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AUTHOR Galster, George C.
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ABSTRACT

Racial residential segregation has been a persistent feature of the American housing market. At least three distinct theories have been presented to explain this racial segregation. The "class" theory claims that, due to disproportionate overrepresentation of blacks in lower income classes, they will be overrepresented in lower quality housing markets. The "discrimination" theory posits that blacks are excluded from white neighborhoods by such practices as whites refusing to sell to blacks, mortgage discrimination, etc. The "voluntary" theory claims that both blacks and whites prefer to live amid neighbors of the same race and thus "self-segregate" themselves into racially homogeneous neighborhoods. In order to test the third theory, research was conducted in two mid-Western cities on segregation preferences. The findings support the hypothesis that blacks prefer racially balanced integrated areas, while whites prefer all white areas. (Author/RLV)

Research Report

"Preferences for Neighborhood Racial Composition"

HUD Grant H-2877RG

George C. Galster
Department of Economics
The College of Wooster
Wooster, Ohio 44691

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Abstract

"Preferences for Neighborhood Racial Composition"

George C. Galster, College of Wooster
October, 1978

The research will investigate the existence, nature, and magnitude of the tendencies of races to voluntarily "self-segregate" into particular areas of urban housing markets. Specifically, the major questions to be answered are: Do whites (and blacks) have an aversion to the opposite race living in their neighborhood, ceteris paribus? Is a white aversion to racial mixture due to a distaste for blacks per se as individuals, or due to a fear of incipient "tipping" and resulting black majorities in the area and/or to factors commonly associated with mixed areas like lower housing quality and status, and greater turnover and density?

The bid-rent theory of housing markets is employed to develop a model showing how housing price variations within a group can provide unambiguous evidence of self-segregation tendencies. The model is operationalized in a multiple regression specification wherein the variations in a given racial group's housing prices become a function of the dwelling's attributes and the attributes of the neighborhood, including quality, status, stability and density as well as housing submarket location racial composition. The size and statistical significance of the coefficient of the last factor provides the evidence sought.

The regressions are estimated using two micro-household data bases from St. Louis and Wooster, Ohio, and results compared. In this manner differences in behavior of households in a large city with a rapidly expanding central ghetto can be compared to those in a small

town with a stable, small and widely dispersed black community.

Results show that St. Louis blacks have an aversion to both preponderantly black and white neighborhoods, with decrements (increments) in housing prices of .9-1.4% (1.1-1.4%) per 1% increase in percentage black in black (white) areas. St. Louis whites do not demonstrate aversion to increased percentages of blacks until it exceeds 26%, whereupon white prices fall 3.6-4.6% per percentage increase in black until it reaches 50%. White prices continue to fall with further increases in percentage black, although the decrements are progressively smaller. Wooster whites show an aversion to living in neighborhoods having even a few percent of blacks, with decrements of 5.9-8.8% in price for dwellings in such areas. The findings support the hypotheses that blacks prefer racially balanced integrated areas, while whites prefer all-white areas due to their prejudice and are especially averse to integrated neighborhoods where a danger of racial transition is likely.

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I. Introduction and Goals of the Research

The extreme degree of racial residential segregation has been a persistent feature of the American urban scene. While the significance of this phenomenon is unchallenged, its causes have been widely debated. At least three distinct theories have been presented to explain racial segregation. The "class" theory claims that, since various housing qualities are spatially segregated and since blacks are disproportionately represented in lower income classes, blacks will be over represented (underrepresented) in lower (higher) quality housing submarkets. Empirical tests of this hypothesis by Taeuber (1969), Kain (1969), and Hermalin and Farley (1973) have all indicated that interracial differences in economic class can explain only a small proportion of the observed ecological patterns. The "discrimination" theory posits that blacks are effectively excluded from white neighborhoods by a combination of such practices as white refusal to sell or rent to blacks, housing price discrimination, "steering" by realtors, mortgage discrimination by lenders, etc. A wide variety of recent econometric studies, notably those by Kain and Quigley (1970), King and Mieszkowski (1973), Straszheim (1974), and Galster (1977), have confimed the existence and severity of this discriminatory component of segregation. The "voluntary" theory suggests that both blacks and whites prefer to live amid neighbors of the same race, ceteris paribus, and thus "self-segregate" themselves into racially homogeneous neighborhoods (c.f. Banfield (1968)). Little sophisticated study has been given to this final theory, and it is the purpose of this research to test this "voluntary segregation" hypothesis and explore its subleties. Clearly, the widespread existence of self-segregation preferences would have great social significance, for even if we were then able to erase interracial

economic disparities and discriminatory housing practices, i.e. insure "freedom of choice," we still could not insure racially mixed neighborhoods and the integrated public services, local schools, etc., associated with them.

More specifically, the research will attempt to test the voluntary segregation hypothesis by answering the following questions:

1. Do blacks have an aversion to whites living in their neighborhood, ceteris paribus, as indicated by decrements in their rents and property values due to racial mixing?
2. Do whites have an aversion to blacks living in their neighborhood, ceteris paribus, as indicated by decrements in their rents and property values due to racial mixing?

In addition, a closer investigation into the nature of any white self-segregation preferences which may be found will attempt to answer the questions:

3. Is a white aversion to racial mixture due principally to a fear of incipient "tipping" and resulting black majority group status in the neighborhood, or to a distaste for blacks as individuals?
4. Is a white aversion to racial mixture due to race per se, or to factors commonly associated with racially mixed neighborhoods like lower housing quality, lower status, higher turnover, and higher density?
5. Is there a correlation between decrements in white property values due to racial mixing and their expressed preferences for neighborhood racial composition?

The remaining sections of the research report are organized as follows. Section II presents a theory of the housing market which serves as the underpinning for the research as well as the evaluation of existing studies. Section III provides a detailed methodological critique of previous investigations in the area of voluntary segregation which elucidates a number of significant shortcomings that are remedied by the research design. Section IV presents the specification of the multiple regression model and delineates the two data bases which are used to estimate the model. Section V gives the empirical results for tests of hypotheses 1-4 above. Section VI analyzes in more detail the nature of expressed white segregation preferences and tests hypothesis 5 above. Section VII summarizes the results and draws implications for future research and for public policy.

II. The Theory of Voluntary Segregation and Housing Prices

The purpose of this Section is to develop a theory of the relationship between preferences for neighborhood racial composition and price patterns existing in the housing market. This theoretical foundation will serve as both a base for the research design and as a tool for evaluating previous research in the area. The basic principle presented here is that a given race's preferences for neighborhood racial composition will be demonstrated by variations in that race's housing bid patterns as the racial composition of the neighborhoods encompassing the given race's households varies.

II. A. Preferences for Racial Composition and Housing Bids

The theoretical model underlying the proposed research assumes that households behave in the housing market so as to maximize their utility, subject to the constraint of their income. More specifically, households are viewed as comparing numerous feasible alternative housing packages and their prices. They select that one which, when combined with the associated amount of feasible non-housing consumption, produces the highest level of welfare, given their income and preferences.

In this context, a "housing package" is seen as a composite of distinct housing-related attributes which are either positively or negatively valued by households (c.f. Lancaster (1966) and Lapham (1971) for more explication of this concept). Obviously, one such set of attributes relates to the features of the structure in question: number and quality of rooms, structure type and age, etc. The characteristics of the land parcel such as size, privacy, accessibility, etc., are also important.

Finally, attributes of the neighborhood undoubtedly affect households' evaluation of a given dwelling: the quality of neighboring dwellings, noise and pollution levels, population density and stability, neighborhood status, and, of course, the racial composition of the area.

This process of households comparing and evaluating alternative housing packages may be formalized in the concept of the "bid-rent function", first introduced by Alonso (1970). In simplest terms, this function defines the maximum amount a household would be willing to bid for each of an array of housing packages, while remaining at some arbitrary level of utility. In other words, the function specifies the price differentials which would exactly compensate the household for differences in the attributes contained in the alternative housing packages. Once a particular form of utility function is specified such bid-rent functions can be mathematically derived, as in Harris, Nathanson, and Rosenberg (1966), Muth (1971) and Wheaton (1972). Bid functions with explicit arguments related to the racial composition of the neighborhood have been derived by Yinger (1976) and Galster (1977).

These household bid functions will guide the nature and intensity of competition for a given stock of housing packages in a particular housing market. Assuming households are free to bid over some range of the housing market, an equilibrium housing price gradient will be established, comprised of the envelope of household bid functions. This equilibrium price gradient has the following properties:

a. everyone in the housing market bidding for a dwelling has, in fact, occupied one (perhaps shared with another household).

b. No one has an incentive to outbid another for their dwelling and move to that location.

c. Everyone with comparable incomes and preferences is equally well off.

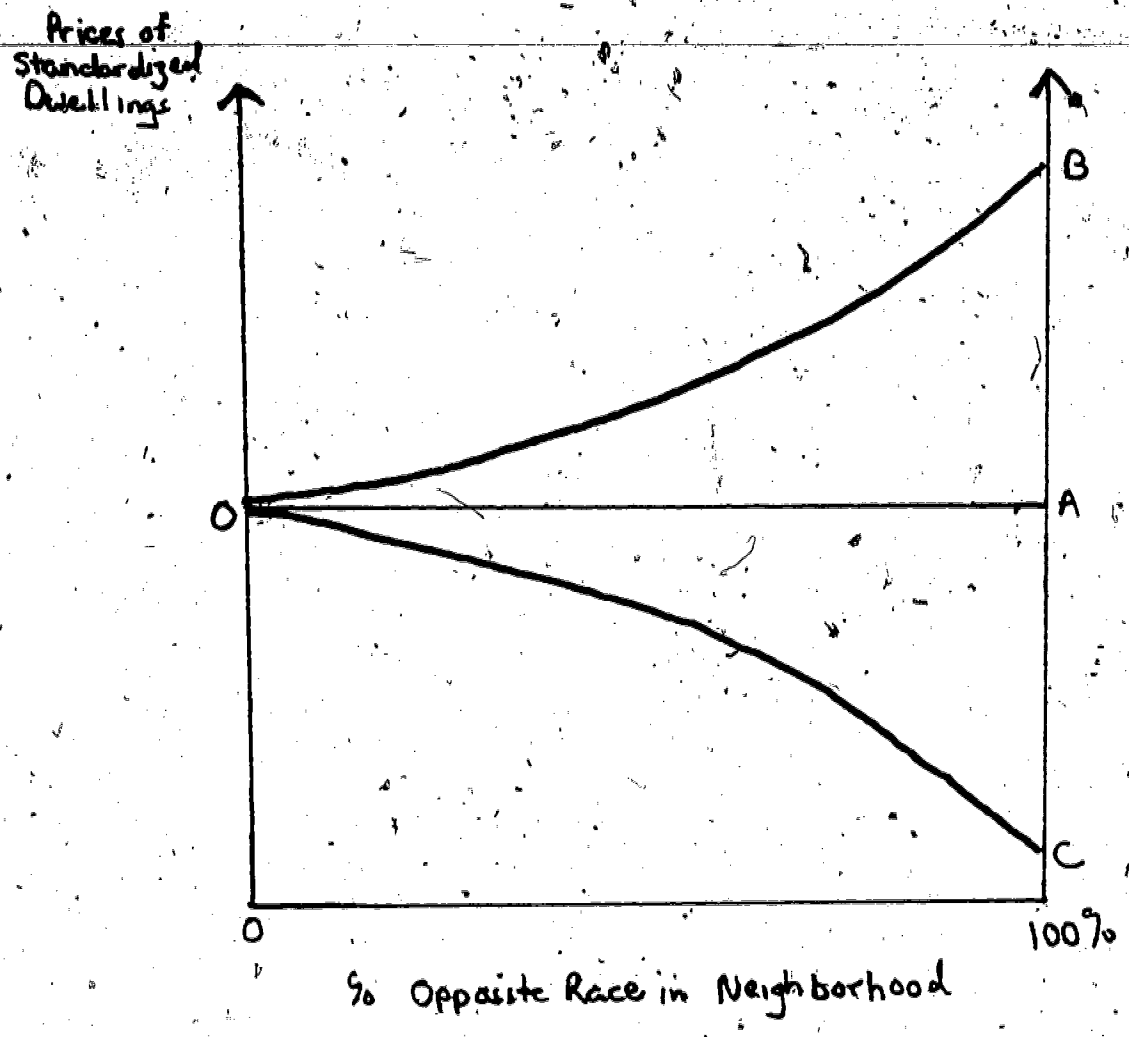
It is important for the study at hand to further emphasize a salient feature of the equilibrium housing price gradient. Within a given group, the variations in prices across housing packages should exactly compensate households for differences in the attributes embodied in these packages. Thus, even if between groups the above conditions were violated due to some noncompetitive market impediment like discrimination, the intra-group properties should hold.

The foregoing theory has straightforward implications for the analysis of preferences for neighborhood racial composition. One need only examine the housing price gradient for a particular group of households and determine how it varies with the racial mixture of the area, *ceteris paribus*. Since this price gradient is the envelope of individual household bid functions, it thereby reflects the aggregate group evaluation of the particular attribute in question.

Consider, for a moment, an array of housing packages which are identical in terms of all attributes (structure, parcel, and neighborhood) except racial composition of the surrounding area. Household bids and, hence, the equilibrium price gradient over these packages would thus reflect the occupying group's evaluation of this attribute. If, for example, the given group of households was indifferent to neighborhood racial composition, there would be no price or bid variations across comparable packages, regardless of the racial mixture of the area, as shown by line OA in Figure 1. Similarly, if the given group preferred to have larger proportions of the opposite race in their neighborhoods they would willingly pay more to obtain this attribute, and produce a price gradient as shown by line OB. Finally, if the given group was averse to the opposite race and wanted to self-segregate, the price pattern might appear as OC. Obviously, a wider set of potential bid patterns exists than is

Figure 1

Prices Under Alternative Prefrences for Racial Comparition



portrayed in Figure 1. The seminal works suggesting that neighborhood racial composition could affect housing prices in this manner were done by Bailey (1959, 1966) and Pascal (1967). King and Mieszkowski (1973), Schnare (1974), and Yinger (1975) have also suggested that preferences for neighborhood racial composition could be ascertained by comparing prices in areas of different racial compositions. Unfortunately, in all these previous works the crucial subtlety in the above claim has been overlooked, i.e., that it is only true when one looks at a single race's equilibrium price gradient in isolation and does not aggregate across groups. This dichotomy between the theoretical implication and the empirical specification actually utilized forms the heart of the critique of existing methodologies presented in the next Section.

II. B. Discrimination Effects

Much attention has been devoted in the literature to the problem of disentangling housing price variations caused by preferences for neighborhood racial composition vs. those caused by discrimination against black households. Careful discussions of the issues involved have been presented in Lapham (1971), King and Mieszkowski (1973), Yinger (1975), and Galster (1976, 1977). The upshot of these analyses is that discrimination is evidenced by blacks paying more than whites for comparable housing in the same neighborhoods, while preferences for segregation are evidenced by comparing prices paid members of a given race for comparable houses in neighborhoods with different racial compositions. This is, of course, perfectly consistent with the theory presented above.

The point to be made here is that the analysis of either race's preferences for self-segregation need not be contaminated by the effects of housing discrimination so long as intra-group bid differentials alone are considered. The importance of maintaining conceptual and empirical

separations between races can be demonstrated with the hypothetical examples presented in Tables 1 and 2. Consider a linear array of identical housing units which are divided into three "neighborhoods," I, II, and III. Neighborhood I is the white area, containing those white (W) households who each pay $20,000 for their dwellings, 1-3. Similarly, III is the black area, with three B households each paying as indicated. Area II is integrated, with two B and three W prices as indicated by the tables.

Clearly, in both tables the data indicate that W have a strong aversion to B neighbors (W bids decline as the surrounding proximity of B increases). But, in Table 1 the situation is that blacks weakly prefer self-segregation (B bids decline as W proximity increases), while in Table 2 blacks are indifferent to racial composition (no variation in B bids), although their bid level is inflated due to discrimination. Yet, the failure to make these proper intra-race comparisons can lead to erroneous conclusions. If, for instance, one aggregated both race's observations to derive a neighborhood average, it would appear that in Table 1 blacks may prefer integrated to black areas since average prices were higher there. Similarly, in Table 2 it would appear that whites were indifferent to racial composition (no change in average prices between white and integrated areas) while blacks wanted to self-segregate (higher average prices in the black vs. integrated areas). Obviously, the source of the confusion is the aggregation of races, especially when an artificial fillip to black prices is being provided by discriminatory constraints. Yet, even if discrimination forces up the overall level of the black equilibrium price gradient, its intra-group variations still maintain the three properties noted above. Thus, an analysis of housing bids dissagregated for a single race provides the only reliable indication of that race's preferences for neighborhood

Table 1

Hypothetical Housing Bid Pattern

Neighborhood	Dwelling	Occupying Race	Dwelling Price	Neighborhood % Black	Average Price
	1	W	$20		
I	2	W	20	0	$20
	3	W	20		
	4	W	$17		
	5	W	12		
II	6	B	5	40%	$ 9
	7	W	5		
	8	B	6		
	9	B	$ 8		
III	10	B	8	100%	$ 8
	11	B	8		

Table 2

Hypothetical Housing Bid Pattern

Neighborhood	Dwelling	Occupying Race	Dwelling Price	Neighborhood % Black	Average Price
	1	W	$20		
I	2	W	20	0	$20
	3	W	20		
	4	W	$17		
	5	W	12		
II	6	B	33	40%	$20
	7	W	5		
	8	B	33		
	9	B	$33		
III	10	B	33	100%	$33
	11	B	33		

racial composition, especially in the presence of housing discrimination.

II. C. Transitory Disequilibrium Effects

The foregoing discussion had assumed a short run equilibrium housing price gradient had been established in the market where analyses were being undertaken. Clearly, such an assumption may be erroneous if the given market is experiencing a rapid influx of blacks. Such immigration has been a common characteristic of Northern urban housing markets for the last several decades, as evidenced by Taeuber and Taeuber (1965) and Kain (1969). The effect of this growing black demand has been to maintain housing prices in the black submarket somewhat above their equilibrium level, due to the inherently low supply elasticity involved in conversion from white to black occupancy in the peripheral ghetto areas (cf. Becker (1957), Muth (1969), Haugen and Heins (1969), and King and Mieszkowski (1973) for further evidence and analysis of this point).

Yet, the existence of such transitory disequilibria need not confound the analysis of preferences for racial composition. As in the situation of discrimination, even if the overall <u>level</u> of black bids is inflated, the <u>gradient</u> of these bids over various areas should not be significantly contorted. In order to contradict this proposition one would need to posit the existence of segmentation within the black housing submarket; e.g., for a substantial period that black occupants of dwellings in the ghetto interior could be forced to a lower level of welfare (via higher housing prices) than comparable black households in integrated periphery areas. What barrier might be present in such a scenario that would prevent interior blacks from bidding up the price of peripheral black dwellings and thus restoring intra-group equilibrium is unclear. Such an argument was implied but unsupported in King and Mieszkowski (1973).

II. D. Summary

This section has developed a theory of the housing market that can be applied to the determination of preferences for neighborhood racial composition. The model's main implication is that a given race's preferences can only be unambiguously discerned by analysis of housing bids tendered by that race for comparable dwellings in neighborhoods of varying racial composition. The existence of discrimination and/or transitory disequilibrium effects in the market under study has been shown not to impair the reliability of the above principle, although this is clearly not the case for other research strategies.

III. Review of Existing Research

Existing evidence relevant to the issue of voluntary segregation can be categorized into one of two distinct methodological strands. One attempts to discover prefetences for neighborhood racial composition by asking households explicit questions in this regard. The other attempts to implicitly estimate such preferences through econometric analyses of housing price variations related to racial mixtures, based on principles developed in the previous section.

III. A. Public Opinion Poll Studies

The first methodological strand is represented by a number of national as well as local public opinion polls. Many results are summarized in Hermalin and Farley (1973) and in Pettigrew (1973). The technique common to all such polls is that they simply ask respondents how they would feel about certain hypothetical situations involving various degrees of racial mixing in a neighborhood. The primary methodological criticism of such studies is that they fail to simultaneously control for a host of implicit factors which may be shaping the respondent's interpretation of the question and, hence, the answer. Specifically, responses are made without explicit understanding as to whether the hypothetical neighborhood in question is in a process of "tipping" to majority status of the opposite race, whether members of the opposite race are of the same socioeconomic status, or whether housing, neighborhood, and public service quality remain the same. While many polls try to standardize for one of the above contingencies, their failure to simultaneously do so for all confounds the implications of their results.

For instance, concerning white attitudes, Rapkin and Grigsby's (1966) study of racially-changing Philadelphia neighborhoods showed that for whites in these areas there was a strong correlation between dissatisfaction with

the presence of blacks and the degree of their hypothetical proximity. A similar Kalamazoo survey by Hunt (1959) found that a third of the whites thought living in their "mixed neighborhood" was "undesirable," and almost half estimated that their neighbors' attitudes toward black entry had been "hostile." Whether such dissatisfaction over integration was due to distaste for blacks per sé or, alternatively, due to perceptions of imminent tipping or the lower status of the incoming blacks is problematic.

Gallup (1972) polls have lent support to the former alternative. They have suggested that while a majority of whites would not move if "colored people came to live next door," only half as many would remain if they "came to live in great numbers in the neighborhood." Is this response independent of the status of incoming blacks?

National Opinion Research Center surveys reported in Sheatsley (1966) have suggested they are not. They indicated that a majority of whites would feel unconcerned if a "Negro with the same income and education moved into the block." Watts and Free (1973) found that twice as many whites would be "unhappy to see blacks of lower income and education move into the neighborhood" as would be true if the blacks had an equal status. Yet, at what point would the rising number of "equal" blacks prove uncomfortable for whites? Again, the failure to simultaneously control for a variety of factors proves crucial.

Polls of blacks concerning their racial mix preferences demonstrate the same weaknesses. Hunt's aforementioned survey showed almost half the blacks living in mixed neighborhoods thought the situation was "desirable." Brink and Harris (1969) found that almost two thirds of a national sample of blacks preferred a "neighborhood with whites and Negroes," while one fifth preferred "all-Negro neighborhoods." Unfortunately, the lack of

additional stipulations in the above questions raises the possibility that blacks' apparent preference for mixed neighborhoods could be due solely to the superior level of housing, neighborhood, and public service quality present there relative to those in the ghetto.

The validity of this alternative explanation is supported by the survey reported in Marx (1967). In separate 1964 polls in New York, Chicago, Atlanta, and Birmingham, blacks were asked which type of neighborhood they would prefer if they were all equally well kept up. In each city a majority responded "mostly Negro" neighborhoods. In total, 62% responded in this way, while only 4% preferred a "mostly white" area.

In summary, the opinion poll methodology fails to simultaneously control for a wide variety of factors which may influence the respondent's answer regarding preferences for neighborhood racial composition. Given this severe shortcoming, little credence can be placed on survey results as conclusive evidence for the existence or nature of preferences for voluntary segregation.

III. B. Housing Price Regression Studies

Unlike opinion polls, the second strand of research attempts to find indirect evidence of households' preferences for voluntary segregation. Multiple regression analysis is employed in order to estimate the contribution to housing price differentials made by variations in neighborhood racial composition. This methodology views "housing" as a bundle of quantifiable attributes of the structure, parcel, neighborhood, location, etc., whence the price of the dwelling becomes a function of the attributes embodied in it and the market's evaluations of these attributes. A regression of housing value on these attributes thereby yields coefficients which are interpretable as the implicit prices the market places upon them (c.f.

Griliches (1971), Lapham (1971), and Butler, Pitkin and Rothenberg (1972)). Thus, by specifying one such attribute as the racial composition of the neighborhood and observing the sign and statistical significance of its regression coefficient, one can make conclusions as to how this factor is implicitly valued by households.

Unfortunately, the great potential of this approach has not yet been fully realized due to the improper or ambiguous specification of previous regression models. These models have failed to clearly disentangle alternative hypotheses concerning self-segregation preferences which could explain the observed price patterns. This is so primarily because they do not racially stratify their housing price regressions and, thus, cannot distill intra-race housing bid patterns which unambiguously demonstrate preferences for neighborhood racial composition.

Specifically, it is the contention of this Section that previous studies:

a. While discerning housing price patterns which are consistent with white voluntary segregation, have failed to clarify the specific nature and origin of this tendency.

b. Give no reliable evidence whatsoever on the existence of black voluntary segregation preferences.

c. May often be challenged on their paucity of control for other neighborhood factors besides racial composition which may be affecting housing prices.

For conceptual clarity previous studies can be grouped into two classifications, depending on the data base and aggregative nature of their resulting approach to specifying the empirical model. Both groups will be reviewed and critiqued separately below.

III. B. i. Census Tract Base Studies

The initial set of regression studies in the area of preferences for neighborhood racial composition is characterized by the use of aggregated

Census tract data. The attempt is made to discover median house value differences between tracts of different racial compositions when other features of the tracts are standardized.

Daniels (1975) analyzed 1960 data from Oakland Census tracts. He estimated regressions for both median value of owner occupied units and median rent wherein features of the housing (median rooms per unit, average lot size, percentages of standard dwellings, with central heat, built before 1940, with more than one bathroom, etc.), features of the neighborhood (student reading scores, proportion blue collar, land elevation, persons per room, proportions single family and non-residential average), and accessibility (dummy variables for major highway access and high concentrations of employment, miles from CBD), served as independent control variables. Vacancy rates and proportion of in-movers in the previous two years proxied for local market disequilibrium factors. Finally, dummy variables were defined for tracts having particular proportions of black households: 8-99%, 20-99%, 35-99%, and 50-99% for renter equations; 8-99%, 25-99%, 50-99% for owner equations.

Regression results showed that the dummy variable coefficients for tracts having 35-99% and 50-99% black occupancy were significantly negative, while the corresponding 25-99% coefficient for owners was positive but only weakly significant. The magnitude of these results indicated that median rents in tracts having less than 35% black occupancy were 7.4% higher, ceteris paribus. This effect was described by Daniels as a "segregation premium paid by renters in the white submarket."

Another way of expressing these results is to graphically demonstrate the implied equilibrium gradient of housing prices. If, for instance, one considered identical houses in comparable quality neighborhoods and plotted

the equilibrium prices for these dwellings as the racial composition of the surrounding neighborhood varied, the pattern indicated by Daniels would be as shown in Figure 2A. This pattern corresponds to the envelope of both races' housing bid functions, as outlined in the previous theory Section.

While this study is not subject to criticism on the grounds of insufficient standardization of neighborhood (tract) qualities, its aggregation of housing prices paid by both races in a tract makes it impossible to know what preferences for neighborhood racial composition (of either whites or blacks) are generating the overall observed price pattern. For instance, it could be that whites were voluntarily self-segregating and paying premiums to live in predominantly white areas, whereas blacks were indifferent, as suggested by Daniels. Yet, as shown in Figure 2B, the observed price pattern is also consistent with an underlying pattern of bids with both races demonstrating self-segregation preferences. Or, it may be that while whites are indifferent, blacks place great value on predominantly white areas, as posited in Figure 2C. In this scenario only a few "lucky" blacks would, in fact, live in white areas since the desired "token" status has already been captured by them and no further blacks would be willing to move into the area and pay the premium. The other blacks, either due to greater familiarity with black neighborhoods or to "port of entry" factors would continue to occupy traditional black areas. Finally, any voluntary segregation premiums which may exist may be blurred if discrimination is operative. That is, whites may be willing to pay much more than a 7% premium, but discrimination may artifically be restricting black demand in white areas and inflating values in black areas.

A more sophisticated study using individual dwelling data to supple-

Figure 2A

Observed Price Patterns: Daniels Study

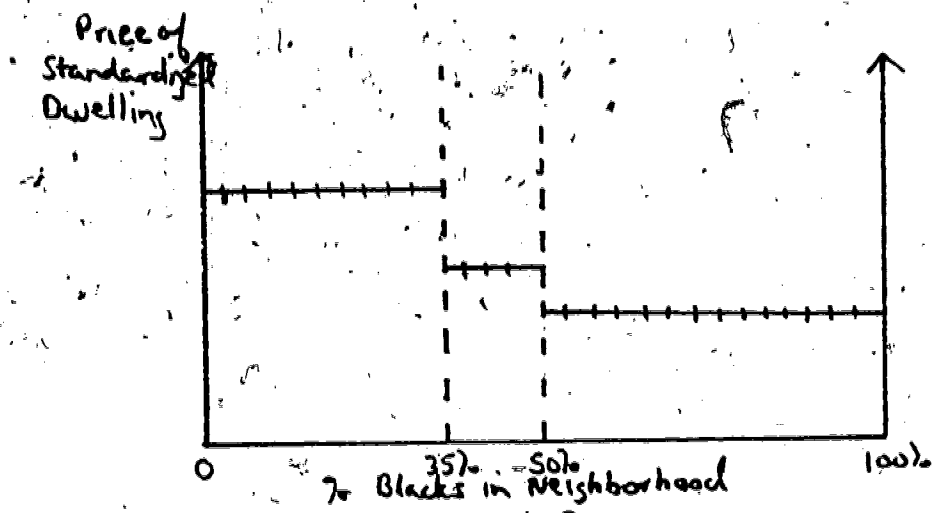


Figure 2B

Possible Bid Patterns: Daniels Study

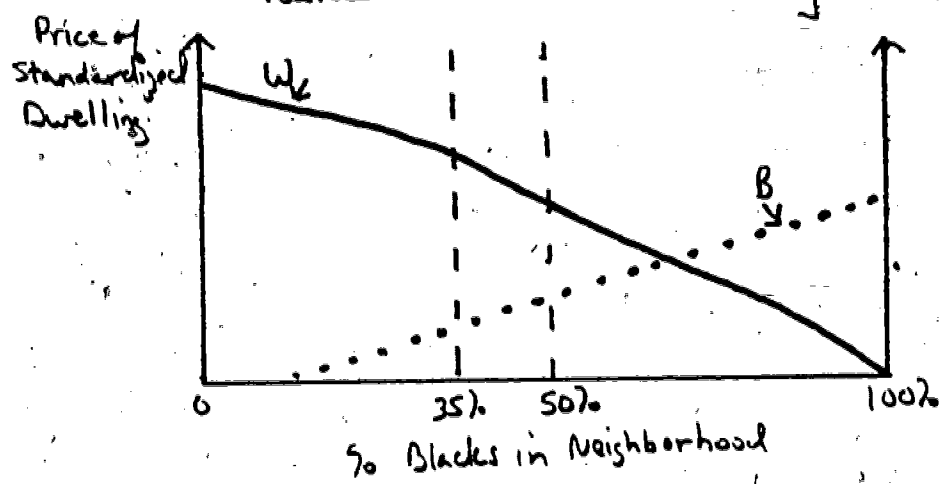
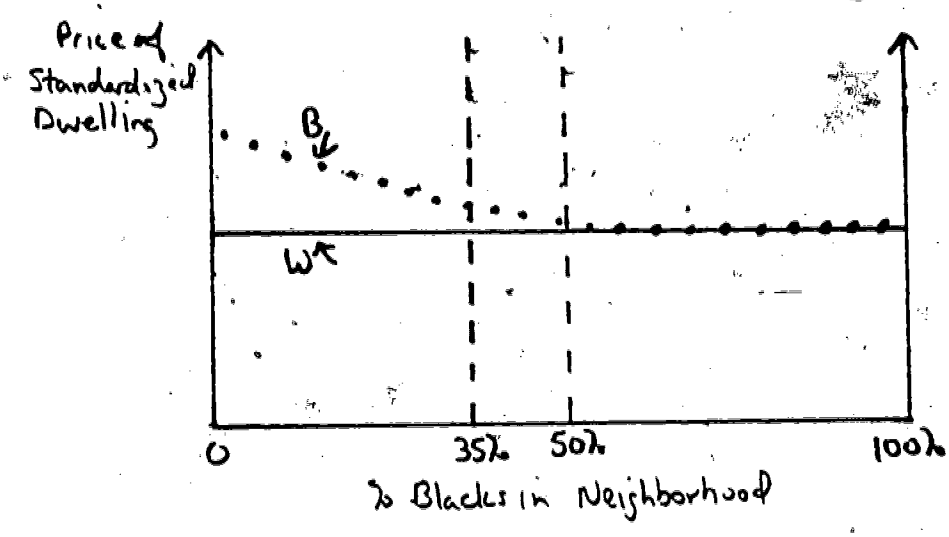


Figure 2C

Possible Bid Patterns: Daniels Study



ment Census tract data was conducted by Schnare (1974). Using Boston SMSA Public Use Sample data, she first regressed market price or rent on the structural characteristics of the individual dwelling (rooms, heating, bathrooms, age, plumbing, etc.), household variables (crowding and length of residency), neighborhood demographic variables (mean income, proportions of various minories, vacancy rates), and accessibility proxies (central city location, proportions of various structure types). This equation (with all demographic and accessibility variables set equal to their SMSA mean value for all tracts) was then used to predict the average value for each tract, based on the average physical characteristics of the rented or owned units in that tract. The difference between the actual and this predicted value represented the tract's premium or discount after adjustment for the physical attributes of its dwellings and, in turn, became the dependent variable in the second stage regression. This second regression employed distance to employment centers, tax rate, per pupil school expenditures, average income, proportions low status and in public housing, air pollution, and proportions of various racial/ethnic groups in the tract as independent variables. Similar procedures were conducted for both 1960 and 1970 Boston SMSA Census data.

In the 1960 sample, the relationship between housing prices in a tract and the proportion black assumed a U-shaped pattern, with a minimum in neighborhoods that were 25% black and with prices in all black areas 12% higher than those in otherwise all-white zones. In the 1970 sample, these premiums disappeared and prices declined steadily with the tract's concentration of blacks, with ghetto rents 5% less than those in all white areas. In both years and for both tenures, prices in tracts that were 25% black were 1.3-1.5% lower than those in comparable all white tracts. Schnare interpreted

these findings as indications of white preferences for self-segregation and a housing shortage for blacks in 1960, though she admitted the 1960 pattern would be consistent with black preferences for self-segregation.

Graphically, Schnare's observed price gradient results are portrayed in Figure 3A. As before, these overall price patterns may be explained in several ways, and thus can provide little conclusive proof of the existence of voluntary segregation. Although the drop in values in the 0-25% black range can only be interpreted as white self-segregation tendencies, the exact nature of these white preferences remains unclear. For example, Figures 3B and 3C show that the results are consistent with either a gradually declining white bid function or one that drops precipitously when whites become a minority in the neighborhood. These two Figures also demonstrate that either black self-segregation (Fig. 3B) or indifference (Fig. 3C) may be operative, with 1960 black bids being artifically increased by discrimination in both cases.

The final econometric study utilizing Census tract data began with individual dwelling unit data but aggregated them to form single tract observations. Berry (1976) conducted analysis of single family home prices in Chicago during the period 1968-1972. Sales price and assessment data were assembled for the over 30,000 transactions during the period. Transactions were then grouped into 231 tracts or tract-groups, and average prices, structure and lot values, Census neighborhood attributes, and environmental characteristics were computed for each area. Average sales price for the area was regressed on average assessments on land and structure (to proxy for detailed structural information), median family income, percentage moved in during previous five years, distance from CBD, and pollution levels. Finally, series of dummy variables were defined which denoted

Figure 3A
Observed Price Patterns: Schnare Study

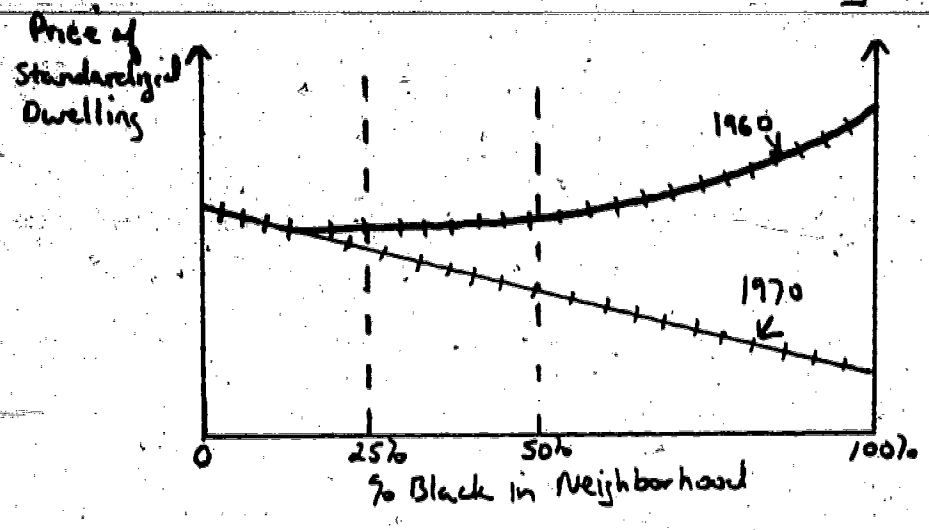


Figure 3B
Possible Bid Patterns: Schnare Study

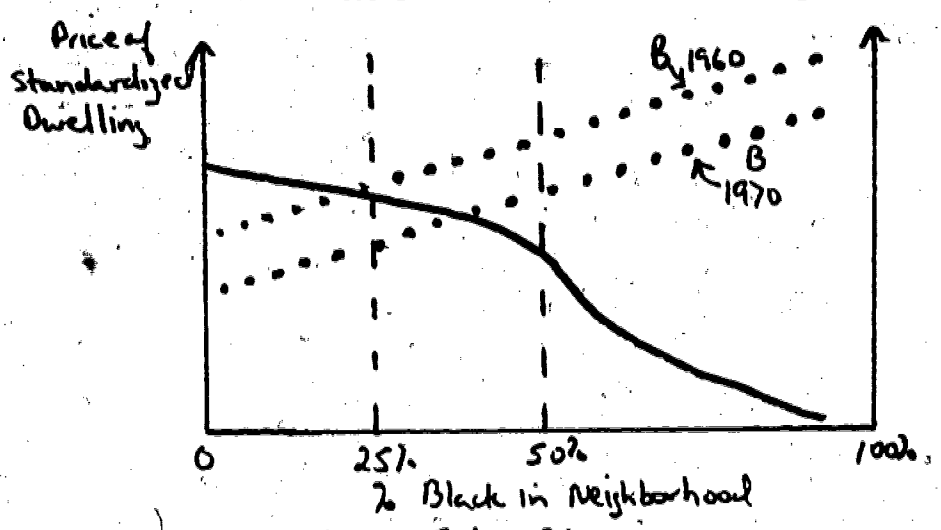
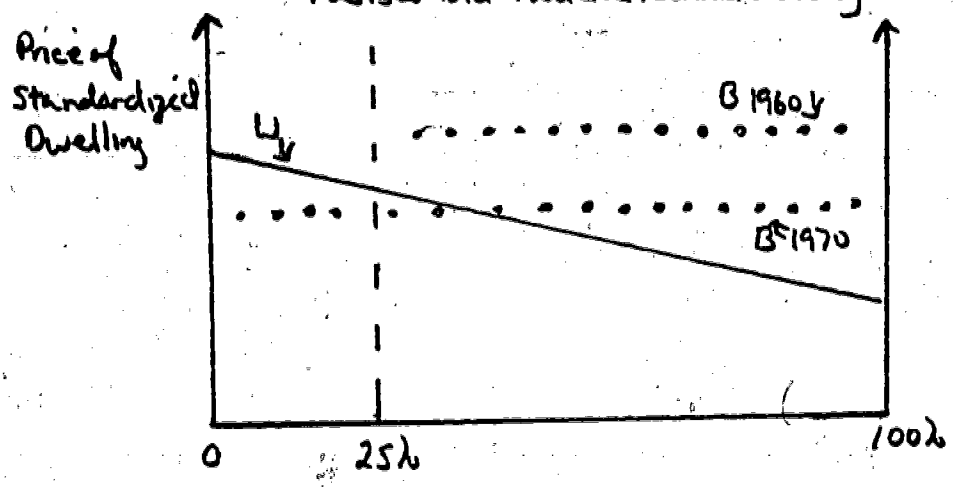


Figure 3C
Possible Bid Patterns: Schnare Study



a white area contiguous to a nonwhite area, the "zone of black expansion" (areas adjacent to ghetto which went, an average, from 22% to 63% black from 1968-72), and "black neighborhoods" (average 94-99% black).

Regression results showed that, ceteris paribus, price levels for single family homes in the period were highest in "safe" peripheral white areas, dropped 5-7% in "threatened" contiguous white areas, showed a modest increase in the zones of black expansion, and fell to their lowest levels (22%-26% discount over white periphery) in the ghetto. Variations in land, and not structure, values proved to be the source of these market price variations. Figure 4A gives a graphic portrayal of these patterns. Berry interpreted the discounts in contiguous white areas as indicative of white prejudice against blacks and perceptions that blacks reduced neighborhood status. Scant explanation was given for the other patterns, though short run disequilibrium factors operative in the zone of expansion were alluded to.

While the Berry model unambiguously suggests that whites are averse to living in areas contiguous to black areas, it yields little evidence of their tastes for self-segregation beyond that. It does not, for instance, tell us whether white bids decline monotonically as the proportion of blacks in the neighborhood increases (c.f. Figure 4B) or whether no further aversion occurs until blacks become a majority in the neighborhood (c.f. Figure 4C). As for blacks, the specification cannot distinguish between black preferences for all black areas (c.f. Figure 4C) or for integrated areas (c.f. Figure 4B).

In sum, the Census tract base studies do not provide unambiguous answers concerning the existence or nature of either white or black preferences for self segregation. At best, they give an aggregate estimate of the equilibrium housing price gradient, and not the underlying bid functions of each race which

Figure 4A
Observed Price Patterns: Berry Study

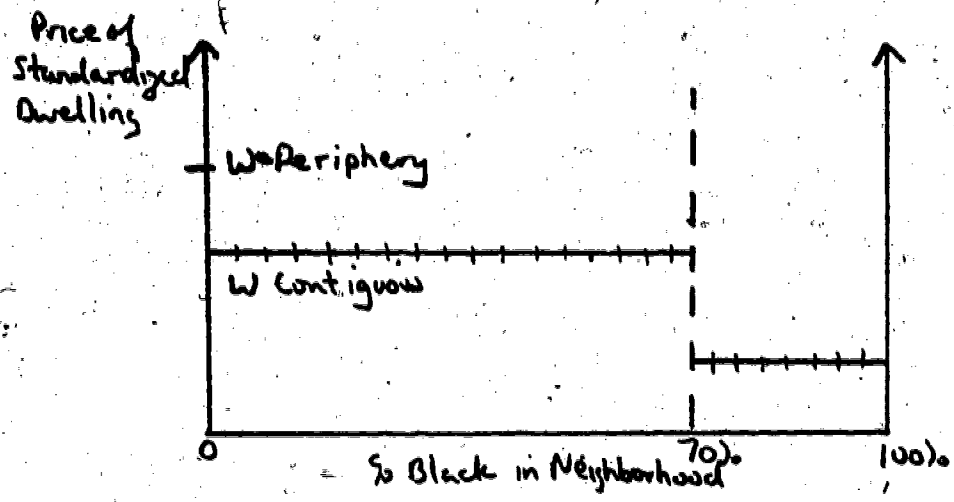


Figure 4B
Possible Bid Patterns: Berry Study

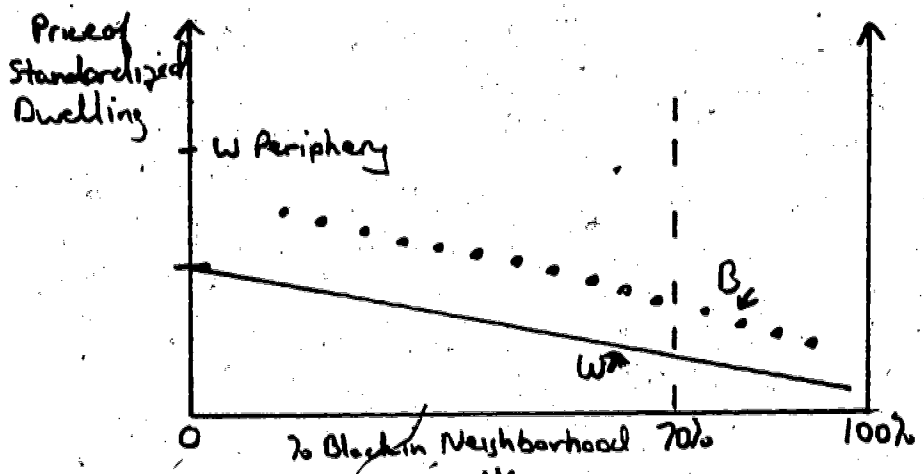
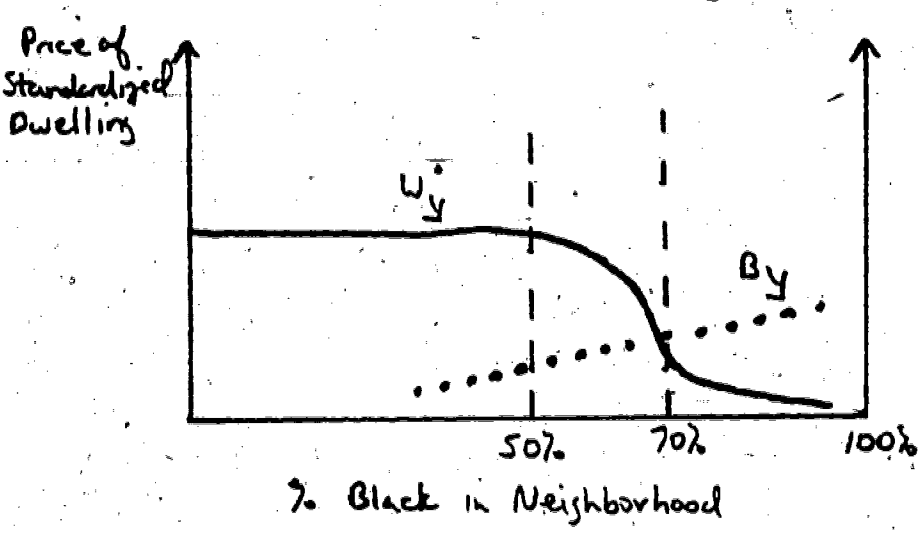


Figure 4C
Possible Bid Patterns: Berry Study



provide the crucial evidence required.

III. B. ii. Micro-data Base Studies

The second set of regression studies is characterized by the use of micro-data on individual house values and characteristics. The goal of disaggregation is to better distill the subtleties of housing bid patterns for both races distinctly.

Bailey (1966) undertook a seminal econometric study in the area of racial effects on property values utilizing two samples of single family homes sold in Chicago's southside areas in 1948-51 and 1954-57. The dependent variable for each regression was the logarithm of the the federal real estate transfer tax paid on the transaction when the property was sold. Structural control variables included number of floors, building materials, age, floor area, basement, front footage, and a series of dummy variables denoting dilapidation, university access, years of sale, common wall, alley, and conversion. Neighborhood variables consisted of population densities and racial compositions for the block and facing block on which the unit was located, as well as for the ring of surrounding blocks (with two alternative specifications of block face and ring being tested). Unfortunately, no attempt was made in the model to identify the races involved in the transactions being observed.

For both samples, Bailey found that higher black concentrations in the ring of blocks surrounding the property significantly reduced its value; e.g., a 30% discount between a 50% black ring vs. an all white ring. On the other hand, the racial composition of the block face encompassing the property was not a statistically significant variable. Bailey claimed these results proved that blacks have significant negative effects on property values in the blocks near to but not those including

their own residences. Such a "boundary externality effect" might be portrayed as in Figure 5A.

Unfortunately, such an unambiguous conclusion cannot be derived from the above model since it fails to distinguish between different racial combinations of the block and surrounding ring of blocks involved in a given transaction. That is, the specification does not allow for the possibility that the effect of black concentrations in surrounding areas could have different effects on values depending on whether the block in question was white, mixed, or black itself. Consider, initially, the insignificance of the own-block race effect. Since (presumably) both white and black buyers were sampled, this result does not necessarily suggest that white buyers are indifferent to blacks on their own block (and, by inference, that black buyers feel similarly). Another plausible interpretation would be that whites (who usually purchase in predominantly white blocks surrounded by white rings) pay a comparable amount as blacks (who usually purchase in predominantly black blocks surrounded by black rings) but that whites (blacks) who might buy in a racially mixed block would pay relatively less (more) compared to their counterparts in segregated blocks. (Such a pattern would obviously imply short run market disequilibrium at boundary areas or discimination constraining black demand.) In such a contingency, observations gathered from a variety of transactions involving various races on various types of racially constituted blocks surrounded by various types of racially constituted rings might easily show no relationship between block racial composition and selling price, even though both races might prefer whiter blocks. This alternative is graphically portrayed in Figure 5B.

Similarly, consider the negative coefficient on the proportion black

Figure 5A
Observed Price Patterns: Bailey Study

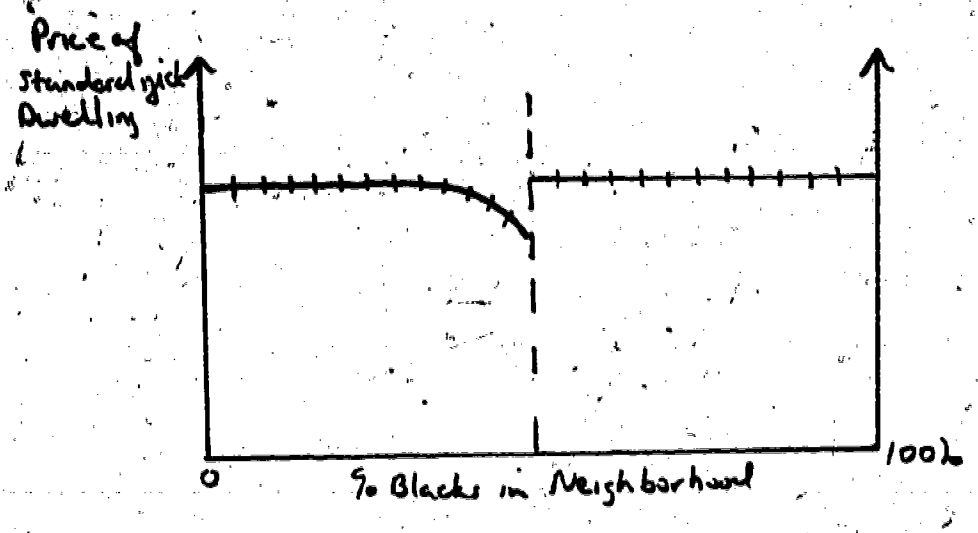


Figure 5B
Possible Bid Patterns: Bailey Study

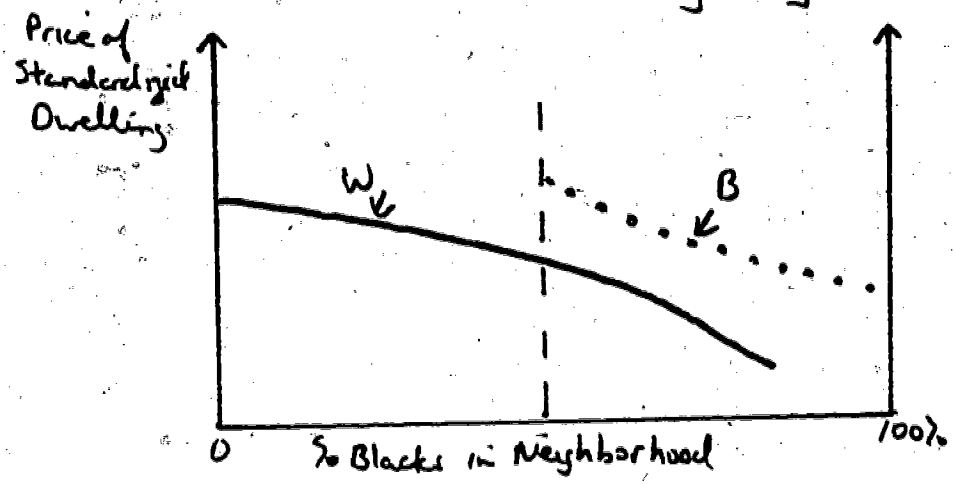
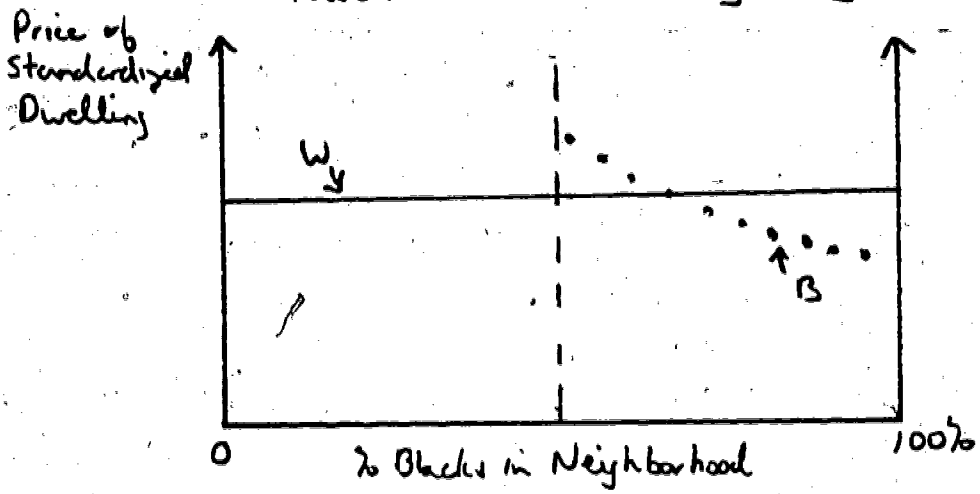


Figure 5C
Possible Bid Patterns: Bailey Study



in surrounding ring variable. Such a finding would be consistent with white tastes for segregation, yet all one really knows is that the aggregate pattern derived from transactions on white, mixed, and black blocks demonstrated a net inverse relationship between value and proportion black in surrounding blocks. Conceptually, at least, such a pattern could have been generated if blacks preferred blocks amid mixed areas whereas whites were indifferent to the race of adjacent blocks (c.f., Figure 5C). Another alternative explanation more consistent with the one posited above is that both races prefer to live in areas with higher concentrations of whites in the surrounding neighborhoods. In this case, as shown in Figure 5B, the discounting effect of higher black proportions in surrounding rings would be demonstrated for observations gathered from both white and black blocks.

Finally, the Bailey study can also be faulted on its paucity of other variables to control for neighborhood quality besides density and race. Clearly, such factors as median incomes, average property values, stability, socioeconomic diversity, commercial land uses, etc., are attributes of the neighborhood which would be expected to influence property values, independent of racial characteristics. Exclusion of such factors from the regressions may lead to specification errors and serious misinterpretations of the behavioral content of the racial composition variables.

King and Mieszkowski (1973) analyzed data from a sample of rental dwellings in New Haven. Their rent regressions employed the usual set of structure variables (area, a variety of quality indices, terms of and special features included in rent), distance from city center, reading scores in local schools, and attributes of the occupant (recent immigrant

to city, persons per square foot in unit, race and sex of head). In addition, four dummy variables were specified which simultaneously denoted both the race of the household and the racial submarket in which the apartment was located. Three regions were specified: the "white" submarket having less than 3% blacks on the unit's block and in surrounding blocks; the "ghetto" submarket having 60-100% blacks on the unit's block and in surrounding blocks; and the "boundary" submarket consisting of all other areas.

The regression coefficients for this set of four race/submarket dummies indicated that, compared to white tenants in white areas, boundary whites paid 7% lower rents while boundary blacks paid the same. This indicated price discrimination in the boundary submarket as well as white preferences for self-segregation, according to King and Mieszkowski. Both races in the ghetto paid 9% more than whites in white areas, a finding the authors attributed to a short run disequilibrium situation of "funneling." These rent patterns are portrayed in Figure 6A.

The first area in which the King-Mieszkowski study may be criticized concerns the lack of neighborhood control variables. Only local school reading scores and distance to city center are employed to standardize for the quality of the neighborhood in which the surveyed apartment was located.

As for the implied preferences for neighborhood racial composition, again the study leaves several important unanswered questions. As for blacks, the authors admit that the black rent pattern is consistent with black self-segregation tendencies. Yet, they cloud the issue by their reliance on disequilibrium factors to explain rent levels in the black submarket. For instance, if rents in black areas were artifically inflated due to a temporary fillip of demand, then blacks could, in fact,

Figure 6A
Observed Price Patterns; King - Mieszkowski Study

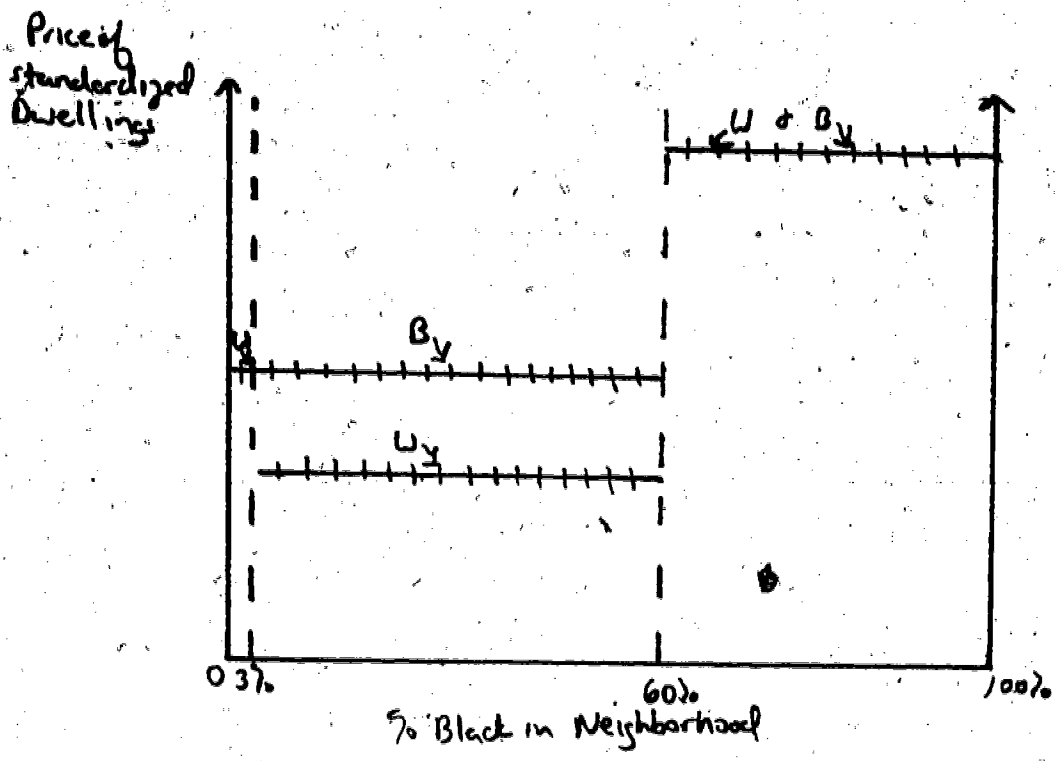
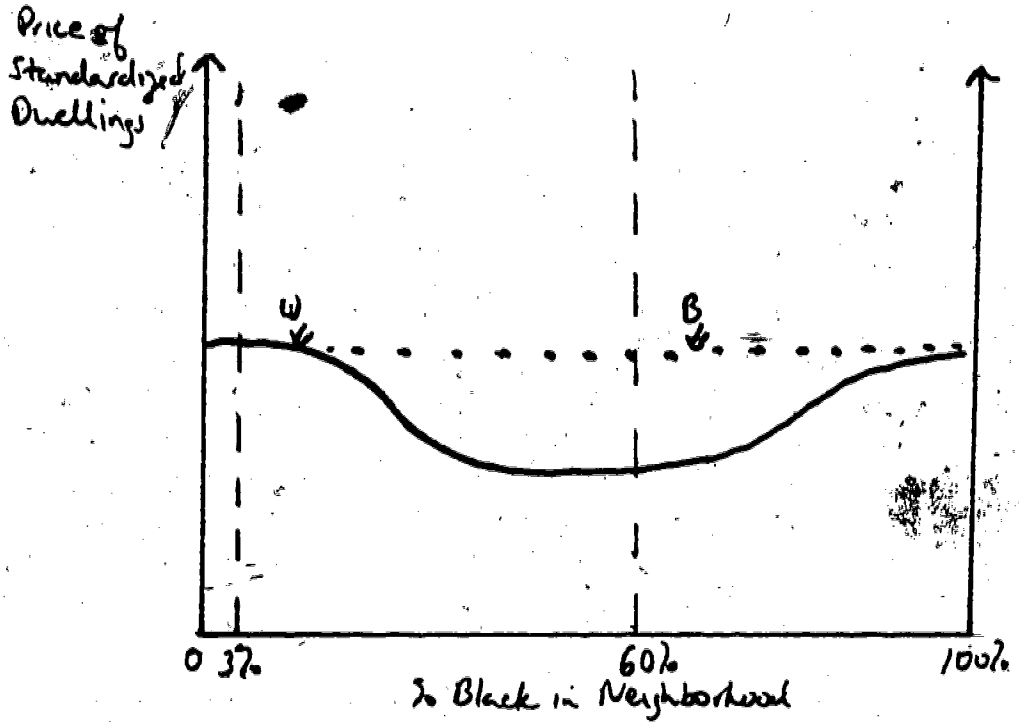


Figure 6B
Possible Bid Patterns: King - Mieszkowski Study



be indifferent to racial composition in a true equilibrium situation. In such an equilibrium their bids might appear as in Figure 6B.

As for whites, the specification of the boundary areas which encompass such a vast range of racial compositions makes it impossible to tell whether the true equilibrium white bid pattern falls linearly as black proportions rise, whether it plummets at some intermediate "threshold" black percentage, or, as an extreme case, whether it is low only in racially mixed "transitional" areas, as suggested in Figure 6B.

A final criticism revolves around the sensitivity of the observed rent patterns to the specification of the three racial submarkets. This sensitivity was demonstrated by Yinger (1975), who experimented with the King-Mieszkowski specification using 1967 St. Louis micro-data for owner-occupied units. Three alternative specifications of the three racial submarkets were employed in regression runs. When 0-5%/5-85%/85+% black proportion in Census tract demarcations were used, the results showed that ghetto blacks paid significantly more than the prices paid by both races in all other areas. When 0-40%/40-80%/80+% definitions were used, both ghetto blacks and boundary whites paid more. Finally, the ghetto was defined as all contiguous tracts of 90+% black, the white submarket as all tracts 5% or less black plus all tracts surrounded by such tracts, and the boundary as everything else. This specification indicated ghetto blacks and boundary blacks paid more in the log model, and that both whites and blacks paid more if the boundary region of high transition to the north of the ghetto was further specified! The upshot of all this, as pointed out by Yinger, is that one must be hesitant to interpret results from the King-Mieszkowski type of specification as conclusive evidence of the effects of racial attitudes on house values, due to the sensitivity of submarket definition.

Yinger (1975) proposed a model which attempted to overcome the King-Mieszkowski specification problems. Two dummy variables were specified to denote houses in "integrated" (40-80% black) and "black" (80-100% black) tracts. Two additional dummies denoted black households in the above two areas. Finally, three variables measured the percentage of blacks in each of the three racial submarkets, with the appropriate percentage being selected depending on the location of a particular dwelling. Besides the above variables, the usual set of structural attributes (rooms, bathrooms, area, yard size, quality, age), neighborhood amenities (nonresidential usage, school achievement scores, median income and education, percentage moved in previous five years, percentage poor), and location (distance to CBD) were used as independent variables in the house value regression.

The regression results indicated that in all three submarkets, both black and white housing prices declined as the proportion black in the area rose, a finding Yinger claimed showed both races preferred whiter areas. For instance, all else equal a 10% increase in the proportion black would reduce house values by about 6%, 8%, and 19% in white, integrated, and black areas, respectively. In addition, average house prices were 25-27% higher in both integrated and black areas, compared to white areas. Finally, for any given racial composition blacks paid 14-15% more than whites, suggesting evidence of discrimination. A diagrammatic portrayal of those findings is given in Figure 7A.

Further consideration must be given to the large price discontinuity evidenced when moving between submarkets. Yinger explained the white/integrated area gap as a combination of blacks being excluded from white areas and whites in integrated areas being unable to capture capital gains in the short run due to moving and information costs involved in

Figure 7A

Observed Price Patterns: Yinger Study

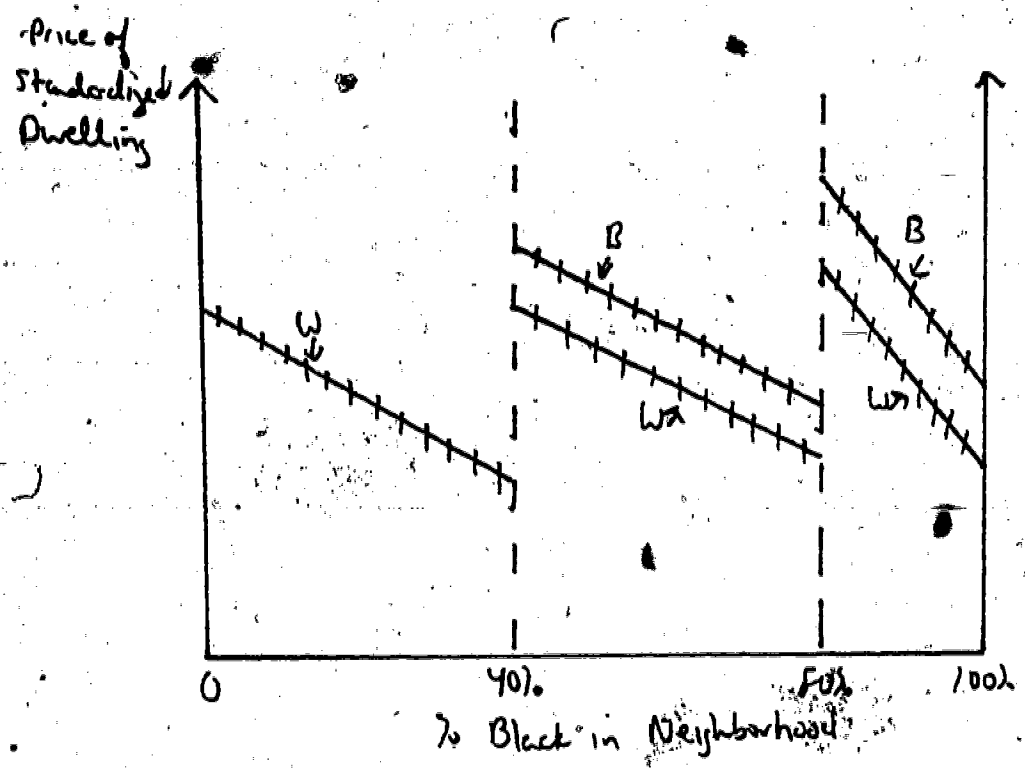
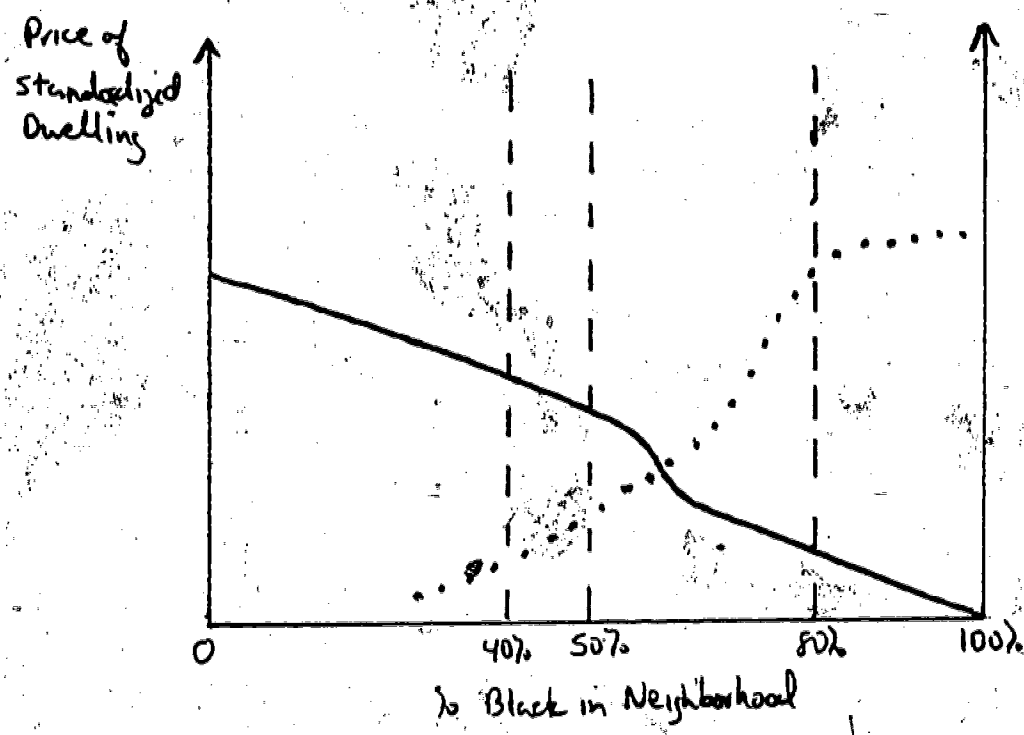


Figure 7B

Possible Bid Patterns: Yinger Study



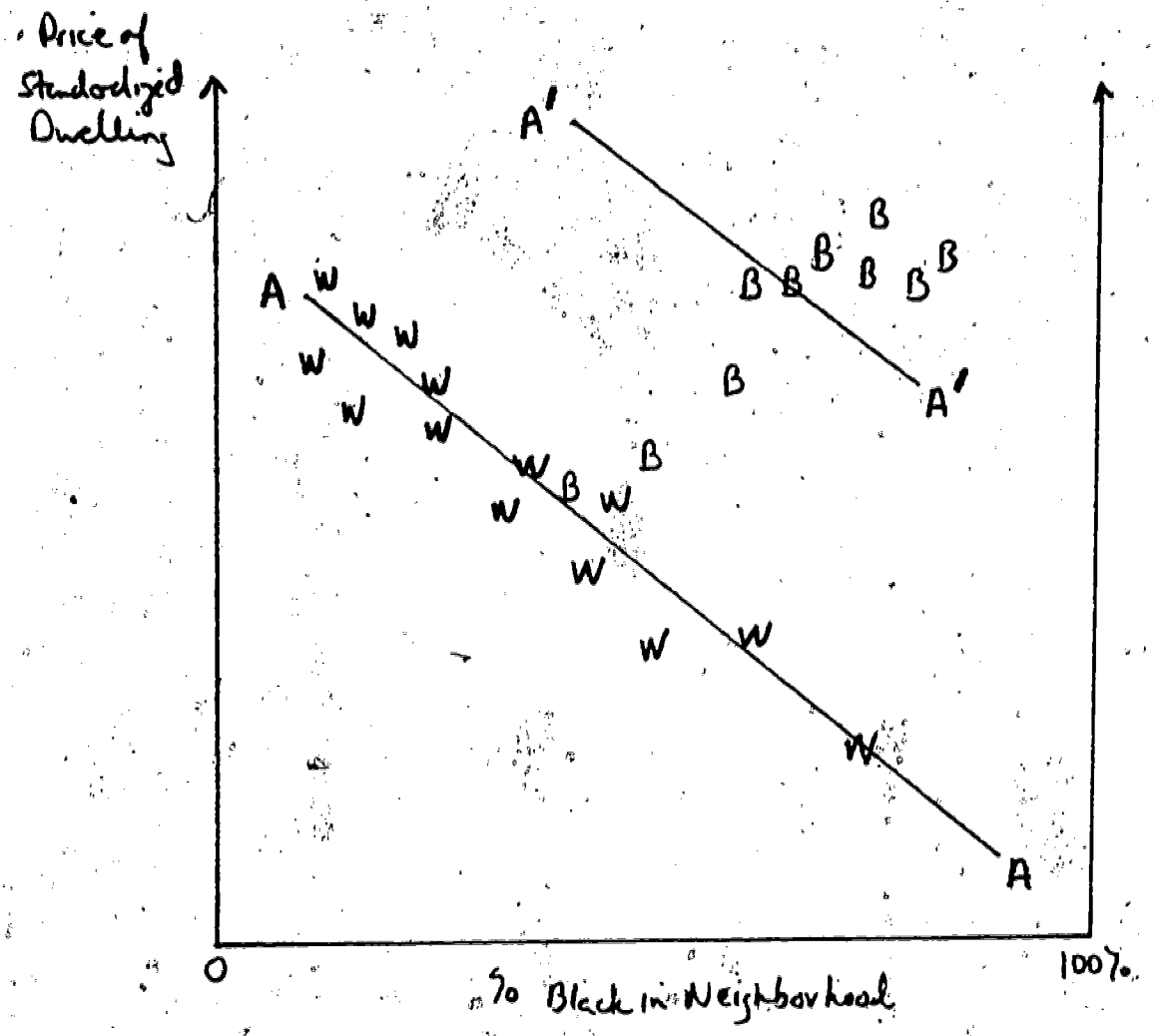
switching to the white area. The price gap between the integrated and black areas could not rely on the above explanations, however, and Yinger posited three alternatives. It is significant that one of these alternative explanations was that some blacks strongly prefer segregation, thus contradicting an earlier interpretation of the results.

This disclaimer points to the main weakness of the Yinger specification--inability to conclusively discover black preferences for self-segregation. On the one hand, the results regarding whites are difficult to dispute. Since there were no black observations in the white area, the specification succeeded in estimating the purely white bid function in this area. Whether there is a break in the linear white bid function past the 50% black point in integrated areas is impossible to ascertain in the model, however.

On the other hand, results regarding blacks are ambiguous. Not only is there the aforementioned integrated/black area price gap anomaly, but an added specification problem leads one to further question the conclusion of black aversion to other blacks in integrated areas. The potential problem arises from the use of only a dummy variable to distinguish between blacks and whites in an area, given the basic price variation pattern as racial composition changes. Consider, for example, the hypothetical scatter of white (W) and black (B) observations in Figure 8. The white price observations might show a strong inverse relationship with the proportion of blacks in the area. The black price observations in the area might be generally higher (due to discrimination) and show a weak positive relationship with the proportion of blacks. Yet, given the specification, the strong inverse relationship established by white observations might predominate the regression estimate (line AA) and thereby suggest that both

Figure 8

Hypothetical Data Scatter: Yinger Study



races preferred whiter areas, even though blacks paid more, ceteris paribus (line A^1A^1). Thus, removing for a moment any disequilibrium elements, the true underlying pattern of bids may be very different (especially for blacks) than that suggested by the Yinger model (c.f., Figure 7B).

In summary, the micro-data studies, while coming closer to the ideal of estimating the underlying housing bid functions for each race than the aggregative works, have fallen short. They have consistently demonstrated that there is some sort of white aversion to transitional or integrated areas, yet have failed to provide a clear picture of the exact form of this self-segregating tendency or its source. Even more seriously, the existing specifications yield conflicting and ambiguous results concerning blacks' desires for self-segregation. The prime specification shortcoming is the failure to estimate regressions over racially stratified subsamples of observations.

III. C. Summary

Existing research, whether based on opinion poll or regression methodologies, has failed to provide conclusive answers regarding preferences for neighborhood racial composition. As for white households, both types of studies have generally indicated some tendency to avoid integrated neighborhoods, yet the exact nature of this tendency has remained obscure. We cannot be sure, for example, whether whites are averse to any black neighbors or whether they merely fear becoming the minority race as an integrated neighborhood "tips" to a dominantly black area. It is also unclear whether white aversion is due to race per se, or to factors commonly associated with integrated neighborhoods like lower housing quality and status, higher turnover, etc. While several econometric studies have provided controls for

some of these factors, other potentially important variables such as population density, socioeconomic diversity, and lending institution "redlining" have not been employed.

As for black households, the evidence from both polls and regression research has proven inconclusive. Some studies have suggested blacks demonstrate similar self-segregation tendencies as whites, while others come to the opposite conclusions. Yet, little credence can be placed in either set of findings, for neither group has succeeded in unambiguously estimating the underlying black housing bid patterns in their specifications.

Finally, no attempt whatsoever has yet been made to integrate both the opinion poll and regression analysis methodologies or to directly compare their results. For example, we do not know whether there exists a strong correlation between white decrements in their housing bids due to integration (as revealed by regressions) and their expressed preferences for neighborhood racial composition and the composition of neighborhoods in which they actually live (as revealed in polls).

The research specification described in the next Section is designed to answer these questions and avoid the shortcomings of previous research outlined above.

IV. Model Specification and Data Base

Both the foregoing theory of the housing market and review of previous studies have continually emphasized the need to distinctly separate bid patterns of both races in order to unambiguously determine their preferences for self-segregation. The principal guideline for the specification of the empirical model is thus the stratification by race of the housing price equations.

IV. A. General Specification

As noted earlier, a housing package may be conceptualized as a bundle of attributes, each of which has a distinct (although implicit) valuation placed upon it by a given group of household demanders. A regression of the value or rent of the total housing package on these attributes (using only observations from the given household group) thereby yields coefficients interpretable as these implicit valuations given to attributes by the group.

Symbolically, the total housing package price (rent or value) of the ith dwelling occupied by the jth group is:

(1) $P_{ij} = f([S_{ijk}]\ [N_{ijl}]\ [R_{ijm}])$ $\quad j$ = white, black

where $[S_{ijk}]$, $[N_{ijl}]$ and $[R_{ijm}]$ are column vectors describing the various attributes of the structure and lot, neighborhood, and racial composition of the area, respectively, for the ith dwelling of the jth group. The multiple regression to be estimated over all i observations of a given tenure of the jth group will take the form:

(2) $P_j = a_j + [b_{jk}]\ [S_{jk}] + [C_{jl}]\ [N_{jl}] + [d_{jm}]\ [R_{jm}] + u$

where $[b_{jk}]$, $[c_{jl}]$, and $[d_{jm}]$ are row vectors of coefficients and u is a random error term with the usual properties. The $[d_{jm}]$ coefficients will provide the crucial empirical information concerning the jth group's

valuation of the racial attributes of their neighborhoods as specified by $[R_{jm}]$ for the tenure under consideration.

IV. B. Data Bases

The above general model was operationalized and coefficients statistically estimated using two distinct data bases. Both sets result from individual household interviews and contain a rich collection of information on the occupants, the dwellings, and the associated neighborhoods. The two surveys were conducted in St. Louis in 1967 and in Wooster, Ohio, in 1975. Similar statistical estimations were made for both sets of data, thus allowing one to compare results from a large city undergoing rapid expansion of a significant centralized black ghetto to those from a small city with a minimal, widely-diffused black community. These two data bases are described below.

IV. B. i. St. Louis Survey

The initial data set was gathered by John Kain and John Quigley for a consulting firm under contract to the St. Louis Community Renewal Program. A sample of phonebook household addresses was randomly selected both within the city limits and in St. Louis County. Vacancies, non-responses, and refusals reduced the final size of actual interviews conducted within the city (county) during the summer of 1967 to 1021 (164). A complete description of sample design is given in City Plan Commissi (1969). These households were personally interviewed to obtain objective data on their income, family status, job status, race, etc., and on the physical features of their dwelling.

More subjective evaluations of the qualitative aspects of the sampled dwellings and neighborhoods were obtained in three different ways. In the

first, interviewers rated the quality of various aspects of the unit interiors on ordinal scales. City building inspectors provided analogous quality ratings for the exterior condition of the sample unit and structures adjacent to it in a second survey. Inspectors also rated various aspects of the block face on which the sample units were located during the final phase. Jointly these surveys provided 39 distinct variables proxying for the physical and visual quality of the sampled housing packages. These 39 variables have been condensed into a more manageable number of factors via principle-components analysis by Kain and Quigley (1970).

Finally, objective characteristics of the surrounding neighborhood were also gathered for each observation. Quality measures for local schools, racial composition, crime rates and a variety of Census tract data were also tabulated.

The rationale for analyzing the above data base consists of the following:

1. It represents an unusually robust set of quantitative and qualitative variables to control for a wide variety of factors affecting housing prices.

2. It contains enough representation of both blacks and whites in the sample to permit stratification by race while maintaining adequate sample sizes.

3. It encompasses the widest possible range of racial compositions--from 0% to 99% black in a tract.

4. Since the "classic" central ghetto was expanding rapidly in 1967, it captures a situation in which white households in "transitional" areas adjacent to the ghetto would likely fear the incipient "tipping" of their area.

For some comparative aggregate data on St. Louis, see Tables 3 and 4.

IV. B. ii. Wooster Survey

The second data set was gathered by the Principal Investigator in collaboration with Professor Garry Hesser of the College of Wooster

Table 3

Comparative Characteristics of Housing

	All Metropolitan Areas 1970 Census	St. Louis SMSA 1970 Census	City of Wooster 1975 Census
Occupied Units			
Substandard	3.5%	4.9%	1.1%
1.01+ Persons/Room	7.8	4.8	2.3
Owner Occupied	59.5	64.0	60.8
Median # Rooms	5.0	4.5	5.6
Median # Persons/ Household	2.7	2.65	2.3
Median Value (Owner)	$19,000	$16,300	$27,000
Median Rent (Renter)	$97	$105	$138
Vacancy Rate, Total	4.8%	6.1%	5.1%
Units in Structure			
Single Family	63.2%	66.6%	68.3%
Two or More	34.9%	30.0%	30.1%
Mobile Home	1.9%	2.3%	1.6%

Table 4

Comparative Characteristics of Population

	All Metropolitan Areas 1970 Census	St. Louis SMSA 1970 Census	City of Wooster 1975 Census
Age[1]			
18-24 years	17.3%	10.3%	8.6%
25-34 years	12.6	12.1	19.9
35-44	11.7	11.6	14.9
45-54	12.0	11.3	16.5
55-64	9.2	9.3	14.8
65+	9.7	9.8	25.3

[1]Census data for individuals, Wooster data for households

Education[1]			
No High School	30.1%	27.0%	11.0%
Some High School	24.6	17.8	16.2
High School Grad., Perhaps Some College	33.3	41.7	49.0
College Graduate, Perhaps Post Graduate	12.0	13.5	23.8
Households Heads			
Black	12.0%	12.7%	2.6%
Female	11.5%	11.6%	30.9%
Income			
Families, $0-5,000	16.5%	18.0%	6.0%
Families, $5,000 - $9,999	23.6	26.5	18.9
Median, All Families	$8,431	$8,700	$11,627

during the summer of 1975. A 15% stratified random sample of all household addresses within the City of Wooster limits was constructed, and 1061 dwellings were surveyed. Vacancies resulted in a net of 1007 actual interviews with households (non-responses and refusals were replaced in the sample). A complete description of methodology and sampling design is given in Galster and Hesser (1975).

The Wooster survey gathered an array of objective characteristics of the household and dwelling unit which are virtually identical to those in the St. Louis survey. Additional comparable evaluations of the dwelling's exterior and interior quality and the character of the surrounding "neighborhood" were also made by interviewers.

Twenty-six of these "neighborhoods" were defined by the Wooster City Planning Department for purposes of the study, using as guidelines natural topographical and man-made boundaries. Each consisted, on average, of a several square block area containing approximately 200 households. A variety of "neighborhood" characteristics such as median incomes, education, house values, racial composition can be computed from the survey. (Selected characteristics of Wooster in Tables 3 and 4.)

The rationale for analyzing the Wooster data is:

1. It contains a robust set of quantitative and qualitative variables to control for a wide variety of factors affecting housing prices.

2. While it contains insufficient black household observations to estimate black bids, the white observations contain unusually good neighborhood control variables like:

   a. density, diversity, stability, ave. values

   b. demarcation of area commonly seen by real estate agents as "the wrong side of town" which thus provides a prime candidate for lending institution "redlining".

   c. expressed white attitudes on desirability of integration and perceptions of racial change and property value changes.

3. Since it contains a small and widely-scattered black population (highest black concentration in any neighborhood is 16%), it captures a situation in which white households would have little reason to fear any "tipping" of their area.

IV. C. Detailed Specification

Now that the data bases for the research have been described, the general specification presented earlier may be put in a more detailed form. The dependent variables are either monthly rent (RENT) or owner-assessed house value (VALUE). The specific independent variables which are proposed to proxy for components of the structure/lot vector, [S], and neighborhood components, [N], are defined in Table 5. The [S] components include dummy variables denoting such qualitative shortcomings as major interior (INTDEFECT) and exterior defects (EXTDEFECT), no hot and cold running water (NOH_2O), and no central heat (NOHEAT). Other structural control variables were number of rooms (ROOMS), bathrooms (BATHS), decadal age (AGEUNIT), and the existence of central air conditioning (AIRCOND). For renters, two dummy variables denoted if furnishings (FURNISH) or utilities (UTIL) were included in the monthly rent, as well as the structure type occupied: single family detached (SINGLFAM), duplex (DUPLEX), rowhouse (ROWHOUSE), garden apartment building (GARDEN), or apartment in converted single family structure (APTSINGL). For owner occupants the existence of multiple units in the structure was denoted by OOMUS, and the area of the yard in thousands of square feet as PARCEL.

The socio-economic status of the "neighborhood" surrounding the given structure (i.e. census tract in St. Louis, and "neighborhood" in Wooster) is modelled by the mean income of households (MNINCOME) measured in thousands of dollars and the percentage of low income households, using

TABLE 5

Formal Variable Definitions

Variable	Definition
INTDEFECT	1 if walls and/or ceiling in poor condition, 0 otherwise
EXTDEFECT	1 if roof, windows, steps and/or paint in poor condition, 0 otherwise
NOH2O	1 if no hot and cold running water, 0 otherwise
NOHEAT	1 if no central heat, 0 otherwise
ROOMS	number of rooms (excluding bathrooms) in dwelling unit
BATHS	number of bathrooms in dwelling unit
AGEUNIT	age of structure, in decades
AIRCOND	1 if dwelling has central air conditioning, 0 otherwise
FURNISH	1 if furniture included in monthly contract rent, 0 otherwise
UTIL	1 if utilities included in monthly contract rent, 0 otherwise
SINGLFAM	1 if dwelling in single family detached structure, 0 otherwise
DUPLEX	1 if dwelling in duplex structure, 0 otherwise
ROWHOUSE	1 if dwelling in rowhouse structure, 0 otherwise
GARDEN	1 if dwelling in garden apartment structure, 0 otherwise
APTSINGL	1 if dwelling in apartment in converted single family structure, 0 otherwise
OOMUS	1 if owner resides in multiple unit structure, 0 otherwise
MNINCOME	mean income of households in "neighborhood"*, in $1,000
PERPOOR	percentage of low income** households in neighborhood
PERSTABLE	percentage of households living in current unit 5 years or more
DENSITY	population per acre*** in neighborhood
PERDILAP	percentage of dilapidated structures in neighborhood
TX-Y	1 if neighborhood has % black ranging from X to Y, 0 otherwise
PBX-Y	actual percentage black in neighborhood if neighborhood has % black ranging from X to Y, 0 otherwise
WBORDER	1 if neighborhood has under 1% black and is located adjacent to 70%+ black neighborhood in St. Louis, or to central integrated (1-16% black) neighborhood in Wooster, 0 otherwise
FRINGE	1 if neighborhood has 10-20% black and is at least 4 miles from the ghetto in St. Louis, or is 4-6% and on fringe of city in Wooster, 0 otherwise
PBFRINGE	actual percentage black if neighborhood defined as FRINGE, 0 otherwise
PERBLACK	actual percentage black in neighborhood
CENTRAL	1 if neighborhood has 1-16% black and located in south-central section of Wooster, 0 otherwise
SEGPBLK	percentage black in neighborhood if respondent avowed segregationist, 0 otherwise
SEGREGAT	1 if respondent avowed segregationist and lived in neighborhood with some blacks, 0 otherwise

*"neighborhood" defined as Census tract in St. Louis, and as Wooster Planning Department "study area" of approximately 800 population in Wooster.

**"low income" defined as household earning under $3000 ($5000) in St. Louis (Wooster).

***density estimated in St. Louis on basis of distance of dwelling from CBD, in Wooster on basis of direct sampling and area maps.

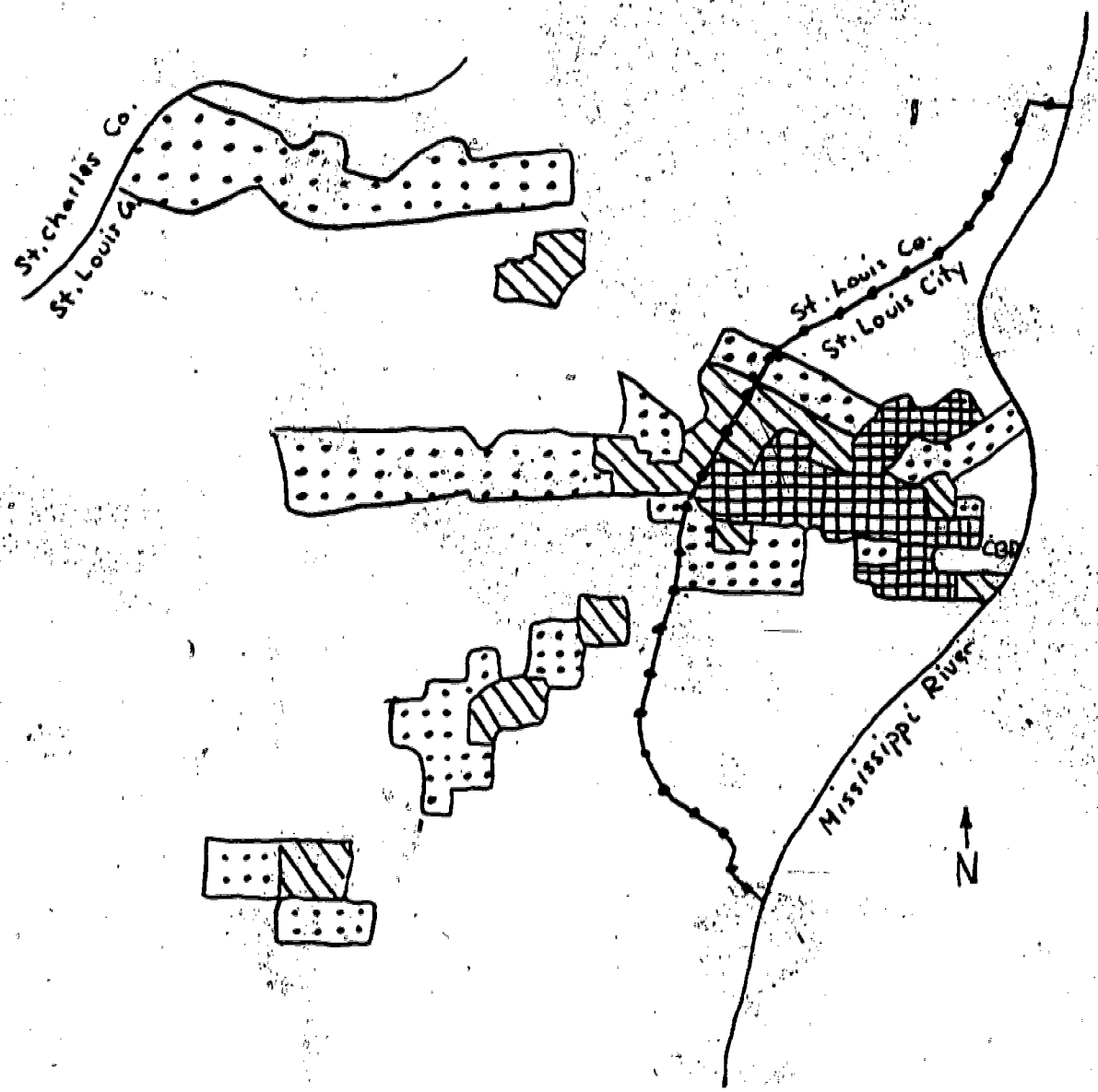
$3,000 ($5,000) income cutoffs for St. Louis (Wooster), (PERPOOR). The importance of neighborhood status has often been stressed (cf. Abrams, 1955; Smith, 1970; Artz, 1971). Neighborhood stability is proxied for by the percentage of households living in their current dwelling more than 5 years (PERSTABLE). Quality of public services provided in the neighborhood (SERVICES) is measured by an index of the average household response to a series of questions concerning their "satisfaction" with specific public services like police, fire, schools, transit, and garbage collection. Like status, the significance of public services for housing prices is well established (cf. Schermer and Levin, 1968; Billingsley, 1968; Mack, 1968; Wolf and Lebeaux, 1969). Finally, the population per acre (DENSITY) and percentage of dilapidated structures (PERDILAP) complete the specification of the neighborhood control variables. Since these variables were derived from the sample itself, only areas having at least three observations were used for analysis.

While both the [S] and [N] vectors described above were used identically for both St. Louis and Wooster samples, the radical differences in the racial dynamics of their housing markets warrant distinctive specifications of the [R] vector. These will be given detailed consideration below.

The estimated racial composition for census tracts in the city and county of St. Louis in 1967 is graphically represented in Figure 9. The proportions of blacks in a tract were estimated based on the race of the households actually interviewed, supplemented by interpolations of 1960 and 1970 census data to check reasonableness of estimate. Only tracts with at least three observations were analyzed. As can be seen from the data, St. Louis is characterized by a typical, central city ghetto, with "transitional" (temporarily integrated) tracts bordering it and a few minor

Figure 9

Estimated Racial Composition of St. Louis Census Tracts, 1967



over 70% black

26% - 70% black

10% - 25% black

under 10% black

pockets of black households scattered at various parts of the suburban fringe.

The difficulty in econometrically specifying this situation revolves around disentangling the dual effects of race: as a neighborhood amenity and as an indicator of a particular type of housing submarket. As Yinger (1975) has clearly shown, the overall level of prices within a neighborhood (or between groups of neighborhoods is determined by its (their) submarket classification, while within a given submarket classification variations in prices due to variations in racial composition are indicative of tastes for racial composition as an amenity. For instance, simply comparing overall price levels for comparable white occupied structures in all-white suburban neighborhoods to those in, say, integrated city neighborhoods where racial composition varies from 25-70% black (as done by King and Mieszkowski (1973)) obscures the dual role of race. What one needs to realize is that while overall prices may be higher in the latter submarket (pent-up demand by blacks due to their exclusion from white areas forces up prices for all), this is not an indication of white preferences for such an area. This aspect of race as an amenity can only be observed by comparing variations in white housing prices between the 25% and 70% black areas within the integrated submarket.

With this in mind, six distinct housing submarkets a priori may be distinguished in the St. Louis metropolitan area. Black ghetto areas (T 70-100 = tracts with over 70% black households) and integrated areas (T 26-70 = tracts 26-70% black) conform to what is generally viewed as the "black submarket" (cf. Kain and Quigley, 1970; Daniels, 1975; Yinger, 1975) whose price levels (for both races) should generally be above that in all-white areas due to the aforementioned exclusion effect. Areas which have been "penetrated" by a few blacks (T 10-25 = tracts 10-25%

black bordering the black submarket) might well demonstrate ambiguous overall price effects since whites may fear racial transition and reduce their demands, but incoming blacks' demand may be offsetting this effect. White border areas (WBORDER = tracts under 1% black adjacent to tracts over 70% black) should manifest lower white prices than white areas farther from the ghetto if whites there foresee imminent racial transition and fear this eventuality. For a general description of neighborhoods undergoing racial transition in St. Louis in the late 1960's, see Sutker and Sutker (1974). Suburban areas with nontrivial amounts of racial mixing (FRINGE = suburban St. Louis tracts with 10-20% black and at least 4 miles from the ghetto) should exhibit the effects of race as an amenity, since they are, by definition, spatially far removed from the ghetto. Finally, all-white areas are those tracts with under 1% black in both the city and county which serve as the reference price level for all the above submarkets. Within each one of these submarkets (where appropriate) an additional variable, the percentage black in the submarket (PB), will be employed to determine the value of racial composition as an amenity. Of course, separate estimates will be conducted for whites and blacks. Frequencies of observations in these various racial submarkets are found in Table 6.

In Wooster the racial segregation pattern is quite different from St. Louis (see Figure 10). While most blacks live in the south-central, older sections of the city surrounding the central business district, the concentrations are low by big-city standards (the highest being 16% black). There is no clearly-defined "black ghetto" which has historically encroached on formerly all-white neighborhoods. There are also representations of blacks in the newer, middle class neighborhoods on the far north and south fringes of the city. In sum, Wooster has a stable and relatively unconcentrated black population.

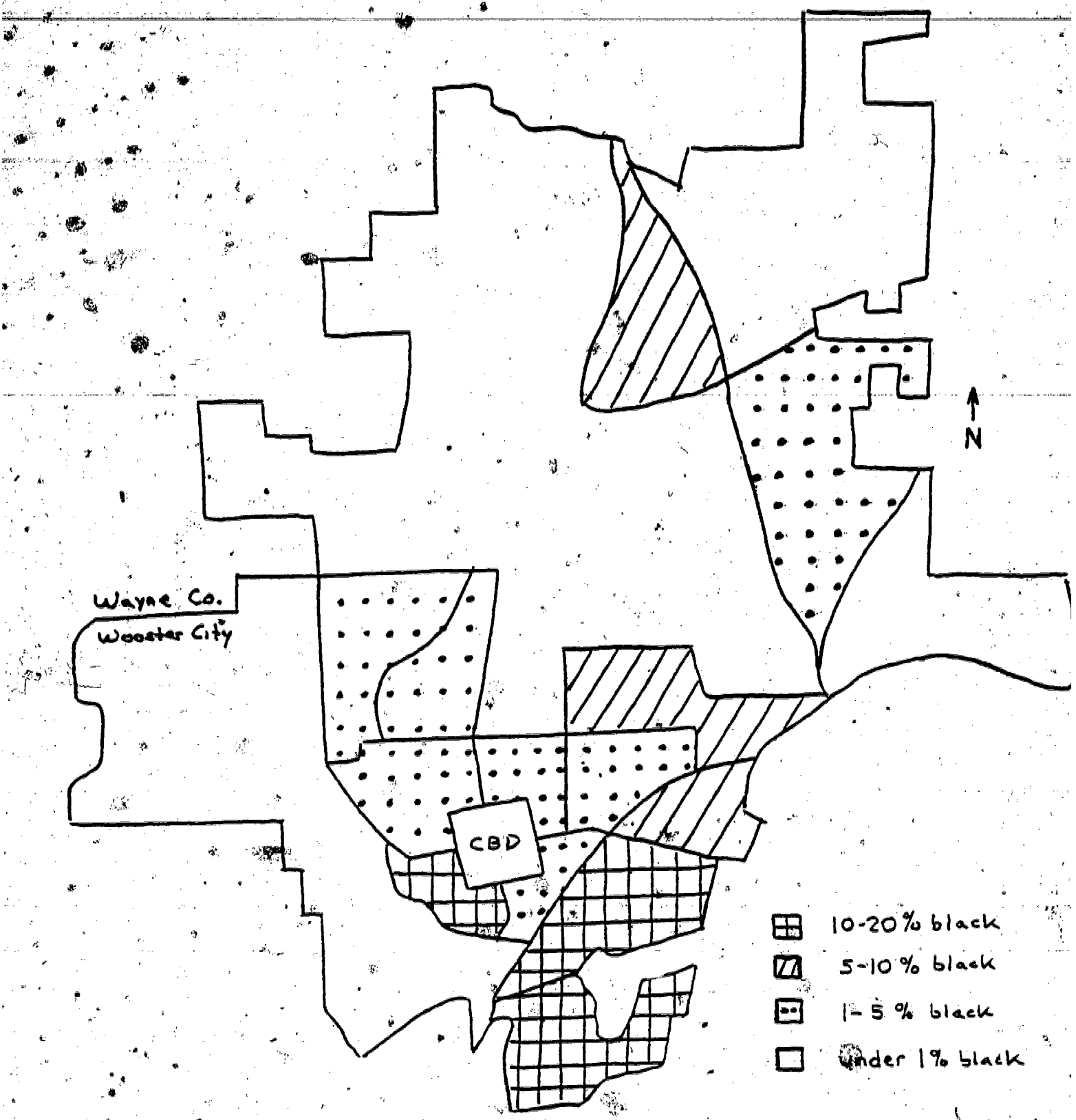
TABLE 6

Frequencies of Observations by Neighborhood Racial Composition

Black Racial Composition	St. Louis Whites		St. Louis Blacks		Wooster Whites	
	Owner	Renter	Owner	Renter	Owner	Renter
0-10%	222	253	3	0	534	256
WBORDER	11	74	0	0	111	50
NONBORDER	211	179	3	0	383	194
FRINGE	---	---	-	-	40	12
10-25%	16	30	1	8	33	49
CENTRAL	8	26	0	8	33	49
FRINGE	8	4	1	0	--	--
25-50%	6	22	1	12	0	0
50-70%	3	2	3	5	0	0
70-90%	3	3	11	35	0	0
90%+	2	0	53	204	0	0
TOTAL	252	310	72	264	567	305

Figure 10

Estimated Racial Composition of Wooster Neighborhoods, 1975



Given this situation, the problem of econometric specification is simplified, since racial composition only plays one role in Wooster--amenity. Thus, the use of a simple dummy variable denoting the presence of (1-16%) blacks in a neighborhood (T1-16) or a continuous measure of racial composition (PERBLACK) should suffice to give unambiguous evidence of Wooster whites' preferences for racial composition.

IV. D. Summary

The empirical model described above provides a significant advance over the previous research in the area of preferences for neighborhood racial composition. The existing lack of neighborhood control variables, especially those involving socioeconomic status, density, and stability will be overcome through the use of the two robust data bases described above. The current methodological and specification problems will be avoided by the racial stratification of samples. Finally, the subtleties of white racial preferences will be further explored through the comparison of behaviors in different housing submarket contexts.

V. Empirical Results

V. A. St. Louis Results for Blacks

Coefficients for non-racial control variables for St. Louis blacks may be found in Table 7. Most were statistically significant and all significant coefficients had the expected sign, except PERSTABLE. The negative sign suggests that PERSTABLE is proxying for a dynamic, market-related phenomenon instead of an amenity--that areas of more recent black occupation demonstrate higher prices in the black submarket since owners have a more current (inflated) estimate of actual housing value and renters have not been taking advantage of long-term leases with rents fixed at a lower level at some earlier time.

Of more interest for the research at hand are coefficients for black racial variables, found in Table 8. As reported above in section III. A., previous public opinion polls would lead one to expect that, controlling for housing and neighborhood quality, blacks would negatively value other blacks in the neighborhood. With this in mind, a dummy variable specifying black price levels in neighborhoods with signifcant numbers of whites (either 0-70% black, TO-70, or 0-50% black, TO-50, depending on the specification) was specified, with ghetto areas (71% black) becoming the reference category. (The small number of black observations outside the ghetto makes any finer breakdown of submarkets risky, although experiments along this vein did not reveal any significant variations within the broader categories noted above.) Assuming that the effect of blacks in the neighborhood would have a similar effect on other blacks, regardless of the submarket involved, a single variable measuring the percentage of blacks in the tract (PERBLACK) was utilized. This proved, however, statistically insignificant so separate variables measuring racial composition within each of the submarket categories

TABLE 7

Coefficients (Standard Errors) for Control Variables--St. Louis Sample

Variable	White Owner	White Renter	Black Owner	Black Renter
INTDEFECT	-1282.4	-4.90	-1155.6	-.47
	(1328.8)	(2.61)[c]	(856.6)	(1.52)
EXTDEFECT	-2390.8	-2.96	1275.3	-3.95
	(643.5)[a]	(2.78)	(1017.7)	(2.73)
NOH2O	5275.1	-8.12	-3686.7	-7.38
	(2322.4)[b]	(6.61)	(1837.8)[b]	(2.20)[a]
NOHEAT	1465.7	-6.09	1669.7	-7.49
	(2061.7)	(2.82)[b]	(1522.9)	(2.01)[a]
ROOMS	1194.5	7.30	491.3	4.92
	(234.9)[a]	(1.08)[a]	(243.9)[b]	(.58)[a]
BATHS	1504.1	10.52	-720.7	1.17
	(728.7)[b]	(4.80)[b]	(813.5)	(2.94)
AGEUNIT	-1182.3	-6.40	-974.3	-1.65
	(177.4)[a]	(.70)[a]	(309.6)[a]	(.53)[a]
AIRCOND	1266.4	5.74	834.8	2.50
	(600.0)[b]	(2.31)[a]	(771.6)	(1.97)
PARCEL	437.8	--	739.2	--
	(83.0)[a]		(210.6)[a]	
FURNISH	--	33.68	--	10.48
		(3.73)[a]		(2.52)[a]
UTIL	--	2.75	--	3.43
		(3.42)		(1.53)[b]
SINGLFAM	--	7.73	--	-1.24
		(6.56)		(3.66)
DUPLEX	--	16.48	--	1.99
		(6.36)[a]		(6.46)
ROWHOUSE	--	9.32	--	-4.01
		(6.57)		(2.99)
GARDEN	--	2.56	--	-.45
		(4.84)		(2.27)
APTSINGL	--	7.88	--	-3.67
		(7.33)		(3.56)
OOMUS	835.8	--	1053.7	--
	(1723.2)		(1011.3)	
MNINCOME	418.9	.35	808.9	.49
	(154.4)[a]	(.92)	(581.4)	(.64)
PERPOOR	2989.7	-2.83	4210.6	-5.00
	(2443.6)	(11.15)	(4098.9)	(5.82)
PERSTABLE	2662.5	.70	-5352.6	-12.96
	(1478.5)[c]	(7.13)	(2625.9)[b]	(4.58)[a]
DENSITY	108.1	-.24	35.8	-.33
	(50.9)[b]	(.16)	(64.4)	(.12)[a]
PERDILAP	-586.2	-1.03	-257.2	-.23
	(341.3)[c]	(.49)[b]	(92.3)[a]	(.13)[c]
SERVICES	-22.1	.17	-20.8	.02
	(50.3)	(.26)	(83.1)	(.13)
CONSTANT	3285.9	59.05	24621.1	73.04
	(2144.3)	(11.67)[a]	(10450.4)[b]	(15.55)[a]
N	252	310	72	264
R^2	.64	.70	.71	.73

a,b,c = significant at 1%, 5%, 10% levels, respectively

TABLE 8

Coefficients (Standard Errors) for Racial Variables--St. Louis Blacks

Regression	Variables						
	PERBLACK	TO-70	TO-50	PBO-70	PB71-100	PBO-50	PB51-100
OWNER	28.7 (52.2)	1410.3 (3375.7)	--	--	--	--	--
RENTER	- .10 (.09)	- 5.49 (6.71)	--	--	--	--	--
OWNER	--	-20066.9 (7380.0)[a]	--	127.9 (57.2)[b]	-157.0 (75.3)[b]	--	--
RENTER	--	- 2.88 (13.9)	--	-.13 (.16)	- .09 (.13)	--	--
OWNER	--	--	-16485.0 (5228.5)[a]	--	--	165.8 (101.2)	-112.9 (43.7)[a]
RENTER	--	--	- 5.75 (14.27)	--	--	-.44 (.32)	-.08 (.11)

a, b, c = statistically significant at 1%, 5%, 10% levels, respectively.

defined (PBO-70 to PBO-50 and PB71-100 or PB51-100) were tested. For owners, these new specifications showed that blacks were averse to increases in the percentage of black in their neighborhood (between $110-160 or .9-1.4% decrement in value per percent of black increase) if those neighborhoods were already predominantly black, as is conventionally believed. On the other hand, in areas where blacks did not predominate the presence of other blacks was positively valued (at $125-$170 in absolute value of 1.06-1.44% of mean value for each 1% increase in the percentage of black). What this finding suggests is that blacks, while averse to largely black neighborhoods (perhaps due to their lower status), are equally averse to largely white neighborhoods (perhaps because they feel threatened, isolated, etc.). A visual representation of the estimated value of the average black owner occupied home in various submarkets is given in Figure 11. This shows that, ceteris paribus, the highest home prices estimated by blacks are in neighborhoods with 50-70% black occupancy.

These findings are consistent with the hypotheses that, in general, blacks:

a. feel insecure, threatened, or intimidated by living in predominantly white areas.

b. feel isolated from kinship/friendship ties and the cultural milieu of black areas when they live in predominantly white areas.

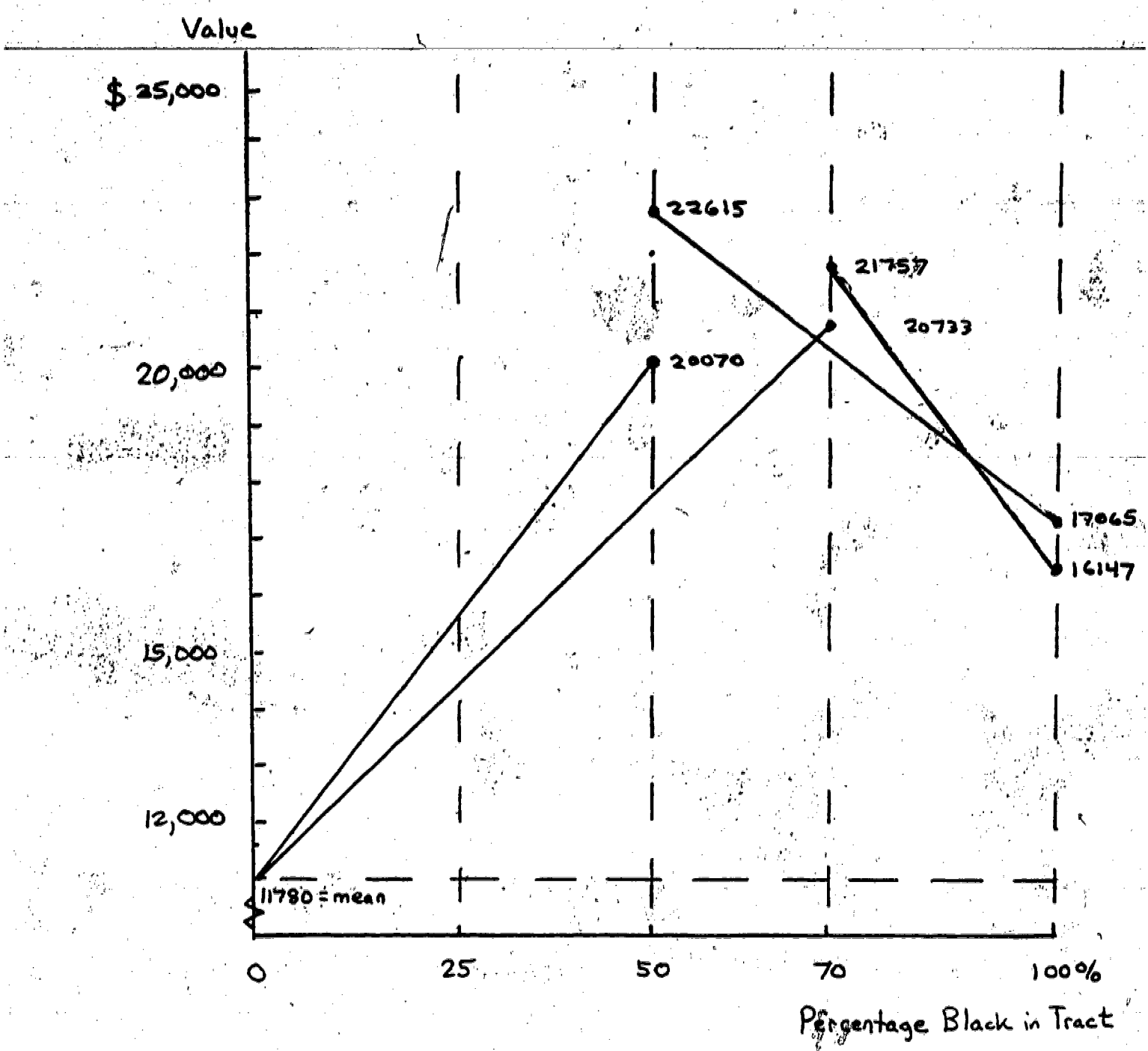
c. value racial integration as long as blacks remain in the majority or on approximate parity.

d. dislike increasing black proportions once a black majority is achieved since it represents lower status and/or unspecified other neighborhood ills.

These findings strongly confirm existing public opinion poll surveys of blacks (cf. Pettigrew, 1973; Schuman and Hatchett, 1974) indicating preferences for "mixed" or "half black and half white" neighborhoods.

Figure 11

Variations in Black Owner Values by Racial Composition



relative to "mostly black" or "mostly white" ones. One must remember, of course, that the results indicate overall patterns and does not presuppose that all in a group share these attitudes (cf. Hawley and Rock, 1973).

V. B. St. Louis Results for Whites

Coefficients for control variables for whites are found in Table 7, with virtually all significant variables of the expected sign. Results for racial variables are presented in Table 9.

The upper panel of Table 9 shows results using just dummy variables denoting the various submarkets examined in Ch. IV. C. (all-white nonborder areas is reference category), in the style of the specification tested by King and Mieszkowski (1973) and Yinger (1975). As noted above, these dummies without corresponding racial composition amenity variables provide ambiguous results except for two submarkets: FRINGE and WBORDER. Since FRINGE area's overall price level should not be affected by white fears of transition or black submarket demand stimuli, a negative coefficient would unambiguously indicate a white distaste for blacks. Since the WBORDER areas have no blacks actually in residence, its price level could only be affected by white fears of anticipated racial transition. In any event, for neither white tenure were the coefficients of these variables statistically significant.

More appropriate model specifications with both dummy and racial composition variables are presented in the lower panels of Table 9. For both tenures the submarket dummy variables indicated that areas where sizeable black demand pressures were present (tracts over 26%+ black, T26-100) had higher values or rents than white areas, consistent with the exclusion argument made earlier. Coefficients for FRINGE and

TABLE 9

Coefficients (Standard Errors) for Racial Variables--St. Louis Whites

Regression	Variables						
	FRINGE	WBORDER	T10-25	T26-50	T51-70	T71-90	T91-100
OWNER	854.6	497.4	1124.4	-356.7	-401.6	3979.3	4597.2
	(1628.7)	(1533.3)	(1790.9)	(2066.7)	(2688.6)	(2662.8)	(3310.7)
RENTER	4.99	1.55	14.66	11.16	- 6.63	8.70	---
	(9.81)	(2.85)	(4.16)[a]	(4.72)[b]	(13.78)	(10.46)	

Regression	Variables						
	T10-25	T26-100	PBFRINGE	PB10-25	PB26-50	PB51-70	PB71-100
OWNER	1156.3	28971.7	49.9	3.6	-748.3	-459.3	-297.0
	(6065,1)	(15017.2)[b]	(137.7)	(430.4)	(382.2)[b]	(237.7)[b]	(179.4)[c]
RENTER	13.53	95.91	.30	.05	- 2.52	-1.65	- .99
	(13.74)	(32.80)[a]	(.78)	(.73)	(.96)[a]	(.57)[a]	(.39)[a]

Regression	Variables						
	FRINGE	T10-25	T26-100	PBO-25	PB26-50	PB51-70	PB71-100
OWNER	1373.5	2017.4	28631.0	-59.8	-738.9	-453.4	-293.0
	(5037.4)	(5784.2)	(15063.7)[b]	(408.7)	(383.6)[b]	(238.5)[b]	(179.9)[c]
RENTER	4.91	14.55	95.00	- .01	- 2.51	- 1.63	- .98
	(13.51)	(13.67)	(32.80)[a]	(.73)	(.96)[a]	(.57)[a]	(.39)[a]

a, b, c = statistically significant at 1%, 5%, 10% levels, respectively.

"penetrated" T10-25 submarkets were statistically insignificant.

Results for racial composition variables were particularly interesting. Neither measure of black percentages in fringe (PBFRINGE) or "penetrated" (PB10-25) areas (or a combined measure, PB0-25) were statistically significant. Once the proportion of blacks in an area exceeded 25%, however, further increases significantly reduced both values and rents for whites. For both tenures this decrement was greatest for changes in composition within the 26-50% black neighborhoods. For owners in such areas there was a $740-750 (4.54-4.61% of mean white value) drop in estimated value per 1% increase in blacks, while for renters the comparable decrement was $2.50/month (3.6% of mean white rent). For both white tenures in areas 51-70% and 71-100% black higher black proportions were statistically significantly correlated with lower housing prices, though the absolute magnitude of these decrements progressively decreased with the proportion black. A visual representation of variations in the mean white value and rent across various submarkets is presented in Figure 12.

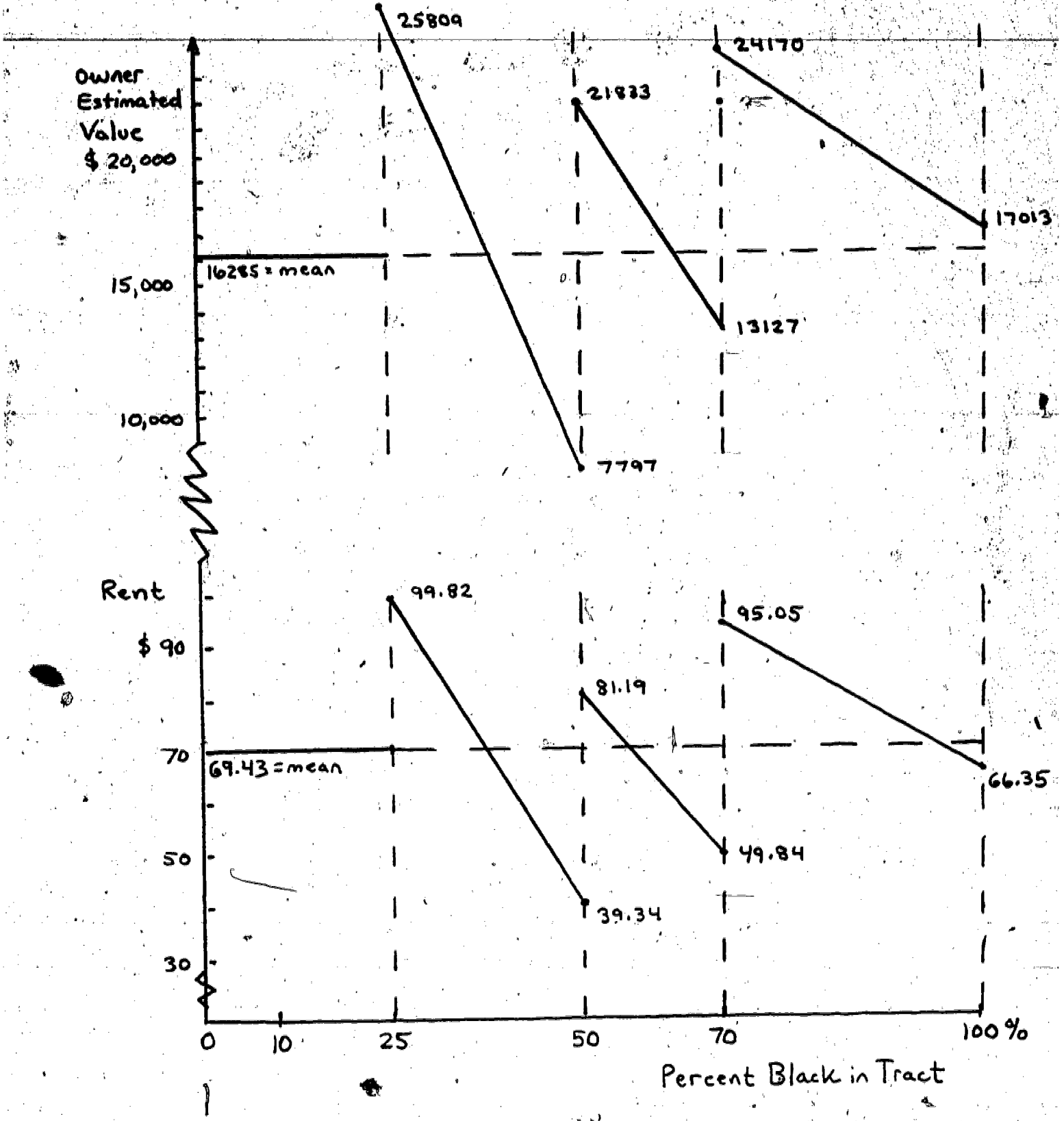
The interpretation of these results is as follows. The insignificance of coefficients for the dummy submarket variables FRINGE, WBORDER, and T10-25 and the racial composition variables PBFRINGE and PB10-25 are consistent with the following hypotheses that St. Louis whites, in general:

a. are not averse to living in white neighborhoods adjacent to ghetto (70%+ black) areas.

b. are not averse to having small proportions (under 25%) of blacks live in their neighborhood, whether it be adjacent to the ghetto or in the suburbs.

c. are averse to having small proportions of blacks live in their immediate neighborhood, but the use of tract data obscures this relationship at low black proportions since it fails to capture true racial composition of more micro-neighborhoods.

Figure 12
Variations in White Housing Prices
by Racial Composition



The finding that coefficients for racial composition variables are all significantly negative when percentage black exceeds 25% (especially the magnitude of the PB26-50 coefficient) is consistent with the hypotheses that:

d. St. Louis whites, in general, are averse to having more than 25% blacks in their neighborhood, and are particularly so to increments in black percentage in the 26-50% range when such increments suggest a "threat" that the neighborhood will "tip" and eventually become majority black. Once realized, this situation is relatively less onerous than what was feared.

e. many prejudiced whites have already fled 50%+ black areas, whence the remaining sampled white population is relatively less prejudiced than that sampled in the 26-50% areas.

The result for T26-100 reconfirms, obviously, the widely accepted proposition that discriminatory restrictions on black housing choices (i.e., exclusion) force up prices for all races in black housing submarkets (cf. Kain and Quigley, 1970; King and Mieszkowski, 1973, Yinger, 1975; Galster, 1977).

The "threat" element of racial transition suggested by the results is consistent with a wide range of studies which have stressed the importance of this aspect of racial housing markets (cf. Abrams, 1955; McEntire, 1960; Blalock, 1967; Millen, 1973).

V. C. Wooster Results for Whites

The estimated coefficients for racial variables (nonracial control variables) in the Wooster sample are presented in Table 11 (10). Continuous measures of variations in the percentage of blacks across neighborhoods (PERBLACK) failed to have a statistically significant effect on either white owners' estimated values or renters' rents. Discontinuous (dummy variable) measurements did, however prove, significant. The existence of any blacks in the neighborhood (T1-16) was statistically significant at the 6% (7%) level for owners (renters) and indicated a discount of $1980 or 5.9% of the mean white value ($10.22 or 8.8% in monthly rent). Such a

TABLE 10

Coefficients (Standard Errors) for Control Variables—Wooster Sample (Whites Only)

Variable	Renter	Owner
INTDEFECT	-20.71 (7.91)[a]	-8427.2 (4815.1)[c]
EXTDEFECT	5.85 (6.51)	-2917.3 (2239.0)
NOH2O	58.61 (24.4)[b]	---
NOHEAT	-18.87 (8.89)[b]	-11297.7 (2920.8)[a]
ROOMS	9.16 (1.78)[a]	2320.0 (351.6)[a]
BATHS	22.77 (7.85)[a]	7729.9 (907.9)[a]
AGEUNIT	-2.89 (1.05)	-349.2 (239.6)
AIRCOND	14.75 (5.05)[a]	823.6 (921.4)
PARCEL	--	465.7 (60.5)[a]
FURNISH	-4.22 (8.30)	--
UTIL	10.56 (4.71)[b]	--
SINGLFAM	-9.20 (8.77)	--
DUPLEX	1.29 (10.60)	--
ROWHOUSE	-26.92 (9.55)[a]	--
GARDEN	-4.59 (10.10)	--
APTSINGL	-2.27 (8.59)	--
OOMUS	--	5634.9 (2235.0)[a]
MNINCOME	.87 (.88)	747.9 (133.5)[a]
PERPOOR	-.79 (.36)[b]	11.1 (68.0)
PERSTABLE	-.28 (.19)	-92.4 (39.2)[b]
DENSITY	-.64 (.35)[c]	-136.5 (88.5)
PERDILAP	1.62 (.58)[a]	102.8 (109.1)
SERVICES	31.81 (7.92)[a]	3364.3 (1234.8)[a]
CONSTANT	-418.58 (129.15)[a]	-53209.1 (21014.9)[a]
N	305	567
R^2	.56	.65

a, b, c = statistically significant at 1%, 5%, 10% levels, respectively

TABLE 11

Coefficients (Standard Errors) for Racial Variables--Wooster (Whites)

Regression	Variables				
	PERBLACK	T1-16	FRINGE	CENTRAL	WBORDER
OWNER	-61.2 (141.1)	--	--	--	--
RENTER	- .55 (.63)	--	--	--	--
OWNER	252.2 (200.8)	-3355.9 (1534.5)[b]	--	--	--
RENTER	.24 (.80)	- 11.61 (7.36)	--	--	--
OWNER	--	-1980.2 (1075.4)[c]	--	--	--
RENTER	--	- 10.22 (5.72)[c]	--	--	--
OWNER	--	--	-4037.0 (2139.4)[b]	-2306.0 (1351.6)[c]	-2036.2 (1476.2)
RENTER	--	--	12.55 (13.48)	- 14.32 (6.69)[b]	- 4.27 (7.48)

a, b, c = statistically significant at 1%, 5%, 10% levels, respectively.

finding was surprising, given the aforementioned insignificance of low concentrations of blacks in the St. Louis sample. Since the weighted average black composition in T1-16 is 5%, the above percentage discounts are of a comparable order of magnitude to those in 50%+ areas in St. Louis (comparing tracts of 5% black difference), although lower than those in 26-50% areas.

Further explorations were conducted in order to better understand this result. Three dummy variables were specified to capture effects of location in older, south-central neighborhoods having black proportions of 1-16% (CENTRAL), newer neighborhoods on the northeast fringe of town having blacks proportions of 4-6% (FRINGE), and all-white neighborhoods bordering on the south-central mixed neighborhoods (WBORDER). Casual empiricism suggests that there is a distinct stigma attached to living in the south-central areas in Wooster which may not be completely captured by the neighborhood control variables employed. The separation of the south-central from dispersed mixed areas was utilized to test whether such suspected stigma is associated with race. Results in Table 11 show that it is, at least for owners. Even in the newer, solidly-middle class fringe neighborhoods white owners implicitly viewed the existence of blacks in their neighborhood as decreasing their property value by over $4000 compared to comparable, all-white neighborhoods. In this specification both tenures continued to show an aversion to the central mixed neighborhoods, and neither tenure had a statistically significant aversion to white border areas.

These findings are consistent with the following hypotheses that, in general, Wooster whites:

a. are personally averse to the presence of blacks in their neighborhood.

b. are not personally averse to black neighbors but feel that their presence reduces the status/desirability of the neighborhood in the view of others.

c. perceive even a small percentage of black neighbors as a "threat" which incites fear of racial transition.

In light of the nature of the Wooster housing market, hypothesis c. seems unlikely. This doubt is bolstered by additional evidence on white perceptions of neighborhood stability gathered from the survey. As shown in Table 12, only very few whites perceive any significant past or future neighborhood changes, especially due to race. Thus, the strongest conclusion that one can make is that in Wooster whites are averse to even small numbers of blacks in their neighborhood, due either to a personal distaste for proximate blacks or perceptions of lost neighborhood status. Unfortunately, we cannot distinguish between these two subtleties. Both the significance of lost status (cf. Abrams, 1955; Mayer, 1960; McEntire, 1960; Millen, 1973) and dislike of racial contact blacks (cf. Mayer, 1960; Northwood and Barth, 1965; Millen, 1973) have been cited in earlier studies, although they can be encompassed hereafter by the term "prejudice."

Referring back to earlier results for St. Louis, the Wooster findings help to distinguish between competing hypotheses b. and c. (assuming that sampled whites in both cities at both times did not differ markedly in their prejudices and their preferences for racial composition). The strong Wooster result that whites were averse to even small percentages of blacks in their immediate neighborhood (remember: in Wooster the "neighborhood" consists only of about 800 population in a several square block area) suggests that the failure to find a similar result in St. Louis was more the failure of the aggregate nature of tract racial compositions (hypothesis c.) than the lack of prejudice (hypothesis b.).

TABLE 12

Perceptions of Neighborhood Stability--Wooster (Whites)

Question	% Respondents	
	Yes	No
Have there been any major changes in the racial/ethnic composition of the neighborhood in the last five years?	.6%	99.4%
Do you expect any changes in the racial/ethnic composition of the neighborhood in the next one-two years?	.5%	99.5%
Do you expect property values to fall in the future (for whatever reason)?	5.9%	94.1%

V. D. Summary

For blacks in St. Louis, regressions indicated that sweeping generalizations about their willingness to integrate must be avoided. While black owners did show aversion to proportionately blacker tracts in areas where they were already the majority, the exact opposite was true for black owners in predominantely white areas, with the average decrement or increment both equalling about 1% per 1% change in black percentage.

For whites in St. Louis, the results showed that there was no aversion to tracts having 10-25% black composition (either bordering the ghetto or in the far suburbs), or to white tracts adjacent to the ghetto. Overall price levels for whites (and blacks) were higher in black submarket areas, reinforcing other studies' findings of discrimination and exclusion. Within the black submarket, whites of both tenures demonstrated strong aversions to tracts with proportionately higher black concentrations, with discounts ranging progressively from 3.5-4.5% in 20-50% black tracts to 1.5-2% in 70% + black tracts per percentage increase in blacks. The especially large magnitude of the discount in 25-50% black tracts indicates that fear of imminent "tipping" and racial transition plays a major role in white distaste for integrated tracts. Continued discounts for further growth in black proportions in areas which have clearly "tipped" suggest a white distaste for blacks per se, or an aversion to blacks' increasing majority status.

For whites in Wooster, the estimates showed that, while unaffected by variations in black percentages within marginally integrated areas (1-16% black), white housing prices were lowered, on the average, by 6-9% by the presence of (5% on average) blacks in the immediate neighborhood. This discount was comparable to the discount due to a 5% increment in percentage black in St. Louis 50%+ black tracts. For owners this discount persisted in both older, lower class, central neighborhoods and in newer, middle

class, fringe neighborhoods. These Wooster results demonstrate that it is not merely the fear of "tipping" which causes white aversion to integrated areas, but also prejudice against blacks. Given this, the aforementioned lack of significance of racial composition in 10-25% black tracts in St. Louis was probably due to the fact that, at low black concentrations, aggregate tract data are unlikely to accurately reflect the true racial composition of the micro-neighborhood in which whites were actually sampled. Clearly, then, the significance of prejudice in generating white segregation preferences is paramount. The next chapter intends to investigate whether the implicit prejudice uncovered by the foregoing econometric analyses of housing prices is related to explicitly expressed preferences for neighborhood racial composition.

VI. Implicit vs. Explicit White Segregation Preferences

In previous chapters we have indirectly derived the implicit segregation preferences of whites through statistical analysis of housing prices. Here we move to a more direct analysis by consideration of responses to an explicit question regarding white segregation preferences. During the course of the Wooster interviews the question was asked, "Do you think it's better for neighborhoods to have people of mostly the same race, a mix of races, or doesn't it matter?" Of the sample 126 owners and 52 renters (19.7% of total sampled) responded "good if same race." These respondents will hereafter be referred to as "segregationists." The purpose of this chapter is first to determine whether there is any relationship between these explicitly-expressed segregationist attitudes and implicit segregationist attitudes derived from the econometric analysis in Wooster.

Several specifications were used to test whether explicit and implicit (i.e., manifested through housing price) attitudes about segregation were related. The first two employed racial variables which were specifically linked to those expressing segregationist preferences. SEGPBLK took the value of the percentage black in the neighborhood if the respondent was a segregationist and zero otherwise. One would expect that higher percentages of blacks would generate a stronger aversion by segregationists than non-segregations if explicitly expressed responses reflected true prejudices. Whence, SEGPBLK should have a much more significantly negative coefficient than PERBLACK, which combined impacts of both groups. In a similar vein, SEGREGAT was a dummy variable denoting the respondent was a segregationist and also was living in a neighborhood with at least 1% blacks, whence a negative coefficient should be expected if explicit and implicit attitudes

are closely related. As can be seen from the top panel in Table 13, coefficients for both variables in both tenures in Wooster were statistically insignificant and tending toward the positive.

In order to further explore these unexpected results, the model specifications presented in Table 12 were re-estimated for tenure samples bifurcated according to whether respondents were segregationists or not. One would predict a priori that the segregationist stratum would evidence more statistically significant coefficients of a larger negative magnitude for racial variables than the non-segregationist stratum. The bottom panel of Table 13 shows that generally such was the case (although in specification IV segregationist owners preferred white border areas vs. white non-border ones while non-segregationists were averse to such areas). Table 14 shows (bottom panel) that the overall explanatory power of regressions run for the two subsamples do not differ by a statistically significant amount when the "Chow test" (cf. Johnston, 1963) is applied. Such does not indicate, however, that individual coefficients need necessarily to be the same in both strata.

A statistical comparison of individual racial coefficients for both strata is presented in the upper panel of Table 14. Except for the one anomalous finding in owner specification IV, tests for statistically significant coefficient differences resulted in confidence intervals below those conventionally accepted as minimal in empirical work. Although in both specifications II and III coefficients had the relative magnitudes and significance levels expected between the strata, the differences could not be judged statistically significant using conventional standards.

In sum, the results suggest that there is only a marginal relationship between the implicit segregationist attitudes manifested through housing price variations and explicitly expressed segregationist attitudes.

TABLE 13

Coefficients (Standard Errors) for Racial Variables--Wooster Sample (Whites)
Segregationist vs. Non-Segregationist Strata

	OWNER	RENTER	OWNER	RENTER
SEGPBLK	320.9 (234.9)	1.66 (1.15)	---	---
SEGREGAT	---	---	843.9 (1402.3)	7.69 (6.60)

Tenure Specification	Segregationist Stratum (N=126 owner, 52 renter)					Non-Segregationist Stratum (N=441 owner, 253 renter)				
	PERBLACK	T1-16	CENTRAL	FRINGE	WBORDER	PERBLACK	T1-16	CENTRAL	FRINGE	WBORDER
I OWNER	-109.6 (362.2)	---	---	---	---	-65.9 (158.7)	---	---	---	---
I RENTER	- 1.54 (2.02)	---	---	---	---	-.49 (.69)	---	---	---	---
II OWNER	719.9 (467.0)	-9865.0 (3645.8)[a]	---	---	---	162.2 (226.9)	-2420.9 (1723.0)	---	---	---
II RENTER	.03 (2.50)	-22.67 (21.35)	---	---	---	-.04 (.89)	-6.62 (8.20)	---	---	---
III OWNER	---	-6175.2 (2767.3)[b]	---	---	---	---	-1539.6 (1202.9)	---	---	---
III RENTER	---	-22.51 (16.92)	---	---	---	---	-6.82 (6.37)	---	---	---
IV OWNER	---	---	-2768.3 (3392.4)	-9761.4 (4498.9)[b]	6507.2 (3362.1)[c]	---	---	-2900.0 (1509.9)[c]	-3238.1 (2524.2)	-3871.2 (1684.4)[b]
IV RENTER	---	---	-34.04 (18.81)[c]	11.41 (35.36)	-23.03 (22.61)	---	---	-6.15 (7.71)	4.46 (15.46)	3.45 (8.39)

TABLE 14

Segregationist vs. Non-Segregationist Coefficient Comparisons

Wooster Whites

Racial Variables Compared	Maximum Confidence Interval for Statistically Significant Difference in Coefficient
T1-16--owners (Specification II)	80%
T1-16--owners (Specification III)	50%
FRINGE--owners (Specification IV)	50%
WBORDER--owners (Specification IV)	95%
CENTRAL--renters (Specification IV)	50%

F-test for Differences Between Regressions

Specification	Owner	Renter
I	.56	1.11
II	.82	1.10
III	.75	1.09
IV	1.19	1.04
Degrees of freedom	16/535	22/261
Minimum F for 5% Significance	1.67	1.59

While those explicitly avowing segregationist preferences tended to evidence larger and more consistent decrements in property values due to the presence of blacks in the neighborhood than those who were explicitly non-segregationist, the differences were not statistically significant.

VII. Summary of Results and Policy Implications

Chapter I of this report presented the five hypotheses to be tested by the research. At this point the results of these tests can be briefly summarized:

1. St. Louis blacks in general do have an aversion to living in neighborhoods where whites are in the relatively larger majority than in ones where blacks are a more sizeable minority. They also have an aversion to living in proportionately blacker majority-black neighborhoods compared to those where whites represent a more sizeable minority.

2. Both Wooster and St. Louis whites in general do have an aversion to living in neighborhoods with blacks present.

3. This white aversion is due to both a fear of incipient "tipping" of the neighborhood and to prejudice against blacks as individuals. The former factor is evidenced by St. Louis whites' strongest aversion to increased proportions of blacks in neighborhoods bordering the ghetto which are already 26-50% black compared to other areas. The latter factor is evidenced by Wooster whites' aversion to neighborhoods having even small percentages of blacks which represent no "threat" of eventually becoming a majority in the area.

4. This white aversion to blacks is not merely the result of associations of racial mixing with lower housing quality, lower status, higher turnover, and higher density since the influence of all these other factors on housing prices were controlled for in both Wooster and St. Louis samples. Such associations on the part of whites would only exacerbate their aversion to racial mixing, of course.

5. There is only a weak correlation between decrements in Wooster white property values due to racial mixing and their explicitly expressed preferences for racial composition. While those who express "segregationist" ideals do demonstrate relatively stronger aversions to neighborhood blacks than those who do not, the differences are of only marginal statistical significance.

There are several implications of these findings for further research in the area of segregation preferences. Initially, the necessity of employing a specification distinguishing housing submarket and racial

composition effects and racially-stratifying samples for the estimations, as suggested in Chapters II and III, has been verified. Much richness of understanding has been gained about white preferences for neighborhood racial composition, and results for blacks have run dramatically counter to those conventionally believed. A second important implication for research is that public opinion surveys may not provide accurate indicators of whites' true racial prejudices. The weak correlation between explicitly-expressed segregationist preferences and those implicitly derived through housing price analyses suggests that the seemingly-favorable trends in increasing racial tolerance expressed by whites in opinion surveys (cf. review by Pettigrew, 1973) must be interpreted with caution. Unwillingness of whites to verbally indicate their displeasure with racial integration may be more due to the increased general social stigma attached to segregationist ideals than to true tolerance.

The findings also have strong bearing on the current public policy debate over "integrationist" (goal of racial integration) vs. "freedom of choice" (goal of nondiscrimination) strategies. From a black perspective the former scheme seems unwarranted, given black aversion to "pioneering" in predominantly white areas. On the other hand, black aversion to predominantly black areas suggests black acceptance of policies fostering stable neighborhoods with roughly comparable racial proportions. Similarly, anti-discrimination actions should be encouraged from a black viewpoint, although in such a contingency one should not expect blacks to disperse in isolated groups in all white areas.

From a white perspective the findings have more sobering policy implications. The strong white aversion to neighborhoods perceived in danger of "tipping" bodes ill for the creation of substantially inte-

grated neighborhoods favored by blacks above. What's worse, even if fears of racial transition are squelched, the nagging problem of white prejudice remains. The clear cut preference of whites to voluntarily self-segregate (even when no threat of "tipping" exists) implies that policies to "open up the suburbs" will be resisted, independently of (perhaps unfounded) white perceptions of non-racial neighborhood problems associated with racial integration.

In sum, the empirical evidence reported here strongly supports a "freedom of choice" public policy approach. A vast dispersion of the black population throughout metropolitan areas should not be expected from such an approach even if successful, however, given white self-segregation preferences and black dislike for preponderantly white areas. Under such conditions an "integrationist" policy can be expected to fail due to opposition from both races.

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