RSP 9(1): 1-17.

INTERRACIAL VARIATIONS IN HOUSING PREFERENCES*

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Introduction and Context of the Research

It is clear that an accurate assessment of the future housing needs of urban Americans must be founded upon an understanding of households' perceptions of "desirable" dwellings and residential environments, Birch [2]. Only if families can successfully obtain the type of unit and neighborhood aspired to can a reasonable degree of societal contentment be expected. Although several economic and sociological studies have explored many of the determinants of these housing preferences, Michelson [22], insufficient attention has been given to a crucial remaining factor, especially where urban housing policy is concerned--the race of the household. Even a casual observer of the black-white subcultural disparities and the growth of the "Black Identity" movement of the 1960s would suspect that race might be a significant independent determinant of housing preferences. As Schermerhorn [27, p. 4] pointed out, "Minorities of every kind are now resonating to the claims of the right to be different, authenticity, independence, autonomy, ... self determination." It is in this context that the paper tests the hypothesis that blacks possess preferences for the various components of the housing package which are distinctly different from those of comparable whites.

A Theory of Interracial Variations in Housing Preferences

"Housing preferences" may be defined as a giving of priority to, or having relative partiality or predilection for, one element comprising the housing package over another, e.g., rooms vs. yard space, structural quality vs. neighborhood quality, etc. In this work housing preferences will be conceptualized by the specification of a "utility function," the form and associated parameters of which formally define the partiality, predilection, etc., vis-a-vis the various housing package components as well as non-housing consumption. Various means of empirically operationalizing this concept have been employed, but fuller review of these efforts will be postponed until the next section.

It is generally accepted that preferences thus defined are shaped by cultural experiences in general, and more specifically by the related attitudes, anxieties, and aspirations which develop, Bullock [4], Joyce and Govoni [15].

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*I wish to gratefully acknowledge the seminal intellectual stimulation for this analysis provided by William C. Wheaton, and the helpful comments on earlier drafts contributed by Benjamin Berry, Yvonne Williams, and an anonymous referee, while retaining full responsibility for any flaws in the analysis.

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There exists much diversified evidence of the distinctive nature of the black subculture, Gordon [11], Hannerz [12], Liebow [20], Rainwater [25], Simpson and Yinger [28]; thus one would predict at the outset that some interracial differences in preferences should be manifest. This prediction is further strengthened by consideration of the literature on attitude, anxiety, and aspiration elements. The aforementioned subcultural differences have produced distinct interracial variations in expressed attitudes covering a wide variety of topics, Bromley and Longino [3], Johnson [14], Karon [18] and the congruence of both economic insecurities and oppressed group status has resulted in a distinctly black pattern of anxieties, Bullock [4], Kardiner and Ovesey [17], Pettigrew [24, Chs. 1, 2]. Although traditional black aspirations have focused on attaining mainstream white status, Bullock [4], Gibson [10], Joyce and Govoni [15, Ch. 2], more recent trends towards separatism and Black Pride may have altered such goals, especially for younger blacks, Hannerz [12], Malcolm X [21], and Rainwater [25].

In sum, there is ample reason to expect interracial differences in preferences over a wide range of consumer activities. While such differences have been observed for many consumer goods, Bullock [4], Feldman and Star [8], Joyce and Govoni [15, Ch. 3], little investigation has been conducted into the area of housing, as will be seen in the following section. Nevertheless, the foregoing review permits the formulation of several tentative predictions concerning housing preferences. Black anxieties and economic insecurities might result in a comparative reluctance to make the sizeable, long-term commitment to housing which is required through the medium of leases or mortgages. But since some housing must be consumed out of necessity, the manifestation of such reluctance could take the form of relatively lower preferences for the quantitative (rooms, yard space) and certain qualitative (interior quality and modernizations) components compared to whites, so as to reduce the size of the financial commitment. Such preferences may well be supported by attitudes formed during historical housing experiences, Couper and Brindley [5] in Southern rural environments wherein substandard, overcrowded conditions became to be perceived as the "norm." Yet, certain qualitative aspects of the housing package may have a high relative preference for those blacks seeking mainstream white status. Such elements as modernity or "stylishness" of structure and degree of exterior structural quality may be highly prized since they represent a highly visible symbol of "making it." Similarly, if education is perceived as the means to success in white society, blacks may place relatively greater emphasis on the quality of neighborhood schools than similar whites. Thus, the subcultural differences in attitudes, anxieties, and aspirations lead one to predict that blacks would have relatively weaker preferences for quantitative and interior qualitative housing components, and relatively stronger preferences for highly-visible exterior qualitative components than comparable whites.

Review of Existing Studies

While only a handful of research has attempted to investigate the issue of interracial variations in housing preferences, three distinct methodological strands can be discerned, each identified by the way in which "preferences" are operationalized. The first involves interviewing households directly in order to uncover what features of housing they hypothetically would most wish to

consume. After making the requisite socioeconomic class, stage in life cycle, and other standardizations, responses of households in categories differing only in race are compared. A report by Birch, et al. [2] of the MIT-Harvard Joint Center for Urban Studies epitomizes this technique. Unfortunately, their interviews of housing desires in Kansas city and Boston included only a handful of nonwhite respondents, although the report claimed the responses did not show major differences between both "working class" races. What's more, it is questionable whether housing components that might appear "wished for" would actually be allocated marginal increases in housing expenditures, and whether such "preferences" could ever be quantified to such a degree as to make interracial comparisons meaningful.

A second methodological technique operationalizes preferences by observing actual housing consumption patterns. Straszheim [30], for example, stratified a San Francisco sample of households into six life-cycle and two racial categories, and econometrically estimated demand equations for the housing components of ownership, rooms, age, and lot size based upon income, prices of different benchmark units in the zone, and location in submarkets of differing racial compositions. Straszheim concluded that interracial differences in tastes for housing were of little significance since the demand equations showed that projected nonwhite consumption of the above factors would approximately match that of the comparable white subgroup if only nonwhite incomes and housing price-income ratios were adjusted to the levels of their white counterparts. Specification bias from excluded variables is the first major caveat in this conclusion since in the construction of price indices the crucial housing components of dwelling and neighborhood qualities apparently were not considered. Furthermore, comparing racial consumption patterns only after the higher nonwhite price income ratio were lowered to the white level begged the question of whether these nonwhite ratios were inflated because of discrimination (as Straszheim suggested) or, possibly, because of racially unique preferences.

A variation of this "consumption" methodology has been presented by Sternlieb [29]. Suburban New Jersey units were sampled and a regression model developed to estimate the probability of different household types occupying a particular kind of structure. He found that, even when factors such as occupation, sex, age, education of head, family income, and previous residence were controlled, nonwhites were significantly more likely to occupy garden apartments and less likely to occupy high rises or single-family units than their white counterparts. Once again, the specter of specification bias from uncontrolled variables affecting the comparability of the structures being consumed (quality, accessibility, price, etc.) makes one hesitant to rely upon Sternlieb's conclusions about taste differentials between races. Whether nonwhites were found more often in garden apartments due to their free choice or due to discrimination is also unclear.

The final type of methodology analyzes preferences by examining coefficients (implicit prices) of the various components comprising the housing package after the unit's price has been regressed on them in the form of an "hedonic index." Daniels [6], for instance, regressed the median rents for Oakland-Berkeley census tracts on the median tract values for number of rooms, baths, proportion substandard, lot size, etc., and a variety of land use, accessibility, and

neighborhood racial composition variables for both predominantly white and nonwhite tract subsamples. He concluded that nonwhite renters may have relatively stronger preferences for space as compared to quality. Unfortunately, too many other taste affecting factors were left uncontrolled by the study, such as income, class, life-cycle stage, etc. The results might not, for instance, have been generated by race per se, but rather by the larger family sizes associated with "typical" nonwhite areas as Daniels' data confirm. The use of aggregate tract data where median values may be poor proxies for the true conditions existing in, say, white and nonwhite segregated neighborhoods within a tract is also worrisome.

In an attempt to shed more light on these conflicting findings, the research reported here approaches the empirical estimation of preferences from a decidedly different theoretical perspective which skirts the major problems cited above. The manipulation of a "discrete" version of the well-known bid-rent model will provide the guidelines for the specification of multiple regression equations which allow the direct estimation of utility function parameters. These can then be utilized in the statistical testing of the basic hypothesis. To this approach we now proceed.

Theoretical Framework for Specifying Empirical Model

Although modified in several crucial respects, the theoretical model used in estimating preferences is founded upon the "bid-rent" theory of urban land pricing originally presented by Alonso [1]. The theory considers the pricing mechanism by which vacant land surrounding some employment center is allocated to different households comprising the urban labor force. Each household formulates a "bid-rent" function showing the set of maximum per acre prices it would be willing to pay for acreage at every distance from the center while remaining at some arbitrary level of utility. These bids are a function of the household's preferences for land, travel time, and other consumer goods, its income, and the per mile out of pocket transportation costs. Households compete for sites in accordance with their bid-rent functions until, in equilibrium, a rent gradient is established such that all households are allocated some parcel and rent paid by the most distant household equals the non-urban opportunity cost of land. Equilibrium is also characterized by the condition that all households of identical incomes and preferences have equal levels of welfare, regardless of where they locate or what rent they pay. In other words, price variations exactly compensate for variations in the utility or well being provided by the housing related attributes consumed at each location occupied by a given group.

This traditional bid-rent theory is readily adaptable to an analysis of rents in a developed city with a given array of housing structures located on parcels of given size and accessibility in given neighborhoods. The bid of a household with particular preferences and income is now not the above continuous function but, rather, is defined for each discrete urban parcel, and thus is a "function" of the parcel's size, distance from work (as seen by the given household), neighborhood and environmental conditions, public service quality, the size, age, and quality of the dwelling located on it, etc.

Formally, this modified bid-rent model may be expressed as follows.[1] A household faces a budget constraint:

(1) $B = Y - k(t) - Z$

where B is the "bid" or total annual expenditure on a given housing package;[2] Y is annual household income; k(t) is the out-of-pocket transportation costs associated with the given package's distance/travel time from work as perceived by the household, t; Z is expenditure on all non-housing consumption.

The household's preferences are given by its utility function:

(2) $u = u^*(Z, [q_i], t)$

where $[q_i]$ is the n-vector of housing package components (rooms, age, quality, neighborhood, etc.), and u is the level of utility. The relative weights u^* assigns to arguments of the function is the formal description of preferences.

The household's bid-rent function is derived by maximizing (1) subject to (2). For each particular parcel the only choice variable is Z since $[q_i]$ is given in the short run, whence (2) may be solved for Z (assuming u^* is separable) yielding the inverse function, u', and substituted into (1), yielding:

(3) $B = Y - k(t) - u'(u, [q_i], t)$

Equation (3) may be further developed by specifying a particular functional form for u^*. There is, unfortunately, no widely-accepted form which is felt to adequately capture households' preferences. It does seem reasonable, however, to posit utility functions which satisfy certain minimal criteria. They should, for example, generate convex indifference surfaces consistent with common presumptions about declining marginal rates of substitution. They should not generate indifference curves in $Z\text{-}q_i$ space which intersect the q_i axis since that would imply a finite amount of q_i could compensate for having no other consumption. Finally, for reasons peculiar to this particular study, functions are chosen which yield bid-rent functions estimable by ordinary least squares (OLS) regression techniques.[3]

In light of these criteria, four utility functions are considered--Cobb-Douglas (CD), generalized Constant Elasticity of Substitution (CES), generalized

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[1]The seminal studies employing this modified bid-rent model were conducted by Harris, Nathanson and Rosenberg [13] and Wheaton [32, 33].

[2]B here is not written as B (t) since it might falsely give the impression of the continuous functional specification embodied in the traditional bid-rent model. It should be realized, however, that B is affected by the given parcel's accessibility characteristics as perceived by the household in question.

[3]This criterion was mandated by strata sample sizes which were too small to permit estimation of two paramaters for each functional argument as in nonlinear estimation techniques.

Power (PWR), and modified Exponential (EXP):[4]

$$(4)\quad u = Zt^{\theta}\prod_{i}^{n} q_i^{\phi_i} \qquad \theta,\phi_i > 0 \qquad \text{(CD)}$$

$$(5)\quad u = \alpha Z^{-1} + \theta t^{-1} + \sum_{i}^{n} \phi_i\, q_i^{-1} \qquad \alpha,\theta,\phi_i < 0 \qquad \text{(CES)}$$

$$(6)\quad u = \alpha Z + \theta t^{-1} + \sum_{i}^{n} \phi_i\, q_i^{-1} \qquad \theta,\phi_i < 0 \quad \alpha > 0 \qquad \text{(PWR)}$$

$$(7)\quad u = Ze^{(\theta t^{-1} + \sum_{i}^{n} \phi_i\, q_i^{-1})} \qquad \theta,\phi_i < 0 \qquad \text{(EXP)}$$

Solving these functions for Z, substituting the result into (3) and rearranging, we get a set of bid-rent functions possessing the property that the $[q_i]$ parameters of the utility functions appear as coefficients in linear (sometimes in the log) equations:[5]

$$(8)\quad \ln(Y-k(t)-B) = \ln u - \theta \ln t - \sum_{i}^{n} \phi_i \ln q_i \qquad \text{(CD)}$$

$$(9)\quad (Y-k(t)-B)^{-1} = u/\alpha - (\theta/\alpha)t^{-1} - \sum_{i}^{n} (\phi_i/\alpha)\, q_i^{-1} \qquad \text{(CES)}$$

$$(10)\quad Y - k(t) - B = u/\alpha - (\theta/\alpha)t^{-1} - \sum_{i}^{n} (\phi_i/\alpha)\, q_i^{-1} \qquad \text{(PWR)}$$

$$(11)\quad \ln(Y-k(t)-B) = \ln u - \theta t^{-1} - \sum_{i}^{n} \phi_i\, q_i^{-1} \qquad \text{(EXP)}$$

Equations (8-11) provide the theoretical basis for the statistical estimation of housing preferences. For a given stratum of households with common incomes and utility functions, Y and u will be constants. Therefore, one can analyze the variations in t, k(t), B, and $[q_i]$ to distill the coefficients of (8-11) and, thus, the desired utility function parameters. Since these parameter formally represent a given stratum's preferences, interracial comparisons of such parameters provide the test of the hypothesis.

A Word About Housing Market Discrimination. The fact that blacks may be constrained to bid only for dwellings within the existing black housing sub-marke due to discrimination does not seriously weaken the present model as an instrumer

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[4]Note while the CES, PWR, and EXP forms are very similar, they yield different marginal rates of substitution in Z-q_i space and hence represent distinct utilit functions.

[5]The fact that the coefficients are not the parameters directly but rather their ratio is not worrisome since utility is invariant under monotonic transformation

for analyzing black housing preferences, although it does for previous methodologies, as noted above. Even if some potential housing choices are eliminated for blacks due to discrimination, the observed variation in bids within the black submarket is sufficient grounds upon which to estimate preferences. For instance, even if more blacks would hypothetically like to occupy dwellings with four bedrooms than currently exist in the black submarket, the bid premiums paid by those blacks who actually occupy such dwellings should exactly compensate for their "fortunate" position. Thus, analysis of bids within a given black stratum provides an unambiguous quantitative measure of preferences for different housing attributes, even if the actual consumption of preferred attribute bundles is precluded for many blacks in the stratum. Discriminatory constraints may, of course, reduce the variation of dwelling types in the black submarket to such a low degree as to make estimations unreliable. In fact, however, for the St. Louis sample employed in this study the standard deviations for housing attribute variables were not appreciably lower for black strata than for white. In sum, the above model should be capable of estimating black housing preferences, even in the face of discriminatory limitations on their housing choices.

Data Base Used for Estimations

The foregoing bid-rent specification of housing preferences was tested using data gathered from 1021 randomly sampled individual households in the central city of St. Louis, Missouri, during 1967. These data have already been utilized in several important studies by Kain and Quigley, and a detailed explanation of sample description and methodology may be found in their earlier publications [16]. Suffice it to note here that this data base is powerful insofar as not only a plethora of individual dwelling unit and neighborhood characteristics but also socioeconomic and demographic information concerning the occupying household were tabulated.

Specification of Household Strata

Clearly, the challenge faced when employing the foregoing bid-rent model is the a priori specification of household groups who may be expected to possess common incomes and preferences--both in terms of functional form and parameter values. As for isolating common utility functions, the strategy employed was to stratify by two general categories which were thought to capture the most important preference-determinants but were not so narrowly defined as to create unacceptably small sample sizes. The two chosen categories were stages in household life-cycle and socioeconomic class. The importance of life-cycle is shown by Lansing and Kish [19], Duncan and Hauser [7] and Straszheim [30]. The independent effect of class is claimed by Gans [9], Birch [2] and Rapkin and Grigsby [26].

Operationally, life-cycle stage was captured in the following manner. Observations were first stratified by age of head: under 31/31-55/over 55 years. These strata were, in turn, subdivided by family size: under three/three and over children for under 55 households, and zero/nonzero children for 55+ year households. Socioeconomic class was proxied for by a further bifurcation by education (no college/at least some college), and trifurcation by

income classes appropriate for the age group.[6] Race of household was, of course, the final stratification criterion.

Due to inadequacy of sample sizes in many cells only the following four strata (note their numerical code for future reference) were amendable to direct comparisons of preferences between whites (W) and blacks (NW):

Race (Code)	Age of Head	No. Children	Education	Income
W(1) NW(2)	31-55	0-2	no college	under $6,000
W(3) NW(4)	31-55	0-2	no college	$6-15,000
W(5) NW(6)	55+	none	no college	under $3,000
W(7) NW(8)	55+	none	no college	$3-14,000

Unfortunately, even assuming the foregoing stratification succeeded in standardizing intra-stratum preferences it was impossible to compare households of identical utility levels. The need to maintain adequate sample sizes forced the use of strata encompassing a range of incomes with the concomitant assumption that u in (8-11) was some simple function of income within each stratum. Furthermore, normal market frictions like moving and information costs mean that otherwise identical households may have been at slightly different u levels because their B varied from its true equilibrium level by some random amount.[7] To correct for this possibility a dummy variable (NMOVE) was utilized to indicate if the household had not moved in over 10 years, and thus not readjusted to the current housing opportunity set. In sum, u in (8-11) was formulated for the j^{th} stratum as:

$$(12) \quad u = \Psi_j Y^{\rho_j} e^{\gamma NMOVE} \qquad \Psi_j, \rho_j > 0, \gamma < 0 \text{ if } u \text{ defined by CD or EXP}$$

$$(13) \quad u = \Psi_j + \rho_j Y + \gamma NMOVE \qquad \rho_j < 0, \gamma > 0 \text{ if CES; } \rho_j > 0, \gamma < 0 \text{ if PWR}$$

Specification of Housing Attributes and Bids

Now that sample households have been stratified into groups which control for the influence of age, education, income, and family size upon their housing preferences, it remains to specify the variables needed for the statistical estimation of the bid-rent functions. In particular, the array of housing package attributes used and the formulation of the bid variable will be presented here.

The $[q_i]$ housing components utilized were as follows. The quantitative

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[6]The boundaries for the upper and lower categories were chosen so that about 20 percent of the income distribution estimated for St. Louis in 1967 for that age category was isolated in each tail.

[7]Another factor leading to utility level variations within strata is the existence of multiple employment centers in cities, Moses [23].

attributes of the dwelling were summarized by AREA, AGE, and PARCL--the gross floor area, structure age in years, and parcel yard area attached to structure in which the dwelling was located, respectively. Three qualitative components distilled from a host of quality indexes via principle-components analysis were used: structural quality and condition of the dwelling interior (QUNIT), aesthetic quality of residential environment (QRENV), and quality of adjacent structures (QADJS).[8] The safety of the neighborhood was proxied for by the numer of felonies in the police enumeration grid encompassing the dwelling (CRIME), and the perceived quality of the local elementary school by an index of physical problems or defects in the school building (SCHOLP).[9] Neighborhood racial composition was captured by the percentage of white households in the census tract encompassing the dwelling (PCTWT) as estimated from the sample itself in 1967. Finally, a dummy variable for any tracts which were greater than 95 percent NW (GHETTO) was included to test for any unique socio-psychological or physical attributes of the ghetto, Hannerz [12], Liebow [20], Malcolm X [21], and Rainwater [25].

The oft-mentioned need to maintain adequate stratum sample sizes forced the pooling of owner and renter occupant households. The approach in estimating B for each observation was to include only those annual expenditures which were intrinsically related to the housing structure and independent of the particular tastes, incomes, and family size of the occupants. Thus, for owners B was computed as the sum of property tax payments, maintenance expenditures, opportunity cost of equity capital, and bills for water and heating. For renters, B was annual contract rent plus annual costs for stove rental, water, and heat (if these were excluded from stated rent), less annual costs for refrigerator and furniture rentals and electricity bills (if these were included in stated rent). This procedure yielded B for owners which were 10-15 percent of market value, i.e., about 1 percent per month, which is, of course, consistent with the widely-used 100:1 ratio converting monthly rents to market values.

Finally, Y was directly available from the data and, although it represented only current and not permanent income of the household, it was assumed no serious bias was produced. Annual k(t) was estimated from data on work travel times (t) and modes.

The means of each of the aforementioned variables for the eight household strata are listed in Table 1. The values correspond closely to presumptions about housing consumption differentials between life-cycle stages and socio-economic classes for a given race. Interracial comparisons were equally dramatic:

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[8]The exact components comprising these quality indexes and their factor loadings were found in Kain and Quigley [16].

[9]Achievement test scores from local schools were also tested as an independent variable, but proved even less satisfactory than SCHOLP. Expressed neighborhood attitudes concerning public services in both specific and general were also tested as variables with similar lack of success.

TABLE 1: Mean Characteristics of Household Strata

Characteristic	Strata 1 (W)	2 (NW)	3 (W)	4 (NW)
Y	$4102	$3408	$9152	$8220
AREA	1054.1	1121.5	1094.4	1162.5
AGE	59.4	69.8	50.3	63.6
PARCL	4162.8	4323.9	3719.9	3951.6
QUNIT	9.98	9.60	9.95	9.90
QRENV	10.12	9.03	10.43	9.60
QADJS	10.38	10.11	10.45	10.27
GHETTO	0.0	.85	0.0	.80
PCTWT	95.3	7.1	97.7	9.4
CRIME	58.4	180.2	42.1	171.9
SCHOLP	2.8	3.5	2.3	4.1
B	$ 960	$ 652	$1033	$ 887
$k_{(t)}$	$ 202	$ 179	$ 381	$ 392
% OWNED	40%	16%	54%	36%
# OBS.	30	47	92	41

Characteristic	Strata 5 (W)	6 (NW)	7 (W)	8 (NW)
Y	$1825	$1637	$6636	$5257
AREA	929.5	958.6	1118.3	1061.2
AGE	60.1	69.3	47.6	68.4
PARCL	3585.0	3341.6	4198.0	4088.2
QUNIT	9.81	9.63	10.30	9.99
QRENV	10.21	8.93	10.46	8.97
QADJS	10.33	10.00	10.58	10.15
GHETTO	0.0	.81	0.0	.88
PCTWT	96.8	8.4	93.7	2.7
CRIME	58.5	187.2	44.1	163.4
SCHOLP	2.2	3.6	2.1	3.5
B	$ 486	$ 509	$1198	$ 683
$k_{(t)}$	$ 102	$ 70	$ 160	$ 241
% OWNED	52%	31%	61%	51%
# OBS.	66	64	103	40

within each subgroup NW were poorer, had lower ownership rates, and occupied inferior dwellings in inferior quality neighborhoods by almost all measures. The only exceptions to this portrait occurred on the AREA and PARCL components, where NW consumption was greater than--or about equal to--that of comparable W. Of course, such consumption patterns cannot be interpreted as necessarily indicative of preferences, given discrimination, as noted above.

Empirical Tests and Results

For every stratum four OLS regressions were run using each of the functional forms given in (8-11), with the appropriate u specification as in (12-13). Results are reported only for those functional forms producing the "best" results in terms of explanatory power and significance of coefficients (best forms are noted parenthetically).[10] Table 2 does not show the regression coefficients directly but rather converts the coefficients to a more intuitively-pleasing annual dollar value for an incremental change in each $[q_i]$ component, evaluated at the mean component value of the stratum.[11] These results show that the quantitative (AREA, AGE, and PARCL) and qualitative (QUNIT, QRENV, QADJS) dwelling and neighborhood components wielded the largest explanatory power in most strata.[12] The safety, school quality, and racial composition variables provided no consistent significance, and were often of unexpected sign, perhaps due to the low variation in such variables in the sample. GHETTO proved significant in three of four NW strata (insufficient GHETTO observations were available to permit estimation for W strata) and indicated a marked aversion to the peculiar social and/or physical environment of this part of the St. Louis NW housing submarket.

Since it is not the primary intention of this paper to explore the cross-class and age differences in housing preferences, Straszheim [30] and Wheaton [33], a pairwise comparison of all permutations of these categories will not be presented here. Suffice it to note the salient point: only a pittance of statistically significant differences or trends in marginal valuations of components across either income class or age (remembering small family size and no college education are constant) could be discerned when race was held constant. On the contrary, the only systematic differences in preferences occurred between races who were otherwise comparable, and the patterns thus established persisted, irrespective of the class or age categories under consideration.

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[10]Comparisons of evaluations based on other functional forms do not significantly alter the conclusions presented here. Differences in explanatory power between functional forms was minimal. Thus, no claim of interracial differences in preferences as operationalized in the form of u* can be made.

[11]Except for AREA and PARCL, which were incremented by 100 square feet, and the quality indices, which were incremented by .1.

[12]The Y variable used to proxy for u as in (12-13) was, of course, highly significant in every equation. The coefficients for Y (as well as for t, which were insignificant) are not presented in Table 2, both for brevity and because they yield no insights for the purpose at hand.

TABLE 2: Incremental Annual Dollar Value of Housing Components

(std. error in parenthesis; a, b=.05, .1 significance; c= t > 1)

Components	Strata 1 (PWR)	2 (EXP)	3 (EXP)	4 (CES)
AREA	$ 78.70	$ .88	$ 40.36	$-15.40
	(36.0)[a]	(19.7)	(24.9)[b]	(21.4)
AGE	.70	-8.86	-.71	-17.04
	(2.0)	(4.8)[a]	(.5)[b]	(3.5)[a]
PARCL	-.99	.53	0.00	2.68
	(2.3)	(0.5)[c]	(0.0)	(2.3)[c]
QUNIT	14.64	-.71	-11.96	-4.74
	(13.7)[c]	(7.8)	(15.4)	(7.0)
QRENV	37.55	2.74	5.21	-8.03
	(16.4)[a]	(7.3)	(18.4)	(11.8)
QADJS	-16.98	29.78	37.31	54.67
	(29.1)	(20.4)[c]	(25.6)	(25.4)[a]
GHETTO	—	-220.36	—	-737.68
	—	(340.1)	—	(384.2)[a]
PCTWT	2.56	-.38	1.69	-.59
	(6.4)	(0.5)	(4.8)	(0.3)[a]
CRIME	-3.75	.49	.07	1.56
	(1.7)[a]	(0.8)	(0.8)	(1.2)[c]
SCHOLP	-8.65	2.67	-50.81	-12.87
	(35.3)	(57.1)	(37.0)[b]	(21.5)
$\bar{R}^2$	.813	.937	.885	.891

Component	Strata 5 (CES)	6 (PWR)	7 (PWR)	8 (CD)
AREA	$ 17.89	$ 2.99	$ 34.09	$-14.99
	(16.7)[c]	(11.0)	(20.5)[a]	(25.8)
AGE	.70	-3.29	-.13	-11.79
	(0.5)[b]	(2.7)[c]	(0.5)	(7.0)[b]
PARCL	-.10	0.00	4.16	4.62
	(0.5)	(0.0)	(3.1)[b]	(3.6)[c]
QUNIT	11.81	-2.01	27.51	14.39
	(7.1)[b]	(3.4)	(13.6)[b]	(10.6)[b]
QRENV	13.75	7.28	27.75	11.61
	(8.1)[b]	(4.9)[b]	(19.1)[c]	(8.8)[c]
QADJS	15.18	21.36	28.84	-16.65
	(16.2)	(10.9)[a]	(32.7)	(22.6)
GHETTO	—	-289.70	—	-613.90
	—	(185.7)[b]	—	(520.3)[c]
PCTWT	1.27	-.24	2.32	-24.34
	(3.3)	(0.2)[c]	(1.2)[a]	(26.8)
CRIME	.71	.44	-1.02	.11
	(0.6)[c]	(0.2)[a]	(0.7)[c]	(1.2)
SCHOLP	-14.06	-5.56	80.75	-9.43
	(28.1)	(9.3)	(425.0)	(49.3)
$\bar{R}^2$	.491	.815	.904	.897

Specifically, in all four interracial comparisons NW had a relatively greater aversion to older units and was willing to pay relatively less for larger units than comparable W. The interracial differences in orders of magnitude of the incremental valuations of AREA indicated that W in the four strata were, on the average, willing to pay $43 more annually for an extra 100 square feet of living space, while the average NW was indifferent (i.e., incremental bid statistically insignificant). Conversely, the AGE comparison showed that average NW evaluated a one-year older unit at $10 less annually, while W was indifferent. These results are consistent with the predictions derived above based on interracial subcultural differences. While no consistent interracial patterns could be discerned for evaluations of neighborhood attributes and dwelling quality, such may derive more from the inadequacies of the particular variables used than from an actual W-NW similarity of preferences.[13]

These results must be regarded with caution, however. As shown in Table 3, only modest levels of confidence can be placed in the hypothesis that bids for AREA or AGE significantly differ across races within a given stratum. In only one out of eight comparisons did the confidence level exceed commonly accepted minimums for statistical analyses.

Conclusion

The research reported here has attempted to improve upon the shortcomings of previous studies of interracial differences in housing preferences by utilizing an empirical specification which is derived directly from a "discrete" version of the bid-rent theory. Unfortunately, the conflict between existing results cannot be conclusively ended by the findings of this study. On the one hand, in every age/income/family size/education stratum comparison, NW in St. Louis in 1967 consistently demonstrated a greater aversion to older units and a smaller attraction to larger units than comparable W households. On the other hand, the level of confidence in these differences being statistically significant was modest, no consistent interracial differences were observed in preferences for neighborhood attributes or dwelling quality, and the generalizability of results was limited.

This last caveat could, of course, be remedied by testing with newer, larger, and more refined data samples for cities differing in size, racial composition, and degree of social problems. The St. Louis data, while adequately detailed, are now rather outdated and do not offer sufficient observations to permit finer stratifications or the testing of a larger set of housing attributes than those reported here. In particular, inadequate sample sizes for younger NW who might be less likely than their elders to strive for W mainstream status precluded an

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[13]For example, theory suggests that interior and exterior dwelling quality should be weighted differently by races, but both were collapsed into the QUNIT variable. Similarly, idiosyncratic stylistic features of dwellings or neighborhoods which may be highly valued by status-conscious blacks would be poorly proxied for by variables employed.

TABLE 3: Maximum Confidence Intervals for Significant Interracial Differences in Housing Component Preferences

	W/NW Strata Comparisons			
Components	1 vs. 2	3 vs. 4	5 vs. 6	7 vs. 8
AREA	80%	70%	under 50%	70%
AGE	80%	99%	70%	80%

especially interesting test. The degree of housing attribute variation was limited by confinement to inner city observations, which may help explain the lack of consistent cross-age and class taste differentials. Finally, a larger sample would permit testing of more complex functional forms for preferences through the application of nonlinear estimation techniques.

In conclusion, this paper should be seen as a preliminary experiment in using the bid-rent approach for analyzing preferences. These experiments have weakly indicated that NW St. Louis households possess systematic differences in preferences for the age and size components of the housing package when compared with similar W households. The model and tentative results seem provocative enough to warrant continued research along lines outlined above.

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