

David R. Harris

"Property Values Drop When Blacks Move In, Because...": Racial
and Socioeconomic Determinants of Neighborhood Desirability

Report No. 97-387

RESEARCH REPORTS



PSC

POPULATION STUDIES CENTER
UNIVERSITY OF MICHIGAN

The Population Studies Center at the University of Michigan is one of the oldest population centers in the United States. Established in 1961 with a grant from the Ford Foundation, the Center has a rich history as the main workplace for an interdisciplinary community of scholars in the field of population studies. Today the Center is supported by a Population Research Center Core Grant from the National Institute of Child Health and Human Development (NICHD) as well as by the University of Michigan, the National Institute on Aging, the Hewlett Foundation, and the Mellon Foundation.

PSC Research Reports are prepublication working papers that report on current demographic research conducted by PSC associates and affiliates. The papers are written by the researcher(s) for timely dissemination of their findings and are often later submitted for publication in scholarly journals. The PSC Research Report Series was begun in 1981 and is organized chronologically. Copyrights are held by the authors. Readers may freely quote from, copy, and distribute this work as long as the copyright holder and PSC are properly acknowledged and the original work is not altered.



“Property Values Drop When Blacks Move In, Because...”: Racial and Socioeconomic Determinants of Neighborhood Desirability

by David R. Harris

Research Report No. 97-387

April 1997

Abstract: This paper responds to two questions. First, is there evidence that whites are averse to black neighbors? Second, is this aversion motivated by pure discrimination or is it a proxy for nonracial neighborhood characteristics? These questions derive their importance from the link between mobility patterns and residential segregation, and the consequent relationship between high levels of segregation and a host of deleterious outcomes. I assess the magnitude and motivations of racial aversion by conducting a hedonic price analysis of geocoded data from the Panel Study of Income Dynamics. I find clear evidence of lower property values in neighborhoods containing more blacks, but conclude that whether it is blacks' race or their class that affects property values is dependent upon the location and character of neighborhoods. I close by discussing the implications of my work for integration policy and suggesting directions for future research.

Dataset used: Geocoded Panel Study of Income Dynamics (PSID): U.S., 1979-1981

The Author

David R. Harris is Assistant Professor, Department of Sociology, and Research Associate, Population Studies Center, University of Michigan.

Direct correspondence to David R. Harris, 1225 South University Avenue, Population Studies Center, University of Michigan, 48104-2590 (drharris@umich.edu). Portions of the data were made available by the Inter-university Consortium for Political and Social Research at the University of Michigan. In preparing this paper I have benefited greatly from comments by Christopher Jencks, Greg Duncan, and Art Stinchcombe.

“It seems like the property values drop when black families move in,” observed a white woman when asked why she would move if more than three black families lived in her neighborhood (Farley, Steeh, Krysan, Jackson, and Reeves 1994: 775). This comment resonates with conventional wisdom about the effect of integration on predominantly white neighborhoods and is supported by empirical work that finds whites are averse to black neighbors. The woman’s words reveal a distaste for living near blacks that is reflected in a lower assessment of property values. While racial prejudice and discrimination may account for the woman’s preference for segregation, there is at least one other possible explanation. This same woman went on to say that the reason property values drop when blacks move in is “because they [blacks] do not keep up their houses” (p. 775). Her elaboration suggests an aversion to neighbors who do not maintain their homes, rather than to blacks per se. What is unclear is whether this woman is offering an aversion to rundown property as cover for her racist intentions, or whether she would actually move if new neighbors of any race did not maintain their homes.

As this example shows, there are many reasons why whites might have an aversion to black neighbors. One is pure discrimination (Bobo and Zubrinsky 1996). This theory maintains that whites dislike blacks simply because they are black. A second explanation stresses the proxy component of racial aversion. It argues that whites dislike black neighbors not because they are black, but because of “other neighborhood concerns, correlated with racial mix, which affect people in such a way as to produce cumulative patterns of invasion and succession” (Taub, Taylor, and Dunham 1984: 177). For example, if the only factor in whites’ assessment of neighborhood quality is the poverty rate, then they will tend to rate highly integrated neighborhoods as less desirable, because higher poverty rates among blacks will mean that the average mixed-race neighborhood will contain more poor people than the average homogeneous, white neighborhood.

The distinction between pure discrimination and racial proxies is important in part because the two explanations have distinct implications for integration policy. If whites avoid blacks because they are black, then stable integration is unlikely to occur. No matter what policy is pursued, whites will still object to living near blacks. Alternatively, if whites avoid blacks because of characteristics correlated with being black, then stable integration can be achieved by policies that promote racial integration while simultaneously minimizing levels of undesirable nonracial characteristics.

In light of the importance of this distinction between racial proxies and pure discrimination, my analysis pursues two goals. First, I assess the magnitude of white aversion to black neighbors. Second, I consider the impact of a series of nonracial neighborhood factors on whites’ aversion to integration. This exercise serves as a test of the pure discrimination and racial proxy hypotheses. To achieve these goals I employ hedonic price analysis, a method that is common in economics, but seldom used in sociology.

Racial and Nonracial Determinants of Neighborhood Desirability

Some theories of residential mobility stress the importance of racial preferences and attitudes; others emphasize reactions to social problems. The former argue that whites have varying preferences for integration. When a black family moves into a neighborhood, they disturb the racial equilibrium. In response, whites who were already in the most integrated neighborhood they could tolerate decide to move. These openings create opportunities for more black families to join the neighborhood. When the second wave of blacks arrives, their presence

prompts the departure of whites who are slightly more tolerant than the whites who initially fled. Again, some of the newly available homes are acquired by blacks, and a third wave of whites flees. This process continues, provided there are enough blacks who want to live in the neighborhood, until even the most tolerant whites feel uncomfortable and leave (Schelling 1971).

Several researchers have examined the relationship between racial composition and neighborhood desirability by studying whites' expressed preferences. They consistently find that whites want to live in predominantly white neighborhoods. Recent work in Los Angeles finds that the average white prefers a white/black neighborhood mix of three to one, and that no whites want to live in an area that is more than 60% black (Clark 1992). Similar results appear in surveys of the Detroit area, where a majority of whites (87%) say they would move into a neighborhood that is 7% black, but only 29% of whites say they would select a 53% black neighborhood (Farley et al. 1994). Though these studies suggest that whites tolerate low levels of integration, the link between whites' words and their actions has been questioned. Clark (1992) suggests that whites' expressed preferences for integration may reflect norms against public statements of racism, rather than an actual desire to live in mixed communities.

Other researchers avoid concerns about socially modified responses by focusing on behavior, not expressed preferences. The work of Frey (1979) represents the best example of this approach. It examines the movement of whites from urban to suburban communities in the 39 largest metropolitan areas. Contrary to what is implied by the term "white flight", central cities with relatively small white populations do not experience higher rates of outmigration by whites. However, whites who do leave highly integrated central cities are more likely to choose homes in white suburbs than are whites who leave cities with relatively few blacks. Frey's findings are confirmed by several recent studies. Alba and Logan (1991) observe a positive relationship between a metropolitan area's racial heterogeneity and the extent of white suburbanization. In the Chicago area, Ottensmann and Gleeson (1992) find that whites are averse to neighborhoods whose black populations are growing. Finally, Massey, Gross, and Shibuya (1994) report that the probability of whites moving into an area is lower in census tracts with a higher percentage of black residents.

A second school of thought argues that whites choose neighborhoods in an effort to avoid social problems, not blacks. Several authors maintain that when whites evaluate neighborhoods, racial preferences are a proxy for their desire to live in areas free of crime, deteriorating buildings, ineffective public schools, and other social ills (Clark 1992). Due to the overrepresentation of many social problems in the black population, selecting a "good" environment usually means choosing a predominantly white neighborhood. Marshall (1979) examines large metropolitan areas and finds that the effect of racial composition on white suburbanization is not significant once crime rates and the incidence of riots are considered. Taub and his colleagues (1984) employ a different research methodology from Marshall, but arrive at a similar conclusion. Once perceived crime risk, quality of local buildings, and satisfaction with nonracial aspects of the neighborhood are controlled, Chicago whites who are intolerant of blacks are no more likely to move than are other whites. Taub and his colleagues conclude that whites do not base their mobility decisions on neighborhood racial composition, but rather choose to relocate if their expectations about concomitant social problems are confirmed.

Under the umbrella of social problems, neighborhood socioeconomic status (SES) is one indicator of neighborhood quality. One salient component of neighborhood SES is income. In particular, whites have a preference for affluent neighbors, and a distaste for living near the poor.

Empirical support for this claim appears in work by Gramlich, Laren, and Sealand (1992), who find strong effects of neighborhood poverty on white migration patterns. Of the persistently poor white families who live in poor census tracts at the start of any given year, 20% move to nonpoor tracts in the ensuing twelve-month period. Similarly, poor whites in middle and upper-income tracts are much more likely to select nonpoor destinations. This apparent preference for more affluent neighborhoods also appears in recent work by South and Crowder (1997).

In addition to neighbors' income, several other components of neighborhood SES likely affect whites' assessments of communities. An area's unemployment rate and average level of educational attainment are two such indicators of neighborhood SES. Though the relationship between these factors and neighborhood desirability has rarely been subjected to empirical scrutiny, it follows from findings about the importance of other components of SES that whites are likely to avoid neighbors who are poorly educated or unemployed.

The two broad theories discussed above yield important information about predictors of white mobility, but do not provide a full understanding of the factors that affect whites' assessments of neighborhood desirability. Research tends to evaluate the effects of racial *or* nonracial factors, rather than racial *and* nonracial factors.¹ Many studies use survey data to assess white aversion to black neighbors, but most surveys only query whites about their comfort with varying degrees of racial integration. A more instructive battery of questions would include:

1. How comfortable would you be in a neighborhood that is 10% black and 90% white, but 5% of your neighbors are violent criminals?
2. How comfortable would you be in a neighborhood that is 10% black and 90% white, but 1% of your neighbors are violent criminals?
3. How comfortable would you be in a neighborhood that is 30% black and 70% white, but 5% of your neighbors are violent criminals?
4. How comfortable would you be in a neighborhood that is 30% black and 70% white, but 1% of your neighbors are violent criminals?

The preceding items illustrate why simply asking whites how comfortable they would feel in neighborhoods with different racial compositions is insufficient. Conducting unidimensional research presumes that racial composition is the dominant factor in neighborhood quality. My survey of the literature yields no support for this presumption. Therefore, my work combines racially and nonracially motivated theories of mobility—simulating the above series of hypothetical questions—by presenting a multidimensional analysis of the factors that affect whites' assessment of neighborhoods.

Methodology

The Status Quo

Most sociological studies of neighborhood desirability rely on regression analysis, transition matrices, or vignettes. Though instructive, each method is insufficient for identifying the characteristics of neighborhoods that whites deem important. Regression analysis examines

¹ Those papers that do consider both racial and nonracial factors tend to focus on a limited set of predictors. An example is Massey et al. (1994), which only considers the effects of tract income and racial composition.

the relationship between contextual variables and either the probability of leaving one's current home or the type of destination selected (Frey 1979; Galster 1990; Goodman and Streitwieser 1983; South and Deane 1993). Studies that assess destination selection regress the percentage of movers who choose suburban destinations on city characteristics, characteristics of the average surrounding suburb, and differences between the city and its average suburb.

There are three problems with the regression approach. All apply to studies of destination selection, but only the third is relevant for studies of mobility incidence. First, regression studies assume a false dichotomy between undesirable cities and idyllic suburbs. Much research shows that there is considerable variation among cities and suburbs, even when they are located in the same metropolitan area (Alba and Logan 1991; Massey and Denton 1993). Second, in addition to ignoring variation across cities and suburbs, regression studies also fail to take note of differences within cities and suburbs. As a result, it is difficult to say much about destinations based on regression results. Is a white family that selects a suburban neighborhood deciding to live near blacks or whites? What is the SES of their new neighborhood? If we cannot answer these critical questions, then what are we to make of the model's coefficients? Third, the majority of regression studies include few, if any, nonracial contextual variables, so it is not clear whether findings of racial aversion reflect racism or a response to nonracial factors that are correlated with race.

A second approach that has been used by sociologists interested in neighborhood desirability is transition matrices (Gramlich et al. 1992; Massey et al. 1994). First, characteristics of respondents' neighborhoods in years t and $t+1$ are coded into discrete measures of neighborhood quality. Next, a matrix is constructed with the rows representing one variable in year t and the columns representing that same variable in year $t + 1$. The matrix is examined to determine whether whites are moving out of or into neighborhoods that rate higher or lower on the variable of interest. If no pattern exists we conclude that the examined characteristic does not affect neighborhood desirability.

The transition matrix approach has two problems. First, transition matrices cannot be constructed for continuous variables. Information is lost when continuous data is converted into discrete measures, and decisions about how to partition the distribution can bias results. Second, the transition matrix approach cannot easily accommodate multiple predictors. One can use nested matrices, but this solution quickly becomes unmanageable as even a modest number of predictors leads to uninterpretable results. One can also combine several variables into a single summary measure, but this second solution suffers from the same problems of discrete variables that generally afflict the transition matrix approach.

A third method employed by sociologists interested in assessments of neighborhood desirability is vignettes. This approach has two variants: neighborhood diagrams and factorial surveys. The first method presents respondents with several pictures depicting neighborhoods that are integrated to varying degrees, and asks them to indicate how comfortable they would feel living in each area (Farley, Steeh, Jackson, Krysan, and Reeves 1993). Factorial surveys also ask respondents to rate hypothetical neighborhoods, but they use verbal cues instead of pictures (Bobo and Zubrinsky 1996; St. John and Bates 1990). In this variant of the vignette approach researchers identify dimensions of neighborhoods that might affect desirability and then write sentences that reflect varying magnitudes of each dimension. One sentence for each neighborhood characteristic is selected and the resulting description is read to the respondent.

Regardless of whether vignette studies employ neighborhood diagrams or factorial surveys, they suffer from three significant problems. First, many vignette studies do not control for nonracial neighborhood characteristics. This bias is most severe in neighborhood diagrams, where respondents are only shown the racial composition of neighborhoods. The problem is that there is no way to know whether the person is responding to race, or some other characteristic that they believe is more common in integrated neighborhoods. For example, if respondents care only about neighborhood poverty and they know that poverty rates are higher among blacks, then they will always choose less integrated neighborhoods. Researchers will misinterpret their results as evidence of racial aversion, when in fact respondents do not care about neighborhood racial composition, per se. Second, vignette studies ask people about hypothetical neighborhoods, rather than the places where they actually live. The problem is that if behavior lags behind intentions, then vignette studies report the effect of factors on ratings of neighborhoods, but offer little information about the odds of leaving or selecting different kinds of neighborhoods. Third, because respondents are told the racial compositions of neighborhoods, the vignette approach is susceptible to bias resulting from socially modified responses (Clark 1992). This critique argues that because it is now less acceptable to openly profess racist sentiments, whites are reluctant to say that they prefer segregated neighborhoods. As a result, vignette studies likely underestimate the effect of racial composition on neighborhood desirability, and overestimate the impact of crime rates, school quality, neighbors' income, and other nonracial factors that serve as code words.

A Different Approach

Regression analysis, transition matrices, and vignettes each represent ineffective methods of identifying determinants of neighborhood quality. A better approach is clearly needed. The ideal data for this research contains information on the characteristics of every neighborhood that respondents consider, their satisfaction with each alternative, and their eventual choice. With such data, it would be easy to reconstruct whites' implicit preference equations by regressing their desire for a given neighborhood on that neighborhood's characteristics. In lieu of such data, I employ hedonic price analysis.

Hedonic price analysis uses information about what people pay for housing to estimate preferences for different dwelling and neighborhood characteristics. For renters, annual housing expenditures are simply monthly rent multiplied by twelve. For owners, annual housing costs are obtained by multiplying present home value by a capitalization rate, and adding the product to annual property taxes.²

Linneman (1980) shows that the proper specification for the hedonic model depends on the data being examined. Accordingly, I performed a Box-Cox search over the following equation:³

² The capitalization rate is obtained from a study by Peiser and Smith (1985) that compares the costs of renting and owning comparable housing. They discuss in detail how the rate is computed, and present capitalization rates for 1963-1981.

³ I have constrained the specification of the independent variables to be linear. Linneman (1980) notes that the likelihood function is not highly sensitive to the specification of the independent variables. His study and research conducted by others (Blomquist, Berger, and Hoehn 1988; Gyourko and Tracy 1991) indicates that a linear specification is reasonable. There is less agreement about what specification is best for the dependent variable.

$$\frac{Y^\lambda - 1}{\lambda} = b_0 + \sum_{i=1}^n b_i (X_i - 1) + e, \quad [1]$$

where Y is annual housing expenditures, X_i are dwelling and neighborhood characteristics, and λ varies from 0 to 1. The maximum-likelihood value of λ is the transformation of annual housing expenditures that best fits the data. When λ is equal to 0, the natural logarithm of annual housing expenditures characterizes the dependent variable.⁴ When λ is equal to 1, the equation is linear.

Once hedonic coefficients are obtained for each independent variable, they are converted into marginal trait prices. These prices indicate the monetary effect of a marginal change in each dwelling and neighborhood characteristic on the cost of the average home. For dichotomous independent variables the price reflects an increase from zero to one. For continuous measures, prices correspond to a one unit change in the independent variable. Marginal trait prices are computed by the following equation:

$$P_i = b_i A^{(1-\lambda)}, \quad [2]$$

where P_i is the marginal trait price for characteristic i , b_i is the hedonic coefficient for characteristic i , and A is the average annual housing expenditure in the sample. The values of b_i and λ are from [1].

As a method for determining the weights that whites give to various neighborhood characteristics, hedonic price analysis does have a few disadvantages. First, it reports preferences that are evident in the housing market as a whole, rather than among particular subgroups of the population. Property values result from bids by all potential buyers. As such, whites may receive smaller discounts for living in undesirable neighborhoods if members of other racial groups are less averse to those neighborhoods. The problem of biased estimates of white preferences is mitigated by the fact that whites are the dominant group in most housing markets, and so their preferences have a large impact on property values. Also, discrimination in the housing market serves to limit competition between white and nonwhite home seekers. Nevertheless, because prices are determined by the market my results provide direct information about market response to neighborhood traits, and indirect insight into white preferences. Second, trait prices are determined by the preferences of the marginal, not average, consumer. Linneman (1981) recognizes this aspect of the housing market and concludes that even if “it is known that on average the trait Z_i is undesirable, one cannot a priori conclude that Z_i will possess a negative coefficient in the clearing function” (p. 134). Consequently, results of the hedonic model provide information on the cost of traits in the housing market, but likely underestimate how much aversion exists in the general population. Third, the hedonic model reports trait prices at the intersection of supply and demand curves. These forces cannot be disentangled to produce separate estimates of the effect of neighborhood characteristics on mobility incidence and destination selection. Instead, the net effect of traits is obtained.

Despite these problems, hedonic price analysis remains a valid method for examining the effect of neighborhood characteristics on neighborhood desirability. It has several advantages over other methods. First, results are easy to interpret because trait prices are expressed in dollars. Second, hedonic price analysis evaluates the importance of neighborhood characteristics

⁴ Linneman (1980: 52) observes that “using L’Hôpital’s rule, it can be shown that as $[\lambda]$ approaches zero the functional form approaches natural logarithmic form.”

independent of respondents' previous location. Consequently, the method does not require the type of assumptions about current and former neighborhoods that plague the traditional regression approach. Third, hedonic price analysis works well with discrete or continuous independent variables. No bias-inducing decisions about how to convert continuous measures are necessary. Fourth, unlike transition matrices or neighborhood diagrams, hedonic price analysis can easily accommodate multiple predictors. Finally, hedonic price analysis uses data on what people pay for their homes to assess the importance of factors, rather than relying on assessments of hypothetical neighborhoods. As a result, findings from hedonic price analysis are not susceptible to Clark's "socially modified response" critique (1992). Sample members do not have the opportunity to bias results by providing interviewers with politically correct responses.

Hedonic price analysis has seldom been used to answer sociological questions. Economists evaluate hedonic models that include: commuting time, environmental pollution, precipitation, temperature, tax rates, crime, and street noise. Sociologists focus on the role of neighborhood racial composition in conceptions of neighborhood desirability. By using hedonic price analysis to evaluate the weights given to neighborhood racial composition and SES, I link econometric methods with sociological theory.⁵

Data

Data for this study come from the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal survey conducted annually by the Survey Research Center of the University of Michigan. Initiated in 1968, the PSID now includes data on 37,500 individuals who resided in one of 4,800 initial sample households, were the offspring of those individuals, or were their coresidents. Due to an initial oversampling of low-income families, the later incorporation of a Latino subsample, and attrition, the PSID sample is not representative of the United States population. To correct for this bias, PSID sample weights are applied.⁶

The PSID focuses on economic and demographic behavior. Respondents are queried about sources of income, changes in family structure, the acquisition of job skills, residential mobility, and a host of other related issues. This paper uses a special geocoded version of the PSID that was recently prepared in response to growing interest in neighborhood effects. The file contains aggregate data from the 1970 and 1980 U.S. Censuses, as well as codes representing respondents' addresses at twelve geographic levels.⁷ The geocoded PSID allows me to examine both individual and environmental determinants of behavior.⁸

Despite the fact that the PSID contains annual data for 1968 to the present, I only examine data for the years 1979 to 1981. There are three reasons for limiting analyses to these years. First, not all variables are available for all years. For example, the PSID does not contain a description of the respondent's dwelling (i.e., one-family house, two-family house, or apartment) in 1973, 1974, or 1982. Second, geocodes are not available for 1969, 1975, 1977, 1978, or any

⁵ For more on hedonic price analysis and applications of the method see Linneman (1980); Blomquist et al. (1988); Gyourko and Tracy (1991); and Diamond and Tolley (1982).

⁶ Standard errors are computed with a Huber/White estimator (Greene 1993; StataCorp 1995).

⁷ I use census tracts to represent neighborhoods. Tracts vary in size, but on average contain about 4,000 residents. Tracts are the definition of neighborhoods most frequently employed by social scientists (Brooks-Gunn, Duncan, Klebanov, and Sealander 1993; Gramlich et al. 1992; Massey et al. 1994).

⁸ See Hill (1992) for further information about the PSID.

year after 1985, so no information is known about respondents' neighborhoods in those years. Third, Peiser and Smith (1985) do not report capitalization rates for years after 1981. As a result I am unable to convert home values to annual expenditures for more recent years.

In addition to restricting analyses to a three-year period, I impose two further restrictions on the data. First, I limit the sample to households that moved during the previous year. Recent movers are included because their housing costs reflect the current value of neighborhood characteristics. Also, recent movers likely provide better estimates of housing costs than do long-time homeowners. Those who purchased their homes many years ago may be unaware of its current value. Second, only movers who selected tracts containing whites are included in the final sample. This constraint limits analyses to neighborhoods that are in whites' choice set. I want to know the value of neighborhood traits in the areas where whites live, because my goal is to understand whites' preferences. Restricting analyses to movers who choose tracts with whites excludes about 3% of movers, all of whom are black. Another way to focus the analysis on whites would have been to include only white movers. I rejected this option because it discards information that is provided by the nonwhite movers who compete with whites. By excluding cases based on the race of neighbors rather than the race of movers, I retain a larger sample and one that provides more complete information on the price of racial and socioeconomic composition in the neighborhoods where whites live.⁹

Table 1 describes all variables used in this paper. The dependent variable is annual housing expenditures. It combines housing costs for renters and homeowners into one measure, and is expressed in 1992 dollars. The equations predicting housing expenditures focus on the role of neighborhood characteristics, but also include features of the dwelling and its geographic setting that are expected to affect property values.¹⁰ Dwelling controls identify the number of rooms in the home, whether the home is a single-family dwelling, and whether the property is owner-occupied or rented. The included controls for geographic setting are region and whether the home is located in a large metropolitan area. Neighborhood measures are drawn from the 1980 Census. The one racial factor examined is percent black. Four nonracial factors, all components of neighborhood SES, are also considered. They are: percent affluent, percent poor, percent with no college education, and percent unemployed.¹¹

[Table 1 about here]

In response to tipping models and concerns that a comparable increase in the black population may have dissimilar effects on whites who live in differently integrated neighborhoods, I use dummy variables for neighborhood racial composition. Each dummy

⁹ Analyses were also conducted on samples of white movers and all movers. Both samples yield results that are consistent with this paper's central findings about the role of racial and nonracial neighborhood characteristics.

¹⁰ No other dwelling characteristics are available in the PSID. This omission would only be a problem if unobserved dwelling traits that have a large impact on property values were highly correlated with the neighborhood characteristics I examine.

¹¹ Initially, county data was used instead of tract data. The advantage of examining counties is that a broader range of measures is available, including: crime rates, property tax rates, and per pupil expenditures. The disadvantage of using counties is that there is usually so much heterogeneity within counties that county-level measures indicate little about any particular respondents' context. Such was the case in my analysis. Few county-level effects were significant, although several SES measures were more important than racial composition.

variable represents a segment of the percent black distribution. After considering several coding schemes, I settled on four partitions that characterize the pattern of racial effects. The ranges are: less than 10% black, 10%-20% black, 20%-50% black, and at least 50% black. The percentage of respondents in each range of the percent black distribution is shown in Table 2.

[Table 2 about here]

Results

The analysis proceeds in three parts. First, I estimate the total effect of race by evaluating a reduced model that uses all control and independent variables, except the nonracial neighborhood traits, to predict housing expenditures. Next, I explore the racial proxy argument by estimating the full model. The full model includes all predictors from the reduced model, as well as the nonracial neighborhood traits, and yields an estimate of the direct effect of racial composition on property values.¹² Third, I evaluate the reduced and full models separately for renters, homeowners, and regional subgroups, in an effort to ascertain whether the importance of racial and nonracial neighborhood traits varies by tenure or region.

Table 3 presents results from the reduced model.¹³ Racial composition is the only neighborhood trait included in this model. The first two columns of Table 3 report the hedonic coefficients and standard errors for each independent variable. The third column contains marginal trait prices, evaluated at the mean of the annual housing expenditure distribution. In this and all subsequent equations tracts that are less than 10% black comprise the omitted category of racial composition. Therefore, the three racial composition dummy variables indicate how much annual housing costs would change if the residence was moved from one of the least integrated neighborhoods to an area that is more racially heterogeneous.

Hedonic coefficients indicate that homes lose about 20% of their value when neighborhood racial composition increases from less than 10% black to either 10%-20% black or 20%-50% black. For an average home, this is equivalent to about a \$1,000 reduction in annual costs. An even larger reduction in housing costs is associated with moving from a neighborhood where fewer than one in ten residents is black to one where at least half of the neighborhood is black. In this scenario homes lose 37% of their annual value, which is equivalent to about a \$2,000 reduction in annual housing costs for the average home. All of these racial effects are highly significant, both statistically and substantively. They provide clear evidence that an aversion to black neighborhoods exists in the housing markets where whites live. In addition, results from the reduced model confirm the Detroit woman's observation that "property values drop when black families move in" (Farley et al. 1994: 775)

[Table 3 about here]

¹² This is not the true direct effect because crime, school quality, and other important neighborhood traits are not included in the model. As a result, if any race effect remains after controlling for neighborhood SES I cannot conclude that this is evidence of pure discrimination. Some or all of the surviving racial aversion may yet be a proxy for nonracial factors.

¹³ All equations presented in this paper assume a λ value of zero. In other words, each employs a natural logarithmic transformation of annual housing expenditures. Actual λ values from the Box-Cox searches ranged from -.01 to .25. I use the natural logarithmic transformation because it is easier to interpret and yields results that are consistent with those obtained using precise λ values.

Table 3 provides a strong affirmative response to the question, “Is there a bias against blacks in the housing markets where whites live?” However, it offers no evidence about why people prefer not to live near blacks. To address the issue of motivation, I consider whether aversion to black neighbors can be explained by people’s desire to live in high SES neighborhoods. In Table 4 I assess the effect of each nonracial neighborhood trait separately by estimating equations that use percent black and one nonracial neighborhood factor to predict annual housing expenditures.¹⁴ The estimates in Table 4 represent upper bounds on the proportion of the race effect that can be attributed to each nonracial factor.

Model 1 examines the role of affluent neighbors in assessments of property value. The coefficient for this nonracial factor is positive and strongly significant. For each percentage point increase in the proportion of local families with annual incomes greater than \$51,000, annual housing costs increase by 1%. For the average home, this premium for a marginal increase in the proportion of affluent neighbors means a \$64 annual increase in housing costs. Not only does Model 1 reveal a preference for affluent neighbors, but it also provides insight into why people avoid black neighbors. Controlling for the percentage of affluent neighbors reduces the cost of integration by between 47% and 58%. This finding supports the racial proxy hypothesis. It suggests that half of the reason why blacks are avoided is because they are unlikely to have high incomes. However, Model 1 also supports the pure discrimination argument. It reports annual premiums for not locating in the least integrated neighborhoods of between \$500 and \$1,000, with this race effect remaining significant in neighborhoods that are at least 20% black.

[Table 4 about here]

A second dimension of neighborhood SES is the poverty rate. Model 2 uses percent black and percent poor to predict annual housing expenditures. It shows that the local poverty rate plays a highly significant role in determining annual housing costs. For each percentage point increase in the poverty rate, annual housing costs decline by about 2%. Furthermore, controlling for the neighborhood poverty rate dramatically reduces the effect of percent black on housing expenditures. The coefficient for 10%-20% black neighborhoods remains negative, but is 46% smaller and no longer significant. The effect of a being in a 20%-50% neighborhood is also not significant, falling by 68% once the poverty rate is controlled. The coefficient for the final racial composition dummy variable is also no longer significant. The penalty on the average home is 85% smaller, down from \$2,049 to \$310. Model 2 indicates that between 46% and 85% of the race effect in neighborhoods where whites live can be attributed to a desire to avoid the poor. In other words, blacks are avoided largely because they have high incidences of poverty, not because they are black.

¹⁴ Correlation coefficients for the neighborhood variables are reported in Appendix A. It shows that while some relationships are quite strong, few are strong enough to raise serious concerns about multicollinearity. Of the 16 relationships between racial and nonracial variables, only five have correlation coefficients with a magnitude greater than .30. Among the nonracial neighborhood variables coefficients have higher magnitudes, with three between .30 and .60, and the other three greater than .60. The strongest relationship is between percent affluent and percent with no college, where the correlation coefficient has a magnitude of .69. Despite these strong relationships, there is no evidence that my analysis suffers from problems of multicollinearity. All correlation coefficients are less than .70, standard errors change little between the reduced and full models, and almost all reductions in racial effects obtained by including the four nonracial variables also appear when only one nonracial factor is controlled.

Neighbors' educational attainment is a third component of neighborhood SES. Model 3 includes percent black and the percent of neighbors who have no education beyond high school as predictors of housing expenditures. Adding this neighborhood SES measure to an equation containing racial composition markedly improves the explanatory power of the model. The annual cost of the average home declines by \$55 for each percentage point increase in the proportion of poorly educated neighbors. Despite the significant effect of neighbors' schooling on housing costs, inclusion of this factor does not explain away the effect of racial composition. Coefficients for the percent black dummy variables decline by between 29% and 48%, but remain significant. The annual premium associated with integration ranges between \$721 and \$1,059. Model 3 reveals a strong preference for educated neighbors in the areas where whites live, but consideration of this factor alone does not explain why annual housing costs reflect an aversion to black neighbors.

A fourth component of neighborhood SES is the unemployment rate. In Model 4 percent unemployed and percent black are included as predictors of housing expenditures. Each percentage point increase in the local unemployment rate reduces housing costs by almost 3%. For the average home the cost of a marginal increase in unemployment is about \$150. The effect of the unemployment rate on the race effect is uneven. Reductions in the race effect are greater in the most integrated neighborhoods. In 10%-20% black neighborhoods, the race effect declines by 28%. By contrast, the race effect falls by 62% in neighborhoods that are at least 50% black. However, even in areas where percent unemployed greatly reduces the race effect, coefficients for percent black remain marginally significant. Model 4 shows that percent unemployed is an important determinant of housing costs, but its impact on the race effect is such that consideration of the unemployment rate does not support a rejection of the pure discrimination hypothesis.

The equations presented in Table 4 establish upper bounds on the proportion of the race effect attributable to each component of neighborhood SES. Due to the high degree of correlation between many of these factors (Appendix A), the effects reported thus far for nonracial predictors are somewhat redundant. In order to determine the independent effect of each nonracial predictor, I estimate a more complete model of annual housing expenditures. Presented in Table 5, this model includes percent black, percent affluent, percent poor, percent with no college, and percent unemployed as predictors of annual housing costs. The model fits the data only slightly better than equations containing percent black and one SES measure (Table 4). Further evidence of high correlations among neighborhood SES measures emerges from a comparison of coefficients in Tables 4 and 5. These coefficients decline by about 50% for all nonracial traits except percent unemployed, which experiences a reduction in its effect of 96% and is the only nonracial trait that is no longer significant.

[Table 5 about here]

Despite these changes in the coefficients for neighborhood SES, there remains strong evidence that lower housing costs in more integrated neighborhoods are mainly a response to the SES, not race, of residents. Once I control for the four indicators of neighborhood SES, there is no longer a reliable relationship between racial composition and annual housing costs in the neighborhoods where whites live. The direct effect of a 10%-20% black neighborhood is 59% smaller than the comparable total effect. In neighborhoods that are 20%-50% black the total effect of race is reduced by 82%. Finally, in those neighborhoods that are at least 50% black, the race effect declines by 92%, to just \$156 per year for the average home, once neighborhood SES

is added to the model.¹⁵ These results make it clear that homes are more valuable in less integrated neighborhoods largely because people prefer well-educated, affluent neighbors, and each of these traits is more prevalent among whites than blacks.

Tenure and Regional Differences in Destination Selection

All of the results I have discussed thus far apply to households that move to neighborhoods containing whites. Controls are included for tenure and region, but the underlying assumption is that other trait prices do not differ between renters and homeowners, or between housing markets in different regions. There are at least four reasons to believe that this assumption is incorrect. First, the equations I evaluate consistently show significant effects of tenure and region. In the full model (Table 5), people pay 40% more to own a home, and at least 10% more if their home is located in the West or Northeast. Second, the pattern of mean annual housing expenditures shown in Table 2 is not consistent across tenure and regional subgroups. Third, several recent studies find significant regional variation in whites' racial preferences (Clark 1991), the stability of integration (Lee and Wood 1991), and segregation levels (Farley and Frey 1994). Fourth, renters and owners do not have equal stakes in their neighborhoods. To an owner a home is both a residence and an investment. To a renter a home is a place to live. This difference means that owners likely give weight to expected future property values when determining a home's current value.

To allow trait prices to differ by tenure and region, I estimate the reduced and full models separately for renters, owners, and each of the four regions. Table 6 presents findings from the reduced model for renters and homeowners. In each equation percent black is the only neighborhood-level predictor of annual housing expenditures. Table 6 shows that renters and owners share an aversion to black neighbors. All race coefficients are significant, and the cost of integration is higher in more racially mixed neighborhoods. Despite these similarities, it would be a mistake to conclude that renters and owners offer comparable responses to integration. What differs between the two groups is the magnitude of their aversion to blacks. Depending on the extent of integration, the costs associated with rental property decline by between 13% and 27% when located in a neighborhood that is more than 10% black. By contrast, owned property loses between 25% and 89% of its value when the proportion of black neighbors exceeds 10%. This difference in sensitivity to racial composition between renters and homeowners is quite large, and is statistically significant for neighborhoods that are at least 20% black. It supports the hypothesis that homeowners are more invested in their homes than are renters.

[Table 6 about here]

Table 7 reports coefficients for the full model, which includes neighborhood SES, and is evaluated separately by tenure. Once again there is evidence that tenure status affects neighborhood trait prices. Rental prices are sensitive to the local poverty rate and the proportion of residents who have not attended college. Neither percent affluent nor percent unemployed has a significant impact on the annual cost of rental housing. By contrast, purchase prices are sensitive to the proportion of affluent neighbors, but are not reliably affected by any other component of neighborhood SES. Differences between renters and owners persist in motivations for preferring segregation, and these differences continue to be reliable in tracts that are at least 20% black. For renters, the full model offers compelling evidence of racial proxies. Once I control for neighborhood SES, the effect of percent black on rental prices is small and not

¹⁵ An F-test fails to reject the hypothesis that all three racial composition dummy coefficients are jointly zero ($F = 1.67, p > .05$).

significant. Similarly, the direct effects of racial composition on purchase prices are smaller than comparable total effects (Table 6). However, even when nonracial neighborhood traits are held constant, purchase prices continue to be significantly related to racial composition, falling by 23% to 44% in tracts that are at least 20% black. This evidence suggests that, possibly because of the sizable investment that purchasing a home entails, when buyers assess property values they ignore many nonracial aspects of neighborhoods and instead focus on neighborhood racial composition.

[Table 7 about here]

Table 8 reports findings from separate models for each region. Consistent with research that finds segregation to be most extreme in the South and Midwest (Farley and Frey 1994), the coefficients in Table 8 suggest that aversion to black neighbors is strongest in these regions. Midwestern homes lose between 21% and 37% of their value when located in neighborhoods that are more than 20% black. Prices are even more responsive to integration in the South, with people paying 32% to 46% less for housing in neighborhoods that are as little as 10% black. By contrast, annual housing costs in the Northeast are only significantly impacted when blacks comprise a majority of the local population, and Western housing costs are insensitive to racial composition at all levels of integration.¹⁶

[Table 8 about here]

Table 9 addresses the question of why some regional equations show signs of an aversion to integration by adding neighborhood SES to the model.¹⁷ In the Midwest, it appears that homes are worth less in integrated settings because people prefer affluent, college-educated neighbors, and that these traits are more common among whites. Racial coefficients in the full model are between 37% and 93% smaller than the comparable total effects in Table 8, and there is no longer a reliable effect of racial composition on housing costs. However, not all regional evidence so clearly supports the racial proxy hypothesis. In the South, adding nonracial neighborhood traits to the model only partially explains the relationship between racial composition and housing costs. Homes in neighborhoods that are 10%-20% black continue to be worth 23% less than comparable homes in neighborhoods containing fewer blacks. This suggests that, at least for some neighborhoods in the South, homes in integrated settings may be less valuable because there is pure discrimination against black neighbors.

[Table 9 about here]

Conclusions

This paper addresses two questions. First, is there evidence that whites are averse to black neighbors? Second, is this aversion motivated by pure discrimination or is it a proxy for nonracial neighborhood factors? These questions derive their importance from the link between mobility patterns and residential segregation, and the consequent relationship between high levels

¹⁶ Only five of the race effects reliably differ between regions. They are: 10%-20% black between the Northeast and South and between the West and South, 20%-50% black between the Northeast and South, and at least 50% black between the Midwest and West and between the West and South.

¹⁷ In these more complete models, there are only four race effects which reliably differ across regions. They are: 10%-20% black between the Northeast and South and between the West and South, and 20%-50% black between the Northeast and Midwest and between the Northeast and South.

of segregation and such outcomes as: concentrated poverty, the development of a self-destructive culture of segregation, and government indifference toward blacks' problems (Cutler and Glaeser 1997; Massey and Denton 1993; Massey and Eggers 1990; Massey, Gross, and Eggers 1991; Massey et al. 1994). Additionally, determining whether aversion to blacks is an indication of pure discrimination or racial proxies is essential because the two explanations have disparate implications for integration policy.

Though much previous work estimates the magnitude of whites' aversion to black neighbors, few studies pursue a comprehensive examination of why whites exhibit discriminatory behavior. Instead, most work focuses on the racial motivations for whites' actions and fails to consider the proxy hypothesis. An additional shortcoming of research on this topic is that much of it uses vignettes, regression analysis, or transition matrix approaches that are not conducive to obtaining complete estimates of the racial and nonracial determinants of neighborhood desirability. As an alternative to these methods I employ hedonic price analysis. The advantages of hedonic price analysis are that it yields easily interpretable coefficients, accommodates discrete and continuous variables, estimates models with numerous predictors, and evaluates behavior, not intentions. Its principal disadvantage is that it does not distinguish white preferences from those of the general population, instead reporting the relationship between traits and prices for the marginal consumer. Despite this limitation, hedonic price analysis remains a powerful tool for understanding residential mobility. It also provides indirect information about whites, because their numerical majority in most housing markets means that market preferences are largely determined by whites' preferences.

My assessment of housing prices in the neighborhoods where whites live yields three main conclusions. First, there is clear evidence of an aversion to blacks. Housing loses between 20% and 40% of its value when located in a neighborhood that is more than 10% black. Second, homes in more integrated settings are less valuable because there is a general preference for affluent, well-educated neighbors, and each of these characteristics is more prevalent among whites than blacks. My evidence for whites in general thus strongly supports the racial proxy hypothesis. Third, there are important subgroup differences in the magnitude and motivations of aversion to blacks. Opposition to black neighbors is most extreme among homeowners and Southerners, with the former requiring a 90% price reduction as compensation for living in a neighborhood that is more than 50% black. These two groups also differ from other buyers in that their aversion to blacks is less clearly motivated by a preference for high socioeconomic status neighbors. For homeowners and Southerners, my evidence does not support a rejection of the pure discrimination hypothesis. The synthesis of these three conclusions is that "property values drop when black families move in" (Farley et al. 1994: 775), but whether it is blacks' race or their class that affects property values is dependent on the location and character of neighborhoods.

My work offers conflicting messages for integration policy. The conclusion that, in general, people avoid black neighbors for reasons that are related to social class bodes well for stable integration. It suggests that when black residents and their neighbors have similar socioeconomic statuses, increasing levels of integration are likely to have little effect on desirability. However, my work is also consistent with the position that widespread stable integration may be an unattainable goal. The possibility that homeowners and Southerners are practicing pure discrimination suggests that integration may lead to racial succession in each of these contexts. In order to conclusively determine the effect of integration on neighborhood

desirability we must pursue work that attempts to better estimate white housing demand by considering a broader range of neighborhood factors. Neighborhood crime and school quality are two factors that might account for the remaining racial aversion in my models, but are not available due to data limitations. With a more comprehensive model of neighborhood desirability we would be able to truly understand why whites avoid black neighbors, and thus be able to devise policies to bring about lasting integration.

References

- Alba, Richard D. and John R. Logan. 1991. "Variations on Two Themes: Racial and Ethnic Patterns in the Attainment of Suburban Residence." *Demography* 28: 431-453.
- Blomquist, Glenn C., Mark C. Berger, and John P. Hoehn. 1988. "New Estimates of Quality of Life in Urban Areas." *American Economic Review* 78: 89-107.
- Bobo, Lawrence and Camille L. Zubrinsky. 1996. "Attitudes on Residential Integration: Perceived Status Differences, Mere In-Group Preference, or Racial Prejudice." *Social Forces* 74: 883-909.
- Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela Kato Klebanov, and Naomi Sealand. 1993. "Do Neighborhoods Influence Child and Adolescent Development?" *American Journal Of Sociology* 99: 353-395.
- Clark, William A.V. 1991. "Residential Preferences and Neighborhood Racial Segregation: A Test of the Schelling Segregation Model." *Demography* 28: 1-19.
- _____. 1992. "Residential Preferences and Residential Choices in a Multiethnic Context." *Demography* 29: 451-466.
- Cutler, David M. and Edward L. Glaeser. 1997. "Are Ghettos Good or Bad?" Unpublished manuscript.
- Diamond, Douglas B., Jr. and George S. Tolley. 1982. *The Economics of Urban Amenities*. New York: Academic Press.
- Farley, Reynolds and William H. Frey. 1994. "Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward a More Integrated Society." *American Sociological Review* 59: 23-45.
- Farley, Reynolds, Charlotte Steeh, Tara Jackson, Maria Krysan, and Keith Reeves. 1993. "Continued Racial Residential Segregation in Detroit: 'Chocolate City, Vanilla Suburbs' Revisited." *Journal of Housing Research* 4: 1-38.
- Farley, Reynolds, Charlotte Steeh, Maria Krysan, Tara Jackson, and Keith Reeves. 1994. "Stereotypes and Segregation: Neighborhoods in the Detroit Area." *American Journal of Sociology* 100: 750-780.
- Frey, William H. 1979. "Central City White Flight: Racial and Nonracial Causes." *American Sociological Review* 44: 425-448.
- Galster, George C. 1990. "White Flight from Racially Integrated Neighborhoods in the 1970s: The Cleveland Experience." *Urban Studies* 27: 385-99.

- Goodman, John L., Jr., and Mary L. Streitwieser. 1983. "Explaining Racial Differences: A Study of City-to-Suburb Residential Mobility." *Urban Affairs Quarterly* 18: 301-325.
- Gramlich, Edward, Deborah Laren, and Naomi Seeland. 1992. "Mobility into and out of Poor Urban Neighborhoods." Pp. 241-255 in *Drugs, Crime, and Social Isolation: Barriers to Urban Opportunity*, edited by Adele V. Harrell and George E. Peterson. Washington, D.C.: The Urban Institute Press.
- Greene, William H. 1993. *Econometric Analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Gyourko, Joseph and Joseph Tracy. 1991. "The Structure of Local Public Finance and the Quality of Life." *Journal of Political Economy* 99: 774-806.
- Hill, Martha S. 1992. *The Panel Study of Income Dynamics: A User's Guide*. Newbury Park, CA: Sage.
- Lee, Barrett A. and Peter B. Wood. 1991. "Is Neighborhood Racial Succession Place-Specific?" *Demography* 28: 21-40.
- Linneman, Peter. 1980. "Some Empirical Results on the Nature of the Hedonic Price Function for the Urban Housing Market." *Journal of Urban Economics* 8: 47-68.
- _____. 1981. "The Demand for Residence Site Characteristics." *Journal of Urban Economics* 9: 129-148.
- Marshall, Harvey. 1979. "White Movement to the Suburbs: A Comparison of Explanations." *American Sociological Review* 44: 975-994.
- Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.
- Massey, Douglas S. and Mitchell L. Eggers. 1990. "The Ecology of Inequality: Minorities and the Concentration of Poverty, 1970-1980." *American Journal of Sociology* 95: 1153-1188.
- Massey, Douglas S., Andrew B. Gross, and Mitchell L. Eggers. 1991. "Segregation, the Concentration of Poverty, and the Life Chances of Individuals." *Social Science Research* 20: 397-420.
- Massey, Douglas S., Andrew B. Gross, and Kumiko Shibuya. 1994. "Migration, Segregation, and the Geographic Concentration of Poverty." *American Sociological Review* 59: 425-445.

- Ottensmann, John R. and Michael E. Gleeson. 1992. "The Movement of Whites and Blacks into Racially Mixed Neighborhoods: Chicago, 1960-1980." *Social Science Quarterly* 73: 645-662.
- Peiser, Richard B. and Lawrence B. Smith. 1985. "Homeownership Returns, Tenure Choice, and Inflation." *American Real Estate and Urban Economics Journal* 13: 343-360.
- Schelling, Thomas. 1971. "Dynamic Models of Segregation." *Journal of Mathematical Sociology* 1:143-186.
- South, Scott J. and Kyle D. Crowder. 1997. "Escaping Distressed Neighborhoods: Individual, Community, and Metropolitan Influences." *American Journal of Sociology* 102: 1040-1084.
- South, Scott J. and Glenn D. Deane. 1993. "Race and Residential Mobility: Individual Determinants and Structural Constraints." *Social Forces* 72: 147-167.
- St. John, Craig and Nancy A. Bates. 1990. "Racial Composition and Neighborhood Evaluation." *Social Science Research* 19: 47-61.
- StataCorp. 1995. *Stata Reference Manual: Release 4.0*. College Station, TX: Stata Corporation.
- Taub, Richard P., Garth D. Taylor, and Jan D. Dunham. 1984. *Paths of Neighborhood Change*. Chicago: The University of Chicago Press.

Table 1. Description of Variables.

Variable	Mean	Standard Deviation	Description
Annual housing expenditure	\$5,488.27	\$4,527.00	Renters: "About how much rent do you pay a month?" Monthly rent was multiplied by 12. Owners: "Could you tell me what the present value of your home is—I mean about what would it bring if you sold it today?" This value was multiplied by a capitalization rate of .0785 and added to estimated annual property taxes. Annual housing expenditures are expressed in 1992 dollars.
Number of rooms	4.46	1.94	"How many rooms do you have (for your family), not counting bathrooms?"
Single-family house	.46	.50	"Do you live in a one-family house, a two-family house, an apartment, or what?" Respondents in one-family homes are coded "1", others are coded "0".
Homeowner	.27	.44	A dummy variable coded "1" if the respondent is a homeowner.
Large metropolitan area	.67	.47	A dummy variable that is coded "1" if the respondent resides in a metropolitan area whose largest city is inhabited by 100,000 people or more.
Northeast	.20	.40	A dummy variable coded "1" for respondents in the Northeast.
Midwest	.26	.44	A dummy variable coded "1" for respondents in the Midwest.
West	.26	.44	A dummy variable coded "1" for respondents in the West.
South	.28	.45	A dummy variable coded "1" for respondents in the South.
Percent black	12.44	24.74	Tract data from the 1980 U.S. Census.
Percent affluent	25.21	15.74	Tract data from the 1980 U.S. Census. Affluent families are those reporting annual incomes of greater than \$30,000 (\$51,142 in 1992 dollars).
Percent poor	11.82	9.70	Tract data from the 1980 U.S. Census. The percent of residents in households with annual incomes below the poverty line.
Percent with no college	64.06	17.32	Tract data from the 1980 U.S. Census. The percent of residents who are at least 25 years old and have no more than 12 years of schooling.
Percent unemployed	6.80	4.59	Tract data from the 1980 U.S. Census. The percentage of residents aged 16 years or more who are in the civilian labor force and unemployed.

Table 2. Distribution of Percent Black and Mean Annual Housing Expenditure by Tenure and Region for Movers: 1979-1981.

	Percent Black				Total
	Less than 10%	10% - 20%	20% - 50%	At least 50%	
Unweighted N	1,820	262	322	953	3,357
Weighted %	76.32	7.98	5.58	10.12	100.00
Mean annual housing expenditure	\$5,942.84	\$4,534.55	\$4,193.19	\$3,526.26	\$5,488.27
Tenure:					
Renters:					
Unweighted N	1,271	209	264	860	2,604
Weighted %	73.56	8.53	5.99	11.92	100.00
Mean annual housing expenditure	\$4,313.58	\$3,945.85	\$3,625.54	\$3,410.08	\$4,133.31
Homeowners:					
Unweighted N	549	53	58	93	753
Weighted %	83.83	6.47	4.47	5.23	100.00
Mean annual housing expenditure	\$9,832.76	\$6,646.55	\$6,261.32	\$4,247.19	\$9,174.95
Region:					
Northeast:					
Unweighted N	314	37	35	84	470
Weighted %	78.90	8.21	4.39	8.51	100.00
Mean annual housing expenditure	\$5,749.97	\$4,611.14	\$5,048.51	\$3,499.30	\$5,434.26
Midwest:					
Unweighted N	485	27	57	252	821
Weighted %	81.99	3.84	3.59	10.58	100.00
Mean annual housing expenditure	\$5,316.26	\$4,584.67	\$3,766.61	\$3,159.60	\$5,004.32
West:					
Unweighted N	565	44	52	83	744
Weighted %	88.55	4.96	2.08	4.41	100.00
Mean annual housing expenditure	\$6,771.04	\$5,783.85	\$5,147.78	\$4,499.07	\$6,588.15
South:					
Unweighted N	456	154	178	534	1,322
Weighted %	57.89	14.47	11.54	16.10	100.00
Mean annual housing expenditure	\$5,803.69	\$4,097.39	\$3,923.35	\$3,518.23	\$4,971.81

Table 3. Hedonic Coefficients and Mean Marginal Trait Prices: Percent Black as a Predictor of Annualized Housing Expenditures.

	b	s.e.	Price
Neighborhood characteristics:			
Percent black:			
Between 10% and 20%	-.1926 **	.0588	-\$1,057.16
Between 20% and 50%	-.2234 **	.0474	-\$1,225.92
At least 50%	-.3733 **	.0536	-\$2,048.94
Dwelling characteristics:			
Number of rooms	.1273 **	.0107	\$698.63
Single-family dwelling	-.0612	.0343	-\$335.71
Homeowner	.4337 **	.0490	\$2,380.12
Geographic setting:			
Large metropolitan area	.1496 **	.0281	\$821.12
Northeast	.0420	.0422	\$230.40
Midwest	-.0837 *	.0355	-\$459.47
West	.1433 **	.0369	\$786.67
Constant	7.6523 **	.0522	
Adjusted R ²	.33		
N	3357		
Mean annual housing expenditure	\$5,488.27		

* p < .05

** p < .01

Table 4. Hedonic Coefficients and Mean Marginal Trait Prices: Percent Black with Each Nonracial Neighborhood Predictor of Annualized Housing Expenditures.¹

	b	s.e.	Price	Adjusted R ²	Change in race effect compared to Table 3
Model 1: ²				.39	
Percent black:					
Between 10% and 20%	-.1030	.0564	-\$565.42		-47%
Between 20% and 50%	-.0929 *	.0474	-\$509.85		-58%
At least 50%	-.1734 **	.0529	-\$951.47		-54%
Percent affluent	.0117 **	.0009	\$64.27		
Model 2:				.36	
Percent black:					
Between 10% and 20%	-.1032	.0581	-\$566.33		-46%
Between 20% and 50%	-.0707	.0492	-\$388.24		-68%
At least 50%	-.0564	.0599	-\$309.61		-85%
Percent poor	-.0164 **	.0020	-\$89.74		
Model 3:				.38	
Percent black:					
Between 10% and 20%	-.1374 *	.0554	-\$754.04		-29%
Between 20% and 50%	-.1315 **	.0462	-\$721.68		-41%
At least 50%	-.1929 **	.0542	-\$1,058.93		-48%
Percent with no college	-.0099 **	.0008	-\$54.48		
Model 4:				.35	
Percent black:					
Between 10% and 20%	-.1395 *	.0569	-\$765.89		-28%
Between 20% and 50%	-.1232 *	.0480	-\$676.02		-45%
At least 50%	-.1407 *	.0616	-\$771.99		-62%
Percent unemployed	-.0271 **	.0035	-\$148.95		

1 All models also include the dwelling and geographic setting controls shown in Table 3.

2 The sample size and mean housing expenditure in these models are 3,357 and \$5,488.27, respectively.

* p < .05

** p < .01

Table 5. Hedonic Coefficients and Mean Marginal Trait Prices: All Predictors of Annualized Housing Expenditures.

	b	s.e.	Price
Neighborhood characteristics:			
Percent black:			
Between 10% and 20%	-.0783	.0554	-\$429.71
Between 20% and 50%	-.0394	.0479	-\$216.21
At least 50%	-.0284	.0619	-\$155.71
Percent affluent	.0053 **	.0014	\$29.35
Percent poor	-.0074 **	.0025	-\$40.56
Percent with no college	-.0055 **	.0011	-\$30.19
Percent unemployed	-.0012	.0039	-\$6.69
Dwelling characteristics:			
Number of rooms	.1227 **	.0103	\$673.37
Single-family dwelling	-.0408	.0335	-\$223.75
Homeowner	.3989 **	.0472	\$2,189.52
Geographic setting:			
Large metropolitan area	.0596 *	.0279	\$327.24
Northeast	.1062 *	.0417	\$582.92
Midwest	-.0255	.0372	-\$139.69
West	.1608 **	.0372	\$882.70
Constant	7.9590 **	.1072	
Adjusted R ²	.40		
N	3357		
Mean annual housing expenditure	\$5,488.27		

* p < .05

** p < .01

Table 6. Hedonic Coefficients and Mean Marginal Trait Prices by Tenure: Percent Black as a Predictor of Annualized Housing Expenditures.¹

	b	s.e.	Price	Adjusted R ²	N	Mean annual housing expenditure
Renters:				.15	2,604	\$4,133.31
Percent black:						
Between 10% and 20%	-.1329 *	.0601	-\$549.15			
Between 20% and 50%	-.1599 **	.0457	-\$660.73			
At least 50%	-.2683 **	.0460	-\$1,108.80			
Homeowners:				.42	753	\$9,174.95
Percent black:						
Between 10% and 20%	-.2539 *	.1053	-\$2,329.37			
Between 20% and 50%	-.4006 **	.0934	-\$3,675.16			
At least 50%	-.8927 **	.1474	-\$8,190.17			

¹ Both models also include the dwelling and geographic setting controls shown in Table 3 and Table 5.

* p < .05

** p < .01

Table 7. Hedonic Coefficients and Mean Marginal Trait Prices by Tenure: All Predictors of Annualized Housing Expenditures.¹

	b	s.e.	Price	Adjusted R ²	N	Mean annual housing expenditure
Renters:				.22	2,604	\$4,133.31
Percent black:						
Between 10% and 20%	-.0327	.0561	-\$135.04			
Between 20% and 50%	.0001	.0485	\$0.53			
At least 50%	.0422	.0598	\$174.47			
Percent affluent	.0012	.0015	\$4.87			
Percent poor	-.0095 **	.0022	-\$39.30			
Percent with no college	-.0053 **	.0011	-\$21.92			
Percent unemployed	-.0013	.0039	-\$5.47			
Homeowners:				.52	753	\$9,174.95
Percent black:						
Between 10% and 20%	-.1642	.1014	-\$1,506.62			
Between 20% and 50%	-.2291 *	.0964	-\$2,101.79			
At least 50%	-.4364 **	.1486	-\$4,003.53			
Percent affluent	.0121 **	.0027	\$111.25			
Percent poor	-.0077	.0075	-\$70.89			
Percent with no college	-.0049	.0026	-\$44.82			
Percent unemployed	.0043	.0086	\$39.23			

¹ Both models also include the dwelling and geographic setting controls shown in Table 3 and Table 5.

* p < .05

** p < .01

Table 8. Hedonic Coefficients and Mean Marginal Trait Prices by Region: Percent Black as a Predictor of Annualized Housing Expenditures.¹

	b	s.e.	Price	Adjusted R ²	N	Mean annual housing expenditure
Northeast:				.31	470	\$5,434.26
Percent black:						
Between 10% and 20%	-.0425	.1113	-\$231.11			
Between 20% and 50%	-.0521	.1069	-\$283.38			
At least 50%	-.4236 *	.1645	-\$2,301.95			
Midwest:				.37	821	\$5,004.32
Percent black:						
Between 10% and 20%	-.1906	.1962	-\$953.68			
Between 20% and 50%	-.2131 **	.0618	-\$1,066.46			
At least 50%	-.3639 **	.0756	-\$1,821.24			
West:				.32	744	\$6,588.15
Percent black:						
Between 10% and 20%	.0476	.1159	\$313.27			
Between 20% and 50%	-.2028	.1208	-\$1,336.32			
At least 50%	-.1270	.0765	-\$836.49			
South:				.32	1322	\$4,971.81
Percent black:						
Between 10% and 20%	-.3652 **	.0811	-\$1,815.77			
Between 20% and 50%	-.3209 **	.0735	-\$1,595.30			
At least 50%	-.4582 **	.0861	-\$2,278.17			

¹ All models also include the dwelling and geographic setting controls shown in Table 3 and Table 5.

* p < .05

** p < .01

Table 9. Hedonic Coefficients and Mean Marginal Trait Prices by Region: All Predictors of Annualized Housing Expenditures.¹

	b	s.e.	Price	Adjusted R ²	N	Mean annual housing expenditure
Northeast:				.42	470	\$5,434.26
Percent black:						
Between 10% and 20%	.1250	.0920	\$679.07			
Between 20% and 50%	.2333 *	.1050	\$1,267.71			
At least 50%	.0575	.1517	\$312.60			
Percent affluent	.0051	.0030	\$27.45			
Percent poor	-.0129 *	.0064	-\$70.01			
Percent with no college	-.0079 **	.0026	-\$43.08			
Percent unemployed	.0093	.0136	\$50.69			
Midwest:				.45	821	\$5,004.32
Percent black:						
Between 10% and 20%	-.1205	.1772	-\$602.78			
Between 20% and 50%	-.0565	.0679	-\$282.65			
At least 50%	-.0254	.1042	-\$127.04			
Percent affluent	.0068 *	.0030	\$34.19			
Percent poor	-.0059	.0050	-\$29.66			
Percent with no college	-.0046 *	.0021	-\$23.17			
Percent unemployed	-.0047	.0068	-\$23.60			
West:				.36	744	\$6,588.15
Percent black:						
Between 10% and 20%	.1063	.1076	\$700.12			
Between 20% and 50%	-.0775	.1238	-\$510.38			
At least 50%	.0246	.1084	\$162.09			
Percent affluent	.0088 **	.0028	\$57.72			
Percent poor	-.0028	.0042	-\$18.29			
Percent with no college	-.0031	.0023	-\$20.56			
Percent unemployed	.0123	.0082	\$81.17			

Table 9. (continued)

South:			.38	1322	\$4,971.81
Percent black:					
Between 10% and 20%	-.2249 **	.0778			-\$1,118.36
Between 20% and 50%	-.1135	.0715			-\$564.33
At least 50%	-.0401	.1054			-\$199.28
Percent affluent	.0028	.0023			\$13.93
Percent poor	-.0082 *	.0039			-\$40.82
Percent with no college	-.0056 **	.0016			-\$27.68
Percent unemployed	-.0164	.0096			-\$81.72

1 All models also include the dwelling and geographic setting controls shown in Table 3 and Table 5.

* p < .05

** p < .01

Appendix A. Correlation Coefficients for Annualized Housing Expenditures and Neighborhood Characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Annual housing expenditure	-								
(2) Percent black less than 10%	.18**	-							
(3) Percent black between 10% and 20%	-.06**	-.53**	-						
(4) Percent black between 20% and 50%	-.07**	-.44**	-.07**	-					
(5) Percent black at least 50%	-.15**	-.60**	-.10**	-.08**	-				
(6) Percent affluent	.35**	.32**	-.10**	-.13**	-.27**	-			
(7) Percent poor	-.26**	-.52**	.07**	.15**	.55**	-.62**	-		
(8) Percent with no college	-.29**	-.28**	.04*	.09**	.29**	-.69**	.40**	-	
(9) Percent unemployed	-.21**	-.40**	.00	.09**	.50**	-.48**	.63**	.52**	-

* p < .05

** p < .01