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ABSTRACT

In this paper we order a body of literature on the subject of black occupational standing in communities with different characteristics, and we argue on behalf of the importance of including contextual variables--attributes of the community and industry in which an individual is embedded--in models of the status attainment process. In the first section, a model is constructed of how various community characteristics influence the occupational standing of black males. In the second section, the definition of upper status positions is varied in order to study the sensitivity of our conclusions to the particular index breakpoint employed. In the third section, the model is recast in the framework of elasticity so the importance of various community characteristics can be assessed from the perspective of the amount of change in the levels of the racial status terms which they are capable of producing. In the final section, the implications of this analysis are reviewed as they pertain to the traditional formulation of the status attainment process.

COMMUNITY AND INDUSTRY DETERMINANTS OF THE OCCUPATIONAL STATUS OF BLACK MALES

We have two objectives in the present paper. We wish to order a body of literature on the subject of black occupational standing in communities with different characteristics, and we wish to argue on behalf of the importance of including contextual variables--attributes of the community and industry in which an individual is embedded--in models of the status attainment process. The latter point can be made most cogently in light of the results from our empirical analysis, and is deferred to the concluding section.

During the 1950's and early 1960's a number of studies addressed the question of whether black persons are more or less disadvantaged, in comparison with whites, in places where they constitute a large proportion of the population. In one comprehensive investigation, involving an analysis of 1950 census data on southern counties, Blalock (1957) concluded that in the institutional areas of housing quality, educational attainment, and family income, black disadvantage is in fact greater in high proportion non-white locales. He interpreted this situation as suggesting that a fear of black competition where the percentage black is large motivates whites in those settings to adopt discriminatory practices.

Blalock did not find a significant association between the racial gap in occupational status and community proportion black. In an earlier study, partially on this issue, Turner (1951), using 1940 census data on cities in the non-South, reported inconsistent results: Based on a correlation analysis he noted, like Blalock, the absence of a relation between community proportion black and the relative occupational standing of black males; employing a different statistical procedure he found a significant tendency for the racial disparity in occupational status to be smaller in high percentage black cities. Consistent with the latter result, Spilerman (1968:67), analysing 1960 data on large urban places (SMSA's), reported less occupational inequality between the races in high percentage black communities in both the South and non-South. There are contrary findings as well; in a prior Blalock study (1956), he examined 1950 data on metropolitan places (SMA's) outside the South, and noted a modest tendency for racial inequality in occupational status to increase with proportion black.

Making sense of these results is hampered by the fact that the various investigations are non-comparable in several respects: they differ in regard to the areal unit employed, in regard to the census year of the information, and in regard to the region of the country to which the data pertain. On conceptual grounds, a compelling argument can be made to the effect that the occupational status of black workers <u>should</u> increase as a function of community proportion black, and that this situation could result in an improvement of their status relative to whites. Blalock (1957:680) first raised this possibility, noting that "a large percentage of non-whites [in a community] might tend to produce an overflow of the minority group into semi-skilled positions." Glenn (1964:47-48) reiterated this theme, and suggested that whites as well as black individuals benefit in occupational status when the latter constitute a large proportion in the community. The status of blacks is rasied because white workers cannot staff all the upper level positions; hence the "overflow." The status of whites is improved because the upper level positions which they relinquish to blacks come, to a disproportionate extent, from the lower strata of this occupational category.

Turning to a different consideration in the matter of community effects on a black status, there is evidence that the relative occupational standing of black workers depends on the industry composition of their labor market area. On this topic, Turner (1951:528) has reported that racial equality in occupational status is more characteristic of manufacturing cities than non-manufacturing locales. Investigating the related issue of racial income differentials, Thompson (1965:111) has argued that "the greater the proportion [of the labor force] in manufacturing, the greater the degree of income equality." Correspondingly, Jiobu and Marshall (1971:644) have noted that occupation and income differences between the races are negatively associated with the percentage employed in manufacturing.

Despite the consistency of the preceding results, few attempts have been made to ascertain why black workers should suffer less of an occupational disadvantage in communities which are organized around manufacturing specialties. Turner (1951:528) does report that a larger proportion of the black labor force is employed at semi-skilled tasks (high status on his index) in manufacturing centers. Yet, neither he, nor Jiobu and Marshall (1971), who cite his finding, investigate the reasons for this circumstance. In particular, they do not entertain the possibility that the technological imperatives of manufacturing industries may necessitate a larger proportion of high status occupations than is the case with other industrial specialties, and that it is this greater availability of upper level slots in manufacturing communities which is responsible for the superior attainments of black workers there.

There is evidence to support the contention that a larger proportion of the labor force is employed at high-level tasks (in terms of the occupational division used by Turner and Blalock[1]) in centers of manufacturing. Galle (1963:263), for instance, reports occupational distributions for large urban places (SMA's) in 1950 which have been classified into six industry categories. The percentage of the labor force engaged in <u>unskilled</u> jobs ranges from 23.3 percent for "regional capitals," a non-manufacturing specialty, to 16.8 percent for "specialized manufacturing cities." To some extent, then, the greater occupational equality between the races in manufacturing cities may be a consequence of the availability of more upper status positions in those communities. This argument is a variant of the Blalock-Glenn contention that blacks "overflow" into upper-level occupations where they constitute a large population proportion. Here the overflow would result from the presence of few low strata slots.

There are other mechanisms by which the industrial composition of a community may influence the relative standing of black workers. Industries differ in their growth rates--some are expanding and create new upper manual and white collar positions, others are stable or declining in employment and present limited promotion prospects. Industries differ in the degree that they staff upper strata occupations through promotion from below, versus by hiring from outside the firm. Industries also differ in the organization of their affiliated labor unions, craft versus industrial structure being one important aspect. Each of these considerations has been related to the mobility opportunities of black workers (Hiestand 1964:58-77; Spilerman 1968:201-207; Marshall 1965: 109-132). Industry composition, therefore, may be consequential for explicating the occupational status of blacks, even apart from its immediate effect on the mix of occupations in a locale.

A third community characteristic that has been examined in relation to the status of black workers is city size. Glenn (1964:47) reported a significant positive association between size and his index of relative black occupational standing. Spilerman (1968:67) has also noted that occupational equality between the races varies directly with city size. Because industry composition co-varies with size (Winsborough 1959), to some degree the contribution of the latter variable may be due to its association with industry structure. Yet, large cities tend to have higher proportions of white collar workers than can be accounted for by the characteristic occupational distributions of their industries (Winsborough 1960); thus, city size may have an independent effect on occupational composition. Moreover, employment opportunities for blacks may be enhanced in large urban centers because of the presence of a cosmopolitan, less discriminatory milieu. Since the city size term is correlated with other factors of interest and may have a direct effect of its own, inclusion of this variable is necessary to avoid specification bias (Blalock 1961:48).

While the three variables--community proportion black, industry composition, and city size--have been examined in other studies in regard to their impact on the occupational standing of black males, they have not been considered simultaneously. Consequently, it is not known to what extent the contributions that have been reported for them individually are due to their correlations with the other terms. In the present investigation we treat these community characteristics as exogenous variables, and investigate their separate and joint effects on relative black status. To reveal the mechanisms through which the background factors operate, a number of intervening variables are introduced, specifying alternative paths of influence upon the dependent variable; this model is outlined in the next section. Afterwards, we perform a sensitivity analysis and assess how the results vary with the definition of the status measure. In the final section, the model is recast in terms of the notion of <u>elasticity</u>, permitting the potential impact from changes in particular variables to be estimated.

DETERMINANTS OF THE RELATIVE STANDING OF BLACKS

We take as our starting point the study by Turner (1951) in which relative black status was examined in terms of community industrial structure. With respect to industry composition of the labor force, Turner observed that there are "fundamentally only two types of cities, manufacturing and non-manufacturing or trade-and-financial cities" (1951:528). Turner reached this assessment from an analysis of the pattern of correlations among the labor force proportions employed in four major industry categories in 1940 (Table 1, top panel). Below his array we present a comparable correlation matrix, somewhat more detailed, constructed from 1960 census data. The point to be stressed here is that despite differences of measurement in the two studies,[2] there is remarkable stability across the 20 year interval; industry composition is by no means a volatile community characteristic, so any impact that it has on black occupational status is likely to persist. A factor analysis of the 1960 matrix confirmed what is suggested by an inspection of the correlations; there is basically a single underlying factor,[3] and it may be described by the percentage of the labor force employed in manufacturing. We therefore characterize industry composition by this term.

<u>Table 1 about here</u>

The exogenous variables in the study, then, are proportion black, community population size, and proportion of the male labor force engaged in manufacturing, the latter term representing a first approximation to a more comprehensive description of industry composition. Our dependent variable is the index of relative black occupational status that was used by Turner: the ratio of the percentage of the black male labor force employed in semi-skilled or higher status positions[4] to the comparable figure for the white labor force. An index value of one would mean racial equality in occupational standing; while the underrepresentation of blacks in upper status jobs is indicated by scores less than one, a condition which was the case for all communities investigated here. In our data set (to be described), the mean of the index values is .65, in contrast with a mean of .44 for Turner's cities in 1940 (1951:525).

TABLE 1. Correlations Among Labor Force Proportions Employed in Major Industry Categories

a. 1940 (Turner)--National, Cities[1]

	Manuf.	Construction	Trade	Personal Service
Manufacturing	1.000	-.716	-.809	-.682
Construction		1.000	.627	.819
Trade			1.000	.705
Personal Serv.				1.000

b. 1960--Non-South. SMSA's[2]

	Manuf.	Const. ruction	Trade	Personal Service	Profess. Service	Public Admin.
Manufacturing	1.000	-.800	-.791	-.617	-.648	-.671
Construction		1.000	.620	.579	.559	.499
Trade			1.000	.459	.536	.281
Personal Serv.				1.000	.246	.269
Professional Service					1.000	.426
Public Admin.						1.000

1. Source: Turner (1951, Table 4); Number of observations = 90.

2. Number of observations = 88.

The remaining decisions necessary to complete the specification of the model involve selecting intervening variables to describe the mechanisms through which the exogenous factors are presumed to affect black standing. Five variables were introduced. First, in accordance with the argument that industry structure may operate on black status through its determination of the size of the pool of upper-level positions, the term "proportion of the male labor force engaged in semi-skilled or higher status tasks" was included. We commented earlier that industry composition might influence black standing via this variable, or directly (i.e., through factors not present in the model). We also noted that city size could have an impact on the availability of upper status slots in the economy, and therefore its contribution to black status may come partially through that term. Explicit inclusion of the occupational mix measure will permit the various effects to be disentangled.

Second, indices of educational attainment by black and white males[5] were introduced as intervening variables. These terms appear because we expect the occupational status of each racial group to be closely linked with its level of educational attainment. With respect to placement in the model, we consider these variables to be causally subsequent to the other community characteristics; in the short run they are more a consequence of industry structure, occupational distribution (which we view as largely derivative of industrial technology), and city size, than determinants of these factors. Each education variable was conceptualized as a function of all preceding community characteristics.

Finally, two endogenous terms were introduced to provide a decomposition of the dependent variable. The motivation behind this operation is that Turner's index is a ratio of two components, each having a well defined meaning and an ability to vary independently of the other. We therefore wish to ascertain the extent to which the variation in the composite index can be attributed to the behavior of its respective black and white components. This sort of stratagem has been employed to advantage by others (e.g., Britt and Galle 1972), and involves noting that the logarithm of Turner's index can be expressed as

$$\log\left(\frac{\%\text{ of blacks in SS+}}{\%\text{ of whites in SS+}}\right) = \log(\%\text{ blacks in SS+}) - \log(\%\text{ whites in SS+}) \quad (1)$$

where SS+ denotes semi-skilled and higher status occupations. If the regression specified by equation (1) is performed (that is, the variables on the right side are treated as regressors), the unstandardized coefficients will equal one in magnitude. The <u>standardized</u> regression coefficients, however, will report the amount of variation in the ratio index that can be associated with each racial component.

The data used in this investigation come from the 1960 Census of Population, and pertain to the 88 non-southern Standard Metropolitan Statistical Areas (SMSA's) with populations[6] in excess of 100,000. Southern communities were excluded because there is reason to expect the relationships which fashion black standing in that region to be different from those operating elsewhere (Turner 1951:526-528; Glenn 1964:47; Bahr and Gibbs 1967:530-531). A separate analysis for the non-South would therefore be a more cautious approach than pooling data from the two regions. The reason why SMSA's are used as observational units, instead of cities, is because more extensive occupation and industry detail is available by race in the 1960 census for these divisions; also, this areal unit better approximates the notion of a labor market than do places demarcated by city boundaries. Largely for such reasons, most recent studies of black occupational status (Blalock 1956; Glenn 1964; Jiobu and Marshall 1971) have focused on metropolitan areas.

Specification 1: Turner's index. Our model of the determinants of relative black standing, together with OLS estimates of the coefficients,[7] is presented in Figure 1. The first point to observe is that the variation in the ultimate dependent variable (Turner's index) is attributable, principally, to the black status component. Since the unstandardized regression coefficients impinging on the ratio index both equal one in magnitude, we have for path coefficients, $p_{97} = \frac{\sigma_7}{\sigma_9} = 1.05$ and $|p_{98}| = \frac{\sigma_8}{\sigma_9} = .15$. Thus, the greater impact of the black term derives entirely from its larger standard deviation, in comparison with this statistic for white status. The essential datum for the present discussion, however, is that to understand the variation in relative black standing one must examine the causes of absolute black status. Keeping in mind the lesser salience of the white term, it will nonetheless be enlightening to contrast the pattern of determination of the two racial components.

Figure 1 about here

A second point to note is that proportion in manufacturing (V_1) has a massive salutary effect on black status[8] ($q_{71} = .59$, see Table 2), and that this impact is mainly net of its influence on the occupational distribution. Indeed, the primary component is the direct path ($p_{71} = .45$), which means that a manufacturing specialty contributes to racial occupational equality via processes not captured by the terms in our model. We would speculate that the direct effect derives from such factors as the egalitarian traditions of industrial labor unions, and the seniority systems of manufacturing industries which, even when organized along separate racial lines, provide black workers with mobility channels into the ranks of the semi-skilled. Yet, in the framework of the current analysis, all we can reliably say is that the presence of upper-level positions in large numbers in manufacturing communities is not

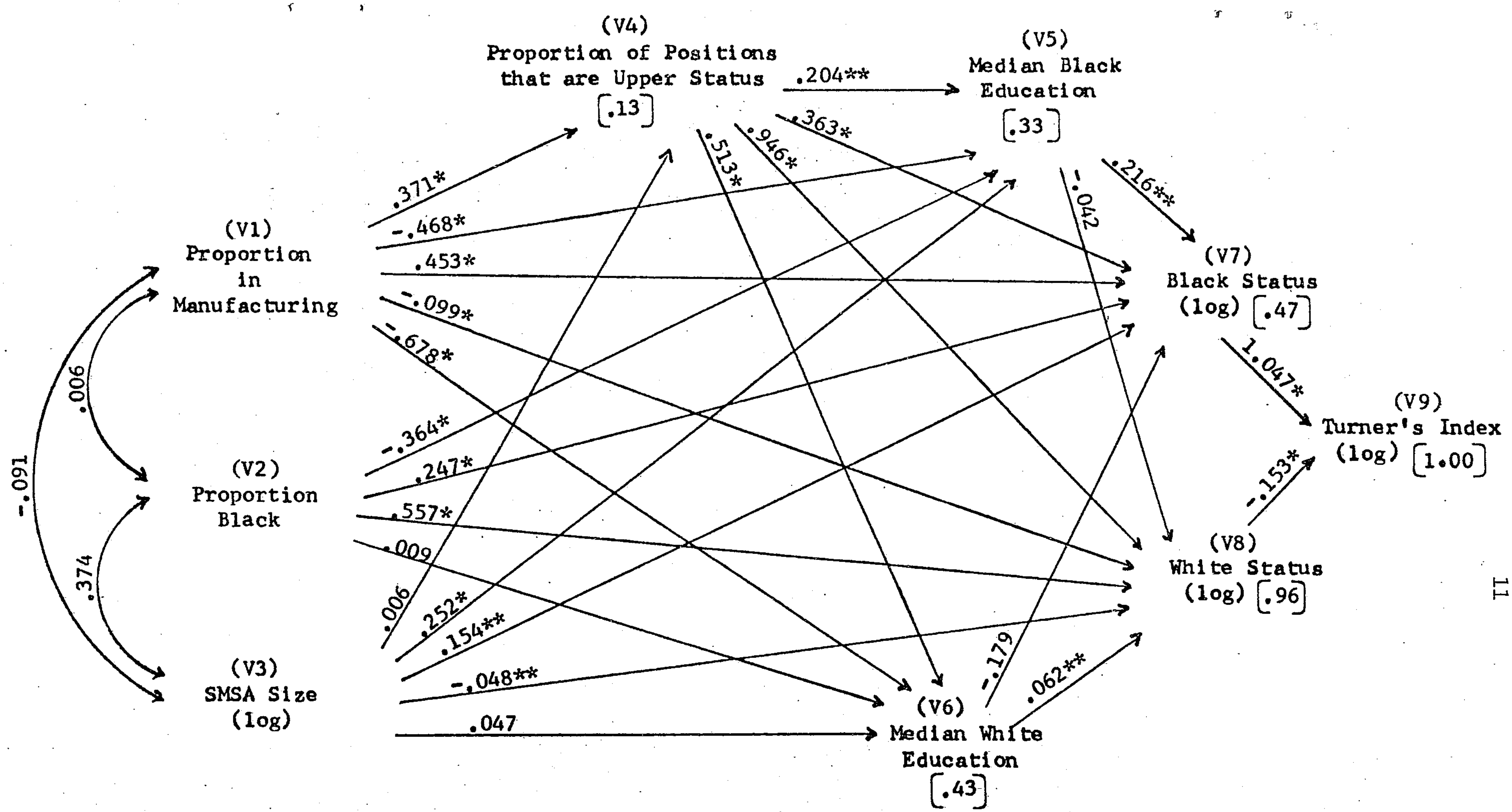

FIGURE 1. Model of the Determination[1] of the Racial Status Terms: Turner's Index[2]

** $p < .05$

* $p < .01$

1. Entries on links are path coefficients (beta's from OLS estimation). Entries in brackets are R^2 values for respective regression equations. R^2's are corrected for degrees of freedom.

2. Upper status category occupations (in V4, V7, V8, V9) is defined as proportion operatives and higher ranked capacities. See text for a precise definition.

the principal mechanism by which this industrial specialty contributes to high black status.

Table 2 about here

We next note that proportion upper status positions (V_4), shows only a modest dependence on the exogenous factors ($R^2 = .13$), although the positive path coefficient from percentage in manufacturing ($p_{41} = .37$) is consistent with Galle's (1963:263) figures cited earlier. The small R^2 value is somewhat surprising; we had anticipated a greater determination of the occupational distribution by industrial structure. We shall observe that this expectation is correct, but that percentage in manufacturing discriminates effectively between proportions in low and high status positions only at higher levels of the status cutting point than is utilized in Turner's index. In the present model, irrespective of the determinants of proportion upper category positions, this variable exerts a considerable influence on black occupational standing ($q_{74} = .32$) and on white standing ($q_{84} = .97$). Nor is it surprising that the effect is so great for whites. Considering the small percentage black values which characterized non-southern communities in 1960 (the mean over SMSA's is 5.3 percent), in conjunction with a systematic underrepresentation of this racial group in upper-level capacities, the term for white standing (V_8) should correspond closely with the community proportion of slots that are upper status.

A second motivation for this study concerns the impact of community proportion black (V_2) on the relative standing of black workers. When the correlation with the black status term is decomposed, we find only a modest total effect from proportion black ($q_{72} = .16$). Our failure to corroborate the "overflow" thesis may well be due to the small non-white populations in non-southern SMSA's.

TABLE 2. Contributions of the Community Characteristics[1] to Explaining the Variation in the Racial Status Components, Turner's Index

	(V1) Proportion Manufacturing	(V2) Proportion Black	(V3) SMSA Size	(V4) Proportion Upper Status	(V5) Black Education	(V6) White Education
A. Black Occupational Standing (V7)						
Total (Path) Effect (q_{7j})	.591	.164	.202	.315	.216	-.179
Direct Component (p_{7j})	.453	.247	.154	.363	.216	-.179
Indirect Effect via--						
Proportion Upper Status	.118	---	.002	---	---	---
Black Education	-.101	-.080	.054	.044	---	---
White Education	.121	-.003	-.008	-.092	---	---
Joint Association/ Spurious Effects[2]	-.018	.076	.007	.164	-.281	-.038
Zero-Order Correlation (calculated)[3]	.573	.239	.209	.479	-.065	-.217
Zero-Order Correlation (observed)	.575	.183	.187	.451	-.113	-.186
B. White Occupational Standing (V8)	(V1)	(V2)	(V3)	(V4)	(V5)	(V6)
Total (Path) Effect (q_{8j})	.239	.570	-.050	.969	-.042	.062
Direct Component (p_{8j})	-.099	.557	-.048	.946	-.042	.062
Indirect Effect via--						
Proportion Upper Status	.360	---	.006	---	---	---
Black Education	.020	.013	-.011	-.009	---	---
White Education	-.042	.000	.003	.032	---	---
Joint Association/ Spurious Effects[2]	.007	-.021	.189	-.053	-.028	.265
Zero-Order Correlation (calculated)[3]	.246	.549	.138	.916	-.070	.317
Zero-Order Correlation (observed)	.253	.363	.069	.820	-.075	.275

1. Calculations are from the standardized regression coefficients reported in Figure 1. Upper status category occupations defined as proportion semi-skilled and higher ranked capacities.

2. "Joint association" refers to the shared effects of the predetermined variables, V1, V2, V3. "Spurious effects" refers to the impact on the dependent variable from prior causes of the endogenous variables, V4, V5, V6.

3. The calculated zero-order correlation differs from the observed correlation because of deleted paths for which no direct causation is hypothesized.

One can hardly expect to document an overflow into upper-status jobs where the black labor force is minescule, unable to staff more than a portion of the lower category positions. We speculate that more substantial status benefits to blacks from residing in a large percentage black community would be noted in the South, where the range in proportion non-white tends to be greater.

There is, incidentally, indirect evidence in our data which supports the overflow thesis. In contrast with the ambiguity regarding an occupational benefit to black males, we find considerable indication of an improvement in <u>white</u> standing (q_{82} = .57), validating the contention by Glenn (1964:47) that whites obtain an occupational return from residing in a large proportion black locale. This finding is hardly anomalous in the context of the overflow thesis. If it is the case that the moderate percentage black values in non-southern SMSA's only contribute to the "filling-up" of low-level capacities with black workers (since they are too few to effect a spillover and create status gains for this group), the release of whites for employment in upper strata jobs would still take place on a <u>continuous</u> basis.

City size (V_3) imparts a positive contribution to black status (q_{73} = .20); also, the main portion of this effect is not mediated by other variables in the model (p_{73} = .15). These results are consistent with the notion that large metropolitan places constitute relatively tolerant settings, enabling black workers to attain higher standing. The fact that they are advantaged, as well, in other institutional areas in large cities (e.g., with respect to educational attainment, q_{53} = .25) supports this view. (We note, paranthetically, that city size does not offer comparable benefits to whites, either in status [q_{83} = -.05] or in education [q_{63} = .05].) Whether the interpretation we have offered is in fact correct, we cannot say, since the terms relevant to its evaluation are peripheral to the concerns of this study, and were not included. What we can state is that blacks obtain status benefits from residing in large urban centers, and the mechanisms through which this effect operates are not captured by the variables in the model.

To summarize, our principal results portray the following situation: (1) the industry structure of a community is an important consideration for understanding black occupational standing (black status is higher where there is a manufacturing specialty). (2) The occupational composition of the labor force is also salient to explaining black status. (The returns to blacks from a high manufacturing concentration, however, occur mainly apart from this variable's influence over the occupational mix.) (3) There is no direct evidence of a status benefit to black workers from residing in a large percentage black community. Yet, white status is raised, and we interpret this effect as supporting the overflow thesis. Finally, because the variation in the index of relative black standing is principally a function of the variation in its black component, (4) the pattern of determination of the ratio index corresponds closely with our discussion of the determination of black status.

Alternate specifications of the status index. There is nothing sacred about the breakpoint employed by Turner (1951) and Blalock (1956) in distinguishing upper-level from lower-level occupations, although their choice is as good as any other. Indeed, it is because of this lack of a substantive basis for preferring one status division to another that we investigate the sensitivity of our conclusions to the index breakpoint.[9] The preceding analysis was therefore replicated with two alternate specifications of the status measure. For index 2 the breakpoint is between semi-skilled and skilled occupations (i.e. operatives are now relegated to the lower category); for index 3 the breakpoint is between blue collar and white collar capacities. Corresponding to each specification of the racial status terms, proportion upper category positions (V_4) was adjusted to maintain a consistent status definition in the particular model. No other variable was altered.

Path coefficients and associated summary statistics corresponding to the index 2 formulation are presented in Figure 2 and Table 3; analogous calculations with index 3 are reported in Figure 3 and Table 4. The most important changes from the previous specification relate to the roles of industry structure and community occupational composition. In place of the positive direct effect from percentage in manufacturing (V_1) to proportion upper status positions (V_4), we now find a substantial negative path (for the three status definitions, respectively, the p_{41} values are .37, -.64, -.69). This shift is not surprising in light of Galle's (1963:263) statistics on the occupational distributions of communities containing different industrial specialties; they reveal that it is principally the semi-skilled category which varies in size with percentage in manufacturing. Among Galle's "regional capitals" (a non-manufacturing specification) operatives comprise 16.4 percent of the labor force; while among his "specialized manufacturing centers," 28.3 percent are engaged in semi-skilled pursuits. Assigning operatives to the low status category thereby has the effect of reversing the prior relationship between employment concentration in this industrial activity and proportion upper status positions.[10]

<u>Figure 2 and Table 3; Figure 3 and Table 4 about here</u>

Largely because of this shift, the contribution from percentage in manufacturing to black occupational standing changes radically as the index breakpoint is raised, from very positive to substantially negative (q_{71} = .59, -.23, -.51 in Tables 2-4). Turner's favorable assessment of a manufacturing environment for black opportunity is thereby seen to be entirely a consequence of better employment prospects for black workers in semi-skilled positions in

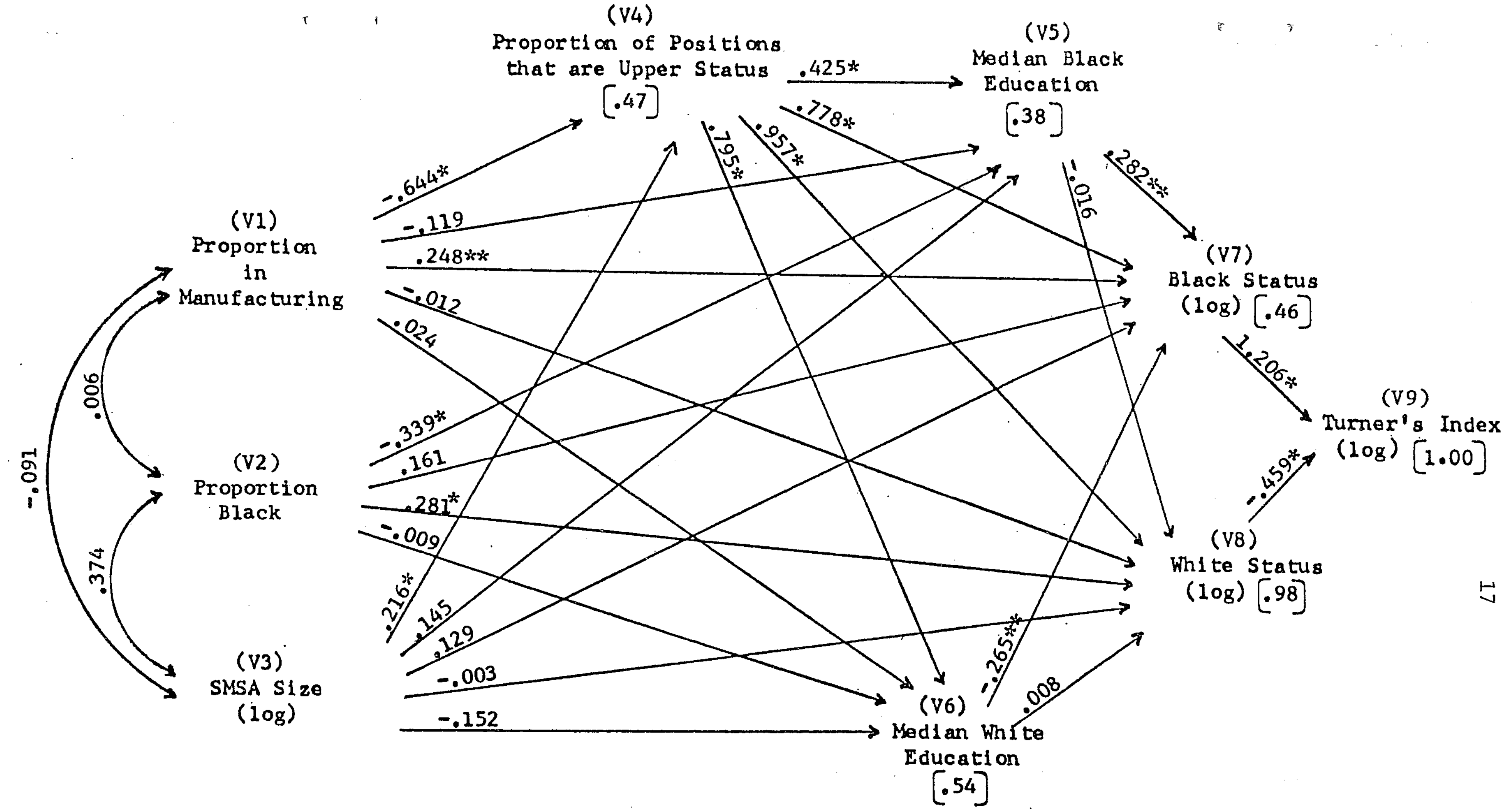

FIGURE 2. Model of the Determination[1] of the Racial Status Terms: Index[2] 2

** $p < .05$

* $p < .01$

1. Entries on links are path coefficients (beta's from OLS estimation). Entries in brackets are R^2 values for respective regression equations. R^2's are corrected for degrees of freedom.

2. Upper status category occupations (in V4, V7, V8, V9) is defined as proportion skilled and higher ranked capacities. See text for a precise definition.

TABLE 3. Contributions of the Community Characteristics[1] to Explaining the Variation in the Racial Status Components, Index 2

	(V1) Proportion Manufacturing	(V2) Proportion Black	(V3) SMSA Size	(V4) Proportion Upper Status	(V5) Black Education	(V6) White Education
A. Black Occupational Standing (V7)						
Total (Path) Effect (q_{7j})	-.234	.067	.359	.687	.282	-.265
Direct Component (p_{7j})	.248	.161	.129	.778	.282	-.265
Indirect Effect via--						
Proportion Upper Status	-.442	---	.149	---	---	---
Black Education	-.034	-.096	.041	.120	---	---
White Education	-.006	.002	.040	-.211	---	---
Joint Association/ Spurious Effects[2]	-.033	.131	.046	-.047	.194	.557
Zero-Order Correlation (calculated)[3]	-.267	.198	.405	.640	.476	.292
Zero-Order Correlation (observed)	-.267	.132	.403	.605	.409	.357
B. White Occupational Standing (V8)	(V1)	(V2)	(V3)	(V4)	(V5)	(V6)
Total (Path) Effect (q_{8j})	-.626	.283	.200	.956	-.016	.008
Direct Component (p_{8j})	-.012	.281	-.003	.957	-.016	.008
Indirect Effect via--						
Proportion Upper Status	-.616	---	.206	---	---	---
Black Education	.002	.003	-.002	-.007	---	---
White Education	.000	-.001	-.001	.006	---	---
Joint Association/ Spurious Effects[2]	-.018	.066	.162	.029	.474	.704
Zero-Order Correlation (calculated)[3]	-.644	.349	.362	.985	.458	.712
Zero-Order Correlation (observed)	-.642	.270	.364	.956	.431	.687

1. Calculations are from the standardized regression coefficients reported in Figure 2. Upper status category occupations defined as proportion skilled and higher ranked capacities.

2. "Joint association"refers to the shared effects of the predetermined variables, V1, V2, V3. "Spurious effects" refers to the impact on the dependent variable from prior causes of the endogenous variables, V4, V5, V6.

3. The calculated zero-order correlation differs from the observed correlation because of deleted paths for which no direct causation is hypothesized.

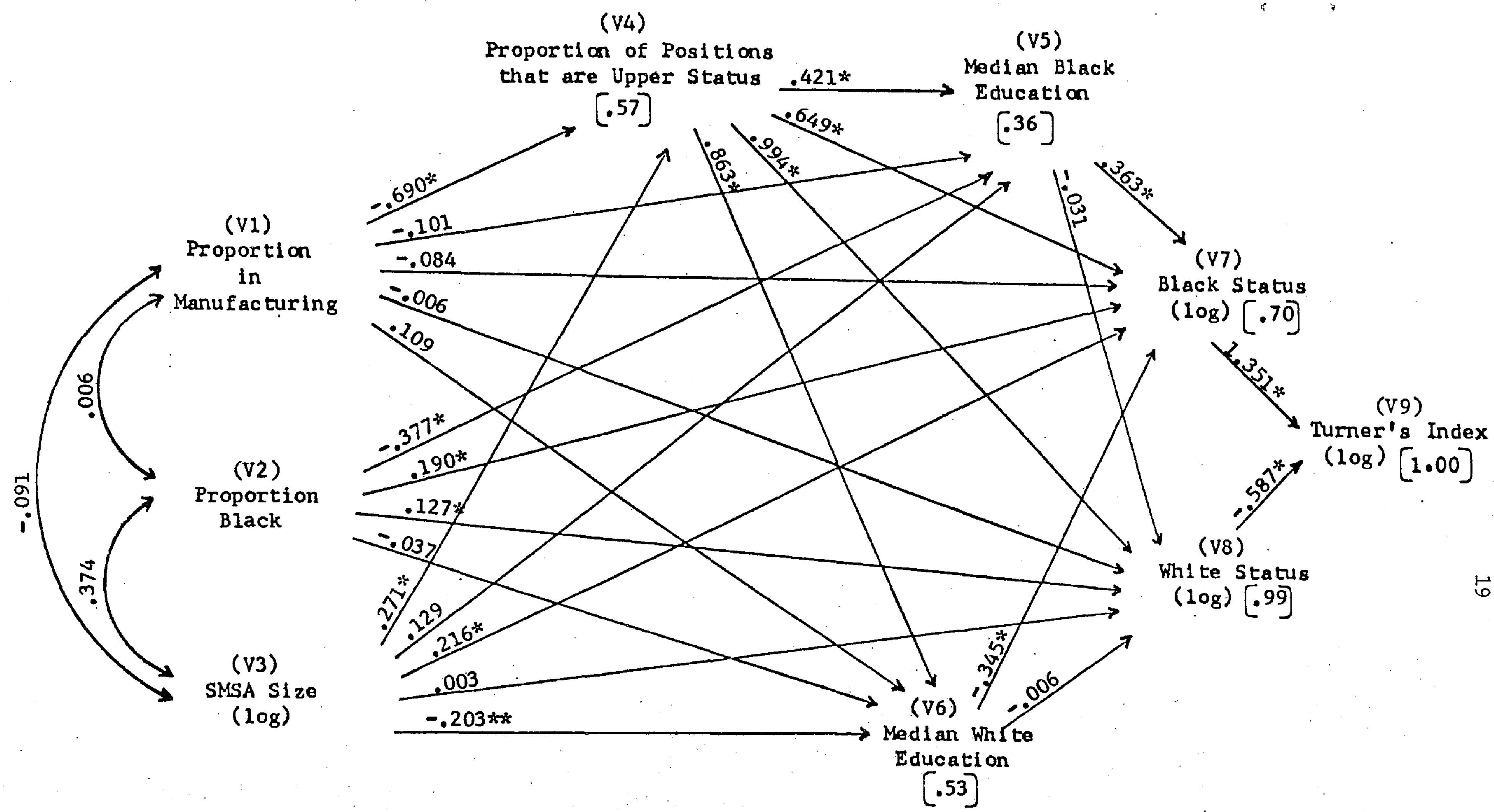

FIGURE 3. Model of the Determination[1] of the Racial Status Terms: Index[2] 3

** $p < .05$

* $p < .01$

1. Entries on links are path coefficients (beta's from OLS estimation). Entries in brackets are R^2 values for respective regression equations. R^2's are corrected for degrees of freedom.

2. Upper status category occupations (in V4, V7, V8, V9) is defined as proportion white collar capacities. See text for a precise definition.

TABLE 4. Contributions of the Community Characteristics[1] to Explaining the Variation in the Racial Status Components, Index 3

A. Black Occupational Standing (V7)

	(V1) Proportion Manufacturing	(V2) Proportion Black	(V3) SMSA Size	(V4) Proportion Upper Status	(V5) Black Education	(V6) White Education
Total (Path) Effect (q_{7j})	-.505	.066	.470	.504	.363	-.345
Direct Component (p_{7j})	-.084	.190	.216	.649	.363	-.345
Indirect Effect via--						
Proportion Upper Status	-.347	---	.137	---	---	---
Black Education	-.037	-.137	.047	.153	---	---
White Education	-.038	.013	.070	-.298	---	---
Joint Association/ Spurious Effects[2]	-.044	.172	.071	.217	.206	.660
Zero-Order Correlation (calculated)[3]	-.549	.238	.541	.721	.569	.315
Zero-Order Correlation (observed)	-.549	.211	.540	.731	.493	.384

B. White Occupational Standing (V8)

	(V1)	(V2)	(V3)	(V4)	(V5)	(V6)
Total (Path) Effect (q_{8j})	-.677	.139	.264	.976	-.031	-.006
Direct Component (p_{8j})	-.006	.127	.003	.994	-.031	-.006
Indirect Effect via--						
Proportion Upper Status	-.673	---	.265	---	---	---
Black Education	.003	.012	-.004	-.013	---	---
White Education	-.001	.000	.000	-.005	---	---
Joint Association/ Spurious Effects[2]	-.024	.090	.113	.018	.460	.701
Zero-Order Correlation (calculated)[3]	-.701	.229	.377	.994	.429	.695
Zero-Order Correlation (observed)	-.701	.180	.378	.985	.447	.680

1. Calculations are from the standardized regression coefficients reported in Figure 3. Upper status category occupations defined as proportion white collar positions.

2. "Joint association" refers to the shared effects of the predetermined variables, V1, V2, V3. "Spurious effects" refers to the impact on the dependent variable from prior causes of the endogenous variables, V4, V5, V6.

3. The calculated zero-order correlation differs from the observed correlation because of deleted paths for which no direct causation is hypothesized.

manufacturing communities, a point about which he was not unaware (Turner 1951:528). Our sensitivity analysis also indicates that varying the breakpoint of the status measure leads to much the same assessment for whites (q_{81} = .24, −.63, −.68); that is, the paucity of skilled and white collar slots in manufacturing centers has a deleterious effect on their status as well. Moreover, at the higher breakpoints, the impact of this industrial specialty operates on the two racial status terms predominately via the path to occupational composition ($p_{41}q_{74}$ = .12, −.44, −.35 for blacks; $p_{41}q_{84}$ = .36, −.62, −.67 for whites). This effect pattern underscores the importance of industry configuration, and its determination of community occupational mix,[11] as critical contextual factors in the status attainment process.

Leaving aside the question of fine detail in the causes of the availability of upper-strata positions (V_4), this variable is a central determinant of black occupational standing under each specification of the status index (q_{74} = .32, .69, .50). Black workers clearly benefit from residing in a community with a high proportion of upper-level positions. With respect to explaining the variation in <u>white</u> occupational standing, this variable is even more crucial (q_{84} = .97, .96, .98 for the successive breakpoints). The reason for its massive effect on white status is quite evident; the representation of blacks in upper strata occupations is quite small, and decreases as the index breakpoint is raised, so proportion upper category positions is almost coterminous with the white status term (V_8), and the two variables co-vary closely.

Finally, we continue to fail to document a salutary effect of community proportion black (V_2) on the occupational standing of black males (q_{72} = .16, .07, .07). We do find, however, a persistent advantage to <u>whites</u> from residing in a high percentage black locale (q_{82} = .57, .28, .14). In the preceding section it was argued that the presence of a status return to whites, but not to blacks, is consistent with the overflow thesis, as it should operate in a region where the average value of proportion black is small. That is, an overflow would have to be preceded by the "filling up" of low status positions, and until this is accomplished no occupational benefit to blacks would be recorded. For whites, in contrast, the returns would come continuously (each added black worker frees a white for higher level employment), and therefore can be documented in the non-South. The decline in white status advantage as the index breakpoint is raised, is also expected. The upgrading of white workers would affect primarily the racial composition in the occupational category being vacated by them--mainly unskilled and service positions in non-southern SMSA's--and the white status term would be most sensitive to the process when the division point lies immediately above this category.

The insights into the influence of the community characteristics on status attainment that we obtain by varying the specification of the upper-level category are, then, the following: (1) The choice of index breakpoint entirely determines our assessment of the role of industry structure. In manufacturing communities, black employment and, to a lesser extent, white employment are enhanced in semi-skilled capacities; at the same time opportunity for both groups in higher level positions is depressed. (2) The availability of upper-level slots (which is a function of industrial specialization) is a massive determinant of both black occupational standing and white standing, irrespective of the status breakpoint utilized. (3) Community percentage black contributes to white occupational status in a manner which supports the notion that lower category positions are being filled with blacks, preliminary to their "overflow." (4) Though not central to the theoretical issues addressed in this paper, we also remark that large SMSA size provides blacks with a status benefit of considerable importance, and one which is consistent over the index breakpoints (q_{73} = .20, .36, .47).

Relative black standing. In Table 5 we summarize the contributions of the community characteristics toward accounting for the variation in the relative occupational status of blacks. Percentage in manufacturing (V_1) operates to bolster black standing when upper category positions are specified in accordance with Turner's index. As the breakpoint is raised the advantage to blacks vanishes, and it is replaced by a relative benefit to whites from a manufacturing concentration[12] (q_{91} = .58, .01, -.29). Thus, the effect pattern reported previously with absolute black status is transmitted to the ratio index, and we observe, again, that it is only the occupational prospects of black workers in semi-skilled positions which is enhanced by a manufacturing specialty.

Table 5 about here

With respect to community racial composition (V_2), in no instance do we record a significant occupational advantage to blacks from residing in a high proportion non-white locale. Indeed, since the total effects are insubstantial at all levels of the index breakpoint (q_{92} = .08, -.05, .01), it is also the case that the considerable occupational benefit to whites from residing in a large percentage non-white locale, noted earlier, is completely eroded. The returns to whites in absolute standing are very real, in regard to the proportion of variation in white status level which they explain. However, because of the greater dependence of the ratio index on the black status component, at all index breakpoints, the smaller black term effectively negates the white component. We return to this issue from a different perspective in the next section.

TABLE 5. Contributions of the Community Characteristics to Explaining the Variation in Relative Black Standing

	(V1) Proportion Manufacturing	(V2) Proportion Black	(V3) SMSA Size	(V4) Proportion Upper Status	(V5) Black Education	(V6) White Education
A. Turner's Index[1] (V9)						
Total (Path) Effect (q_{9j})	.583	.083	.219	.182	.233	-.197
Mediated via Prop. Upper Status	.068	---	.001	---	---	---
Joint Association/Spurious Effects[4]	-.020	.082	-.022	.180	-.295	-.080
Zero-Order Correlation (calculated)[4]	.563	.165	.197	.362	-.062	-.277
Zero-Order Correlation (observed)	.564	.136	.185	.337	-.107	-.237
B. Index[2] 2 (V9)	(V1)	(V2)	(V3)	(V4)	(V5)	(V6)
Total (Path) Effect (q_{9j})	.006	-.051	.342	.390	.347	-.323
Mediated via Prop. Upper Status	-.250	---	.085	---	---	---
Joint Association/Spurious Effects[4]	-.033	.125	-.019	-.072	.010	.354
Zero-Order Correlation (calculated)[4]	-.027	.074	.323	.318	.357	.031
Zero-Order Correlation (observed)	-.027	.035	.319	.291	.295	.115
C. Index[3] 3 (V9)	(V1)	(V2)	(V3)	(V4)	(V5)	(V6)
Total (Path) Effect (q_{9j})	-.286	.007	.480	.108	.509	-.463
Mediated via Prop. Upper Status	-.075	---	.031	---	---	---
Joint Association/Spurious Effects[4]	-.044	.180	.030	.283	.008	.484
Zero-Order Correlation (calculated)[4]	-.330	.187	.510	.391	.517	.021
Zero-Order Correlation (observed)	-.330	.179	.508	.410	.403	.119

1. Calculations are from Figure 1.

2. Calculations are from Figure 2.

3. Calculations are from Figure 3.

4. See notes 2, 3 of Table 2.

SMSA size (V_3) is a factor of considerable consequence for understanding the variation in the relative occupational standings of the racial groups, and its impact, advantaging blacks, is consistent over the alternate index break-points (q_{93} = .22, .34, .48). Further calculations demonstrate that these effects operate principally via the direct path to absolute black status ($p_{97}q_{73}$ = .16, .17, .30). Community size has not been a focus of much theoretical attention, as it relates to the labor force situation of black workers. Yet, our analysis reveals a considerable occupational benefit to blacks, in absolute standing and relative to white status, from residing in a large metropolitan center. The sorts of mechanisms one should examine to understand how size contributes to black status are ones which operate <u>apart</u> from the terms in our model (e.g., higher levels of black education in large cities do not account for the finding). Potential explanations include (a) the tendency for corporate headquarters of black owned firms to locate in large cities; (b) the presence of sizeable civil service contingents (which would be relatively universalistic in promotion practices) in large cities, presumably because of a concentration there of governmental functions, and (c) the existence of a racially more tolerant milieu in metropolitan centers.

We also stress the importance of proportion upper-status positions (V_4) in accounting for community differences in relative black occupational standing. We have reported that the availability of upper level slots has a considerable salutary effect on both white status and black status. The <u>net</u> benefit is one of a modest advantage to black workers (q_{94} = .18, .39, .11). Finally, as one would expect from a proper model of these processes, relative black standing is enhanced by high median black education (q_{95} = .23, .35, .51), and depressed by high levels of median white education (q_{96} = -.20, -.32, -.46).

AN ALTERNATIVE APPROACH TO THE IMPACT OF THE COMMUNITY CHARACTERISTICS

In the preceding formulation the contribution of a community feature was assessed in terms of the portion of the variation in a racial status measure which it explained. Alternatively, path analysis is consistent with an interpretation of "standard deviations response" by a dependent variable (one of the racial status indices) which will result from a one standard deviation shift in an input variable (one of the exogenous or intervening terms in the model). It is the latter approach to the "importance" of a community characteristic that we wish to emphasize in the present section.

Beta coefficients have a drawback for this sort of investigation because their associated units of change are not in the metrics of the concrete variables. They mask the amount of shift in different input terms which is necessary to produce a unit alteration in the dependent variable. Moreover, when the effects on several dependent variables are being compared, as is the case here, measuring the respective responses in standard deivation units can be misleading. (This point is especially pertinent to evaluating the contribution of proportion black.) Unstandardized regression coefficients are more suitable for comparisons, although in the present investigation they do not yield easily interpretable coefficients because several variables appear in our model in logarithmic form. While this problem of shifts not being expressed in the metrics of the concrete variables is easily finessed, we proceed instead to motivate an approach which, intuitively, is more appropriate to the problem at hand.

The notion of "elasticity" has been employed by economists for comparative purposes similar to ours. Conceptually, ε_{yx}, the elasticity of y with respect to x, indicates the change in y (the dependent variable) resulting from a one percent shift in x when both terms are evaluated at their means. In formal notation (Stigler 1966:329-99),

$$\varepsilon_{yx} \underline{\underline{\mathrm{def}}} \frac{dy/\bar{y}}{dx/\bar{x}} = \frac{dy}{dx} \cdot \frac{\bar{x}}{\bar{y}} \tag{1}$$

where dy and dx are differentials and signify small changes in the respective variables. If the appropriate computations are performed (see Appendix A), elasticities can be expressed in the metrics of y and x, even though transforms of one or both of these terms, such as the logarithm, have been used in the regressions.

Elasticities follow the same aggregation rules as the computation of total effects from path coefficients.[13] Thus, subject to the specifications of a causal model, one can calculate the percentage change in a dependent variable y which derives from an α-percent shift in some input variable x_i via the direct and indirect links connecting x_i to y. Tables of elasticities analogous to Tables 2-5 were calculated corresponding to each index breakpoint. Summary versions of the tabulations, reporting total elasticities, are presented in the Appendix (Table A-2). We exhibit these results only in passing, for reference purposes, because elasticities are not the optimal measures for evaluating the impact of the community characteristics on the racial status terms, though they do comprise an integral component of those measures.

The attractive feature of elasticities is that they relate the percentage change in a dependent variable (from its mean) to the percentage shift in an input variable (from its own mean). The drawback to this measure is that it is insensitive to differences among input variables with regard to the natural amount of variation each embodies. This point is consequential because while the relative impact of the input variables is determined by the responses to an equal percentage shift in each, the ease by which this shift can be obtained may differ considerably for the various terms. An example should clarify this point.

According to Table A-2, with Turner's index, a one percent shift in proportion upper status positions (V_4) will generate a 2.14 percent change in black status level (V_7). In comparison, the elasticity of black status with respect to manufacturing proportion (V_1) is much smaller ($\varepsilon_{71} = .29$). We would therefore assert that the former term can effect a greater response in black status, as measured by the impact of equal percentage shifts in the two input variables. The rub comes when one inquires whether a particular sized percentage shift in a given input variable is "reasonable" to expect, in the sense of being likely to occur naturally or possible to induce by manipulation. In the illustration, a 10 percent shift in proportion upper status positions (from its mean) would entail a change of 4 standard deviations given the empirical distribution of this variable (see Table A-3), hardly a small alteration. In contrast, a 10 percent shift in proportion manufacturing is equivalent to a 1/3 standard deviation change, well within that variable's range of natural variation in our population of cities.

In light of this argument we define a comparable change unit in an input variable as the percentage shift which constitutes one standard deviation in its empirical distribution, and compare responses by the racial status terms to shifts of this magnitude in different variables. Formally, the "impact" coefficients are defined by

$$\tau_{ij} = \varepsilon_{ij} SD(V_j)(100)/\bar{V}_j \qquad (2)$$

and τ_{ij} has an interpretation as the percentage change in V_i (from its mean) consequent upon a one standard deviation shift in V_j (measured as a percentage of its own mean).[14] This specification returns us part way to the formulation of path coefficients, in that the change unit for an input variable now is a function of its standard deviation. However, the effect on the dependent variable continues to be expressed as a percentage change; thus, the response remains interpretable in the metric of the concrete measure, and responses by different dependent variables (e.g., black status level, white status level) can be readily compared.

Impact coefficients showing the total effect of each input variable (direct plus indirect effects) are reported in Table 6. In the first column we present values of $SD(V_j)/\bar{V}_j$; the percentage change in a variable, evaluated at its mean, which is equivalent to one standard deviation. To reiterate, it is our view that some community characteristics (e.g., proportion upper status positions) are highly constrained by organizational imperatives while other features (e.g., proportion black) are comparatively free to vary, and that the empirical standard deviation provides a measure of a comparable amount of change. Another justification for this shift unit is that if an individual residing in a city characterized by the input variable means were to change cities randomly, being equally likely to move to any other SMSA, he would have an almost identical probability[15] of altering his value on any input variable by one standard deviation.

Table 6 about here

The next three sets of three columns report the impact coefficients for black status, white status, and relative black status for the three specifications of the upper level category. Each entry indicates the percentage change in a racial status measure which would result from a shift of one standard deviation (the percentage value in column 1) in a particular input variable,

TABLE 6. Impact Response by the Racial Status Measures to the Other Community Characteristics

Community Characteristic	S.D. as a Prop. of Mean Value	Percentage Change in Racial Status Measure from a one Standard Deviation Shift in Level of the Community Characteristic[1]								
		Turner's Index[2]			Index[3] 2			Index[4] 3		
		(V7) Black Status	(V8) White Status	(V9) Relative Status	(V7) Black Status	(V8) White Status	(V9) Relative Status	(V7) Black Status	(V8) White Status	(V9) Relative Status
V1 Prop. Manuf.	33.9%	9.70%	.59%	9.11%	-5.05%	-5.16%	.11%	-18.74%	-10.87%	-7.87%
V2 Prop. Black	78.0	2.69	1.36	1.33	1.45	2.23	-.78	2.43	2.24	.19
V3 SMSA Size	171.0	5.56	-.20	5.76	13.03	2.80	10.23	29.23	7.13	22.10
V4 Upper Status	---[5]	5.17	2.32	2.85	14.84	7.86	6.98	18.70	15.68	3.02
V5 Black Educ.	9.9	3.54	-.10	3.64	6.08	-.14	6.22	13.46	-.49	13.95
V6 White Educ.	7.7	-2.94	.15	-3.09	-5.72	.07	-5.79	-12.80	-.10	-12.70
Racial Status Measures:										
Mean[6]		.576	.880	.654	.274	.658	.414	.135	.418	.317
Standard Deviation		.091	.021	.098	.056	.054	.072	.047	.066	.083

1. Change percentages are based on mean values.
2. Upper status category defined as proportion semi-skilled (operatives) and higher ranked occupations.
3. Upper status category defined as proportion skilled and higher ranked occupations.
4. Upper status category defined as proportion white collar occupations.
5. Value varies with the status cutting point: 2.42 with Turner's index, 7.85 with index 2, and 15.50 with Index 3.
6. Values are proportions (decimal fractions).

with all prior and concurrent causal variables (those in the same regression equation) held constant. For instance, with Turner's index, τ_{71} = 9.7 means that a one standard deviation shift in the manufacturing proportion (33.9 percent in percentage terms) would elevate the black labor force's representation in semi-skilled and higher ranked occupations by 9.7 percent.

An inspection of the impact coefficients reveals that black status is responsive, principally, to industry composition, proportion upper status slots in the economy, and SMSA size. As an overall pattern, these results support our assessment reached earlier with the path coefficients. We are now in a position, though, to assign concrete values to the magnitudes of the effects. Thus, with regard to proportion in manufacturing, as the index breakpoint is raised, the 9.7 percent improvement in black status under Turner's index is reversed, and the response to a one standard deviation increase in manufacturing concentration becomes a considerable reduction in black standing--at the highest index breakpoint, the proportion of black workers in white collar occupations is depressed by 18.7 percent. This status reduction occurs for white workers as well; it derives, in the main, from the contraction of white collar employment in communities organized around a manufacturing specialty. However, the level of <u>black</u> standing appears to be especially sensitive to changes in industry composition, and the net racial effect is a status loss to this group (τ_{91} = -7.9 at the highest division point).

High proportion upper status positions (V_4) and large SMSA size (V_3) both elevate black status, in absolute terms and relative to white standing. In each case the advantage increases as the index breakpoint is raised. With respect to black representation in white collar capacities, a one standard deviation increase in proportion upper level positions (a shift of 15.5 percent) becomes translated into a 18.7 percent status gain. Similarly, a standard deviation increase in SMSA size is translated into a 29.2 percent improvement in black status. Regarding the latter effect, we therefore observe again, using a different measure from the path coefficients, that the salutary impact of a large community on black occupational level is substantial; also, this advantage is transmitted to relative black standing (τ_{93} = 22.1). Finally, the two education variables have sizeable effects on black status (though not on white standing), especially at the high index cutting points. With respect to black representation in white collar occupations, a 9.9 percent improvement in black educational attainment means a 13.5 percent status increase; at the same time, a 7.7 percent improvement in <u>white</u> educational level would depress black standing by 12.8 percent.

The pattern of determination of white status is quite different. The principal influence on white occupational level is proportion upper category positions in a community (V_4). In the instance of every index breakpoint, the percentage response by white status is almost identical with the percentage shift in this input variable, which is hardly surprising considering the close definitional correspondence between the two terms. At the high index breakpoints, proportion in manufacturing and SMSA size also have potent effects on white standing (with index 3, τ_{81} = -10.9, τ_{83} = 7.1). It is the case, though, that in our model these terms are conceptually prior to proportion upper category positions, and operate on white status almost entirely via their effects on this intervening variable (see, e.g., Table 4, lower panel).

One apparent discrepancy between the path model and the current specification concerns the importance of community proportion black (V_2) for white status level under Turner's index. Much significance was attributed in the path model to the large contribution from this input term (q_{82} = .57 in Table 2). Yet, we now observe that a one standard deviation shift in proportion black, an alteration of 78 percent, produces a 1.36 percent change in white status, hardly a substantial response. This difference in effect between the two formulations stems from the different natures of the two types of statistics. Path coefficients indicate the response in standard deviations of the dependent variable (white status level) to a one standard deviation shift in proportion black. What is obscured in that formulation is the small magnitude of a standard deviation in white status--2.1 percentage points, in comparison with 9.1 percentage points for black status. Thus, while proportion black is important from the vantage point of accounting for the variation in white status, the magnitude of the change involved is not great. Indeed, despite a modest total path coefficient from proportion black to black status (q_{72} = .16 in Table 2), because of the latter term's larger standard deviation its percentage response exceeds the white status response (τ_{72} = 2.69, τ_{82} = 1.36). To summarize, whites do benefit from residing in a large proportion black community, yet the extent of their advantage, while highly significant statistically,[16] is quite small in concrete terms.

CONCLUSIONS

Reviewing the results from the two formulations, together with the consequences of varying the index breakpoint, the following comments constitute our assessment of the contributions of the community characteristics to the racial status terms: (1) Proportion in manufacturing has a considerable impact on both black standing and white occupational standing; the effects being more pronounced for blacks. A high manufacturing proportion raises black representation in semi-skilled positions, as suggested by Turner (1951:528), but depresses black, white, and relative black standing in higher ranked occupations. The advantage to blacks in semi-skilled capacities comes via processes not captured by the terms in our model; possible explanations were reviewed in the discussion centered on Table 2. The status reduction in all racial terms at the higher index breakpoints, in the context of a manufacturing specialty, derives almost entirely from that variable's determination of the community occupational mix.

(2) Proportion upper status positions is the central consideration for understanding the level of white occupational standing. Yet, black standing is even more responsive to changes in this variable (as it is, indeed, to most of the community characteristics); thus, the net racial status benefit from an increase in proportion upper level slots accrues to black workers. (3) Community proportion black is a significant determinant of the variation in white status at the low index breakpoint. Taking this as indirect evidence of the filling up of menial positions with blacks, the "overflow" thesis is confirmed. Yet, because the variance of the white status term is small, its percentage response to a change in proportion black is quite modest.[17] (4) SMSA size carries immense importance for black status, and it is also consequential for white standing. In part, these effects operate through proportion upper level occupations, which is greater in large metropolitan places. In part, especially for blacks, the influence of SMSA size comes via its direct path to the racial status term. Possible explanations for the latter relation were outlined in the path analysis section.

Our data are not ideally suited for discussing the process of status attainment. The variables refer to community averages, not to individual attributes, and the status measures are but crude approximations to a true SES scale. Nonetheless, it is hardly the case that our analysis is unrelated to the mechanics of socioeconomic achievement, and in this section we sketch the more important implications. These concern, principally, the consequences of omitting contextual variables, characteristics of the industry and community in which an individual is embedded, from a formal model of status attainment.

The argument as to why industry should influence an individual's occupational standing and earnings can be made in the following way. Industry provides a major specification of the institutional framework within which occupations are created and organized into a coherent structure with delineated mobility channels. Industry affiliation is then relevant to explaining socioeconomic achievement for a number of reasons: Industries differ in their occupational distributions. Some (e.g. primary metal manufacturing) have, for instance, high ratios of craftsmen to operatives, while others (e.g. textile mills) have very low ratios of employment in these occupational categories. This sort of consideration should be a critical determinant of the mobility prospects of low skilled workers in the various industrial sectors. Industries differ in their manner of securing personnel to staff skilled and lower white collar capacities. Some traditionally promote from below, while others follow a craft model, hiring into these positions from outside the firm. Industries also differ in their growth rates, and we presume that promotion will be more rapid in expanding fields than in declining ones. Finally, demographic considerations are consequential for upgrading. An industry with an aging labor force can be expected to undertake considerable replacement hiring and promotion in the near term future.

One might expect the impact of these structural factors to be muted via firm and industry shifts so that an ambitious worker, recognizing mobility blockage in his place of employment, would make a strategic job change. To a degree this occurs; yet only the very young are unhampered by institutional barriers to movement.[18] Many skills are not transferrable across technologies, so by changing industries after several years of employment an individual may have to forego considerable "sunk costs." Also, workers develop financial attachments to their places of employment, in the form of seniority and pension rights, which frequently are not vested with the individual. An additional consideration is that a portion of the American labor force resides in communities which contain few industries (one industry towns constitute an extreme case); for them, changing industry entails a decision to change community as well. Migration is an important process for reducing the impact of industrial constraints on socioeconomic achievement. Yet, for many persons, ties to community and family must overwhelm occupational goals.

Community is relevant to an understanding of individual differences in status attainment for additional reasons. As implied above, community occupational structure provides a summary statement of the skill requirements of local industries, and thereby defines the range of employment opportunities available to residents. Communities also represent bundles of demographic features which may impinge on mobility prospects, especially for socially defined population groups. (An example would be the role of percentage black in the present investigation, as it affects black and white occupational standing.) Finally, there are stable community differences in the values of some terms in status attainment models. Without controlling for the community scores, these effects will be confounded with individual level relationships; typically, the total effects are explained solely via arguments at the individual level. We will elaborate this point.

For the purpose of unraveling the process of socioeconomic achievement, then, the labor market is hardly the undifferentiated entity which is implicitly assumed in status attainment models. Instead, careers tend to progress in communities and within industry sectors, and these institutional structures constrain mobility, more or less, depending on an individual's scores on the contextual variables. One might say that, given first job (or, perhaps, job at age 25), education and other background terms operate within the latitude prevailing in the particular industrial setting. At a minimum, omission of institutional variables from occupational attainment models means a neglect of the mechanisms by which careers evolve, and a consequent inadequate comprehension of the reasons for different status payoffs to individuals having similar background profiles.

It is also the case that failure to include institutional factors can lead to biased estimates of the regression coefficients. One example relates to the positive direct path from father's SES to respondent's SES (Duncan 1968: 6). In part, this effect arises from the tendency of father and son to reside in the same community, and thereby to have been exposed to similar industrial opportunities. In the absence of community controls, any explanation of the direct path between the two SES variables which posits an individual level process (e.g. the transmission of class values via childhood socialization) will be confounded with the community effect. (Duncan, Featherman, and Duncan [1972: 46] make a similar point in a discussion of the smaller path coefficient between the SES terms in a Detroit sample, in comparison with a national sample.)

More serious problems from the omission of contextual variables arise when ethnic effects are being investigated in a national sample. The difficulty here is that just as industries are unevenly distributed geographically, the correspondence of ethnicity with region and community is quite strong. As a result, the various immigrant groups have been exposed for long durations to significantly different industrial opportunities. To illustrate some extreme cases of ethnic concentration in industry, according to 1950 census data, French Canadians are employed in textile mills (a New England industry) at 7 times their representation in the population; Mexicans work in farming at 11 times their expected rate, and in food processing at 3 times the expected rate (both industries have extensive operations in the southwest and far west). Also, Czechoslovakian and Yugoslavian males are employed in primary metal processing at 4 times their representation in this country; these groups have large populations in Pennsylvania, Ohio, and Illinois, which are centers of ferrous metal works (Hutchinson 1956: 224-231).[19]

This tendency by ethnics to reside in different communities and to obtain employment in particular industries means that in order to comprehend the social mobility histories of immigrant groups in America, one must not ignore the institutional contexts in which they have functioned. Related to this issue, attempts to read motivational differences into the relative occupational attainments of the ethnics (Featherman 1971), or to view these disparities as evidence of discrimination against some (Duncan and Duncan 1968), should include controls for community and industry affiliation if the process of interest is to be distinguishable from the effects of the latter factors.

APPENDIX A. A Methodological Note on the Calculation of Elasticities and Impact Measures

One form of equation in our model is

$$y = b_1 x_1 + b_2 \ln x_2 + \ldots \tag{A-1}$$

where, for convenience, the variables are expressed as deviations from their means, so the constant term equals zero. Elasticities may be computed via the total differential,

$$dy = \frac{\partial y}{\partial x_1} dx_1 + \frac{\partial y}{\partial x_2} dx_2 + \ldots \tag{A-2}$$

$$= b_1 dx_1 + b_2 \frac{dx_2}{x_2} + \ldots \tag{A-3}$$

We calculate the elasticity of y with respect to x_i by holding the other terms in (A-3) constant [i.e., $dx_j = 0$ for $j \neq i$], and evaluating this expression at the variable means. Solutions for ε_{yx_1} and ε_{yx_2} are presented in rows 2 and 3 of Table A-1 (middle column).

Table A-1 about here

A second form of equation in our model is

$$\ln y = b_3 x_3 + b_4 \ln x_4 + \ldots \tag{A-4}$$

The total differential (A-2) of this expression yields

$$\frac{dy}{y} = b_3 dx_3 + \frac{b_4 dx_4}{x_4} + \ldots \tag{A-5}$$

Again, ε_{yx_3} and ε_{yx_4} are obtained by holding all other variables in a

TABLE A-1. Correspondences Among the Different Effect Measures[1]

Relation	Elasticity[2]	Impact Measure[2]
1. $y = f(x)$	$\varepsilon_{yx} = \frac{dy}{dx} \cdot \frac{\bar{x}}{\bar{y}}$	$\tau_{yx} = \frac{\varepsilon\sigma_x(100)}{\bar{x}}$
2. $y = bx$	$\varepsilon = \frac{b\bar{x}}{\bar{y}} = \frac{\beta\sigma_y/\bar{y}}{\sigma_x/\bar{x}}$	$\tau = \frac{b\sigma_x(100)}{\bar{y}} = \frac{\beta\sigma_y(100)}{\bar{y}}$
3. $y = b \ln x$	$\varepsilon = b/\bar{y} = \frac{\beta\sigma_y/\bar{y}}{\sigma_{\ln x}}$	$\tau = \frac{b\sigma_x(100)}{\bar{y}\,\bar{x}} = \frac{\beta\sigma_x\sigma_y(100)}{\sigma_{\ln x}\,\bar{x}\,\bar{y}}$
4. $\ln y = bx$	$\varepsilon = b\bar{x} = \frac{\beta\sigma_{\ln y}\bar{x}}{\sigma_x}$	$\tau = b\sigma_x(100) = \beta\sigma_{\ln y}(100)$
5. $\ln y = b \ln x$	$\varepsilon = b = \frac{\beta\sigma_{\ln y}}{\sigma_{\ln x}}$	$\tau = \frac{b\sigma_x(100)}{\bar{x}} = \frac{\beta\sigma_{\ln y}\sigma_x(100)}{\sigma_{\ln x}\,\bar{x}}$

1. The first row presents definitions of elasticity and the impact measure. The following four rows report formulas for the linear relations used in the model.

2. b = unstandardized regression coefficient; β = standardized regression coefficient; σ_z = standard deviation of z; $\sigma_{\ln z}$ = standard deviation of ln z. Total impact measures and total elasticities can be computed directly from total path effects by substituting the appropriate q_{ij} (from Tables 2-5) for β.

calculation constant and evaluating x_i and y at their means. Solutions for these expressions are reported in rows 4 and 5 of Table A-1.

The essential point about these computations is that they permit statements to be made concerning the response by a dependent variable (as a percentage change from its mean) to a one percent shift in an input variable, with both change values referring to the concrete metrics--i.e., x_i and y, not $\ln x_i$ or ln y. In Table A-1, middle panel, we summarize the relationships between elasticities, unstandardized regression coefficients, and standardized regression coefficients for the transformations of x_i and y used in the model. In Table A-2 we present total elasticities for the variables in a form analogous to Table 6.

<u>Table A-2 about here</u>

Impact coefficients were motivated in the text via the expression

$$\tau_{yx} = \varepsilon_{yx}\sigma_x(100)/\bar{x} \qquad \text{(A-6)}$$

That is, τ_{yx} is the percentage response by y to a shift in x of one standard deviation, expressed as a percentage of its mean. Using equation (A-6), together with the appropriate mean and standard deviation values from Table A-3, impact measures can be computed directly from b-coefficients or from betas, and formulas for these calculations are presented in the right column of Table A-1.

<u>Table A-3 about here</u>

TABLE A-2. Elasticities of the Racial Status Measures

Community Characteristic	Turner's Index[1] (V7) Black Status	Turner's Index[1] (V8) White Status	Turner's Index[1] (V9) Relative Status	Index[2] 2 (V7) Black Status	Index[2] 2 (V8) White Status	Index[2] 2 (V9) Relative Status	Index[3] 3 (V7) Black Status	Index[3] 3 (V8) White Status	Index[3] 3 (V9) Relative Status
	Percentage Change in Racial Status Measure from a One Percent Shift in Level of the Community Characteristic								
V1 Prop. Manuf.	.286	.017	.269	-.149	-.152	.003	-.553	-.321	-.232
V2 Prop. Black	.032	.017	.015	.019	.029	-.010	.031	.029	.002
V3 SMSA Size	.033	-.001	.034	.076	.016	.060	.172	.042	.130
V4 Upper Status	2.137	.959	1.178	1.870	.981	.889	1.209	.991	.218
V5 Black Educ.	.358	-.010	.368	.614	-.014	.628	1.360	-.049	1.409
V6 White Educ.	-.381	.019	-.400	-.741	.009	-.750	-1.657	-.013	-1.644

1. Upper status category defined as proportion semi-skilled (operatives) and higher ranked occupations.

2. Upper status category defined as proportion skilled and higher ranked occupations.

3. Upper status category defined as proportion white collar occupations.

TABLE A-3. Descriptive Statistics for Variables in the Model[1]

Variable	Mean	S.D.	Variable	Mean	S.D.
V1 Prop. Manuf.	.366	.124	V7 Black Status (ln) (Turner)	-.565	.164
V2 Prop. Black	.0533	.0416	V8 White Status (ln) (Turner)	-.128	.0239
SMSA Size	252,000	430,000	V9 Relative Status (ln) (Turner)	-.437	.156
V3 SMSA Size (ln)	11.8	1.02	V7 Black Status (ln) (Index 2)	-1.318	.216
V4 Upper Status (semi-skilled +)	.864	.0209	V8 White Status (ln) (Index 2)	-.422	.0822
V4 Upper Status (skilled +)	.638	.0501	V9 Relative Status (ln) (Index 2)	-.896	.179
V4 Upper Status (white collar)	.404	.0625	V7 Black Status (ln) (Index 3)	-2.068	.371
V5 Black Educ.	9.18	.909	V8 White Status (ln) (Index 3)	-.884	.161
V6 White Educ.	11.2	.865	V9 Relative Status (ln) (Index 3)	-1.184	.274

1. Means and standard deviations for unlogged versions of the racial status measures are presented in Table 6.

NOTES

[1]Both Turner (1951:524) and Blalock (1956:585) use the division between semi-skilled (operatives) and unskilled positions to distinguish high occupational status from low status. Turner includes service workers in the low status category, a procedure which we follow. Blalock does not describe his treatment of service workers.

[2]Even though Turner's principal analyses concern the non-South, his correlation matrix of employment in different industry sectors is based on data from both regions. Data for the South are not relevant to our investigation and were excluded from Table 1. It is the case, however, that the entries which correspond to the correlations reported by Turner are almost identical in the two regions. (For the 30 southern SMSA's with populations in excess of 250,000 in 1960, the correlations are [reading across rows, from the top] 1.000, -.564, -.697, -.659; 1.000, .611, .599; 1.000, .621.) Another difference between the two studies relates to the areal units employed--Turner used cities; we use SMSA's.

[3]A principal component factor analysis was performed. Only the first unrotated factor had an eigenvalue exceeding one in magnitude; this factor accounted for 62 percent of the total variance.

[4]The low-status category contains the major census occupations laborers and service workers.

[5]Where data were available the education variables are median years of schooling by black and white males. For SMSA's with black populations smaller than 25,000, only median years of schooling for the total black population is presented in the 1960 census reports. In 47 of our 88 SMSA's this proxy for male education was used. (In these instances, for consistency, the total

education variable for whites was employed.) The analyses reported here were replicated using the black and white total education variables for all SMSA's to ascertain the sensitivity of our results to the specification of this term. No significant departures from the findings presented in the text were noted.

[6]SMSA's with fewer than 3,500 non-whites were deleted. Also, SMSA's in which blacks comprise less than 90 percent of the non-white population were omitted. The latter restriction is necessary because SMSA's with total populations smaller than 250,000 have occupational data reported only for <u>non-whites</u>. In larger communities, detailed information is presented for the black population, irrespective of its size, and no deletions were required.

[7]For a discussion of the statistical assumptions underlying use of a recursive structural equations model, see Land (1969) or Alwin and Hauser (1975).

[8]We use the notation q_{ij} to denote the total effect of variable j on variable i (the sum of the direct and indirect paths). In adopting this definition, we follow Alwin and Hauser (1975) who neglect the possible indirect effects from an exogenous variable via its unspecified associations with other exogenous terms. We agree with Lewis-Beck (1974) that estimates of total effects are most meaningful when the associations among exogenous variables are small, which is generally the case here.

[9]Jiobu and Marshall (1971) adopted an alternative tactic in their study of black-white differentiation in metropolitan places. They defined occupational differentiation by means of the Index of Dissimilarity, which provides a single summary statistic for comparing two distributions. We view their strategy as unattractive since the ID measure is insensitive to the hierarchical nature of the status distribution. One can have the same ID value in

substantive situations which we would consider very different; for instance, with blacks concentrated at low occupational levels or moderately dispersed. As an example, if the white occupational distribution were .3, .2, .2, .1, .1, .1 (low to high status, six occupational categories), then ID = .5 for <u>either</u> of the black distributions .8, .2, 0, 0, 0, or .5, .5, 0, 0, 0, 0.

[10]For non-manufacturing communities, proportion low status positions shifts from 23.3 percent to 39.7 percent when operatives are reclassified as low category; for manufacturing centers, the shift is from 16.8 percent to 45.1 percent (Galle 1963:263).

[11]The portion of the variation in proportion upper status positions that is explained by the exogenous variables changes dramatically as the index breakpoint is raised. For the three division points, the R^2 values are .13, .47, and .57, respectively. This increase reflects, principally, the greater importance of percentage in manufacturing for discriminating between labor force proportions in low and high status positions when the latter category is specified as skilled and higher ranked capacities, or as white collar positions.

[12]With the relative status indices a negative effect indicates an advantage to whites.

[13]For instance, if y = g(x) and x = h(z), then, using the chain rule of differentiation,

$$\varepsilon_{yz} \overset{\text{def}}{=} \frac{dy}{dz}\cdot\frac{\bar{z}}{\bar{y}} = \frac{dy}{dx}\cdot\frac{dx}{dz}\cdot\frac{\bar{x}}{\bar{y}}\cdot\frac{\bar{z}}{\bar{x}} = \left(\frac{dy}{dx}\cdot\frac{\bar{x}}{\bar{y}}\right)\left(\frac{dx}{dz}\cdot\frac{\bar{z}}{\bar{x}}\right) = \varepsilon_{yx}\cdot\varepsilon_{xz}$$

The other aggregation rules of path analysis follow from analogous considerations.

[14]The statistic $SD(V_j)/\bar{V}_j$ is known as the "coefficient of variation" of the variable V_j.

[15]The probabilities would be identical if the input variables were independently distributed and characterized by the same symmetric distribution. While this is not the case with our data, the empirical standard deviation still provides an approximation to a more natural change unit for comparing variables than an equal percentage shift from their respective means.

[16]There is little question about the statistical significance of the white benefit from high community proportion black. In the regression equation for white status, the direct component of the effect (p_{82} = .557) has a t-value equal to 23.12.

[17]To emphasize that the impact can be modest even though the process clearly operates, consider the following example: Suppose the displacement rule works exactly as hypothesized; i.e., each additional black worker in an SMSA releases a white person for higher level employment. What percentage increase in proportion black would be necessary to raise white status by one percent of its mean? Because mean proportion black equals 5.33 percent and mean white status equals 88 percent, the answer is it would require a 15 percent increase in proportion black. The point to be made is that, in our population of cities, documenting the existence of the displacement process does not mean it has a substantial effect on white status level.

[18]Data on employer shifts show that turnover is far more typical of young workers than of older men. See, for instance, Leigh (1975:134).

[19]The data refer to foreign born males and native born males of foreign or mixed parentage. Also, because of the manner in which the data are organized, the concentration figures specify employment in the operative category, except in the case of farming where the calculations relate to farm laborers.

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