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PLACE, RACE AND DIFFERENTIAL OCCUPATIONAL OPPORTUNITIES

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Abstract—A large body of literature investigating the link between black percentage in the community and occupational differentiation, has found disparities to be greater in places where blacks are in a higher proportion. The present paper discusses first, theoretical perspectives and methodological techniques employed in past research; second, examines the issue in terms of the relative odds of the races for incumbency in a series of occupational groupings; and third, analyzes the effect of percentage black on race-linked occupational differentiation across 124 major American cities. Using log-linear procedures, blacks, relative to whites, are much more likely to be in unskilled and semiskilled manual occupations, while whites, relative to blacks, are far more likely to be in white-collar and upper-status positions. Moreover, blacks' denial of access to higher-status positions, their channeling to lower-status work, and their ability to overflow into specific intermediate-status occupations are found to be greatly influenced both by percentage black as well as other community characteristics. The findings are discussed in light of sociological theories suggesting that the issue cannot be understood solely by the competition hypothesis. One must also consider the overflow and queuing explanations.

Students of race relations generally agree that the ways in which racial and ethnic groups achieve status vary across places. In other words, the interaction between place, race, and status implies that communities differ as to how races are allocated to positions in the social system. This point of view has been stressed by Blau and Duncan (1967, pp. 213–219) in their original analysis of the effect of race on status achievement in the United States. They have found that while blacks are handicapped everywhere in America, southern blacks are more disadvantaged then northern blacks. These findings are consistent with other research pointing clearly to an interaction between region, race, and status (e.g., Bahr and Gibbs, 1967; Brown and Fuguitt, 1972; Glenn, 1963, 1964; Gwartney, 1970; Jiobu and Marshall, 1971; LaGory and Magnani, 1979; Turner, 1951).

The relationship between community and occupational differentiation has long been a major subject of sociological inquiry. In particular, the tie between percentage black in the community and occupational differences has been studied extensively during the last three decades (e.g., Blalock, 1956, 1957; Broom and Glenn, 1965; Frisbie and Neidert, 1977;

Jiobu and Marshall, 1971; LaGory and Magnani, 1979; Martin and Poston, 1972; Turner, 1951; Wilcox and Roof, 1978). Using data sets from 1940 to 1970, this body of literature focuses on different types of communities utilizing a variety of differentiation measures.

Though explained by different theoretical perspectives, most researchers have found a positive association between the minority proportion of the population and race-linked occupational differentiation.[1] Furthermore, it has been shown that other community characteristics such as industrial structure, spatial location, and educational levels also influence differential occupational opportunities (Frisbie and Neidert, 1977; Semyonov and Scott, 1983; Spilerman and Habib, 1976; Spilerman and Miller, 1977; Turner, 1951). However, no one yet has investigated the effect of percentage black and other city characteristics on the relative odds of the races being in a series of nominal occupations.

Thus the present paper (a) reviews the different theoretical approaches; (b) recasts the theoretical expectations in terms of the relative racial odds for occupational incumbency; (c) evaluates the properties of the various measures employed; and (d) provides a test showing how race-linked occupational differentiation is affected by black percentage in the community and by other population and economic characteristics of cities.

THEORY AND RESEARCH

Two alternative, though not necessarily contradictory, explanations have been offered for the relationship between percentage black and occupational differentiation. The earlier view is a social psychological one originally advanced by Williams (1947). The contention is that hostility toward a subordinate group grows with an increase in the relative size of the minority. This perspective is developed and discussed in detail by Blalock (1967, Ch. 5). He argues that discrimination results which is motivated by competition and threat: "Provided that minority competition underlies prejudice, there should be a positive relationship between minority percentage and discrimination" (1967, p. 187). Thus there seems to be a stronger need and desire to discriminate against an expanding racial minority (Allport, 1954; Blalock, 1967; Williams, 1947).

The other view centers around the social organization of occupational labor markets. Its proponents argue that occupations are race-typed and that labor markets are split along racial lines. Blacks (and other minorities) are segmented into secondary sectors of the labor market and are likely to work in the lower status, less desirable occupations (Beck et al., 1978; Bonacich, 1972, 1976). A larger proportion of blacks offers a greater supply of cheap labor for economic exploitation (Frisbie and Neidert, 1977). Hence, more subordinates not only generate a greater threat but also provide a pool of workers to be channeled to the least desirable occupations. Consequently, superordinates benefit from the presence of blacks; whites can abandon the least desirable occupations and move into lucrative, upper-status ones (Cutright, 1965; Glenn, 1964, 1966; Spilerman and Miller, 1977).

Even though more minority members can "overflow" into intermediate-status and even high-status work as their percentage in the cash economy rises, they disproportionately fill the lower-status positions (Brown and Fuguitt, 1972; Cutright, 1965; Glenn, 1964, 1966; Spilerman, 1969; Spilerman and Miller, 1977). This line of thought is further clarified by Lieberson's (1980) argument about the queuing process. Minorities, the least preferred employment group, must enter at the bottom of the occupational ladder. Growing numbers of minority workers will increase competition over "better" jobs; however, subordinates will occupy only those intermediate-status positions deemed unattractive by groups at the top of the hierarchy. This has been found to

be the case specifically for blacks (Hiestand, 1964, 1970). The kinds of middle level occupations that will be vacated by whites vary across places and depend on the economic structure of a city and on local cultural preferences.

Taking such a position, while an increase in the relative number of blacks in the population raises the percentage of blacks in certain high-status occupations, this does not imply *better opportunities* or *better odds* for blacks generally to enter these occupations. One should keep in mind that the percentage of blacks in any occupational category is affected by two parameters, namely, the occupational structure of a community and the race composition of its labor force. In places characterized by more "high-status" jobs, for example, both blacks and whites have greater chances to belong to these occupations. Similarly, the higher the proportion of blacks in the labor force, the greater their probability of being found in any given occupation.

Thus, the percentage of blacks in certain occupational categories is a misleading measure of differential opportunities. It will be demonstrated shortly that the *odds* of belonging to a particular nominal occupational category can be estimated while controlling for both the occupational structure and race composition to provide an accurate picture of race-occupational differentiation.

Though the reasons differ slightly, both theoretical approaches agree that an increase in minority proportion leads to greater race-linked occupational differentiation. When applying this argument to relative racial employment odds, one expects that percentage black should be highly related to increased odds for them being in lower-status work and decreased chances belonging to upper-status occupations. The odds for working in middle-status jobs should be less responsive to minority proportion. Instead, such odds are expected to be more dependent on cities' economic and social characteristics as they bear upon the willingness of whites to keep or abandon these occupations.

MEASURING THE RACE-OCCUPATION RELATIONSHIP

Before providing an empirical test of the argument, it is crucial to examine the methodological properties of previously used differentiation measures. Four measures have typically been utilized to assess the race-occupation relationship:[2] the Turner index (e.g., Spilerman and Miller, 1976; Turner, 1951), index of dissimilarity (e.g., Bahr and Gibbs, 1967; Jiobu and Marshall, 1971), percentages above selected cutting points (Brown and Fuguitt, 1972; Frisbie and Neidert, 1977), and the log-linear interaction of race and occupation (Fossett and Swicegood, 1982; Semyonov and Scott, 1983; Stolzenberg and D'Amico, 1977).

In order to point out the limitations, advantages, and meanings of each method, consider a simple cross-classification of race by occupation. The f_{ij} are the observed frequencies for the i^{th} race (i = 1,2; 1 = white, 2 = black) and j^{th} occupation (j = 1,2; 1 = a given occupational category, 2 = all other categories). The proportion of a given race in a certain occupation is p_i; (specifically, p_1) where $p_i = f_{i1}/f_{i.}$; and the proportion of a given race in the labor force is $p_{i.}$ where $p_{i.} = f_{i.}/f_{..}$.

One of the most widely used measures, the index of dissimilarity (D), is defined as the percentge of blacks who would have to change occupations to achieve the same distribution as whites. If the value of D equals zero, then there is no difference in the occupational distributions of the races. In the previous terms:

$$D = \frac{100 \cdot \sum_j \left| \frac{f_{2j}}{f_{2.}} - \frac{f_{1j}}{f_{1.}} \right|}{2}$$

Thus, equality is defined as the situation where $\Sigma_j p_{1j} = \Sigma_j p_{2j} = \Sigma; p_j$. In a 2 × 2 table this simplifies to $p_1 = p_2 = p$.

The index of dissimilarity does not control for the variation in occupational structure across places (Cortese et al., 1976; Taeuber and Taeuber, 1965). Hence, D has been size-standardized in an attempt to overcome this problem (Gibbs, 1965). In the previous terms, it can be represented as:

Size-Standardized D

$$= \frac{100 \cdot \sum_j \left| \frac{p_{1j(1000)}}{p_{.1}} - \frac{p_{2j(1000)}}{p_{.2}} \right|}{2}$$

Equalty for Size-Standardized D is $\Sigma_j p_{1j}/p_{.1} = \Sigma_j p_{2j}/p_{.2}$; in a 2×2 table it reduces to $p_1/p_{.1} = p_2/p_{.2} = p_{..}$.

This standardization, however, creates another problem. It treats the occupational categories as though they were all of equal size which inflates the effect of smaller categories and reduces the impact of larger ones. Size is a parameter that cannot be ignored nor assigned some constant value. It must be allowed to vary, yet such variation has to be factored out (c.f., Cortese et al., 1978).

Since D provides only a gross measure of differentiation, some researches have utilized percentages above successive cutting points to generate a cumulative, occupation-specific measure (Brown and Fuguitt, 1972; Frisbie and Neidert, 1977). It compares the percentage black to the percentage white in any successive occupational cutting point (e.g., percentage black in professional occupations, percentage black in professional plus managerial occupations, etc.). Using the previous terms and starting with a given occupation, the measure can be shown as:

Percentage Differences above Successive Cutting Points

$$= 100 \cdot \frac{f_{11}}{f_{1.}} - \frac{f_{21}}{f_{2.}}$$

and so on, for successive additions of occupations.

Equality exists when $p_1 = p_2$, etc. This measure is meaningful, comprehensible, and occupation-specific, but it suffers from a similar shortcoming of D. It does not control for variation in the occupational structure across places.

This problem can be solved by using either the Turner index or log-linear models. The former is defined as the ratio of the percentage blacks in given "good" occupations to percentage whites in the same ones. If occupation $j = 1$ is a "good" occupation, then the Turner index can be expressed as:

$$\text{Turner Index} = \frac{f_{21}/f_{2.}}{f_{11}/f_{1.}} = \frac{p_2}{p_1}$$

If the distribution of occupations across race is equal, then the ratio of p_1 to p_2 should be 1.0. Thus, equality is defined as the situation where $p_1 = p_2 = p$.

For the log-linear technique, the saturated model in the previously defined terms is:

$$\ln F_{ij} = \lambda + \lambda^{R}_{(i)} + \lambda^{O}_{(j)} + \lambda^{RO}_{(ij)}$$

where λ is the grand mean, $\lambda^{R}_{(i)}$ is the main effect of race, $\lambda^{O}_{(j)}$ is the main effect of occupation and $\lambda^{RO}_{(ij)}$ is the race-occupation interaction effect. In this configuration, equlity in the distribution of occupations across race is represented by the model of independence. In this model, the $\lambda^{RO}_{(ij)}$ effect is set equal to zero. This is equivalent to setting the cross-product odds ratio $(f_{11} \cdot f_{22})/(f_{12} \cdot f_{21})$ equal to 1.0. It may be shown that this reduced model imposes the constraint $p_1 = p_2 = p$ (Bishop et al., 1975; Goodman, 1972).

The log-linear method may be more readily generalized to models including additional variables. Consider, for example, the cross-classification of race by occupation by city. The saturated log-linear model for this classification is:

$$\ln F_{ijk} = \lambda + \lambda^{R}_{(i)} + \lambda^{O}_{(j)} + \lambda^{S}_{(k)} + \lambda^{RO}_{(ij)} + \lambda^{RS}_{(ik)} + \lambda^{OS}_{(jk)} + \lambda^{ROS}_{(ijk)}$$

where λ, $\lambda^{R}_{(i)}$, $\lambda^{O}_{(j)}$, and $\lambda^{RO}_{(ij)}$ are de-

fined as before. The $\lambda^{S}_{(k)}$ is the main effect of place (city), $\lambda^{RS}_{(ik)}$ is the race-place interaction effect, $\lambda^{OS}_{(jk)}$ is the occupation-place interaction effect, and $\lambda^{ROS}_{(ijk)}$ is the three-way interaction effect of race–occupation-place. The three-way interaction term in this model represents the relative odds (to other places) in favor of blacks (or whites, depending on the coding) belonging to certain occupational groups while controlling for the occupational and racial structure of the places. Thus, this term may be viewed as an indicator of the variability in the race-occupation relationship across places (see also Fossett and Swicegood, 1982; Semyonov and Scott, 1983).

The triple interaction effect could be extracted for analysis as a dependent variable in order to analyze its relationship to selected characteristics of each place. This permits a direct assessment of the theoretical arguments concerning city effects on racial differences in occupational opportunities.

In a log-linear model with J occupational categories, there are $[(J)(J+1)/2] - J$ possible pairings of occupations. For example, with 12 occupational categories, there would be 66 unique contrasts. Accordingly, there would also be 66 sets of three-way interaction effects. A simpler and more theoretically meaningful approach would be to contrast a given occupational category (or set of related categories) to all others. In this case, the analysis may be delimited to a selected set of $2 \times 2 \times K$ cross-classifications of race by occupational grouping by place. Grouped contrasts of this type are often used in the calculation of the measures of inequality outlined earlier (e.g., the Turner index).

Another advantage of the $2 \times 2 \times K$ classification is that the log of the cross-products odds ratio, $\ln(f_{11} \cdot f_{22})/(f_{12} \cdot f_{21})$ provides a unique estimate of the odds for the first category of race ($i = 1$) relative to the second category of race ($i = 2$) belonging to the first occupational grouping ($j = 1$) as opposed to the second occupational grouping ($j = 2$). Moreover, it may be demonstrated that this estimate is a linear function of the $\lambda^{RO}_{(ij)}$ and $\lambda^{ROS}_{(ijk)}$ terms from the $2 \times 2 \times K$ log-linear model; $\ln(f_{11k} \cdot f_{22k})/(f_{12k} \cdot f_{21k}) = 4\lambda^{RO}_{(11)} + \lambda^{ROS}_{(11k)}$. Since the $_k\Sigma\,\lambda^{ROS}_{(11k)} = 0$, the mean of this cross-product odds ratio is $4\lambda^{RO}_{(11)}$, and the deviaton from this mean for the K^{th} place is $4\lambda^{ROS}_{(11k)}$. Thus, the log cross-product odds ratios in a $2 \times 2 \times K$ classification are correlated 1.0 with the three-way interaction effects estimated by the log-linear model. As such, the triple interaction effects provide a unique estimate of occupational differentiation, which is independent of the marginal distributions of occupations and races, for each of the K places. This measure also has a clear and immediate interpretation; the odds ratios indicate the specific chances of whites relative to blacks being in a particular occupation.

DATA AND VARIABLES

Data for the present analysis are obtained from the 1970 U.S. Census of Population, which provides information on the distribution of major occupational groups by race across Standard Metropolitan Statistical Areas (SMSAs). The analysis is restricted to the male labor force in 124 major SMSAs (resident population of 250,000 and over).[3] This unit of analysis permits comparisons with previous studies utilizing 1970 data (e.g., Spilerman and Miller, 1976, 1977; Stolzenberg and D'Amico, 1977; Wilcox and Roof, 1978).

In the current investigation, the log cross-product odds ratios from five distinct occupational contrasts are computed for use as dependent variables in a series of analyses. As noted in the previous section, these odds indicate the differential opportunities for the races across certain occupations.

The five occupational groups distinguished in the analysis are: (1) professional and managerial, representing the

high-status, well-paying occupations; (2) clerical and sales, portraying intermediate-status white-collar work; (3) craftsmen, standing for the skilled, manual occupations; (4) operatives, labor, and transportation depicting the semiskilled and unskilled manual occupations (labor); and (5) service (including private household workers).

The set of five dependent variables provides more detailed information regarding race-linked occupational differentiation in specific occupations than previous studies. It also allows for an examination of racial placement in a ranked occupational structure both at the top (professional and managerial) and at the bottom (semiskilled and unskilled labor), as well as in specific nominal categories in the intermediate level of the occupational structure (clerical and sales on the one hand, and skilled manual occupations on the other hand.)

The log cross-product odds ratios are computed comparing each of these five groupings with all other occupations. Given the coding used, positive values indicate odds favoring whites belonging to the given occupational grouping; negative values show the opposite—odds favoring blacks. Zero values would demonstrate equal odds across race for access to a given occupational category.[4]

From a theoretical standpoint, percentage black of the male labor force is the *key independent variable* used in the analysis. Nevertheless, racial occupational differentiation is expected to be influenced by other indicators of community structure, specifically, region, level of urbanization, industrial structure, and the educational level of the races (e.g., Blalock, 1956; LaGory and Magnani, 1979; Semyonov and Scott, 1983; Spilerman and Miller, 1976; Stolzenberg and D'Amico, 1977; Wilcox and Roof, 1978). These variables are employed as controls.

Region, measured as a dummy variable where South = 0 and non–South = 1, is included to control for regional variation in employment practices. Numerous studies have noted that racial disparities are greater in the South (e.g. Bahr and Gibbs, 1967; Blau and Duncan, 1967; Gwartney, 1970). Level of urbanization is operationalized as the percentage of an SMSA's population that is urban; industrial structure is defined as the percentage of an SMSA's work force employed in manufacturing industries. Both variables have long been viewed as having an effect on the rate of inequalities. Urban places and manufacturing industries have seemed to decrease racial occupational differentiation (Frisbie and Neidert, 1977; Turner, 1951). Finally, educational level of the races is measured by the median years of education completed by males (18 years old and over with income) for blacks and whites separately. Educational differentials between the races are expected to increase their occupational disparities (e.g., Spilerman and Miller, 1977; Semyonov and Scott, 1983; Stolzenberg and D'Amico, 1977).

ANALYSIS AND FINDINGS

The mean odds ratios and standard deviations for each occupational contrast are presented in the last two columns of Table 1. It is apparent that, on the average, whites are disproportionately represented in professional and managerial, clerical and sales, and craftsman occupations, while blacks have higher relative odds of being in service as well as semiskilled and unskilled labor. In fact, blacks in nearly every SMSA have lower odds, relative to whites, of belonging to professional and managerial and clerical and sales positions; they have higher relative odds of being in labor and service occupations. However, it is important to take note of the standard deviations for these odds. Although blacks in all SMSAs are disproportionately concentrated in the lower-status occupational categories, there is considerable variation across SMSAs in the magnitude of this effect. For example,

while in some cities whites are "only" twice as likely as blacks to work in professional and managerial occupations, in many cities their odds are more than five times greater than those of blacks.

Having estimated the odds ratio values for each occupational grouping, the hypothesis is entertained that race-linked differentiation is related to the black proportion in the labor force (and to other community characteristics). The correlations between the odds ratios for each occupational group and the indicators of community structure are displayed in Table 1.

These correlations lend firm support to this line of argument. First, the relative odds of the races in the occupational contrasts are highly related to various community characteristics, and in particular to the racial structure of the cities. As the proportion of blacks in the labor force increases, their relative odds of working in white-collar occupations (namely, professional and managerial as well as clerical and sales) decrease.[5] Correspondingly, blacks' relative odds of being in labor occupations rise with their greater proportion in the cash economy. A similar but more moderate pattern is in evidence for blacks' relative odds of belonging to service occupations. Crafts work is the only category that does not have a systematic relationship between the relative odds and the racial composition of the SMSAs.

The relative employment odds of the races are also strongly related to other city characteristics. For example, the odds for whites being disproportionately concentrated in white-collar occupations are better in the South, while blacks' relative odds of being in labor and service occupations are lower in nonsouthern cities. Moreover, blacks are also overrepresented in southern SMSAs; the correlation between percent blacks in the labor force and the dummy variable for region is $r = -.670$. Thus, it is important to control for region, as well as the other city variables in analyzing the effect of percentage black on occupational differentiation. Table 2 presents a set of partial standardized regression coefficients in which the odds ratios for the five occupational groupings are taken as a function of all community characteristics. These equations permit the examination of the independent effect of racial structure on occupational opportunities, as well as the net impact of each of the other city characteristics.

Professional and managerial occupations, although heterogeneous, are typically the high-status, lucrative ones. The relative odds for blacks belonging to these upper-status positions are primarily influenced by two variables—black proportion of the labor force and black educational level. Places with higher percentages of blacks have lower relative odds for them to be in professional and managerial positions. Conversely, (controlling for white education) in cities where blacks' educational level is greater, they have increased opportunities to be in the high-status occupations. In sum, while blacks have lower relative odds of belonging to professional and managerial occupations across all SMSAs, their relative disadvantages are greater where they are overconcentrated, and less where their median educational levels are higher.

Clerical and sales, the intermediate-status white-collar occupations, demonstrate a different pattern than that found for the professional and managerial category (high-status occupations), although in both groupings blacks are underrepresented. An increase in the level of blacks' education is associated with a rise in their relative odds of working in clerical and sales occupations; this effect is particularly large. Southern cities also provide fewer opportunities for blacks in these occupations. Apparently, this kind of work is more attractive to whites in metropolitan areas of the South. The most curious effect, however, is the coefficient for the proportion of blacks in

Table 1.—Correlations between Occupational Odds Ratios and Community Characteristics.

	Percentage Black	Region	Percentage Urban	Percentage Manufacturing	Black Education	White Education	Mean Odds Ratios	Standard Deviation
Occupational Categories								
Professional/Managerial	.713[a]	-.557[a]	.098	-.073	-.666[a]	.046	1.28	.43
Clerical/Sales	.409[a]	-.470[a]	-.110	.039	-.723[a]	-.109	.65	.36
Craftsmen	.065	-.155	-.262[a]	.122	-.325[a]	-.358[a]	.47	.21
Semiskilled/Unskilled Labor	-.697[a]	.456[a]	-.131	-.036	.647[a]	-.065	-.96	.36
Service	-.229[a]	.511[a]	.085	.350[a]	.042	-.154	-.98	.35
Community Measures								
Percentage Black	---	-.670[a]	.119	-.153	-.632[a]	.114	10.75	9.00
Region		---	-.092	.313[a]	.528[a]	-.042	.66	.48
Percentage Urban			---	-.386[a]	.211[a]	.396[a]	82.08	13.51
Percentage Manufacturing				---	-.094	-.525[a]	25.71	10.39
Black Education					---	.326[a]	10.80	1.02
White Education						---	12.32	.27

NOTE: See text for definition of the variables. Log odds ratios coding: positive values indicate odds favoring whites.

[a]Correlation coefficients significant at the .01 level.

Table 2.—Standardized Regression Coefficients (Betas) of Community Characteristics on the Occupational Odds Ratios.

Independent and Control Variables	Dependent Variables				
	Professional and Managerial	Clerical and Sales	Craftsmen	Semiskilled and Unskilled Labor	Service
Percentage black	.330	-.331	-.134	-.361	-.026
	(.094)	(.098)	(.136)	(.092)	(.116)
Region	-.096	-.257	-.117	-.016	.637
	(.107)	(.087)	(.122)	(.082)	(.103)
Percentage urban	.123	.041	-.132	-.196	.314
	(.066)	(.068)	(.095)	(.064)	(.081)
Percentage manufacturing	.094	.139	-.067	-.242	.226
	(.075)	(.077)	(.108)	(.073)	(.091)
Black education	-.476	-.877	-.244	.526	-.351
	(.090)	(.093)	(.130)	(.088)	(.110)
White education	.160	.261	-.251	-.246	-.016
	(.077)	(.080)	(.112)	(.076)	(.095)
R^2	.620	.592	.200	.635	.425

NOTE: The standard errors of the Betas are given in parentheses. Log odds ratios coding: positive values indicate odds favoring whites.

the labor force. While the correlation between percentage black and the clerical-sales odds ratio is positive ($r = .409$), the net effect after other variables are controlled is negative (Beta = $-.331$). That is, blacks' relative odds of belonging to these middle level occupations expand with their percentage in the work force.

This finding appears to be a consequence of the specific nature of the interrelationships among percentage black, black educational level, and occupational discrimination. Due to discrimination, places with higher levels of black education may still exhibit relative denial of black access to high-status occupations, forcing blacks into intermediate-status white-collar work. Since there is a negative correlation between blacks' educational levels and their proportion in the labor force, one may understand the improvement in blacks' chances of being employed in clerical and sales occupations in cities where they are a larger proportion (controlling for educational level and the other community characteristics).[6]

The results regarding the various blue-collar groupings reveal interesting and rather meaningful differences between skilled and other manual occupations. On average, blacks face relatively lower odds of joining skilled occupations (craftsmen) and much higher odds of belonging to semiskilled and unskilled occupations. The odds "favoring" blacks working in labor grow even larger as their proportion of the cash economy increases. Evidently, cities whose work forces are characterized by greater percentages of blacks rely more on subordinates to fill the less desirable labor occupations. In contrast, neither percentage black nor the other variables in the equation appear to have much impact on the racial composition of skilled occupations. This is most likely due to the fact that these types of occupations are usually monopolized by craft unions, and

are influenced much more by union hiring practices than by constraints of the economy and the population.

Finally, the racial structure of the SMSAs is not related to the relative odds of the races working in service occupations. The largest effect is associated with region. Blacks have higher relative odds of belonging to service occupations in southern cities. This phenomenon may be a consequence of historical circumstances and tradition dating from the slavery period when blacks filled all the service type jobs. In addition, urban places and manufacturing economies are related to a decrease in blacks' relative odds of being in these occupations, as are higher black educational levels.

CONCLUSIONS

This analysis provides a clear illustration of how occupations are segmented across racial lines. While whites enjoy favorable odds in the upper-status white-collar occupations, blacks have much higher odds of working in the semiskilled and unskilled occupations. Moreover, the races are differentiated not only across occupations but also within the white-collar and blue-collar occupational groupings. Blacks are overrepresented in lower-status occupations within both the manual and the nonmanual groups.

The findings demonstrate that the racial composition of the occupational categories is significantly influenced by the percentage of blacks in communities. The effect of black proportion in the labor force on race-linked differentiation is substantial and most pronounced at the upper and lower ends of the occupational hierarchy. A higher black percentage means greater job competition with whites; this results in relative denial to blacks of access to the most desirable positions and their channeling to the least attractive ones. Furthermore, opportunities for blacks to avoid lower-status work with their growth in the labor force are restricted mainly to the intermediate-status occupations. This, in turn, is related to other community characteristics (e.g., the industrial structure) which presumably affect local white definitions of occupational attractiveness. In terms of theory, the current findings indicate that the competition hypothesis prevails but that the situation is more complicated and cannot be explained solely by this argument. One must understand differentiation within the framework of the "overflow" and "queuing" explanations.

While percentage black is highly influential, other city characteristics also have an effect. The educational levels of the races, cities' industrial structures, and region of residence have substantial consequences for occupational differentiation between the races. Hence, these results forcefully support the proposition that place should be viewed as an important and independent dimension of social stratification, having a significant effect on racial inequality.

NOTES

[1] While most empirical examinations confirm theoretical expectations, a few fail to trace any direct relationship between minority percentage and occupational differentiation (Blalock, 1956, 1957; Jiobu and Marshall, 1971). Furthermore, a recent publication severely challenges the significance and social meaning of locale for the race-occupation relationship (Stolzenberg and D'Amico, 1977). This provocative conclusion, however, has been refuted by both Spilerman and Miller (1977) and Fossett and Swicegood (1982) on theoretical and methodological grounds.

[2] A fifth measure, Lieberson's Index of Net Differences, has also been used (Fossett and Swicegood, 1982). Although methodologically sound it is less appropriate for the present study. This index has mainly been employed as a summary measure of racial differences across a ranked occupational structure. The purpose in this paper is to assess relative occupational opportunities of the races for nominal categories which are difficult to rank, especially throughout the middle range. While consensus exists regarding upper-status (professional and managerial) and lower-status (labor) occupations, little agreement has been reached on how to rank intermediate-status ones (sales, crafts, clerical, etc.). Thus, differential occupational opportunities of the races in a hierarchical occupational structure will be examined regard-

ing occupations agreed to be at the top and at the bottom.

[3] The reported frequencies are divided by five to approximate the original 20 percent sample. One SMSA, Honolulu, is excluded since over 50 percent of its population is neither black nor white.

[4] It should be noted that the five dependent variables (logs of odds belonging to an occupational category) are not independent of one another. Nonetheless, each provides a meaningful estimate of the differential occupational opportunities of the races. Strictly speaking, the measures should be referred to as "the relative odds of the races being in a given nominal category (e.g., professional and managerial occupations, etc.) compared to all other categories." Such a label is too lengthy and cumbersome for repeated use. Rather, the preference is to call them indicators of race-linked occupational differentiation though their operational meaning should be kept in mind.

[5] In general, linear models provide a good fit for the data. It should be noted, though, that using the logarithm of percentage black yields a somewhat better fit (especially with the odds ratios for the upper-status professional and managerial occupations—the correlation increases to $r = .779$). The parenthetical example seems to support Blalock's (1967, p. 187) proposition that the positive relationship between minority percentage and discrimination is "nonlinear with a decreasing slope." However, Blalock did not address the situation in which minority percentage reaches considerable size. While extending the logic to such cases, one might even expect that a critical mass of subordinates would enable them to mobilize resources for protection and produce incumbents for positions usually occupied by superordinates (c.f., Fischer, 1975). When these extreme conditions have been examined (Semyonov and Scott, 1983; Semyonov and Tyree, 1981), it has been shown that the rate of increase in race-linked occupational differentiation decelerates.

[6] There is another possible explanation, though by no means contradicting that in the text, as to why percentage black has such a large positive effect on the chances of blacks holding clerical and sales occupations. Where blacks are a significant proportion of the clientele of a business or organization serving the public, management may be more likely to see the need to have reasonably good black representation in clerical and sales positions—those in such positions being more likely to interact with the public.

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ERRATUM

In the 20(3), August 1983 issue of *Demography*, there appears a mathematical expression on p. 270, in the right hand column:

$$m_x^{(i)} = \frac{m_x^{(s)}}{D^{(i)}} \sum_x P_x^{(i)} m_x^{(s)}.$$

This expression is incorrect and should read:

$$m_x^{(i)} = m_x^{(s)} \frac{D^{(i)}}{\sum_x P_x^{(i)} m_x^{(s)}}.$$

Demography regrets the error.