equations separately for each race and sex group. We thus estimated 200 earnings equations, 1 for each of the 4 race-sex groups in each of the 50 occupations examined.[3]

RESULTS

African Americans were unevenly distributed across metropolitan areas in the United States, while working women were much more evenly distributed across locales. We ordered the 100 largest metropolitan areas in terms of the representation of working African-American men. Table 1 lists the percentage of workers that were African American for every tenth case. In Memphis, African-American men comprised more than 30 percent of metropolitan area employment. At the other extreme, in Bakersfield, California, African-American men comprised less than five percent of the employed men in the metropolitan area. In Salt Lake City, they represented less than one percent of the employed male work force. These results show that there are many locales in which there are few African Americans in the employed population. Table 1 also presents data on African-American women. The share of women's employment comprised by African-American women is generally slightly greater than that for men. Nonetheless, the variation across metropolitan areas of African-American women closely mirrors that of their male counterparts. (The correlation between the share of employed black men and black women in a metropolitan area is .94, calculated across the 100 SMSAs examined in this study.)

The contrast with the case of women's representation becomes evident in the bottom panel of Table 1. Women's representation does vary across metropolitan areas, but within a more restricted range. Among the 100 metropolitan areas examined, women's fraction of employed individuals ranged from 42.8 to 49.9 percent. We also analyzed women's representation among full-time, full-year employees. This fraction is lower, but with a similar range (36.3 to 42.8 percent). Working women are thus well represented in all major metropolitan areas, and their representation varies within a more restricted range than is the case for African Americans. And, as we noted earlier, much of this variation reflects the local demand for employment in female-dominated occupations.

TABLE 1

EMPLOYED AFRICAN AMERICANS AND WOMEN BY METROPOLITAN AREA

A. AFRICAN AMERICANS

METROPOLITAN AREA*	PERCENT BLACK (OF EMPLOYED MALES)	PERCENT BLACK (OF EMPLOYED FEMALES)
1. Memphis	30.4	37.2
10. Atlanta	21.8	27.1
20. Chicago	15.4	19.7
30. Jersey City, NJ	12.3	13.2
40. Vallejo, Fairfield, CA	9.6	10.3
50. Fort Worth	8.3	10.9
60. San Antonio	7.0	7.8
70. Lake County, IL	6.0	6.8
80. Bakersfield, CA	4.4	4.5
90. Phoenix	3.2	3.4
100. Salt Lake City, Ogden	0.7	0.8

TABLE 1 *(Continued)*

B. WOMEN

METROPOLITAN AREA*	PERCENT FEMALE (OF ALL EMPLOYED INDIVIDUALS)	PERCENT FEMALE (OF FULL-TIME WORKERS)
1. Greenboro, Winston Salem	49.9	42.8
10. Richmond, Petersburg	48.6	42.4
20. New York	48.0	43.6
30. Scranton, Wilkes-Barre, PA	47.6	39.0
40. Miami	47.4	42.3
50. Buffalo	47.1	38.7
60. Bridgeport, Millford, CT	46.9	40.6
70. Nassau, Suffolk, NY	46.5	37.1
80. Tucson	46.0	38.6
90. Fresno	44.8	37.6
100. San Diego	42.8	36.3

* Every tenth metropolitan area reported.

The effect of the distribution of African Americans and women on the composition of individual occupations can be seen in Tables 2, 3 and 4. In Table 2, we report the range of African-American men's representation within individual occupations across 100 metropolitan areas. Table 2 presents the 20 occupations with the largest fraction of African-American male representation from our list of the 50 largest occupations.

There are some metropolitan areas where even the occupations with the highest proportion of African-American men are overwhelmingly white. For example, truck drivers range from 0 to 54.8 percent African American among men in the 100 largest metropolitan areas. The data in Table 3 also include the inter-quartile range (Q3-Q1) because we were concerned that the minimum and maximum cases might include measurement error due to small sample sizes in certain cities that would tend to inflate the range.[4] The inter-quartile range results are obviously less dramatic than those for the entire range. Nonetheless, in 10 of the 20 cases considered, the inter-quartile range was 10 percentage points or more. These results slightly modify our earlier conclusion about the absence of African-American majorities in particular occupations. There are individual *locales* in which African Americans comprise a majority in certain occupations. However, in other metropolitan areas whites will represent the overwhelming majority of incumbents in these same occupations.

Table 3 describes the range of African-American women's employment in the 20 largest occupations for 100 metropolitan areas. The pattern reinforces the conclusions we reached in the case of African-American men. In 12 of the 20 cases, the inter-quartile range is 10 percentage points or more. In other words, for the majority of occupations considered, African-American women's representation is far higher in some locales than in others. We replicated the analyses presented in Tables 2 and 3 on the 20 occupations with the highest proportion of African-American men and women workers overall (not just in the largest 100 metropolitan areas), respectively. The results parallel those reported here except that the inter-metropolitan range is slightly greater in those occupations in which African-American representation is largest.

TABLE 2

THE RACIAL COMPOSITION OF 20 OCCUPATIONS WITH THE LARGEST PERCENT OF AFRICAN-AMERICAN MEN

PERCENT BLACK MALE

Occupation (Census Code)	NATIONAL			ACROSS 100 LARGEST METROPOLITAN AREAS					
	MEAN	MED	MIN	MAX	Q1	Q3	Q3-Q1+	V	N RANGE
1. Guards and Police, Except Public Service (426)	16.9	18.4	0.0	44.6	9.1	27.3	18.2	4,24.	5–341
2. Janitors and Cleaners (453)	13.6	13.9	0.0	46.2	7.4	18.3	10.9	8,906	20–520
3. Construction Laborers (869)	13.0	9.1	0.0	63.3	4.3	16.3	12.0	5,948	12–510
4. Truck Drivers (804)	12.1	10.1	0.0	54.8	5.4	19.4	13.9	13,279	1–77
5. Laborers, Except Construction (889)	12.0	11.3	0.0	47.7	6.4	18.0	11.6	4,996	7–322
6. Traffic, Shipping and Receiving Clerks (364)	11.3	9.4	0.0	40.0	6.1	16.2	10.1	2,772	2–254
7. Groundskeepers and Gardeners Except Farm (486)	11.2	6.7	0.0	62.5	3.2	15.2	12.0	3,472	3–252
8. Personal Services, Supervisors (436)	10.0	10.8	0.0	34.0	5.0	17.4	12.4	6,551	9–469
9. Stock and Inventory Clerks (365)	10.0	11.4	0.0	31.6	5.4	16.5	11.1	2,924	3–206
10. Welders and Cutters (783)	9.6	9.1	0.0	75.0	3.2	14.3	11.1	2,625	3–168
11. Painters (579)	8.7	6.3	0.0	60.0	3.8	11.2	7.5	2,476	5–238
12. Stock Handlers and Baggers (877)	8.5	7.6	0.0	38.0	4.5	12.2	7.6	4,290	6–206
13. Assemblers (785)	8.0	6.0	0.0	41.2	3.6	11.4	7.8	4,373	2–384
14. Automobile Mechanics (505)	8.0	5.6	0.0	37.1	3.5	13.0	9.5	4,329	8–300
15. Farm Workers (479)	6.7	0.0	0.0	100.0	0.0	3.0	3.0	1,393	1–184
16. Supervisors, Production Occupations (628)	6.2	5.9	0.0	21.4	2.8	9.4	6.6	5,664	12–390
17. Social Workers (174)	6.1	7.1	0.0	42.9	3.2	10.1	7.0	1,135	1–101
18. Maids and Housemen (449)	5.9	6.8	0.0	25.0	3.5	11.6	8.1	801	1–76
19. Electricians (575)	5.7	6.3	0.0	33.3	1.7	9.8	8.1	3,290	3–186
20. Carpenters (567)	5.5	4.4	0.0	34.3	1.1	7.1	5.9	5,766	14–352

Note: We present weighted results along with the unweighted n of cases.
+The inter-quartile range, i.e., the difference between the first and third quartile.

TABLE 3

THE RACIAL COMPOSITION OF 20 OCCUPATIONS WITH THE LARGEST PERCENT OF AFRICAN-AMERICAN WOMEN

Occupation (Census Code)	NATIONAL MEAN	PERCENT BLACK FEMALE ACROSS 100 LARGEST METROPOLITAN AREAS							
		MED	MIN	MAX	Q1	Q3	Q3-Q1+	N	N RANGE
1. Nursing Aides, Orderlies, and Attendants (447)	24.5	28.6	0.0	72.4	15.7	47.0	31.3	8,082	16-761
2. Maids and Housemen (453)	22.3	20.5	0.0	88.9	7.1	32.2	25.1	2,851	3-153
3. Typists (315)	16.4	20.0	0.0	52.4	8.8	26.2	17.4	4,075	4-301
4. Textile Sewing Machine Operators (744)	15.5	5.0	0.0	100.0	0.6	11.8	11.2	2,872	1-432
5. Data Entry Keyers (385)	15.3	15.8	0.0	44.4	8.1	20.5	12.3	3,780	3-222
6. Social Workers (174)	14.7	16.0	0.0	53.8	7.1	27.7	20.6	2,509	4-226
7. Cashiers (276)	11.7	8.7	0.0	48.2	5.3	18.4	13.1	13,438	36-669
8. General Office Clerks (379)	11.3	13.1	0.0	32.3	5.6	18.3	12.8	8,037	15-528
9. Production Inspectors, Checkers & Examiners (796)	9.4	6.3	0.0	45.0	1.5	12.5	11.0	1,542	1-124
10. Personal Services, Supervisors (436)	9.0	6.4	0.0	42.4	3.0	11.0	8.1	4,310	8-192
11. Computer Operators (308)	8.3	9.3	0.0	33.3	3.4	14.7	11.3	2,445	3-152
12. Receptionists (319)	8.2	8.3	0.0	28.8	3.4	12.8	9.4	5,290	8-336
13. Registered Nurses (95)	8.1	8.6	0.0	31.6	2.5	14.6	12.1	10,436	21-508
14. Teachers, Elementary School (156)	8.0	8.1	0.0	27.8	3.6	14.0	10.4	13,491	33-652
15. Hairdressers and Cosmetologists (458)	7.5	7.1	0.0	29.2	2.0	11.1	9.1	2,779	3-161
16. Janitors and Cleaners (453)	7.2	5.4	0.0	34.5	3.2	9.0	5.8	3,886	4-190
17. Assemblers (785)	7.2	5.9	0.0	41.7	2.8	8.8	6.0	3,399	1-286
18. Secretaries (313)	7.0	7.0	0.0	28.0	3.3	11.8	8.5	24,615	52-1419
19. Administrators, Education and Related Fields (14)	6.0	6.0	0.0	28.6	2.3	11.4	9.1	2,036	1-114
20. Bookkeepers, Accounting and Auditing Clerks (337)	5.0	5.3	0.0	19.6	2.6	8.8	6.2	9,843	25-549

Note: We present weighted results along with the unweighted n of cases.
+The inter-quartile range, i.e., the difference between the first and third quartile.

TABLE 4

THE SEX COMPOSITION OF 20 OCCUPATIONS WITH THE LARGEST PERCENT WOMEN

PERCENT FEMALE

Occupation (Census Code)	NATIONAL		ACROSS 100 LARGEST METROPOLITAN AREAS						
	MEAN	MED	MIN	MAX	Q1	Q3	Q3-Q1+	N	N RANGE
1. Secretaries (313)	98.5	98.6	95.1	100.0	97.9	99.1	1.3	24,993	54–1450
2. Receptionists (319)	95.7	96.2	77.8	100.0	94.4	97.5	3.1	5,516	8–356
3. Registered Nurses (95)	94.3	94.8	76.8	100.0	93.2	95.9	2.8	11,044	24–548
4. Typists (315)	93.1	94.9	78.6	100.0	88.5	96.2	7.7	4,377	4–340
5. Hairdressers and Cosmetologists (458)	90.3	90.0	75.0	100.0	85.7	92.8	7.0	3,119	4–191
6. Textile Sewing Machine Operators (744)	89.0	88.7	50.0	100.0	80.8	91.2	10.4	3,340	1–595
7. Bookkeepers, Accounting and Auditing Clerks (337)	89.0	88.5	73.3	100.0	85.0	91.5	6.5	11,164	27–648
8. Nursing Aides, Orderlies and Attendants (447)	86.9	87.0	66.7	100.0	84.2	90.2	6.1	9,319	22–834
9. Data Entry Keyers (385)	85.6	85.7	50.0	100.0	81.4	89.3	7.9	4,432	6–285
10. Waiters and Waitresses (435)	81.1	78.2	44.7	95.5	70.8	83.9	13.1	8,712	15–468
11. Maids and Housemen (449)	81.1	77.2	37.5	100.0	75.0	83.3	8.3	3,652	4–203
12. General Office Clerks (379)	80.8	80.4	62.5	100.0	77.4	84.1	6.7	9,986	22–738
13. Cashiers (276)	79.8	77.8	59.3	90.0	74.1	82.1	8.0	17,335	51–1008
14. Teachers, Elementary School (156)	78.9	78.9	62.9	90.4	74.7	82.9	8.2	17,069	46–876
15. Social Workers (174)	68.9	69.1	35.7	100.0	63.3	74.4	11.1	3,644	6–327
16. Computer Operators (308)	62.0	57.8	36.4	83.3	54.2	64.7	10.5	4,120	6–263
17. Teachers, Secondary School (157)	57.1	57.1	20.0	90.0	50.9	64.3	13.3	3,412	4–175
18. Designers (185)	54.6	52.0	12.5	100.0	44.9	59.3	14.4	3,471	4–238
19. Accountants and Auditors (23)	54.4	52.0	36.0	88.2	48.0	56.6	8.7	10,201	16–581
20. Production Inspectors, Checkers & Examiners (796)	54.0	50.0	0.0	100.0	40.5	58.6	18.1	3,108	3–238

Note: We present weighted results along with the unweighted n of cases.
+The inter-quartile range, i.e. the difference between the first and third quartile.

Table 4 presents parallel results for the 20 occupations that are most female-dominated (selected from the 50 largest occupations). In all of the cases, women represent the majority of incumbents. For many of these cases, the occupations are over-whelmingly female. In most cases, the range in women's representation is relatively small. For example, secretaries range from a low of 95.1 percent female to a high of 100 percent female in the 100 metropolitan areas examined. In only 7 cases is the inter-quartile range 10 percentage points or more, in contrast to half or more of the cases for large African-American occupations. The greatest variation is observed for the occupations with less than two-thirds women incumbents. In the most female-dominated occupations, there is very limited variability between the highest and lowest metropolitan areas. In five cases, the inter-quartile range is less than five percentage points. Thus, there is enough variation for interesting analyses, but not as much as in the case of African Americans.

The above distributions underscore the points made in the introductory section of this paper. We highlighted the differences in the demographic distribution of women and African Americans. Whereas women as a whole represent the majority of incumbents in many occupations, this is never the case in the national occupational structure for African-American men or women. Furthermore, women are more uni-formly distributed across locales than are African Americans. Consequently, female-dominated occupations are quite uniform from place to place in their sex composition, as are male-dominated occupations. In contrast, occupations vary markedly from place to place in the extent to which African Americans are represented.

We have seen that African-American representation varies substantially across locales, while women's representation varies as well, but in a more restricted range. Are earnings lower in metropolitan areas where African-American representation in particular occupations is higher? Is the same pattern observed for women? We now turn to an analysis of the effect of local variation on earnings in order to answer these questions. Summary results for the regression analyses of the 50 largest occupations are reported in Table 5. (The coefficients for particular occupations are listed in Appendix Table 1. Full regression results for one occupation — accountants — are provided in Appendix Table 2.)

These results provide limited evidence of local gender composition effects.[5] In 13 of the 50 occupations examined, white male incumbents in metropolitan areas with larger proportions of women were paid less than their counterparts in areas with lower concentrations of women in their occupations[6]; the reverse held in only 1 case (Table 5, Panel A). In the remaining 36 cases, the effect was not statistically signifi-cant. The same pattern holds for white women. The presence of more women depressed the wages of female incumbents in 19 of 50 cases[7], with no cases having the opposite effect (Table 5, Panel B). Among African-American males, female composition has virtually no effect on earnings (Panel C). Among African-American females, the presence of women depresses earnings in 8 of 50 occupations; in no occupation does a higher concentration of women raise earnings. We also restricted these analyses to full-time, full-year workers. The results were largely the same as they were for all workers. (See summary of results in Table 5.)

Turning to the effects of race composition, local black male composition generally has no statistically significant *negative* effect on the wages earned by incumbents in any of the four populations. Of the 50 equations estimated for white men, the local

TABLE 5

SUMMARY OF REGRESSION EQUATIONS OF LOCAL OCCUPATIONAL COMPOSITION ON EARNINGS: NUMBER OF OCCUPATIONS IN WHICH LOCAL COMPOSITION AFFECTS EARNINGS

A. EMPLOYED WHITE MEN

	FEMALE COMPOSITION	NUMBER OF OCCUPATIONS BLACK MALE COMPOSITION	BLACK FEMALE COMPOSITION
COMPOSITION COEFFICIENTS THAT ARE:			
Negative Significant	13	1	0
Not Significant	36	39	41
Positive Significant	1	10	9

B. EMPLOYED WHITE WOMEN

	FEMALE COMPOSITION	NUMBER OF OCCUPATIONS BLACK MALE COMPOSITION	BLACK FEMALE COMPOSITION
COMPOSITION COEFFICIENTS THAT ARE:			
Negative Significant	18	1	1
Not Significant	32	44	38
Positive Significant	0	5	11

C. EMPLOYED AFRICAN-AMERICAN MEN

	FEMALE COMPOSITION	NUMBER OF OCCUPATIONS BLACK MALE COMPOSITION	BLACK FEMALE COMPOSITION
COMPOSITION COEFFICIENTS THAT ARE:			
Negative Significant	1	2	1
Not Significant	49	47	48
Positive Significant	0	1	1

D. EMPLOYED AFRICAN-AMERICAN WOMEN

	FEMALE COMPOSITION	NUMBER OF OCCUPATIONS BLACK MALE COMPOSITION	BLACK FEMALE COMPOSITION
COMPOSITION COEFFICIENTS THAT ARE:			
Negative Significant	8	1	3
Not Significant	39	40	40
Positive Significant	0	6	4

* The dependent variable is log earnings, adjusted for cost of living in the metropolitan area. The independent variables of interest are female composition, black male composition and black female composition of the 50 largest occupations across the 100 largest metropolitan areas. Controls include years of schooling, age, hours worked in 1989, weeks worked in 1989 and industry. A separate regression equation was estimated for each of 50 occupations. We estimated the effect of these compositional measures on the earnings of each of four groups: white men, white women, black men and black women.

+ For the African-American women population, equations could not be estimated in three cases due to inadequate sample sizes.

black male composition variable had the predicted statistically significant negative effect in only 1 case and had the opposite effect in 10 cases. A similar pattern was found among the population of white women. In none of the 50 cases did the presence of African-American men in an occupation reduce white women's wages, while it had the opposite effect in 6 cases. Among African-American men, the presence of other African-American men reduced earnings in only two occupations and raised earnings in one occupation. Finally, in the African-American female population, the presence of African-American males reduced earnings in only one occupation, while raising earnings in six occupations. In sum, for white men, white women, black men and black women, working in a city with a larger share of African-American men in their occupation did not reduce their wages.

We were surprised to find that in some occupations the presence of higher percentages of African-American males increased the earnings of incumbents. This may be due to an intervening variable, such as unionization, that increases both African-American representation and earnings. We were unable to test this speculation with these data.

We also note that the positive coefficients for black male composition appear most frequently in the white male population but are virtually absent in the African-American male population. A similar pattern is evident for African-American women. We speculate that white males may earn more in occupations with larger shares of African-American males because whites are more likely to hold the jobs that yield higher earnings within an occupation. This effect is similar to that found by Tienda and Lii in their analysis of local labor markets, although, as we have noted, their study does not focus on the racial gap in earnings within occupations. One interpretation of this result, then, is that this is evidence of a race-based queuing of jobs within occupations (Lieberson 1980; Reskin and Roos 1990). On the other hand, we found that in only four cases was the effect for African-American men statistically smaller than for white men. In the remaining cases, the large standard error in the equations for African-American men (due to more limited sample size) accounts for the lack of a statistically significant effect. Thus, the basis for speculation regarding queuing effects is somewhat limited. Moreover, a queuing explanation must address the disparate results of female and minority concentration. If queuing advantages white men as black men's presence increases, it is necessary to explain why there is no similar effect when white women's presence increases.[8]

We also examined whether the concentration of African-American women reduced the earnings of incumbents in occupations. We did not expect African-American women's presence to depress the wages of occupations above and beyond the effect of other women's representation. And indeed, the evidence was consistent with this expectation (see Table 5). In other words, an African-American woman's wages are depressed by the fact that she works in a female-dominated occupation, and by the fact that she is African American, but not because the presence of African-American women has an additional effect on the earnings of her occupation.

We conducted several additional analyses not presented in Table 5. We examined a specification that considered sex composition by itself, race composition by itself and these two variables together. The results of these analyses are similar to those summarized in Table 5. We also estimated a regression model on a national sample, including, as a control variable, a dummy variable for cities and regions not in one of

the 100 largest metropolitan areas. This analysis was designed to address whether selectivity into the 100 metropolitan areas included in our analyses affected our results. The results of this analysis were consistent with those reported in Table 5. We also tested the hypothesis that race composition effects may be different in the South from those in the rest of the United States. We estimated an equation with a dummy variable for metropolitan areas located in the South. Again, this made no substantive difference in our results.

As noted above, we excluded Hispanic males and females from the results presented in Tables 1 through 5. In additional analyses not presented here, we found that Hispanic representation across metropolitan areas varies even more widely than is evident for African Americans. We also included local Hispanic composition as independent variables in our equations. The results for Hispanic composition generally paralleled those for African-American composition. We found few statistically significant effects of Hispanic representation on earnings, except for the representation of Hispanic women for some subgroups.[9] We also estimated all equations on Hispanic male and Hispanic female populations, in addition to white male, white female, black male and black female populations. The effects of local sex and race composition as estimated on Hispanic populations generally paralleled those reported for African Americans.

CONCLUSIONS

We posited that racial composition can affect wages only in local labor markets, since the representation of African Americans in occupations is too limited in extent and too uneven in geographical distribution to allow for national occupational devaluation based on race. Gender composition, in contrast, could affect wages either through local labor markets or via national cultural and institutional processes. We assessed whether the local labor market explanation fit the data for women and for African Americans by examining variation in wages across 100 metropolitan areas.

We found no evidence that racial composition reduces wages through a local labor market process. Our analysis revealed that the presence of larger fractions of African Americans in individual occupations in particular metropolitan areas did not result in lower wages of incumbents. In contrast, we found that there is modest evidence that gender composition operates through local labor markets. In other words, for both men and women, working in a metropolitan area in which there is a relatively high proportion of women in one's occupation reduces a worker's earnings. The prevalence of this devaluation varied across groups, from about 10 percent of the cases for white men to nearly 40 percent of the cases for white women.

We showed that gender composition effects could operate through national cultural institutions but that occupational racial composition could not affect compensation because of the demographics of race. We then showed that gender operates locally as well as nationally, while race does not operate on the wages of occupations at either level. Why should gender but not race be a factor in wage setting in labor markets?

Our explanation is that local effects amplify national cultural and institutional processes. Gender is seen by employers as a legitimate basis for structuring jobs. Race surely is significant in labor markets, but it seems to play a larger role in the hiring process than in the wage-setting process.

Our results indicate that the common finding of an inverse relationship between the concentration of African Americans in a metropolitan area and African-American earnings (e.g., Tienda and Lii 1987) cannot be explained by the devaluation of the particular occupations in which minorities are located. Race continues to influence the earnings of individuals, but not the wage rates of occupations in which individuals are employed.

We suspect that race is significant because it is used to channel individuals into jobs, not because it is used to set the wage rates of the jobs themselves. African Americans are more likely to work in lower-paying occupations than are whites, on average. This may indicate a race-based queuing of workers into occupations, as Lieberson (1980) has argued. African Americans are channeled into lower paying occupations, in part by their lower educational attainment, on average, compared with whites. However, education alone cannot explain the over-representation of African Americans in lower-paying jobs. African-American men earn less than white men with the same amount of schooling (Bound and Freeman 1988; Jencks 1992, p. 38). This race-based queuing perspective suggests that even highly educated African Americans end up in lower-paying jobs than do their white counterparts.

Another possible interpretation of our results is that our analysis of employed persons ignores a potentially significant locus of racial discrimination, the hiring process. Jencks (1992, Pp. 49–57) argues that affirmative action increased the pressure on employers to pay blacks as much as whites in the same job. However, laws prohibiting hiring discrimination are harder to enforce than laws barring pay discrimination among current employees. Jencks concludes that the locus of much racial discrimination has moved from pay discrimination to hiring discrimination against blacks. This suggests that the lowest place in the labor market queue is unemployment, a place in the queue where African Americans are over-represented.

We found some limited evidence that an increased presence of women in a local labor market lowers the wages earned. On the other hand, local labor market effects for women are of greater theoretical than practical significance. Because the variation in women's representation in an occupation across metropolitan areas is limited and because the coefficients for women's representation are of modest size, the local labor market effects we detected are not of fundamental importance in understanding the devaluation of women's work. In other words, secretaries in Tulsa earn only slightly less than secretaries in Raleigh-Durham because this occupation is only slightly more dominated by women in the former locale (99 and 96 percent female, respectively), and because every additional percent female has only a small effect on earnings. Our results are consistent with the premise that national cultural and institutional arrangements are critical elements in the devaluation of women's work.

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Mary Blair-Loy is a Ph.D. Candidate at the University of Chicago finishing her dissertation on the career and family patterns and meaning-making of executive women in finance. She is interested in the interactions among objective and subjective contributors to gender stratification and how these factors change over time.

NOTES

1. We wanted to use occupations that were theoretically and empirically coherent rather than aggregates of leftover or unspecified jobs. We excluded the following occupations, with census occupational codes in parentheses: managers & administrators, nec (22); sales workers, other commodities (274); machine operators, not specified (779); miscellaneous food preparation occupations (444); supervisors, construction, nec (558); administrative support occupations, nec (389); teachers, nec (159); miscellaneous machine operators, nec (777); freight, stock & material handlers, nec (883); post secondary teachers, subject not specified (154). We also excluded farmers (473) because there were only 5 female farmers in the sample in the 100 largest metropolitan areas.

2. We employed a modified list of the major industry groups as control variables: 1) agriculture, forestry, fishing and mining; 2) construction; 3) manufacturing; 4) transportation, communications and utilities; 5) wholesale trade; 6) retail trade; 7) finance, insurance and real estate; 8) business and repair services; 9) personal services; 10) professional services; 11) government employment. Manufacturing served as the reference category.

3. In our analyses we treat the local sex and race composition of the respondent's occupation as an individual variable, in the same manner that industry and occupation are often treated. It might be useful to consider these variables as contextual variables for inclusion in a hierarchical modeling analysis. This extension of the present study might facilitate the analysis of competing hypotheses at the contextual as well as the individual level of analysis.

4. For example, the fact that there are zero African-American men in certain occupations in certain cities is a matter of limited sample sizes and is not a firm generalization about our society. However, the dramatic variation among metropolitan areas in the level of African-American presence in particular occupations is evident throughout this analysis, even when extreme cases are discounted.

5. We estimated equations on each of 50 occupations for 4 groups: white men, white women, African-American men and African-American women. In these 200 equations, there are 3 coefficients of theoretical interest: female, black*female and black*male. Our results consequently include 600 coefficients of interest. With a 5 percent chance of a false positive (using the conventional $p < .05$ tests of statistical significance), we would expect 30 significant coefficients across all of these equations even if no relationships in fact exist. Thus, we should not over-interpret every statistically significant coefficient that is observed. On the other hand, if the results were truly a matter of random false positives, we would see significant coefficients equally distributed between positive and negative coefficients, and we would see an equal number of significant coefficients for each of the three variables. Instead, we see 41 negative coefficients for female composition, and only 1 positive one. We consequently believe the pattern of results is meaningful, even if not every individual coefficient requires interpretation.

6. The 13 occupations are sales supervisor and proprietor*; elementary school teacher*; truck driver; waiter*; accountant*; construction laborer; farm worker; manager, food and lodging*; textile sewing machine operator*; welders and cutters; insurance sales*; financial manager; and designer*. (The asterisk indicates that the same occupation is also devalued in the white women's earnings equation.) We see no common pattern among these occupations. There is a mix of male-dominated and female-dominated fields, white-collar and blue-collar jobs, and some cases where there is significant variation in sex composition across cities and others where the variation is more restricted. See Appendix Table 1 for a list of the statistically significant coefficients, by occupation.

7. In seven cases noted in note 6, women's earnings also declined as the sex composition increased. The additional 11 occupations are secretary; cashier; janitor; bookkeeper; registered nurse; assembler; other financial officer; education administrator; computer operator; traffic and shipping clerk; data entry keyer. Again, we do not see a common thread that links these cases.

8. We considered whether the greater variance in earnings in male-dominated occupations affects these relationships. However, this would not explain why the effects of women's presence on the earnings of white men is the opposite of that for African-American men.

9. The greater presence of Hispanic females resulted in lower wages in 10 occupations for white men, but this effect was less evident for other demographic groups.

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APPENDIX TABLE 1

LIST OF 50 LARGEST OCCUPATIONS IN 1990 CENSUS

	Regression Results											
	White Men			White Women			Black Men			Black Women		
	F	BM	BF	F	BM	BF	F	BM	BF	F	BM	BF
1. Secretaries (313)				-		+				-		+
2. Sales Supervisors and Proprietors (243)	-	+		-	+							-
3. Elementary Teachers (156)	-			-		+				-		
4. Cashiers (276)				-							+	-
5. Truck Drivers (804)	-	+					-		+			
6. Janitors (453)		+		-								
7. Personal Service Supervisors (436)												
8. Bookkeepers (337)			+	-		+						
9. Nursing Aides and Orderlies (447)						+				-		+
10. Registered Nurses (95)				-		+						
11. Waiters and Waitresses (435)	-			-						-		-
12. Assemblers (785)		+		-		+						
13. General Office Clerks (379)			+			+						
14. Accountants (23)	-	+		-		+				-		
15. Wholesale Sales Representatives (259)					+	-			-			
16. Carpenters (567)			-									
17. Laborers, Except Construction (889)												
18. Production Supervisors (628)		+										
19. Construction Laborers (869)	-				+			-				
20. Stock Handlers and Baggers (877)												
21. Farm Workers (479)	-		+									+
22. Food and Lodging Managers (17)	-		+	-		+					+	
23. Automobile Mechanics (505)			+									
24. Textile Sewing Machine Operators (744)	-			-							+	
25. Groundskeepers and Gardeners (486)												
26. Receptionists (319)												
27. Private Guards and Police (426)		+										
28. Real Estate Sales (254)												
29. Stock and Inventory Clerks (365)										-		+
30. Maids and Housemen (449)												
31. Hairdressers and Cosmetologists (458)					+							
32. Lawyers (178)			+									
33. Welders and Cutters (783)	-		+									
34. Production Inspectors (796)		+			+							
35. Secondary Teachers (157)												
36. Typists (315)	+									-		
37. Other Financial Officers (25)		+									+	
38. Insurance Sales (253)	-		+	-								
39. Electricians (575)												
40. Education Administrators (14)				-	+							
41. Computer Operators (308)				-	+			-				
42. Traffic and Shipping Clerks (364)				-								
43. Social Workers (174)										-		

APPENDIX TABLE 1 *(Continued)*

	White Men			White Women			Black Men			Black Women		
	F	BM	BF	F	BM	BF	F	BM	BF	F	BM	BF
44. Data Entry Keyers (385)				-								
45. Financial Managers (7)	-		+				+			+		
46. Computer Programmers (229)		+										
47. Designers (185)	-			-						+		
48. Painters, Construction and Maintenance (579)				-								
49. Marketing, Advertising and Public Relations Managers (13)												
50. Machinists (637)												

Note: Occupations are listed in descending size order. Number in parentheses is the 1990 census code number for each detailed occupation. We excluded farm owners and managers and occupations with miscellaneous titles, as discussed in footnote 1. The headings "F," "BM" and "BF" represent the variables "Female," "Black Male" and "Black Female," respectively. A plus sign indicates a statistically significant positive coefficient, and a minus sign represents a statistically significant negative coefficient. The pattern of results is summarized in Table 5. An example of the full regression equation is presented in Appendix Table 2.

APPENDIX TABLE 2

FULL REGRESSION RESULTS FOR ACCOUNTANTS

	White Men	White Women	Black Men	Black Women
Intercept	5.689**	5.789**	5.222**	6.786**
Education	0.102**	0.074**	0.133**	0.085**
Age	0.012**	0.005**	0.009**	0.014**
Hours 1989	0.026**	0.033**	0.016**	0.020**
Weeks 1989	0.043**	0.040**	0.044**	0.026**
Local Percent Female	-0.007**	-0.006**	-0.001	-0.009**
Local Percent Black Men	0.016*	0.004	0.009	0.008
Local Percent Black Women	-0.001	0.011**	0.005	0.005
Manufacturing (Reference)				
Agriculture	0.014	0.095	0.064	0.157
Construction	-0.096	-0.127*	-0.667*	-0.193
Utilities	-0.019	0.006	0.082	0.034
Wholesale Trade	-0.058	-0.077	-0.194	0.011
Retail Trade	-0.191	-0.131**	-0.147	-0.277
Financial Services	-0.064	0.007	-0.151	-0.097*
Business Services	-0.245**	-0.081	-0.269	-0.118
Personal Services	-0.370**	-0.186**	-0.236	0.061
Professional Services	-0.137**	-0.063*	-0.081	-0.158
Government	-0.177**	-0.052	-0.155	0.044
R^2	0.451	0.564	0.605	0.415

* $p < .05$
** $p < .01$
*** $p < .001$