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THE REVELATION OF NEIGHBORHOOD PREFERENCES: AN N-CHOTOMOUS MULTIVARIATE PROBIT APPROACH

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This paper was originally written to honor the retirement of Charles L. Leven and was scheduled to be presented at his Festschrift on February 24, 1989 at the Western Regional Science Association meetings held in Molokai, Hawaii. Unfortunately, circumstances beyond our control prevented our attendance.

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Abstract

The goals of federal housing policy are to provide every American family with a decent home in a suitable neighborhood. While substantial progress has been made toward satisfying the goal of a decent home, survey evidence indicates that many Americans, especially those living in central cities, are highly dissatisfied with their neighborhoods. While policymakers are fully aware that too many people have a low opinion of the overall quality of their neighborhood, there is little reliable evidence available on what neighborhood attributes matter most to people and how neighborhood preferences vary among different types of households. As a result, policymakers have little idea how best to allocate scarce public resources to achieve the greatest possible improvement in neighborhood quality.

This paper implements a new methodology with new data in order to reveal the neighborhood preferences of households categorized by race, income level, location, and type of housing occupied. The methodology involves interpreting the ranking that households assign to the overall quality of their neighborhoods on a ten-point scale as an ordinal utility index. This index enables us to observe directly the relationship between neighborhood variables and individuals' utility. To handle the ordinal nature of the dependent variable, N-chotomous multivariate probit is used as the estimating technique.

The results suggest that while many neighborhood variables affect the utility of all households similarly, there are differences in preferences among groups, especially between black and white households.

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I. Introduction

The Housing Act of 1949 contains a famous statement of intent: "The Congress hereby declares that the general welfare and security of the Nation and the health and living standards of its people require... The realization as soon as feasible of the goal of a decent home and suitable living environment for every American family." Both policymakers and housing analysts have focused their attention on achieving the goal of a decent home (i.e., structure) for every American family. Much less interest has been shown in the goal of providing a suitable living environment (i.e., neighborhood). The historical emphasis on the structural dimension of the housing bundle can be justified by the high incidence of overcrowding and substandard housing prevailing after World War II. However, it may now be time to shift the emphasis to more neighborhood-oriented policies, since (1) the historical problems of overcrowding and substandard housing are no longer of critical proportions, and (2) survey evidence indicates that households are now more dissatisfied with their neighborhoods than they are with their homes.[1]

The dissatisfaction with neighborhood is documented in Table 1 with data collected by the 1985 American Housing Survey (AHS). Each occupant was asked to rank the overall quality of his neighborhood (and structure) on a ten-point scale, with "1" indicating worst and "10" indicating best. In addition, occupants were asked to indicate whether a particular neighborhood condition is so bothersome that they would like to move. We have categorized these opinions from the national survey of the AHS by race, income level, type of housing occupied, and location in Table 1. The greatest dissatisfaction with neighborhood is among groups living in multifamily housing within central cities. Regardless of race or income level, high percentages of these households (from 22 percent to 36 percent) are so bothered by their neighborhood that they want to move. However, even among the group with the highest level of neighborhood satisfaction (namely, high income whites living in single-family suburban housing), over 10 percent wish to move because of their neighborhood. A comparison of columns 1 and 2 of Table 1 reveals that all but one of the 16 groups rank the quality of their structure on the ten point scale higher than that of their neighborhood. Similarly, columns 3 and 4 indicate that a higher percentage of each of these groups rank their neighborhood as poor in comparison to those who rank their structure as poor, where a poor neighborhood or house is defined as one that received a 1, 2, or 3 quality ranking. This is particularly true within central cities. Regardless of race, income level, or type of housing occupied, the number of central city residents who ranked their neighborhood as poor is roughly twice as large as the number who said they lived in a poor quality dwelling unit.

The evidence presented in Table 1 indicates that there exists a considerable gap between actual neighborhood conditions and the goal of a suitable living environment for every American family. In order to reduce this gap, policymakers need to know the relative importance of individual neighborhood attributes to different groups of households. Most of the research addressing this issue has been based on the estimation of hedonic price models. In these models, sale price or contract rent is regressed on variables describing the structure and the neighborhood environment. The assumption underlying the hedonic approach is that neighborhood attributes that are important to consumers should have an affect on housing value. The signs of the neighborhood coefficients have often been either statistically insignificant or wrong, which would suggest that neighborhood attributes are not important to the average consumer.[2] An explanation for these surprising results is that the hedonic approach assumes that preferences are identical. Hence, if a house is abandoned within the neighborhood, this is supposed to cause equal reductions in the utility (and property values) of all households affected by the abandonment. However, suppose that preferences are not identical and some people do not mind living next door to abandoned housing. If these households represent the marginal buyer, housing abandonment will be uncorrelated with property values, even when most people find the abandonment bothersome. The hedonic approach therefore cannot be relied upon to measure the relative importance of individual neighborhood attributes to the average consumer.[3]

The purpose of this paper is to provide some new evidence on which neighborhood attributes have the most important effect on households' utility and how these effects differ across groups, especially between blacks and whites. Regarding the latter comparison, Galster (1979) has found that subcultural disparities between the races give rise to differences in housing (i.e., structural) preferences. It is of interest to determine whether these disparities also result in racial differences in neighborhood preferences. In lieu of the hedonic approach, we employ a method which reveals the specific neighborhood attributes that households evaluate in ranking the overall quality of their neighborhood on a ten-point scale. In prior work, we have found a strong relationship between the quality score that the household assigns to its neighborhood and the utility that the household obtains from its housing bundle.[4] Based on this result, we interpret the neighborhood quality scale as an ordinal utility index. There are two advantages to our approach. First, since we employ random samples of households, the neighborhood preferences of the average household within each group are revealed rather than those of the marginal buyer. Second, by focusing on the perceived level of neighborhood conditions, direct implications can be drawn regarding policies to reduce the substantial neighborhood dissatisfaction among American families reported in Table 1.[5]

II. The Model

Assuming that utility functions are strongly separable, the j^{th} household's utility from its neighborhood $\left(U_j^N\right)$ can be expressed as a function of individual neighborhood attributes $\left(X_i, i=1,...,k\right)$:

$$U_j^N = u_j(X_1,...,X_k \; ; \; G) \qquad (j=1,...,s) \tag{1}$$

where G represents a group identification variable. We hypothesize homogenous preference functions for households within a particular group, but permit these functions to differ among groups. The utility function for households within the same group then can be defined over the set of neighborhood attributes and, assuming it is linear in its parameters, can be expressed as:

$$U_j^{NG} = u_j^G(X) = \sum_{i=1}^{t} B_i X_{ij} + \varepsilon_j \tag{2}$$

with the stochastic term ε_j accounting for the influence of unobserved attributes of the neighborhood and random deviations in preferences from the average of the subgroup. We assume that the ε_j are $N(0, \sigma^2 I)$.

In principle, the ordinary least squares regression model could be employed to estimate the relationship between utility and observed neighborhood attributes. However, this model assumes an interval level dependent variable, which would require a cardinal measure of utility. As is well known, such a measure is not available. However, our data do provide an ordinal version of U_j^N, for which the OLS model is not satisfied. Households were asked to rank the overall quality of their neighborhood on a ten-point scale, with a "1" indicating worst and a "10" best. We assume that greater utility levels from the neighborhood are concomitant with higher rankings. The neighborhood quality ranking therefore provides a utility measure of ordinal strength, namely *I*.

An estimating equation using I_j in lieu of U_j^N as the dependent variable can be derived by first noting that in the general case, if there are *Z* distinct neighborhood rankings $(R_m, m=1,...,Z)$, there must be $Z + 1$ hypothetical category boundaries $(\mu_m, m=0,...,Z)$ such that the j^{th} household ranks its neighborhood as a "1" (R_1) if $\mu_0 < U_j^N < \mu_1$, a "2" (R_2) if $\mu_1 < U_j^N < \mu_2$, etc. In other words, we observe the m^{th} ranking if the true (but nonobservable) value of cardinal utility falls within that category's boundaries (μ_{m-1}, μ_m). Since it has been assumed that U_j^N is normally distributed, the probability of observing the m^{th} rank by the j^{th} household can be expressed as

$$P(R_{m,j}) = F\left[\left(U_j^N - \mu_{m-1}\right)/\sigma\right] - F\left[\left(U_j^N - \mu_m\right)/\sigma\right], \tag{3}$$

where *F* is the cumulative standard normal density function. Following the convention of setting $\mu_0 = -\infty$, $\mu_z = +\infty$, $\mu_1 = 0$ and $\sigma^2 = 1$ and substituted from (2), (3) can be rewritten as

$$P(R_{m,j}) = F\left[\sum B_i X_{ij} - \mu_{m-1}\right] - F\left[\sum B_i X_{ij} - \mu_m\right] \tag{4}$$

Equation (4) estimates the conditional probability of observing a particular neighborhood ranking (which indicates some range of cardinal utility from the neighborhood) given the value of the neighborhood's attributes. McKelvey and Zavoina (1975) have provided a model (namely, N-chotomous multivariate probit) that simultaneously provides estimates of the $\vec{B}$ and $\vec{\mu}$ vectors of (4) that are minimum variance and consistent. Furthermore, since the parameter estimates are obtained by maximum likelihood techniques, they are known to be asymptotically normally distributed, allowing for standard statistical tests.

III. Data, Samples, and Variables

The data for this study come from the individual household records of the 1985 American Housing Survey (AHS), which has recently been made available by the U.S. Census Bureau. Both the full national sample and the neighborhood cluster sample are employed in our analysis of neighborhood preferences. The neighborhood sample is a special sample added to the AHS in 1985 that covers the ten nearest neighbors around each of 680 randomly selected AHS homes. After restricting the samples to whites and blacks located inside metropolitan areas and dropping observations with missing values, the national and neighborhood samples included 36,166 and 5,672 households, respectively. Both the national and neighborhood samples are used because each offers something that the other lacks. The large size of the national sample enables us to separately analyze the neighborhood preferences of 16 different groups of households. The advantage of the neighborhood sample is that a number of additional variables measured at the cluster level can be included in the analysis.

The AHS data permit the construction of an extensive set of neighborhood variables that, as a group, describe most of the neighborhood attributes that are thought to affect household utility. These variables are defined in Table 2. The variables can be categorized into three groups based upon their origin. One group of variables comes from the assessments of individual occupants regarding whether a particular problem exists within their neighborhood. These variables are 0-1 dummies and indicate the presence within the neighborhood of crime, noise, junk or litter, rundown housing, poor roads, odors, inadequate public transportation, inadequate shopping facilities, and inadequate public schools. The second group of variables is based on the enumerator's observations of the immediate area surrounding the sample unit. The area is defined as 300 feet in any direction from the front of the building. These variables are also 0-1 dummies and indicate the presence of abandoned housing, multifamily housing, single-family housing, nonresident land use, parking lots, open space, and whether surrounding buildings tend to be older or newer than the sample unit. The area dimension of these variables is an improvement over those employed in previous work. Typically, neighborhood variables are measured at the census tract level. However, casual observation and what little evidence exists on the importance of neighborhood effects suggest that they are extremely localized geographically. For example, based upon the results of Tideman (1969), Mills and Hamilton (1989) have suggested that even if houses next door to an offensive activity are strongly affected by the externality, households down the block may be almost indifferent. The final set of variables is computed for the neighborhood cluster and includes median household income, a measure of neighborhood stability (i.e., the percentage of households in the cluster that have been there for at least 5 years), and dummy variables which indicate whether the cluster has mostly black (75 percent or more) or mostly white households.

The 16 groups of households for which separate N-chotomous probit models are estimated using the national sample are those listed in Table 1. These particular groups were chosen in an attempt to combine households with similar neighborhood preferences and to enable us to focus on those households with the lowest opinion of their neighborhood;

namely, central city residents living in multifamily housing. Also estimated were equations for all whites and all blacks.

All of the occupant evaluation variables and enumerator observation variables are included in the models, except for the POOR SCHOOL variable, which is based on a question asked only of those households with children. To investigate the importance of school quality to the neighborhood quality rankings of households with children, a separate analysis was conducted. This analysis involved estimating probit models for eight distinct groups defined by race, educational level (high school or less versus more than high school), and location (central city versus suburbia).

The neighborhood cluster sample was used to estimate probit models for all whites, all blacks, two divisions of the black sample, and four divisions of the white sample. The black groups are (1) those who reside in central city multifamily housing and (2) all other blacks (i.e., those who reside in single-family central city housing and those who reside in all types of suburban housing). The white groups are (1) high income households living in central city multifamily housing, (2) all other high income households, (3) low income households living in central city multifamily housing, and (4) all other low income households. The selection of these groups was based on the results obtained for groups defined for the national sample, on sample size considerations, and on our desire to separately analyze those households with the lowest opinion of their neighborhood.

IV. National Sample Results

The estimated N-chotomous probit coefficients and their associated standard errors are found in Tables 3 and 4 for white and black households, respectively. These coefficients indicate the increment in probability of being in a higher response category brought about by a unit change in the independent variable. Also reported below each coefficient in brackets is the standardized coefficient suggested by McKelvey and Zavoina (1975), which is analogous to the beta coefficient in regression analysis. For a particular coefficient B_i of the probit equation, the standardized coefficient B_i^* is computed as $B_i^* = B_i(\sigma_i / \sigma_U)$, where σ_i and σ_U are the standard deviations of the i^{th} independent variable and the dependent variable (on its underlying cardinal scale), respectively. The interpretation of B_i^* is that it represents the number of standard deviations of change in the (hypothetical) dependent variable (i.e., cardinal utility) brought about by a change of one standard deviation in the independent variable. The standardized coefficient can be used to compare the strength of different variables in the same equation, since when all independent variables are orthogonal, $(B_i^*)^2$ equals the proportion of the variance explained by variable i.

For all 18 equations (all whites, all blacks, and the 16 groups), estimated coefficients are collectively found to be significantly different from zero at the 1 percent level as measured by the likelihood ratio test. Regarding the statistical significance of individual variables and focusing first on the equations estimated for all whites and all blacks, the following variables are significant (with the expected sign) in both equations by a one-tailed test at the conventional 5 percent level: CRIME, NOISE, JUNK, RUNDOWN, ABANDON, LOWRISE, HIGHRISE, DETACHED, and POOR SHOPPING. There are a number of variables that are significantly different from zero in the white but not the black equation: POOR ROAD, NONRESIDENTIAL, PARKING LOT, OPEN SPACE, ODORS, and NEW BLDGS. The racial difference in the statistical significance of these variables may reflect the larger sample size of white households. Leamer (1978) has suggested that the significance level be adjusted downward as the sample size grows to improve the interpretation of the data against a null hypothesis. However, when we employ a 1 percent in lieu of the 5 percent significance level for the white equation, all of the variables listed above remain significant. However, the observed differences in neighborhood preferences between blacks and white may not be due to race per se but rather to racial differences in location, income, or type of housing occupied. It is therefore important to investigate black-white differences in the significance levels of variables across the 16 groups that control for these other influences. These comparisons reveal that there are two variables (namely, POOR ROAD and ODORS) that are generally significant in the white equations but almost always insignificant in the black equations. Two other variables -- NONRESIDENTIAL and OPEN SPACE -- are never significant (with the correct sign) in the black equations and are also insignificant in the low income white equations, with the exception of NONRESIDENTIAL in the equation estimated for low-income households living in single-family suburban housing. In contrast, these variables are always significant in the high income white equations. The insignificance of NONRESIDENTIAL for blacks and low income whites may be due to the fact that these households perceive no negative externalities from these activities. Alternatively, the nearby location of these activities may provide work and consumption opportunities to these households that are valued sufficiently to offset any noise, traffic congestion, or other negative externality effect. The variables DETACHED and LOWRISE also performed differently in the white and black equations. These variables are consistently insignificant in the black equations but are generally significant with a negative sign in the equations estimated for whites living in single-family housing. These results suggest that the latter group prefers neighborhoods with lower population densities.[6]

The significance of the variable ABANDON is similar in the black and white equations, but varies between households living within central cities and suburban areas, with the variable generally significant for only the former group. It is unlikely that this difference reflects less of an aversion to abandoned housing by suburban households. A more plausible explanation is that the incidence (2 percent) and variance (.02) of abandoned housing is too low within suburban areas for it to register a significant effect.

Despite the differences noted above, nine of the variables performed similarly, in terms of statistical significance, across all 16 equations. With few exceptions, CRIME, JUNK, RUNDOWN, and NOISE are significant for all groups, while PARKING LOT, POOR PUBTRANS, HIGHRISE, OLD BLDGS, and NEW BLDGS are consistently insignificant.

Before discussing the standardized coefficients reported in the tables, we briefly review the results (not reported) obtained from our separate analysis of the importance of the POOR SCHOOL variable to the neighborhood quality rankings of households with children. In the equations estimated for more educated white and black households, POOR SCHOOL is negative and significant. It is also significant in the equation estimated for less educated whites living in the suburbs. However, for less educated blacks living in central cities and suburban areas and for less educated whites living in central cities, POOR SCHOOL is not a significant determinant of their neighborhood quality. This result lends support to one of the reasons frequently mentioned for the inferior quality of central city schools; namely, that the parents whose children attend these schools are apathetic regarding the performance of local public schools.

A comparison of the standardized coefficients reported in Tables 3 and 4 within and across the 16 groups indicates that four variables account for the lion's share of the explained variance in neighborhood quality rankings for almost every group: CRIME, RUNDOWN, NOISE, and JUNK. For both blacks and whites living within central cities, CRIME was the most important variable (or shared this distinction with another variable). The standardized coefficients on CRIME are especially large for central city households living within multifamily housing. CRIME is also the top variable for low income whites in the suburbs. However, for high income, white, suburban households, the importance of CRIME is dominated by the variables RUNDOWN, NOISE, and JUNK. These variables also tend to be more important than CRIME in the equations estimated for both low and high income suburban blacks.

To summarize the results obtained with the national sample, there are two important findings. The finding of greatest interest is that regardless of income level, race, location, or type of housing occupied, neighborhood quality ratings are strongly influenced by the presence of crime, rundown housing, junk or litter, and street noise. This finding suggests that neighborhood attributes do matter to consumers and sharply contrasts with those generally reported in the hedonic price literature. While the above variables are found to be consistently important, other variables are found to have little, if any, effect on the neighborhood quality ratings of any group. For over half the total number of variables, the effects are similar across all of the groups. This similarity in the performance of the variables across household groups suggests that there is considerable homogenity in neighborhood preferences. Our second finding, however, is that the importance of a number of attributes is found to differ between blacks and whites, high and low income whites, whites living in single-family and multi-family housing, and more educated and less educated households. Neighborhood preferences are best characterized as similar but not uniform among the different groups of households analyzed.

V. Neighborhood Cluster Sample Results

The N-chotomous probit coefficients obtained from the eight equations (all whites, all blacks, and the six groups) estimated with the neighborhood sample are reported in Table 5. The independent variables of these equations are the same as those in the equations using the national sample (i.e., the occupant evaluation and enumerator observation variables), plus four new variables computed for the neighborhood cluster: MOSTLY BLACK, MOSTLY WHITE, MEDINC, and NEIGH STABILITY.

The results obtained with the occupant evaluation and enumerator observation variables are similar to those reported above for the national sample. For example, for those equations that are directly comparable, namely the all white and all black equations, the neighborhood and national samples yielded almost identical results. In addition, the standardized coefficient estimates indicate that the variables CRIME, NOISE, JUNK, and RUNDOWN are once again strong predicators of neighborhood quality in all of the equations estimated with the neighborhood sample. It does not appear to be the case, therefore, that the conclusions drawn from the national sample are tainted by the omission of the neighborhood cluster variables.

The results obtained with the new variables entering the neighborhood equations are of considerable interest. The racial composition of the neighborhood cluster is found to matter to whites but not to blacks. Whites who have mostly white neighbors rank the quality of their neighborhoods higher than whites who live in more integrated areas. The one exception to this finding is the insignificance of the racial composition variables in the equation estimated for low-income whites living in central city multifamily housing. The insignificance of the racial composition variables in the black equations is contrary to evidence from attitudinal surveys, which indicates that blacks prefer integrated neighborhoods (Kain, 1985). However, the results from these surveys are difficult to interpret because of the absence of controls on nonracial aspects of neighborhoods which might be influencing the respondent's choices. Our results suggest that blacks say they prefer integrated neighborhoods not because they value white neighbors per se but because the nonracial attributes of these neighborhoods are generally superior to those found in predominately black neighborhoods.

MEDINC has a positive and statistically significant effect with relatively large standardized coefficients in the two equations estimated for high income whites, but it is insignificant in the low income white equations. This finding is intuitively appealing, since it suggests that higher income whites have a stronger aversion to having lower income neighbors than do low income whites. For blacks, MEDINC is positive and significant in the all blacks equation and in the equation estimated for central city households living in multifamily housing, but it is insignificant in the "other blacks" equation.

The variable that differs most dramatically between the races is NEIGH STABILITY. This variable is significant in all of the equations estimated for whites and has the largest standardized coefficient of any variable in 4 of the 5 estimated equations. In contrast, NEIGH STABILITY is insignificant in all of the black equations. The stability of a neighborhood may proxy a number of different neighborhood attributes. However, the strength of NEIGH STABILITY in all of the white equations, despite the inclusion of an extensive set of controls, suggests that there is a distinct and important difference in the way in which blacks and whites perceive the process of neighborhood change. While the purpose of this paper is to reveal and not necessarily explain neighborhood preferences, the magnitude of the observed racial difference in the preference for neighborhood stability merits some speculation regarding its origin. We therefore suggest that this difference may be a natural outgrowth of the traditional supply side housing policy of the Federal government, which has emphasized as one primary mechanism for disseminating benefits to the poor, the process of "filtering." This process contributed to dramatic neighborhood instability, a rapid rate of housing decay and abandonment, and the decline of many of our nations central cities. In virtually all instances, the manifestation of this process involved whites fleeing from racially changing neighborhoods. Inner city black households may have benefitted from this process, albeit in the short run. However, it is not clear that in the long run, the benefits received by these families exceeded costs. On the other hand, in most cases, affected whites experienced significant losses. The observed indifference of blacks and the substantial aversion of whites to neighborhood instability could be largely a psychological residual of misguided Federal housing policy.

VI. Accounting For Differences in Mean Neighborhood Quality Rankings Between Groups

The final question which we address is why mean neighborhood quality rankings differ between groups of households. For example, on average, blacks rank the quality of their neighborhood lower than do whites. There are two possible reasons for this: (1) the mean values of neighborhood attributes that affect neighborhood quality may differ between black and white households, and (2) there may exist racial differences in neighborhood preferences. If our equations had been estimated by ordinary least squares regression, the difference in mean neighborhood rank between any two groups could be easily decomposed into the portion attributable to differences in the mean values of the independent variables and the portion attributable to differences in estimated coefficients (Blinder, 1973; Oaxaca, 1973). Simple decompositions are unfortunately precluded by the nonlinearity of our estimated equations. As an alternative approach, we conducted the following experiment using the results obtained from the neighborhood sample equations: First, using the black estimated coefficients and the black means on all other independent variables, we replaced the black mean with the white mean on one independent variable (e.g., X_1 = CRIME) and computed a hypothetical expected score,

$$B_1^B \bar{X}_1^W + \sum_{i=2}^{t} B_i^B \bar{X}_i^B, \tag{5}$$

where superscripts B and W represents blacks and whites, respectively. Second, the hypothetical expected score and the estimated values of the $\vec{\mu}$ vector were inserted into equation (4) to predict the probability of observing each of the ten possible neighborhood quality rankings. Third, these probabilities were used to compute the hypothetical mean neighborhood ranking of blacks if they lived in neighborhoods with the same level of CRIME as whites. Finally, the change in blacks' mean neighborhood ranking resulting from the substitution of $\bar{X}_1^W$ for $\bar{X}_1^B$ was computed and expressed as a percentage of the actual racial difference in mean neighborhood rank (.79).[7] This experiment was done for each of the mean values and estimated coefficients of the independent variables that are statistically significant in at least one of the two equations. In addition to analyzing the racial difference in neighborhood rankings, we analyzed the difference in mean neighborhood quality rank (1.55) between the groups least and most satisfied with their neighborhood (namely, central city blacks living in multifamily housing and high income whites not living in central city multifamily housing).

Among the variables that are significant in the probit equation estimated for all blacks, the substitution of the white for the black mean value of MEDINC causes the largest reduction (29 percent) in the black/white difference in mean neighborhood rank (see Table 6). Other substitutions that have an important effect on reducing this difference are for the variables JUNK (17 percent), ABANDON (14 percent), and CRIME (12 percent). The substitution of the white for the black coefficients results in a substantial reduction in the black/white difference for the variables MOSTLY WHITE (17 percent) and NEIGH STABILITY (120 percent). The latter result indicates that if blacks had the same preferences for neighborhood stability as whites, the mean neighborhood rank would actually be higher for blacks than whites.

The mean value substitutions that would cause a large reduction in the difference in mean neighborhood rank between the least and most satisfied groups are for the variables

CRIME (17 percent), JUNK (14 percent), ABANDON (20 percent), and MEDINC (115 percent). Important coefficient subsitutions are for the variables MOSTLY WHITE (48 percent), NEIGH STABILITY (38 percent), CRIME (15 percent), and ABANDON (21 percent).

The analyses presented in this section indicate that disparities in both neighborhood conditions and neighborhood preferences are important in understanding intergroup differences in mean neighborhood quality rankings. From a policy perspective, perhaps the most important implication of our results is that the high level of neighborhood income segregation that exists within metropolitan areas plays an important role in explaining differences in neighborhood quality rankings between groups.

VII. Conclusion

Evidence from the American Housing Survey indicates that many Americans are highly dissatisfied with their neighborhoods. The results of prior research are of little help in pinpointing the sources of this dissatisfaction. This has served as the motivation for this paper.

This analysis is important because in the past, the hedonic and related literatures have given policymakers the mistaken impression that virtually all neighborhood characteristics are unimportant to consumers. Our analysis demonstrates that this idea is wrong. It is true that a number of attributes have little or no measurable effect on neighborhood quality and therefore can be ignored in the formulation of policy. However, another group of attributes (namely; crime, rundown housing, street noise, and litter) are consistently found to have an important effect on neighborhood utility, regardless of the race, income level, type of housing occupied, or location of the household. Neighborhood characteristics do matter to consumers and the high level of neighborhood dissatisfaction at the national level can be mitigated by policies that succeed in reducing the incidence of the above neighborhood problems.

Also of policy interest are the results which suggest that the importance of a number of neighborhood attributes varies among different groups of households. This is particularly true when comparing the preferences of blacks and whites. These results suggest that neighborhood impovement policies will have the greatest success if they recognize that neighborhood preferences are similar but not uniform among household groups. For example, our results indicate that the gap between the perceived neighborhood quality of blacks and whites can be reduced by increasing the level of income in neighborhoods where blacks reside. There are two ways to accomplish this. First, employment, education, and other policies that would lead to the elimination of human capital, and ultimately wealth, differences between the races could be expanded. Like many housing problems, the racial differential in neighborhood quality is largely a symptom of our basic poverty problem. Second, policies could be promoted to encourage racial integration at the neighborhood level. However, in order for these policies to improve the neighborhood quality of blacks and at the same time maintain the neighborhood quality of whites, great care would have to be taken to insure that integration is achieved without destabilizing neighborhoods.

While the N-chotomous probit models estimated in this paper yield information on the relative importance of neighborhood attributes to household utility, they have an important limitation that future work should seek to correct. Namely, no estimates are provided of the household's willingness to pay for more or less of a particular neighborhood attribute. Such estimates would facilitate the development and implementation of neighborhood improvement policies. We recommend, however, that these estimates be sought from a theoretically sounder approach than the hedonic price model.

NOTES

[1]Mills and Hamilton (1989, p. 218) report that the percentage of the housing stock lacking complete plumbing has declined from 55.4 percent in 1940 to just 2.7 percent in 1980, while the percentage of the stock with more than 1.5 persons per room has declined from 9.0 percent to 1.0 percent over the same time period.

[2]For example, among the twelve recent hedonic price studies reviewed by Bartik and Smith (1987), the estimated coefficient on the neighborhood crime variable had the wrong sign in three cases and was not statistically significant in seven other cases.

[3]A second approach that has attempted to reveal neighborhood preferences is similar to estimating a hedonic price equation, with the difference being that property value (rent) equations are estimated for separate demographic groups (e.g., Galster, 1979; and Wheaton, 1977). This approach is founded upon the "bid-rent" theory of urban land pricing originally presented by Alonso (1964). Households with identical preferences and incomes are assumed to enjoy equal levels of welfare regardless of the price they pay for housing or the home they live in. Hence, if the sample can be divided into households with identical preferences and incomes, a regression of house value on structural and neighborhood variables will yield the marginal willingness to pay for a unit increase in each independent variable. Operationally, of course, the problem is whether or not households with identical preferences can be identified. The studies that have taken the bid-rent curve approach have stratified samples by life-cycle stage and socioeconomic class in an attempt to obtain groups with identical preferences. However, while the assumption of identical preferences within groups is less heroic than the assumption made by the hedonic approach of identical preferences for all market participants, there is still no assurance that the preferences of the marginal bidder will be representative of the group. This may explain why Galster's (1979) application of the bid-rent approach yielded results which suggested that neighborhood attributes have little effect on utility levels.

[4]This relationship was observed from estimating a residential mobility model (Boehm and Ihlanfeldt, 1986). In this model, both the neighborhood quality score and its change since the household first moved in, along with an extensive set of control variables, were used to explain the household's relocating decisions. The neighborhood score and its change were highly significant and strong predictors of residential mobility. Given the substantial pecuniary and psychic adjustment costs associated with relocating one's residence, our mobility results imply that changes in the neighborhood score correspond to large changes in the utility households derive from their houses.

[5]In a previous paper (1987), we used the approach taken in the present paper to perform a test of the externalities rationale for government intervention in the housing market. Neighborhood quality rankings are found to be significantly related to variables measuring zoning and housing code externalities. The present study more generally focuses on all

neighborhood attributes, uses a superior data base, and makes comparisons of neighborhood preferences across groups which were not possible in our earlier paper.

[6]It was expected that HIGHRISE would also be negative and significant in the equations estimated for whites living in single-family housing. However, this variable was not significant because there are virtually no highrise buildings within 300 feet of single-family homes.

[7]For our approach to make sense, the difference in the predicted mean neighborhood ranks of blacks and whites should be approximately the same as the actual difference. The actual difference was .79 and the difference in the predicted means was .78.

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Table 1

Opinion of Structure and Neighborhood By Race (Black, White), Income (High, Low),[a] Structure Type (Multifamily, Single Family), and Location (Central City, Suburbs)

	Mean Neighborhood Rank	Mean House Rank	Opinion Neighborhood Poor (%)[b]	Opinion House Poor (%)[b]	Bothersome Neighborhood Conditions, Want to Move (%)
Black, Low, Multi, City	6.66	7.15	16.8	9.7	36.1
Black, High, Multi, City	6.94	7.67	9.7	5.0	32.2
White, Low, Multi, City	7.21	8.00	11.2	5.3	22.3
Black, Low, Multi, Subs	7.50	7.94	10.5	7.6	25.6
White, High, Multi, City	7.54	8.16	5.7	2.9	21.8
Black, High, Multi, Subs	7.61	7.82	6.3	5.2	25.7
Black, Low, Single, City	7.75	8.01	10.3	4.8	19.7
Black, High, Single, City	7.87	8.46	5.4	2.2	17.4
White, Low, Single, City	7.87	8.52	6.5	3.3	15.9
White, High, Multi, Subs	7.90	8.17	3.9	2.0	16.3
White, Low, Multi, Subs	8.04	8.05	5.2	3.1	14.1
White, High, Single, City	8.14	8.62	3.3	1.2	15.4
Black, High, Single, City	8.16	8.30	3.3	2.7	14.9
Black, Low, Single, Subs	8.39	8.26	3.3	6.9	13.6
White, Low Single, Subs	8.48	8.72	3.4	2.1	10.0
White, High, Single, Subs	8.52	8.79	1.8	1.0	10.4

[a]A high income household is defined as being in the top two-thirds of the income distribution

[b]A poor neighborhood or house is defined as one that received a 1, 2, or 3 quality ranking on the ten point scale.

Table 2

Independent Variable Descriptions

Occupant Evaluation Variables

CRIME	Crime is present in the neighborhood, 1 = yes.
NOISE	Street noise is present in the neighborhood, 1 = yes.
JUNK	Trash, litter, or junk present in the neighborhood, 1 = yes.
RUNDOWN	Neighborhood houses or buildings in rundown condition, 1 = yes.
POOR ROAD	Neighborhood streets continually in need of repair, 1 = yes.
ODORS	Odors, smoke, or gas present in the neighborhood, 1 = yes.
POOR PUBTRANS	Neighborhood public transportation is inadequate, 1 = yes.
POOR SHOPPING	Neighborhood shopping facilities are inadequate, 1 = yes.
POOR SCHOOL	Neighborhood public schools are inadequate, 1 = yes.

Enumerator Observation Variables

ABANDON	Abandoned, boarded up, vandalized buildings within 300 feet, 1 = yes.
LOWRISE	Single-family attached/multifamily lowrise buildings within 300 feet, 1 = yes.
HIGHRISE	Midrise/highrise buildings within 300 feet, 1 = yes.
DETACHED	Single-family detached house(s) within 300 feet, 1 = yes.
NONRESIDENTIAL	Commercial/institutional/industrial buildings within 300 feet, 1 = yes.
PARKING LOT	Residential parking lot within 300 feet, 1 = yes.
OPEN SPACE	Body of water, open space, parks, woods within 300 feet, 1 = yes.
OLD BLDGS	Surrounding buildings tend to be older than the sampled unit, 1 = yes.
NEW BLDGS	Surrounding buildings tend to be newer than the sampled unit, 1 = yes.

Neighborhood Cluster Variables

NEIGH STABILITY	Percent of households in the cluster that have been in the neighborhood for at least 5 years.
MEDINC	Median income of households in the cluster.
MOSTLY BLACK	75 percent or more of cluster households are black, 1 = yes.
MOSTLY WHITE	75 percent or more of cluster households are white, 1 = yes.

Table 3

N-Chotomous Probit Results for White Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient][a]

		Groups[b]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
CRIME	-0.509*	-0.555*	-0.585*	-0.680*	-0.664*	-0.361*	-0.370*	-0.617*	-0.536*
	(0.018)	(0.079)	(0.073)	(0.055)	(0.076)	(0.042)	(0.034)	(0.047)	(0.054)
	[-0.179]	[-0.221]	[-0.163]	[-0.293]	[-0.199]	[-0.142]	[-0.112]	[-0.229]	[-0.176]
NOISE	-0.408*	-0.406*	-0.349*	-0.392*	-0.551*	-0.437*	-0.400*	-0.336*	-0.471*
	(0.016)	(0.079)	(0.058)	(0.054)	(0.061)	(0.043)	(0.029)	(0.045)	(0.046)
	[-0.156]	[-0.158]	[-0.124]	[-0.165]	[-0.203]	[-0.170]	[-0.143]	[-0.147]	[-0.180]
JUNK	-0.434*	-0.319*	-0.492*	-0.406*	-0.410*	-0.486*	-0.367*	-0.396*	-0.604*
	(0.021)	(0.092)	(0.073)	0.067)	(0.082)	(0.053)	(0.038)	(0.058)	(0.062)
	[-0.138]	[-0.115]	[-0.148]	[-0.154]	[-0.119]	[-0.160]	[-0.104]	[-0.146]	[-0.184]
RUNDOWN	-0.633*	-0.498*	-0.533*	-0.312*	-0.793*	-0.633*	-0.785*	-0.570*	-0.662*
	(0.023)	(0.097)	(0.085)	(0.076)	(0.097)	(0.055)	(0.040	0.067	(0.069)
	[-0.181]	[-0.170]	[-0.136]	[-0.103]	[-0.194]	[-0.198]	[-0.213]	[-0.178]	[-0.175]
ABANDON	-0.218*	-0.239*	-0.191	-0.292*	-0.464*	-0.311*	0.064	-0.207*	0.086
	(0.040)	(0.143)	(0.139)	(0.087)	(0.130)	(0.128)	(0.095)	(0.107)	(0.139)
	[-0.032]	[-0.049]	[-0.028]	[-0.075]	[-0.079]	[-0.038]	[0.007]	[-0.037]	[0.011]
POOR ROAD	-0.147*	-0.000	-0.127*	-0.149*	-0.236*	-0.173*	-0.152*	-0.075	-0.217*
	(0.019)	(0.098)	(0.063)	(0.072)	(0.074)	(0.053)	(0.032)	(0.055)	(0.055)
	[-0.047]	[-0.000]	[-0.042]	[-0.047]	[-0.072]	[-0.052]	[-0.049]	[-0.026]	[-0.070]
LOWRISE	-0.245*	-0.197*	-0.226*	-0.015	-0.122*	-0.233*	-0.147*	-0.052	-0.111*
	(0.015)	(0.081)	(0.074)	(0.053)	(0.047)	(0.049)	(0.044)	(0.049)	(0.039)
	[-0.113]	[-0.062]	[-0.063]	[-0.007]	[-0.060]	[-0.080]	[-0.035]	[-0.022]	[-0.053]
HIGHRISE	-0.064*	-0.224	0.230	0.002	0.063	-0.192	-0.492*	0.201*	0.001
	(0.026)	(0.311)	(0.370)	(0.058)	(0.080)	(0.141)	(0.165)	(0.050)	(0.061)
	[-0.016]	[-0.021]	[0.013]	[0.001]	[0.018]	[-0.022]	[-0.029]	[0.085]	[0.000]

Table 3 (Continued)

N-Chotomous Probit Results for White Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient][a]

		Groups[b]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
DETACHED	0.055*	0.013	-0.281*	-0.042	0.029	-0.203*	-0.171*	-0.008	0.091*
	(0.016)	(0.145)	(0.082)	(0.046)	(0.047)	(0.105)	(0.048)	(0.040)	(0.038)
	[0.024]	[-0.003]	[0.079]	[-0.021]	[0.014]	[-0.032]	[-0.039]	[-0.004]	[0.044]
NONRESIDENTIAL	-0.154*	-0.112	-0.154*	-0.057	-0.023	-0.176*	-0.192*	-0.171*	-0.155*
	(0.016)	(0.076)	(0.058)	(0.046)	(0.049)	(0.051)	(0.037)	(0.042)	(0.043)
	[-0.060]	[-0.045]	[-0.055]	[-0.028]	[-0.011]	[-0.057]	[-0.054]	[-0.079]	[-0.064]
PARKING LOT	-0.071*	-0.036	-0.171	-0.007	-0.045	-0.198	-0.140	-0.077	-0.014
	(0.023)	(0.184)	(0.200)	(0.057)	(0.056)	(0.140)	(0.112)	(0.051)	(0.044)
	[-0.019]	[-0.006]	[-0.017]	[-0.003]	[-0.019]	[-0.023]	[-0.013]	[-0.029]	[-0.006]
OPEN SPACE	0.159*	0.086	0.059	0.026	0.038	0.224*	0.137*	0.106*	0.212*
	(0.015)	(0.094)	(0.050)	(0.063)	(0.052)	(0.051)	(0.024)	(0.051)	(0.040)
	[0.066]	[0.028]	[0.026]	[0.009]	0.016]	[0.072]	[0.061]	[0.039]	[0.094]
ODORS	-0.188*	-0.016	-0.348*	-0.157*	-0.077	-0.067	-0.279*	-0.131*	-0.177*
	(0.024)	(0.112)	(0.019)	(0.078)	(0.090)	(0.066)	(0.044)	(0.071)	(0.067)
	[-0.046]	[-0.004]	[-0.077]	[-0.046]	[-0.019]	[-0.017]	[-0.063]	[-0.035]	[-0.045]
OLD BLDGS	-0.045	0.038	-0.103	-0.012	0.002	-0.074	0.053	-0.299*	0.111
	(0.028)	(0.218)	(0.110)	(0.079)	(0.081)	(0.108)	(0.055)	(0.077)	(0.071)
	[-0.010]	[0.005]	[-0.099]	[-0.003]	[0.001]	[-0.011]	[0.010]	[-0.072]	[0.028]
NEW BLDGS	0.075*	-0.107	0.209*	-0.097	0.102	0.157	-0.004	0.094	0.086
	(0.31)	(0.151)	(0.074)	(0.123)	(0.109)	(0.116)	(0.852)	(0.117)	(0.100)
	[0.015]	[-0.003]	[0.061]	[-0.017]	[0.021]	[0.022]	[-0.001]	[0.015]	[0.015]

Table 3 (Continued)

N-Chotomous Probit Results for White Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient][a]

		Groups[b]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
POOR PUBTRANS	-0.017	-0.176	-0.027	0.043	-0.001	-0.010	-0.051	-0.012	0.098
	(0.030)	(0.161)	(0.145)	(0.089)	(0.118)	(0.080)	(0.053)	(0.073)	(0.091)
	[0.003]	[-0.032]	[-0.002]	[0.011]	[-0.000]	[-0.002]	[-0.010]	[-0.003]	[0.018]
POOR SHOPPING	-0.117*	-0.084	-0.123*	-0.265*	-0.126*	-0.075	-0.134*	-0.244*	-0.018
	(0.021)	(0.098)	(0.061)	(0.075)	(0.071)	(0.064)	(0.034)	(0.081)	(0.065)
	[0.034]	[-0.025]	[-0.042]	[-0.077]	[-0.039]	[-0.019]	[-0.041]	[-0.056]	[-0.005]
CONSTANT	2.905*	2.598*	2.929*	2.566*	2.741*	3.325*	3.192*	3.002*	2.885*
	(0.027)	(0.168)	(0.107)	(0.081)	(0.085)	(0.127)	(0.068)	(0.086)	(0.073)
OBSERVATIONS	31975	1346	2976	2391	2445	4414	11378	3166	3852
Log of the likelihood function	-53446	-2326	-4386	-4534	-4125	-7391	-17510	-5861	-6760
-2 times the log-likelihood ratio	6932	272	492	642	545	908	1685	812	895

[a]The standardized probit coefficient is calculated as $B_i^* = B_i\left(\sigma_i^2/\sigma_y^2\right)^{1/2}$.

[b]Group definitions: 1 = low income, single-family housing, central city; 2 = low income, single-family housing, suburbs; 3 = low income, multifamily housing, central city; 4 = low income, multifamily housing, suburbs; 5 = high income, single-family housing, central city; 6 = high income, single-family housing, suburbs; 7 = high income, multifamily housing, central city; 8 = high income, multifamily housing, suburbs.

*Indicates estimated coefficient is statistically significant by a one-tailed test at the 5 percent level.

Table 4

N-chotomous Probit Results for Black Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

		Groups[a]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
CRIME	-0.538*	-0.569*	-0.228	-0.690*	-0.565*	-0.451*	-0.321*	-0.470*	-0.346*
	(0.042)	(0.137)	(0.242)	(0.079)	(0.202)	(0.105)	(0.154)	(0.097)	(0.180)
	[-0.230]	[-0.236]	[0.062]	[0.322]	[-0.209]	[-0.194]	[-0.104]	[-0.224]	[-0.131]
NOISE	-0.313*	-0.332*	-0.594*	-0.283*	-0.441*	-0.367*	-0.411*	-0.186*	-0.192
	(0.043)	(0.153)	(0.181)	(0.078)	(0.199)	(0.118)	(0.146)	(0.106)	(0.170)
	[-0.127]	[-0.128]	[-0.216]	[-0.125]	[-0.176]	[-0.140]	[-0.142]	[-0.079]	[-0.078]
JUNK	-0.481*	-0.629*	-0.499*	-0.507*	-0.549*	-0.345*	-0.423*	-0.530*	-0.595*
	(0.046)	(0.140)	(0.200)	(0.085)	(0.189)	(0.125)	(0.144)	(0.113)	(0.220)
	[-0.199]	[-0.266]	[-0.176]	[-0.229]	[-0.218]	[-0.133]	[-0.155]	[-0.232]	[-0.201]
RUNDOWN	-0.366*	-0.579*	-0.298	-0.104	-0.262	-0.634*	-0.581*	-0.240*	-0.863*
	(0.051)	(0.154)	(0.218)	(0.094)	(0.237)	(0.136)	(0.173)	(0.125)	(0.218)
	[-0.138]	[-0.233]	[-0.096]	[-0.043]	[-0.089]	[-0.223]	[-0.180]	[-0.095]	[-0.298]
ABANDON	-0.224*	-0.059	-0.317*	-0.256*	-0.355	-0.343*	-0.308	-0.185	-0.056
	(0.049)	(0.165)	(0.191)	(0.076)	(0.224)	(0.203)	(0.235)	(0.116)	(0.314)
	[-0.081]	[-0.020]	[-0.107]	[-0.116]	[-0.119]	[-0.073]	[-0.070]	[-0.072]	[-0.012]
POOR ROAD	-0.029	0.024	-0.045	-0.087	-0.014	0.155	-0.193	-0.014	-0.420*
	(0.047)	(0.153)	(0.170)	(0.096)	(0.229)	(0.121)	(0.144)	(0.113)	(0.231)
	[-0.011]	[0.009]	[-0.018]	[-0.032]	[-0.004]	[0.058]	[-0.068]	[-0.005]	[-0.124]
LOWRISE	-0.191*	0.015	-0.192	-0.070	-0.084	-0.122	-0.041	0.116	-0.343*
	(0.039)	(0.140)	(0.219)	(0.084)	(0.184)	(0.120)	(0.222)	(0.116)	(0.189)
	[-0.096]	[0.006]	[-0.063]	[-0.030]	[-0.038]	[-0.047]	[-0.010]	[0.048]	[-0.133]

Table 4 (Continued)

N-chotomous Probit Results for Black Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

		Groups[a]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
HIGHRISE	-0.242*	-0.882*	-1.731	-0.154*	0.094	-0.193	0.536	-0.109	-0.359
	(0.053)	(0.480)	(1.058)	(0.083)	(0.271)	(0.385)	(0.703)	(0.108)	(0.219)
	[-0.083]	[-0.101]	[-0.095]	[-0.070]	[0.026]	[-0.022]	[0.042]	[-0.049]	[-0.118]
DETACHED	0.113*	-0.110	-0.004	-0.000	0.227	0.117	-0.180	0.004	0.002
	(0.041)	(0.296)	(0.359)	(0.069)	(0.164)	(0.237)	(0.354)	(0.090)	(0.150)
	[0.054]	[-0.021]	[-0.001]	[-0.000]	[0.109]	[0.022]	[-0.027]	[0.002]	[0.001]
NONRESIDENTIAL	-0.027	-0.120	0.133	-0.015	-0.039	-0.061	0.189	-0.006	-0.235
	(0.040)	(0.138)	(0.179)	(0.069)	(0.176)	(0.128)	(0.186)	(0.090)	(0.190)
	[-0.012]	[-0.047]	[0.052]	[-0.007]	[-0.016]	[-0.021]	[-0.053]	[-0.003]	[-0.089]
PARKING LOT	0.018	0.190	-0.711	0.030	-0.334*	0.200	-0.111	0.185*	0.258*
	(0.054)	(0.422)	(0.467)	(0.085)	(0.189)	(0.419)	(0.371)	(0.111)	(0.150)
	[0.006]	[0.025]	[-0.095]	[0.012]	[-0.129]	[0.021]	[-0.016]	[0.072]	[0.123]
OPEN SPACE	0.029	0.082	0.088	0.096	0.148	0.035	0.112	-0.238*	-0.240
	(0.043)	(0.143)	(0.161)	(0.085)	(0.172)	(0.129)	(0.134)	(0.114)	(0.153)
	[0.011]	[0.032]	[0.038]	[0.038]	[0.062]	[0.012]	[0.043]	[-0.091]	[-0.029]
ODORS	-0.001	0.219	0.209	-0.031	-0.145	-0.313*	-0.290	0.160	0.119
	(0.063)	(0.220)	(0.270)	(0.112)	(0.284)	(0.182)	(0.243)	(0.147)	(0.288)
	[-0.000]	[0.054]	[0.054]	[-0.009]	[-0.037]	[-0.073]	[-0.061]	[0.048]	[0.028]
OLD BLDGS	-0.063	-0.127	0.047	-0.037	0.090	-0.145	0.244	-0.055	-0.078
	(0.071)	(0.275)	(0.328)	(0.129)	(0.309)	(0.212)	(0.222)	(0.177)	(0.242)
	[-0.015]	[-0.024]	[0.010]	[-0.009]	[0.022]	[-0.029]	[0.055]	[-0.013]	[-0.022]

Table 4 (Continued)

N-chotomous Probit Results for Black Households: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

		Groups[a]							
Explanatory Variable	All	1	2	3	4	5	6	7	8
NEW BLDGS	0.175	0.431	0.035	0.606*	-0.450	-0.070	-0.355	-0.071	-0.642
	(0.120)	(0.412)	(0.269)	(0.249)	(0.592)	(0.444)	(0.415)	(0.290)	(0.744)
	[0.024]	[0.056]	[0.009]	[0.080]	[-0.054]	[-0.007]	[-0.042]	[-0.010]	[-0.055]
POOR PUBTRANS	-0.095	-0.203	-0.680	-0.037	0.072	0.073	-0.183	-0.200	-0.001
	(0.065)	(0.211)	(0.471)	(0.115)	(0.322)	(0.176)	(0.223)	(0.145)	(0.267)
	[-0.024]	[-0.050]	[-0.091]	[-0.010]	[0.016]	[0.018]	[-0.040]	[-0.059]	[-0.000]
POOR SHOPPING	-0.121*	-0.140	0.079	-0.109	-0.397*	0.056	0.284*	-0.231*	0.171
	(0.047)	(0.133)	(0.180)	(0.089)	(0.210)	(0.127)	(0.144)	(0.129)	(0.284)
	[-0.042]	[-0.056]	[0.030]	[-0.039]	[-0.130]	[0.019]	[0.097]	[-0.078]	[0.041]
CONSTANT	2.380*	2.434*	2.638*	2.137*	2.083*	2.557*	3.064*	2.401*	2.867*
	(0.060)	(0.319)	(0.412)	(0.114)	(0.232)	(0.272)	(0.402)	(0.163)	(0.272)
OBSERVATIONS	4189	455	330	1119	276	632	482	620	268
Log of the likelihood function	-7725	-755	-342	-2176	-337	-1117	-810	-1219	-490
- 2 times the log-likelihood ratio	1129	144	45	337	71	133	84	145	71

[a]See notes to Table 3.

Table 5

N-chotomous Probit Results for the Neighborhood Cluster Sample: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

Explanatory Variable	Groups[a] BMC 1	OB 2	HWMC 3	OW 4	LWMC 5	OW 6	All Whites	All Blacks
CRIME	-0.643*	-0.306*	-0.539*	-0.357*	-0.451*	-0.715*	-.454*	-.469
	(0.138)	(0.148)	(0.121)	(0.056)	(0.138)	(0.115)	(.043)	(0.097)
	[-0.302]	[-0.119]	[0.232]	[-0.129]	[-0.187]	[-0.235]	[-.167]	[-.204]
NOISE	-0.407*	-0.189	-0.401*	-0.296	-0.414*	-0.515*	-.361*	-.319*
	(0.158)	(0.173)	(0.121)	(0.057)	(0.147)	(0.111)	(.044)	(.113)
	[-0.169]	[-0.069]	[0.163]	[-0.105]	[-0.162]	[-0.172]	[-.130]	[-.125]
JUNK	-0.513*	-0.505*	-0.619*	-0.472*	-0.413*	-0.304*	-.444*	-.469*
	(0.159)	(0.161)	(0.156)	(0.075)	(0.176)	(0.127)	(.056)	(.109)
	[-0.226]	[0.208]	[-0.226]	[-0.135]	[-0.154]	[-0.095]	[-.138]	[-.199]
RUNDOWN	0.118	-0.718*	-0.599*	-0.576*	-0.116	-0.347*	-.509*	-.306*
	(0.179)	(0.174)	(0.169)	(0.073)	(0.206)	(0.151)	(.057)	(.120)
	[0.043]	[-0.269]	[-0.193]	[-0.169]	[-0.037]	[-0.093]	[.150]	[-.114]
ABANDON	-0.455*	-0.149	-0.020	-0.002	-0.231	-0.196	-.160*	-.317*
	(0.153)	(0.209)	(0.244)	(0.163)	(0.241)	(0.192)	(.095)	(.115)
	[-0.208]	[-0.043]	[-0.004]	[-0.000]	[-0.061]	[-0.037]	[-.027]	[.124]
POOR ROAD	0.187	-0.098	-0.091	-0.176*	-0.382*	-0.196*	-.194*	-.001
	(0.162)	(0.172)	(0.139)	(0.068)	(0.178)	(0.119)	(.051)	(.114)
	[0.071]	[-0.034]	[-0.032]	[-0.052]	[-0.125]	[-0.060]	[-.059]	[-.000]
LOWRISE	0.212	-0.036	0.069	-0.064	0.191	-0.095	-.058	-.088
	(0.169)	(0.155)	(0.152)	(0.056)	(0.144)	(0.091)	(.039)	(.095)
	[0.086]	[-0.017]	[0.026]	[-0.028]	[0.078]	[-0.045]	[-.028]	[-.044]

Table 5 (Continued)

N-chotomous Probit Results for the Neighborhood Cluster Sample: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

Explanatory Variable	Groups[a] BMC 1	OB 2	HWMC 3	OW 4	LWMC 5	OW 6	All Whites	All Blacks
HIGHRISE	0.074	0.040	0.122	-0.005	0.086	-0.380*	-.062	-.118
	(0.149)	(0.473)	(0.155)	(0.142)	(0.158)	(0.177)	(.069)	(.118)
	[0.035]	[0.005]	[0.046]	[-0.001]	[0.037]	[-0.081]	[-.015]	[-.045]
DETACHED	0.022	0.248	-0.151	-0.022	-0.090	-0.108	-.080*	.147*
	(0.123)	(0.196)	(0.104)	(0.069)	(0.117)	(0.102)	(.044)	(.099)
	[0.011]	[0.098]	[-0.074]	[-0.008]	[-0.045]	[-0.046]	[.035]	[.085]
NONRESIDENTIAL	-0.056	-0.178	-0.172	-0.162*	-0.271*	0.012	-.115*	-.115
	(0.126)	(0.166)	(0.110)	(0.061)	(0.121)	(0.089)	(.042)	(.095)
	[-0.027]	[-0.064]	[-0.078]	[-0.055]	[-0.131]	[0.005]	[-.046]	[-.049]
PARKING LOT	-0.099	-0.159	0.060	-0.079	0.246*	0.232*	.089	-.189
	(0.155)	(0.218)	(0.132)	(0.098)	(0.144)	(0.126)	(.058)	(.120)
	[-0.038]	[-0.049]	[0.022]	[-0.018]	[0.098]	[0.076]	[.026]	[-.052]
OPEN SPACE	0.246	-0.035	0.126	0.162*	-0.031	-0.083*	.083	.009
	(0.157)	(0.142)	(0.143)	(0.052)	(0.170)	(0.096)	(.041)	(.099)
	[0.100]	[-0.015]	[0.043]	[0.064]	[-0.010]	[0.032]	[.032]	[.004]
ODORS	-0.183	-0.187	-0.195	-0.273*	-0.157	0.019	-.226*	-.143
	(0.257)	(0.231)	(0.163)	(0.078)	(0.184)	(0.156)	(.060)	(.164)
	[-0.043]	[-0.048]	[-0.057]	[-0.069]	[-0.047]	[0.004]	[-.058]	[.035]
OLD BLDGS	0.143	-0.194	-0.333	-0.024	0.100	-0.192	-.063	.015
	(0.368)	(0.396)	(0.235)	(0.131)	(0.204)	(0.181)	(.084)	(.265)
	[0.022]	[-0.027]	[-0.067]	[-0.004]	[0.028]	[-0.039]	[-.012]	[.002]

Table 5 (Continued)

N-chotomous Probit Results for the Neighborhood Cluster Sample: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

	Groups[a]							
Explanatory Variable	BMC 1	OB 2	HWMC 3	OW 4	LWMC 5	OW 6	All Whites	All Blacks
NEW BLDGS	b	0.662	0.297	0.111	-0.157	0.084	.145	1.154*
	b	(0.872)	(0.285)	(0.147)	(0.256)	(0.161)	(.093)	(.675)
	b	[0.047]	[0.050]	[0.015]	[0.032]	[0.019]	[.024]	[.083]
POOR PUBTRANS	-0.342*	-0.035	0.070	0.083	0.181	-0.300	.014	-.210
	(0.181)	(0.215)	(0.183)	(0.095)	(0.208)	(0.223)	(.073)	(.136)
	[-0.108]	[-0.009]	[0.018]	[0.017]	[0.047]	[-0.047]	[.003]	[-.061]
POOR SHOPPING	-0.099	-0.237	-0.463*	-0.125	-0.330*	-0.127	-.158*	-.167
	(0.160)	(0.162)	(0.220)	(0.082)	(0.174)	(0.125)	(.060)	(.112)
	[-0.036]	[-0.084]	[-0.097]	[-0.030]	[-0.102]	[-0.037]	[-.040]	[-.060]
MOSTLY BLACK	0.000	0.164	-0.290	0.001	-0.431	0.318	-.128	.138
	(0.161)	(0.161)	(0.486)	(0.402)	(0.466)	(0.646)	(.233)	(.110)
	[0.000]	[0.079]	[-0.031]	[0.000]	[-0.050]	[0.018]	[-.009]	[.064]
MOSTLY WHITE	-0.046	-0.226	0.603*	0.389*	-0.037	0.528*	.333*	-.153
	(0.244)	(0.191)	(0.167)	(0.102)	(0.151)	(0.184)	(.068)	(.142)
	[-0.012]	[-0.084]	[0.184]	[0.076]	[-0.014]	[0.109]	[.078]	[-.050]
MEDINC	0.948*	0.050	0.346*	0.400*	0.269	0.299	.295*	.472*
	(0.322)	(0.228)	(0.158)	(0.068)	(0.283)	(0.183)	(.053)	(.169)
	[0.179]	[0.014]	[0.105]	[0.128]	[0.051]	[0.067]	[.096]	[.119]
NEIGH STABILITY	0.269	-0.064	0.864*	0.639*	1.143*	0.681*	.753*	-.106
	(0.241)	(0.256)	(0.172)	(0.081)	(0.203)	(0.155)	(.061)	(.164)
	[-0.075]	[-0.018]	[0.253]	[0.176]	[0.311]	[0.186]	[.216]	[-.030]

Table 5 (Continued)

N-chotomous Probit Results for the Neighborhood Cluster Sample: Unstandardized Coefficient, (Standard Error), [Standardized Coefficient]

	Groups[a]							
Explanatory Variable	BMC 1	OB 2	HWMC 3	OW 4	LWMC 5	OW 6	All Whites	All Blacks
CONSTANT	1.840* (0.241)	2.433* (0.317)	2.299* (0.295)	2.148* (0.154)	2.032* (0.260)	1.797* (0.254)	2.161* (.102)	2.135* (.180)
OBSERVATIONS	362	396	520	3000	440	948	4911	759
Log of the likelihood function	-691	-681	-917	-4859	-790	-1511	-8185	-1397
-2 times the log-likelihood ratio	118	107	236	654	154	226	1255	228

[a]Group definitions: 1 = blacks, multifamily housing, central city; 2 = all other blacks; 3 = high income, whites, multifamily housing, central city; 4 = all other high income whites; 5 = low income, whites, multifamily housing, central city; 6 = all other low income whites.

[b]Variable dropped due to insufficient variation.

Table 6

An Analysis of the Difference in Mean Neighborhood Quality Rank Between Whites and Blacks and Between the Least and Most Satisfied Groups[a]

	Substituting the white mean into the black equation would make difference:	Substituting the white coefficient into the black equation would make difference:	Substituting the mean from most satisfied into least satisfied equation would make difference:	Substituting the coefficient from most satisfied into least satisfied equation would make difference:
CRIME[b,c,d,e]	12% smaller	1% smaller	17% smaller	15% smaller
NOISE[b,c,d,e]	3% smaller	2% larger	5% smaller	4% smaller
JUNK[b,c,d,e]	17% smaller	2% smaller	14% smaller	2% smaller
RUNDOWN[b,c,d,e]	6% smaller	10% larger	1% larger	18% larger
ABANDON[b,c,d,e]	14% smaller	8% smaller	20% smaller	21% smaller
NONRESIDENTIAL[b,d]	2% smaller	0% smaller	2% smaller	6% larger
OPEN SPACE[b,d]	0% smaller	5% smaller	0% smaller	3% larger
ODORS[b,d]	0% smaller	2% smaller	0% smaller	1% larger
POOR SHOPPING[b,d]	4% smaller	0% smaller	1% smaller	0% smaller
MOSTLY WHITE[b,d]	36% larger	17% smaller	5% smaller	48% smaller
MEDINC[b,c,d,e]	29% smaller	17% larger	115% smaller	7% larger
NEIGH STABILITY[b,d]	1% smaller	120% smaller	17% larger	38% smaller

[a]Least satisfied group = central city blacks living in multifamily housing.
Most satisfied group = high income whites not living in central city multifamily housing.

[b]Indicates variable significant in the white equation.

[c]Indicates variable significant in the black equation.

[d]Indicates variable significant in the equation estimated for most satisfied group.

[e]Indicates variable significant in the equation estimated for least satisfied group.

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