RACE AND THE VALUE OF OWNER-OCCUPIED HOUSING, 1940 - 1990

by

William J. Collins and Robert A. Margo

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Abstract: This paper begins by documenting racial convergence in the value of owner-occupied housing from 1940 to 1990. Most of this convergence occurred before 1970, as black and white home owners became more similar in terms of household and housing characteristics that were positively correlated with housing values. The post-1970 story is rather less encouraging. During the 1970s, convergence in housing values stalled, and in fact, the "unexplained" portion of the value gap increased. We explore the post-1970 experience from a variety of perspectives. We examine the changing connection between residential segregation and the racial value gap; we document trends in the correlation between income and central-city residence; and we explore the correlation between riots in the 1960s and the racial gap in housing values thereafter.

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1. Introduction

Racial differences in wealth in the United States are large relative to racial differences in income (Oliver and Shapiro 1995).[1] Wealth gaps exist across all types of assets, but those related to housing are particularly significant because housing equity is a major component of household wealth. There are three proximate causes of racial differences in housing equity: racial differences in the rate of home ownership; racial differences in the housing debt/equity ratio; and racial differences in the value of owner-occupied housing (Long and Caudill 1992; Wolff 1998).[2] This paper offers new, long-run insights into the evolution of the third proximate cause, differences in the value of owner-occupied housing.

In addition to influencing the racial gap in wealth, the racial gap in the value of owner-occupied housing reflects differences in well-being derived from housing services, at least to the extent that differences in house and neighborhood quality are embedded in property values.[3] In other words, the asset value of housing depends on the flow of services associated with residing there, services that include not only shelter and comfort, but also "neighborhood quality".[4] We purposefully steer this paper's investigation towards an assessment of the relative decline in the value of black-owned property in cities after 1970, a decline that reflects a host of adverse economic and social forces that have preoccupied urban policymakers for more than a generation.

Our initial methodological approach is simply to decompose the racial gap in mean housing values into two parts. One component is determined by differences in observable characteristics (e.g., income and

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[1] According to one recent study, the black/white ratio of mean household wealth in 1995 was 0.18, compared with a black/white ratio of mean household income of 0.64 (Wolff 1998). See Higgs (1982) and Margo (1984) for historical perspective.

[2] By "debt/equity ratio" we mean the ratio of mortgage debt to housing equity.

[3] Racial differences in home ownership might also affect differences in well being if home ownership promotes various positive externalities (such as more stable neighborhoods, or better citizenship); see Green and White (1997), and DiPasquale and Glaeser (1999).

[4] By "neighborhood quality" we are referring to attributes/behavior of one's neighbors and the characteristics of their housing; local public goods; access to transportation and retail services; and so on. The IPUMS data set that we analyze in this paper includes information on the characteristics of households, and their housing (for some years) but does not include direct information on neighborhood quality.

location) that are correlated with housing market outcomes. The other is a "residual gap" which reflects the "unexplained" correlates of race – that is, some combination of the effects of housing market discrimination and unobserved differences between blacks and whites that are correlated with housing market outcomes. In previous work we used the Integrated Public Use Microdata Series (IPUMS) of the federal population censuses to study the evolution of racial differences in the *rate* of home ownership among male household heads from 1900 to 1990 (Collins and Margo 2001). This paper extends our previous work by examining IPUMS data on racial differences in the *value* of owner-occupied housing over the period 1940 to 1990, again focusing on male household heads.

Despite the issue's importance, economists and economic historians have not done much work on the long-run trends in racial differences in housing values. Long and Caudill (1992) is perhaps the most closely related paper to this one.[5] Using census data for 1970 and 1980, Long and Caudill examine racial differences in housing values in a decomposition framework similar to ours. Our study differs substantially from theirs in that we observe a much longer time frame; we analyze econometrically the connection between residential segregation and the racial gap in housing values; and we examine the data for a changing connection between income and central-city residence among blacks, as well as a connection between riots in the 1960s and a subsequent relative deterioration of black property values.

Some of the results of this paper will be familiar to students of racial differences in housing market outcomes, but other results are more surprising and provocative. Between 1940 and 1990, the average value of black-owned homes increased substantially relative to that of whites, primarily because of convergence in household and housing characteristics that are strongly correlated with housing values, though there was also a substantial decline in the "residual gap." Remarkably, most of the post-1940

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[5] Other recent studies by economists examining racial differences in housing values include Inlanfeldt and Martinez-Vazquez (1986), and Boehm and Hoffler (1987). These studies differ from ours (and Long and Caudill 1992) by focusing on data for one (Atlanta, in the case of Inlanfedlt and Martinez-Vazquez) or a small number (Los Angeles, Chicago, Houston, New York, in the case of Boehm and Hoffler) of metropolitan areas. See also Bianchi, Farley, and Spain (1982), Krivo (1981), and Villemez (1980), and Wilson (1979).

increase in the black/white ratio, and all of the post-1940 narrowing of the residual gap, occurred before 1970.

The data suggest that we focus our investigation of the post-1970 period on what was happening in metropolitan areas. In particular, we attempt to link our investigation with recent research which has re-focused scholarly attention on the economic effects of the persistently high levels of residential segregation in America's metropolitan areas (Massey and Denton (1993); Cutler and Glaeser (1997); and Cutler, Glaeser, and Vigdor (1999)). Interestingly, we find that on the eve of World War II, the racial gap in home values was actually smaller in more segregated cities, but by 1980, the correlation had turned strongly negative. Our interpretation of this phenomenon emphasizes adverse changes in blacks' relative "neighborhood quality" which cannot be directly observed in the census data, but the interpretation is consistent with a changing correlation between blacks' income and likelihood of central-city residence, and with a pernicious connection between riots, segregation, and the value gap. These findings represent substantial empirical inroads on the issues at hand, but clearly, a full understanding of causal links among the various factors that we explore remains an important and promising subject for future research.

The paper is organized as follows. In section 2, we document the changes in the racial gap in housing values over time, and we undertake decomposition analyses of racial convergence from 1940 to 1970. In section 3, we show that the rise in the residual gap in metropolitan areas in the 1970s is associated with an increasingly negative cross-sectional relationship between the level of segregation and the size of the residual gap. Then, we explore two avenues towards a better understanding of the channels through which segregation affects housing values. First, we consider Wilson's (1987) argument regarding the potentially detrimental effects of the movement of middle (and upper) class blacks from the central cities to the suburbs in the 1970s; second, we look for potentially long-lasting repercussions of race-related riots in the 1960s. We present our conclusions and suggest some extensions for future research in Section 4.

2. Housing Values from the IPUMS Data

With the exception of 1950, each IPUMS sample since 1900 contains information on home ownership. Dwellings were classified as owner-occupied if the owner happened to live there, though the

census did not explicitly identify who within the household actually owned the home. Following census convention, we assume that only household heads could be home owners and that if the home was owned, it was owned by the household head. Starting in 1940 information is available on property values for owner-occupied homes and, beginning in 1960, various housing characteristics (for example, the number of rooms) are also reported. Some care must be taken in interpreting these data because the universe of coverage and method of value estimation changed somewhat over time.[6] Following our previous study (Collins and Margo 2001), the samples in each year consist of all black and white male household heads from the ages of 20 to 64 who were not in school and who were home owners. By limiting the sample to male household heads, we set aside consideration of the relationship between gender, headship status, and home values for future research.[7] Furthermore, in the regression analyses (but not in Table 1), we place additional restrictions on the sample (e.g., excluding farms and trailers) to maintain comparability in the samples' composition over time.[8]

Table 1 reports the average value of black-owned homes relative to white-owned homes for each census region, and for the entire U.S. in 1940, 1960, 1970, 1980, and 1990, the last year for which IPUMS data are currently available. Within each region, the table also reports ratios for the full sample of observations, for residents of metropolitan areas, and for those residing in central cities (a subset of metropolitan residents). For the full sample of the entire country, there has a been a strong upward movement in the black/white ratio over time. In 1940, the ratio stood at 0.37, implying that for every dollar of white-owned housing, black-owned housing was worth 37 cents. In 1990, the black/white ratio was still far below unity (0.65), but the increase over the previous half-century was nevertheless impressive.

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[6] In 1940 property value was estimated by home owners in consultation with the census enumerator, but from 1960 onwards, the value was estimated by home owners alone. Evidence on the accuracy of self-appraisals is mixed. Kain and Quigley (1972) argue that the appraisals are trustworthy, while Inlanfeldt and Martinez-Vazquez (1986) claim that white home owners in their study (of Atlanta) tended to over-estimate values relative to black home owners. The racial bias uncovered by Inlanfedlt and Martinez-Vazquez was small, and its relevance to other metropolitan areas, or different time periods is unknown; but, as long as the bias is constant over time, the trends we study will not be affected. The treatment of farms, condominiums, and homes with medical or dental offices varies from year to year, as does the level of detail on metropolitan status, particularly in 1960 and 1970. For details of coverage see Ruggles and Sobek (1997).

[7] Other studies of racial differences in housing values also impose demographic restrictions; for example, Long and Caudill (1992) restrict attention to married couples.

[8] These restrictions are detailed in the notes to Table 2. As best as we can determine (through sensitivity analyses) the substantive findings of this paper do not rest on the imposition of the restrictions.

Clearly, however, the increase in the black/white ratio was neither continuous over time nor even across geographic locations. For example, the leap in the ratio between 1940 and 1960 was very large in comparison with subsequent increases, and it occurred despite the prevalence of overt racial biases in mortgage and housing markets (Massey and Denton 1993; Collins and Margo 2001). Then, after the adoption of policies intended to discourage discrimination in housing markets, the aggregate black/white ratio stagnated in the 1970s, before resuming an upward trend during the 1980s. The aggregate stagnation of the 1970s masks a substantial decline in the national black/white ratio in central cities, a decline that continued into the 1980s, especially in the Northeast and Midwest.

At the regional level, the most important center of change, not surprisingly, has been the South. The South had the lowest black/white ratio, by far, in 1940. Moreover, although not shown in Table 1, average property values in the South, white and black, were substantially below property values elsewhere in the country. Thus, the high concentration of blacks in the South in 1940 ensured that the national black/white ratio would be low. Over time, the convergence of southern property values on those in the rest of the country, increases in the black/white ratio within the South, and the movement of blacks out of the South to other regions, have all served to raise the national black/white ratio. However, because the South is now much more similar to the rest of the nation, it is doubtful that regional convergence will ever again propel increases in the aggregate black/white ratio.

Regression Analysis of Housing Values and Household Characteristics

Although Table 1 sheds some light on when and where changes in the black/white value ratio occurred, considerably more insight can be derived from regression analyses of the IPUMS samples. In particular, we estimate regressions of the following general form:

$$\ln V = X\beta + \delta \times \text{race} + \epsilon$$

where ln V is the log of housing value; X is a vector of household, household head, and (for some years) housing characteristics; the race indicator equals one if the household head is black, zero otherwise (other non-white races are excluded from the analyses); β and δ are regression coefficients; and ϵ is the error term. Our interest is primarily in the coefficient δ, and in particular, how its value changes over time and

when additional characteristics are included in the regression.[9] This specification does not identify, in any

structural sense, the underlying demand for owner-occupied housing services. Rather, it is simply is a

convenient (and transparent) way of decomposing racial differences in the value of owner-occupied housing

into an "explained" portion ($X\beta$) and a residual gap (δ).[10] The specification does assume that β is

independent of race, but when useful we relax this assumption and allow β to vary by race.[11]

Row 1 of Panel A of Table 2 shows the estimates of δ with no X variables in the regression; that

is, it simply reports mean differences in log housing values between blacks and whites, and it is intended to

serve as a benchmark for the subsequent regressions. When exponentiated, the δ estimates are not

precisely the same as the black/white ratios shown in Table 1, but the general patterns are very similar.[12]

There is a large decline in the magnitude of the aggregate racial value gap between 1940 and 1970,

stagnation during the 1970s, and then further declines in the 1980s.

Given that housing services are a normal good and that owner-occupied housing is an asset, we

would expect housing values, and therefore racial differences in those values, to be strongly influenced by

household and household head characteristics (such as income, educational attainment, age, marital status,

and family size) (Long and Caudill 1992).[13] Additionally, in light of the patterns apparent in Table 1, we

expect housing values to be influenced by regional and metropolitan location. Row 2 of Panel A of Table 2

reports estimates of δ when we include controls for the household head's age (entered as a quartic),

educational attainment (entered as a quadratic), log income, marital status, and migration status (indicator

variables for native-born inter-regional migrants and foreign born); as well as family size, region of

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[9] The tables in this paper report estimates of δ, and associated interaction terms. An appendix containing the full set of regression coefficients is available from the authors on request.

[10] Decompositions of this type have been widely used in studies of racial differences in earnings (see, for example, Smith and Welch 1989, or Donohue and Heckman 1991), and in previous studies of racial differences in wealth (see, for example, Oliver and Shapiro 1995).

[11] When β varies by race (that is, race-specific regressions are estimated) the "explained portion" (and, hence, the residual gap) can be computed either using β_w (the white coefficients) or β_b (the black coefficients). In Panel B of Table 2 we use β_b for this purpose (see below); however, our substantive findings would not change if we used β_w.

[12] That is, $\exp(\delta)$ is not the same as μ_b/μ_w, where μ = mean (race-specific) value of V. The samples in the regressions are more restricted than those in Table 1, as discussed in detail in the notes to Table 2.

[13] As in any such decomposition exercise, we are limited to the information reported in the samples; however, variations in the variables included in X (among those reported) do not affect our substantive results regarding the evolution over time of the residual gap in home values.

residence, and metropolitan status (indicators for suburban and central-city residents).[14]

To what extent can the racial gap in housing values be explained by observable differences in household characteristics? The basic message of row 2 is that controlling for these characteristics substantially reduces, but does not completely account for, the magnitude of the aggregate racial gap in housing values. In 1940, fully 0.835 points (in logs) of the 1.154 point aggregate gap (or 72 percent) are eliminated once these characteristics are controlled for. Nonetheless, the residual gap (0.32 points) that remains after controlling for observable household characteristics is still quite large, reflecting unobserved differences in housing quality (proximately), and unobserved racial differences in wealth, preferences, and discriminatory housing and lending markets (ultimately). Between 1940 and 1970, however, this residual gap narrowed greatly, falling by 0.195 points compared with a total decline of 0.662 points in the value gap. The remaining portion of the overall decline (approximately 71 percent) is accounted for by narrowing racial differentials in observable household characteristics that were correlated with housing values. Importantly, both observable forces (reflected in household characteristics and their correlation with housing values) and unobservable forces (reflected in the residual term) were driving the aggregate housing gap towards zero until 1970.[15]

Although the regressions indicate that narrowing racial differences in household characteristics account for most of the overall narrowing in the housing value gap, they do not identify which variables were of most importance. To answer this question, we compute the expression:

$$[(\mathbf{X_b} - \mathbf{X_w})_{1970} - (\mathbf{X_b} - \mathbf{X_w})_{1940}]\beta_{b,1940}$$

where a boldface $\mathbf{X}$ indicates the sample mean, and $\beta_{b,1940}$ are the coefficients from a1940 regression on the black home owner sample.[16] The decomposition results (for specific X variables) are shown in Panel B of

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[14] The income variables are not fully consistent over time; in particular, the data for 1940 refer to labor earnings only. However, the substantive findings would not be affected if we control for labor earnings (and not total income) in the 1960-90 regressions.

[15] Although previous work (for example, Long and Caudill 1992) has shown that a residual gap in home values remains after controlling for household and household head characteristics, to our knowledge the estimates in row 2 are the first to trace the evolution of this gap over time.

[16] At a point in time, the racial difference in the sample means of ln V can be decomposed as follows: $\mathbf{ln\ V_b} - \mathbf{ln\ V_w} = (\mathbf{X_b} - \mathbf{X_w})\beta_b + \mathbf{X_w}(\beta_b - \beta_w)$, where, as in the text, boldface indicates the sample mean. Between any two years, the change in the racial difference in ln V can be decomposed into the sum of four terms; the first of these, the term given in the text, measures the component associated with changes over time in racial differences in the mean values of the X's. As noted earlier, the decompositions can be computed weighting racial differences in X by the white coefficients; the substantive results would not be

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Table 2.

Between 1940 and 1970 the incomes of black men rose relative to those of whites (Smith and Welch 1989; Donohue and Heckman 1991), and Panel B shows that this income convergence played an important role in the convergence of housing values over this period (contributing about 14 log points to the narrowing). But, as the discussion of Table 1 suggested, a key factor in raising the black/white value ratio was the migration of blacks from the rural South to central cities elsewhere in the country. Collins and Margo (2001) demonstrate that the "Great Migration" was associated with a rise (in percentage point terms) in the racial gap in home ownership *rates* because home ownership rates, regardless of race, tended to be lower in central cities. Home values, however, were higher outside the rural South, and therefore the geographic redistribution of the black home ownership tended to narrow the racial gap in values at the national level.

The story that emerges after 1970 is quite different. The overall racial value gap remained constant between 1970 and 1980 (row 1), but the residual gap (row 2) widened substantially. Thus, on average, changes in household characteristics and the correlation of those characteristics with housing values tended to narrow the racial value gap during the 1970s, but this tendency was completely offset in the aggregate by the widening residual gap. The overall and residual gaps did narrow again during the 1980s, but even so, the size of the residual gap in 1990 was still larger than in 1970. In fact, when measured as a percentage of the aggregate gap, the residual gap was larger in 1980 and 1990 than in 1940.

The Role of Housing Characteristics and Metropolitan Residence

According to a standard hedonic model, housing is essentially a "bundled commodity" with a variety of characteristics, and the total price of the bundle depends on the quantity of each characteristic multiplied by its implicit (or "hedonic") price (Rosen 1974). If hedonic prices were the same for whites and blacks, then the residual gap that remains after controlling for household characteristics would be explained by racial differences in housing characteristics. That is, black and white home owners with the same household characteristics would have to be occupying different qualities of housing (Long and

affected if this were done.

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Caudill 1992; Inlanfeldt and Vazquez-Martinez 1986).[17] Alternatively, the residual gap that remains after

controlling for household characteristics could reflect racial differences in hedonic prices. That is,

controlling for household characteristics, blacks and whites might choose observationally equivalent

housing bundles, but the market might price these bundles differently, perhaps because of unobserved

quality differences that are correlated with race (e.g., local neighborhoods or schools).

The 1960 sample is the first IPUMS data set to contain information on housing quality, and

therefore the first in which we can simultaneously control for observable differences in household

characteristics and housing quality.[18] From 1960 to 1980, information is available on the number of rooms

(entered in the regression linearly), the number of bathrooms (a series of indicators), age of building (a

series of indicators), type of heating system (a series of indicators), and attachment status of houses (an

indicator). Unfortunately, information on two of these characteristics (bathrooms and heating systems) was

not reported in1990.

Row 1 of Panel C of Table 2 shows estimates of δ for 1960-1990 controlling for the three housing

characteristics (rooms, age, and attachment status) for which data are available for all census years, as well

as household characteristics. Row 2 reports estimates of δ for 1960, 1970, and 1980 from regressions that

include the extra data on bathrooms and heating systems. Controlling simultaneously for household and

housing characteristics reduces the size of the residual gaps at each census year and, importantly, explains

some of the narrowing of the residual gap over time. For example, according to the estimates in row 2 of

panel A, which do not control for housing characteristics, the residual gap fell by 0.062 in logs between

1960 and 1970. Controlling for all five housing characteristics, the residual gap fell by 0.025 in logs.

Thus, narrowing racial differences in observed housing quality among observationally equivalent black and

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[17] The hedonic model also suggests a slightly different approach: specify ln V solely as a function of housing characteristics, along with the race dummy. In such a specification, δ is the racial gap in (log) value, controlling for housing "quality". However, because home owners are not a random sample of the population, it would be necessary to include a selection bias correction term in the hedonic regression (Heckman 1979). Any such correction would be based on comparing the household characteristics of home owners versus non-home owners; and would, in effect, simply be a non-linear function of a linear combination of such variables (for example, a Mills ratio as derived from a probit equation on home ownership; see Long and Caudill 1992). Rather than impose an arbitrary non-linearity, it is more straightforward (and transparent) to control for housing and household characteristics simultaneously in the regression, as in Table 3. We are grateful to Gary Solon for this point.

[18] Information on housing characteristics was collected in 1940, but not as part of the Population Census, and hence is not included in the 1940 IPUMS.

white households explains about 60 percent [= 1 - (0.025/0.062)] of the decline in the aggregate residual gap in the 1960s. But, equally important, adding controls for observable housing characteristics does not alter our previous finding that the residual gap widened substantially in the 1970s.

Although the regressions include controls for metropolitan residence, thus far the specifications have presumed that the time path of δ is independent of metropolitan status. In light of Table 1's figures, and given the vast geographic redistributions of economic activity and people over the 1940 to 1990 period, especially the shifting economic and racial composition of central cities, this is a difficult assumption to justify. Over the period examined here, the proportion of black home owners residing in SMAs was rising, and among home owners residing in metropolitan areas, blacks were considerably more concentrated in central cities than whites even as early as 1940. Thereafter, although both white and black home ownership became increasingly concentrated in metropolitan areas, the within-SMA distributions of blacks and whites moved in opposite directions. Black home ownership was becoming more concentrated in central cities (at least until 1970), while white home ownership was shifting towards the suburbs.[19]

These racial shifts in the geography of American home ownership suggest that we should examine the time trend in δ for metropolitan and central-city residents. These estimates are reported in Panel A of Table 3. As in Table 2, we control for household, household head, and (for 1960-1990) housing characteristics. In addition, where feasible, we also include a full set of SMA fixed effects to gauge the impact of differences in the distribution of black and white households across SMAs on the magnitude and trend of the residual gap.[20]

For the most part, the patterns evident in Panel A of Table 3 are similar to those in Table 2. Within metropolitan areas, the residual gaps in home values were declining from 1940 to 1970. The sizes of the gaps vary depending on the precise combination of independent variables. For example, controlling

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[19]In the samples analyzed in this paper, 77 percent of the black home owners were metropolitan area residents in 1970; fully 73 percent of these lived in central cities. Among whites in the sample, 74 percent were residents of metropolitan areas in 1970, but only 33 percent of these lived in central cities.

[20] The idea here is that housing prices and values differ across metropolitan areas due to differences in city size, public goods provision, taxes, access to transportation, labor demand shocks, and other factors. Including SMA fixed effects (dummy variables) controls for these differences. It is important to note that the number of such dummies differs across the census years; that is, we do not restrict the sample only to those metropolitan areas appearing in each census year. Because the number of metropolitan areas increases over time, restricting the samples to a fixed set of cities (those present in, say, 1940) would greatly limit the geographic coverage of the samples, as well as introduce selection bias.

for household head, household, and as full an array of housing characteristics as is permitted by the IPUMS, the residual gap in 1970 was only -0.036 (about 4 percent). Except in 1940, including a full set of SMA dummies tends to widen the residual gap, implying that by 1980, black home owners were disproportionately concentrated in SMAs with higher-than-average housing prices, primarily a reflection of blacks' concentration in the largest cities. Although including SMA dummies does not alter the widening of the residual gap in the 1970s, it does suggest that any narrowing of the gap in the 1980s was due primarily to a changing distribution of black and white home owners across SMAs. Controlling for SMA fixed effects, household and (a limited array of) housing characteristics, the residual gap in metro areas in 1990 was virtually the same as in 1980.[21]

As a further empirical refinement, we report estimates of δ after restricting the sample to central-city residents, shown in Panel B of Table 3. As in Panel A, we present estimates for various combinations of household and housing characteristics (1960-1990), and SMA dummies (1940, 1970-1990). Again, over the 1940 to 1970 period, the residual value gap among central-city residents underwent a pronounced narrowing, followed by a widening in the 1970s. The increase in the residual gap in the 1970s in central cities was larger in magnitude than in the overall or metropolitan samples. Further, when SMA dummies are included, the residual gap in central cities continued to widen in the 1980s.

3. The Value Gap in the 1970s and Beyond: The Role of Residential Segregation

Thus far, we have shown that the value of black-owned housing rose substantially relative to white-owned housing between 1940 and 1970. Most of this increase occurred because of racial convergence in the characteristics of the households and of the housing itself. But this story of relative improvement took a wrong turn in the 1970s, when the residual gap in housing values widened.

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[21] That is, when we omit the SMA dummies (Panel A, Rows 1 or 3, Table 3), the estimate of δ is smaller in absolute value in 1990 than in 1980; however, when we add the SMA dummies, the estimates of δ in 1980 and 1990 are virtually identical (Panel A, Rows 2 or 4, Table 3). We suspect, but cannot verify with the data at hand, that if we could control for the additional housing characteristics in 1990 (bathrooms, heating system) along with household characteristics, rooms, structure age, attachment status, and SMA dummies, that the estimate of δ in 1990 might be larger in absolute value than in 1980. This suspicion is based on comparing the effect on δ of including rooms, structure age, and attachment status along with household characteristics and SMA dummies; when these variables are not included, there is slightly more convergence in the residual gap in the 1980s (Panel A, Row 2, Table 3) than when these three housing characteristics are included (Panel A, Row 4, Table 2; the same pattern is evident comparing the estimates in rows 1 and 3).

In thinking about the widening of the residual gap in the 1970s, it is important to keep in mind that the "residual" in question exists after controlling for (a long list of) household and housing characteristics and, in the metropolitan regressions, SMA fixed effects. It is certainly possible that unobserved household or housing characteristics might have changed in ways in the 1970s to account for the widening of the residual gap, but that is not a hypothesis that can be evaluated with the data at hand. Rather, we pursue a three-pronged indirect approach. First, we restrict our attention to residents of metropolitan areas identified in the samples (that is, those metropolitan areas for which SMA dummy variables can be constructed).[22] Second, we consider including SMA-level variables in the regression, separately and interacted with the race dummy. Because these regressions also include SMA dummies (so as to preclude the possibility that any effects captured by SMA variables do not simply reflect omitted SMA characteristics) we cannot identify a "level" effect (the coefficient of the SMA variable), but we can identify the interaction effect (see Cutler, Glaeser, and Vigdor 1999). Third, we examine the coefficient of the race dummy (δ) after including any such SMA variable and its interaction term in the regression, to see if doing so can "explain" (in an econometric sense) the widening of the residual gap – that is, the fact that, without controlling for any such variable and its interaction term, the estimate of δ in 1980 is both negative and larger in magnitude than the estimate of δ in 1970.[23]

In choosing among (a very large set of) candidate SMA variables, we are guided by our previous work (Collins and Margo 2000, 2001), as well as that of Massey and Denton (1993), and Cutler, Glaeser, and Vidgor (1999) to focus on just one: the level of residential segregation in the SMA. In what follows, we present a brief historical narrative to justify this particular choice.

At the turn of the twentieth century, most African Americans lived and worked in agricultural occupations in the rural South. Rates of black home ownership were low, both absolutely and relative to

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[22] Although we know state of residence of non-metropolitan area residents, we generally do not know where in the state that they lived (the exception is 1940, where "state economic areas" – groups of counties – are identified). Focusing on residents of identified metropolitan areas allows us to pursue the empirical strategy outlined in the text.

[23] We observe that, without any SMA variables, but controlling for household and housing characteristics, and SMA dummies, that both δ_{1970} and $\delta_{1980} < 0$ but $|\delta_{1980}| > |\delta_{1970}|$. At issue is whether this inequality is reversed in sign after controlling for SMA variables and interaction terms. If this occurs, some (possibly all) of the widening of the residual gap can be "explained" (in an econometric sense) by controlling for SMA variables. Since we can only identify the coefficient of the interaction term, the explanation is equivalent to a change in the coefficient of the interaction term.

whites, as were black wealth levels in general (Higgs 1982; Margo 1984; Collins and Margo 2001). Outside the South, the relatively small black population was primarily urban, and the average level of residential segregation, while not low, was lower than it would ever be in the second half of the century (Massey and Denton 1993; Cutler, Glaeser, and Vigdor 1999).

Over the next seven decades, millions of blacks left the rural South for metropolitan areas in both the North and the South. New migrants to the cities tended to settle in already established black neighborhoods, and as the populations of those neighborhood swelled, black ghettos were born. Middle-class blacks who had long resided in these neighborhoods sought to leave the ghetto as the poorer migrants moved in, but they were hindered in their efforts by whites intent upon containing geographically the growing black population in their midst. Sometimes the tactics included outright violence and intimidation, but more often whites relied on strong social norms and institutional devices such as "restrictive covenants" that limited the ability of white owners to sell their houses to blacks. One important consequence was that black home owners were constrained in their choice of available housing; even if their incomes (and other characteristics) matched those of whites, the quality of housing they occupied was usually poorer in some dimension (Myrdal 1944, pp. 618-622).

Against this backdrop, remarkable innovations occurred in mortgage and housing markets, largely engineered by the federal government. A fuller treatment of these changes may be found in Collins and Margo (2001; see also Jackson 1985); here we simply sketch the relevant details. The political response to the high rate of foreclosure in the early years of the Great Depression led to the establishment of federal agencies, such as the Home Owner's Loan Corporation (HOLC) and the Federal Housing Administration (FHA), which changed the nature of mortgage finance and made home ownership more affordable. These agencies, the Veterans Administration, and later Fannie Mae and Freddie Mac, promoted the self-amortizing fixed-interest 30-year (or longer) mortgage with much lower down payments than before; insured loans, thereby lowering risk to lenders (and interest rates to borrowers); and established secondary markets in which the mortgages could be bought and sold, thereby greatly expanding the availability of mortgage credit. Home ownership rates for both blacks and whites increased greatly between 1940 and 1960, though the percentage point increase for whites was larger than for blacks (Collins and Margo 2001).

Unfortunately, the implementation and impact of these innovations were far from race-neutral, at

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least until fairly recently. For example, in developing new underwriting standards, the HOLC systematically divided metropolitan areas into neighborhoods that were rated in terms of lending desirability, with the lowest quality neighborhoods shaded red on maps – hence, the term "red-lining." Race, among other factors, was an explicit criterion of the ratings system. Black neighborhoods and neighborhoods that blacks were expected to penetrate, received the lowest ratings. The underwriting standards were adopted by the FHA, and subsequently, low-rated neighborhoods were unable to obtain FHA insurance. This, in turn, made it more difficult for residents of such neighborhoods, many of whom were black, to obtain mortgages on attractive terms from "conventional" financial institutions, such as savings and loan companies, or banks.

As blacks poured into metropolitan areas during the 1940s and 1950s the pressure to expand the geographic scope of the ghetto intensified. Although some of the post-World War II suburbanization on the part of whites would have occurred anyway, the influx of blacks led to "white flight" to the suburbs, a process that was greatly facilitated by FHA policies that strongly favored new construction in the suburbs (Jackson 1985; Margo 1992; Massey and Denton 1993). At the metropolitan level, the degree of racial segregation, which was already very high, either remained stable or else increased slightly as the ghetto expanded its boundaries. Despite the high level of racial segregation, which apparently peaked around 1970 (see Cutler, Glaeser, and Vigdor 1999), and continued racial discrimination in housing markets, both the rate of black home ownership and the value of black-owned homes relative to white-owned homes rose through the 1960s. In part, the increase in relative value occurred because black homeowners were increasingly able to occupy better-quality housing, often the stock left behind by whites moving to the suburbs. Indeed, by 1970, there appears to have been little or no residual gap in home values between blacks and whites, after controlling for household and housing characteristics, in central cities or the country as a whole (see Tables 2 and 3).

Nonetheless, with the benefit of hindsight, both the high level of racial segregation in metropolitan areas and the concentration of black home ownership in central cities left black home values vulnerable to adverse economic shocks that disproportionately affected urban areas. Recent work by Massey and Denton (1993) and Cutler and Glaeser (1997) that has re-awakened scholarly interest in how such shocks might be magnified in the context of highly segregated housing markets. Massey and Denton (1993, pp.

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118-130) construct a variety of simulations showing that, under "high" levels of racial segregation, the effects of any economic shock that adversely affects blacks (for example, a decline in the demand for labor in central cities) will be concentrated geographically, thereby enhancing, according to Massey and Denton, the "social problems associated with income deprivation (e.g., crime, housing abandonment, unstable families, poor schools, etc.)" (1993, p. 122).

Cutler and Glaeser (1997; see also Wilson 1987, Becker and Murphy 2000) clarify the economic logic of this argument. By concentrating exposure to social problems, segregation increases the likelihood that negative outcomes will spill over to individuals who were initially unaffected by the adverse shock, perhaps through "role model" effects or rising crime rates. Using census data for 1990, Cutler and Glaeser demonstrate that the likelihood of a variety of adverse economic and social outcomes among African Americans in metropolitan areas (low income, non-participation in the labor market, the incidence of teen-age motherhood) was strongly and positively related to the level of segregation.

However, as Cutler and Glaeser point out, it is not necessarily the case that ghettos are always "bad"; and, in fact, they might not always have been "bad". Elsewhere (Collins and Margo 2000) we have shown that the "bad" effects of segregation documented by Cutler and Glaeser in the 1990 census data were not significantly present in the 1970 census data, but are apparent in 1980, and then intensified in the 1980s (see also Vigdor 1999).[24]

The logic of Massey and Denton's (1993) and Cutler and Glaeser's (1999) arguments suggests an

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[24] Using samples of persons between ages 20 and 30 residing in metropolitan areas, Collins and Margo (2000) showed that the likelihood of idleness (non-participation in the labor market) among blacks was positively and significantly associated with the degree of segregation in 1980 and to an even greater extent in 1990 (thereby replicating Cutler and Glaeser's findings) but not in 1940, 1950, or 1970. Similarly, we observe essentially no relationship between single motherhood among black women and the degree of segregation in 1970, but a large, positive correlation between the two in 1980, the magnitude of which increased in the 1980s. However, the evidence is less clear for low black incomes – a negative effect is apparent in pre-1980 census data, although it is not always statistically significant – and, although the pre-1970 relationship between segregation and idleness was insignificant in 1940 and 1950, in both years it was negative. Also (see Collins and Margo 2000) the timing of the emergence of bad ghettos in the 1970s (although not the intensification of bad outcomes in the 1980s) is somewhat sensitive to the set of cities included in the sample. In particular, if the samples are restricted to residents of metropolitan areas which are identified in all five censuses, bad ghettos emerge in the 1980s; whereas, if the samples include all available metropolitan areas, bad ghettos emerge in the 1970s. Given the extensive inter-regional rural-to-urban migration of the black population after 1940, it is appropriate to include residents of all available metropolitan areas, not just a fixed sample of cities. In any case, when we do restrict the sample to a fixed set of cities and run regressions similar to those in Table 4, the qualitative results do not change: the racial value gap increases strongly with segregation in 1980 and 1990, but not before.

economic link between segregation and home values. If ghettos are "bad", in Cutler and Glaeser's sense, a higher level of racial segregation will be associated with lower relative quality of black neighborhoods and, therefore, a lower relative value of black-owned homes, even after controlling for the observable characteristics of the occupants and their housing. Moreover, given the timing of the emergence of "bad" ghettos we should observe an increase in the magnitude of (any) negative effect of segregation on the relative value of black homes between 1970 and 1980.[25]

Following the methodology just outlined, we added a "dissimilarity" index of racial segregation in metropolitan areas to our regressions of home values and also interacted it with the race dummy (race × segregation index). The segregation indices are those computed by Cutler, Glaeser, and Vigdor (1999).[26] As in previous tables, we control for household, household head, and housing characteristics (when feasible), and a full set of SMA dummies.[27] The resulting estimates of δ and the interaction term are shown in Table 4.

A limitation of these (or any such) regressions is that they cannot be estimated in a fully consistent manner across all of the IPUMS samples. As noted earlier in the paper, SMAs are not identified in the 1960 IPUMS, and so we cannot include the segregation index for that year's regressions. For 1970, SMAs are identified but only at the expense of using a sample without information on suburban versus central-city residence. Consequently, we present results for 1940, 1970, 1980, and 1990 excluding the dummy variable for central-city status; and results for 1940, 1980 and 1990 including this additional dummy variable.

This limitation aside, the basic findings are clear and compelling. In 1940, there is no evidence that a higher level of segregation was associated with a larger residual gap. If anything, higher levels of

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[25]That is, it is certainly possible that ghettos were "bad" prior to 1970 in ways that are not apparent in idleness, low incomes, or single motherhood, but which were capitalized in the form of a negative relationship between segregation and the relative value of black homes. All we are claiming, on the basis of the evidence in Collins and Margo (2000) is that any such negative relationship should have become larger in size between 1970 and 1980.

[26] Segregation is measured using a dissimilarity index based on the distribution of people across census tracts within a city or metropolitan area. The measure lies between zero and one, and higher values correspond to higher levels of segregation. See Cutler and Glaeser (1997), or Cutler, Glaeser, and Vigdor (1999) for details.

[27] Even with the SMA fixed effects, it might be argued that segregation is endogenous. However, in a similar specification, Cutler and Glaeser (1997) show that OLS and instrumental variable estimates are virtually identical. Further, given that our interest is in change over time, only a changing OLS bias (relative to IV) would confound our interpretation of the results.

segregation are associated with smaller residual gaps in 1940, though the coefficient is not statistically

significant.[28] Similarly, in 1970, the coefficient of the interaction term is not statistically significant when

we control only for household characteristics, although it is smaller in magnitude than in 1940.[29] When we

include for a full set of housing characteristics, there is evidence of a negative effect of segregation in 1970,

although the magnitude is quite small.[30] However, by 1980, the coefficient of the interaction term is

strongly negative and large in magnitude regardless of the controls included in the regression, and it became

even larger in magnitude during the 1980s. Importantly, controlling for segregation alters the time path of

δ between 1970 and 1980. No longer is it the case that δ in 1980 is both negative and larger in absolute

value than δ in 1970, as it is when the segregation index is <u>not</u> included in the regression; indeed,

controlling for segregation, the estimates of δ in 1980 and 1990 are both positive. That is, the changing

empirical relationship between segregation and the black/white value ratio can "explain" (in an econometric

sense) why – controlling for household, housing, and SMA dummies – the black/white value ratio in

metropolitan areas declined in the 1970s.

The Wilson Hypothesis and the Housing Value Gap

As noted above, we have shown elsewhere that the "bad" effects of ghettos discussed by Cutler and

Glaeser (1997) are significantly apparent in census data for 1980, but not for 1970 (Collins and Margo

2000). The results in Table 4 are consistent with the view that these effects were capitalized (negatively)

into the relative value of black-owned housing after 1970. But the results do not speak directly to why the

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[28] Cutler, Glaeser, and Vigdor (1999) report a similar finding, which they attribute to the effectiveness of restrictive covenants and other devices in limiting black access to housing of similar quality to that occupied by whites.

[29] If we could control for housing characteristics in 1940 (recall that we cannot with the IPUMS data) it is possible that the coefficient of the interaction term in 1940 would be larger in magnitude <u>and</u> statistically significant. This would occur if, as seems likely, some portion of the residual gap in 1940 is due to racial differences in housing quality, controlling for household characteristics. If so, then some portion of the emergence of the negative interaction effect in the 1970s could be attributed to a trend pre-dating the decade. However, the bias in 1940 (that is, the extent to which the positive interaction effect is understated in 1940, because we cannot control for housing characteristics) would have to be enormous for the change in the coefficient in the 1970s to merely be the continuation of a trend over the 1940-1970 period.

[30] The fact that, with sufficient controls for housing quality, the coefficient of the interaction is negative in 1970 suggests that ghettos were already "bad", but in ways not apparent in the socioeconomic outcomes consider by Collins and Margo (2000). Below we consider whether the negative 1970 coefficient is in any way associated with the 1960s riots.

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"bad" effects of ghettos intensified when they did. One prominent hypothesis has been put forth by Wilson (1987). With the ascendance of the Civil Rights Movement during the 1960s, the federal government's complicity in promoting and maintaining segregation through FHA policies could no longer swept under the rug. One important outcome was the passage of the federal fair housing legislation in 1968, which prohibited racial discrimination in the sale or rental of housing, along with subsequent legislation that attempted to strengthen the government's ability to combat racial discrimination in housing markets.[31] According to Wilson, an important consequence of fair housing legislation was that it enabled middle (and upper) class blacks to move to the suburbs, whereas previously they had been compelled (because of racial discrimination) to live in black neighborhoods in central cities. Middle-class blacks provided a viable economic base and positive "role model" effects in such neighborhoods, mitigating the potentially negative externalities of segregation identified by Massey and Denton (1993) and Cutler and Glaeser (1997). Once middle-class blacks left the ghetto, however, neighborhood decline could, and apparently did, set in.

The Wilson hypothesis is controversial (see Massey and Denton 1993), and with the evidence at our disposal, it is impossible to determine whether it can truly explain the sign reversal in the relationship between segregation and the relative value of black-owned homes after 1970.[32] Instead, we ask a related but different question, one that focuses on the underlying premise of the Wilson hypothesis: to what extent was there a "structural break" in the 1970s in the relationship between income and central-city residence, comparing blacks with whites?

Table 5 reports the results of race-specific probit regressions for central-city residence, conditional on being a resident of a metropolitan area, from 1940 to 1990. For ease of exposition, only the income coefficients are reported in Table 5, but the regressions also include a quartic in age, an indicator for

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[31] For example, the Home Mortgage Disclosure Act required lenders to disclose mortgage application and rejection rates by race, gender, and income. Other important legislation includes the Community Reinvestment Act, which obligates lenders to be "sensitive" to local credit demands; and the Equal Credit Opportunity Act, under which the Federal Reserve can deny bank mergers on grounds of violations of fair housing laws.

[32] We cannot evaluate the hypothesis directly because the 1970 IPUMS does not simultaneously identify SMAs by name and within-metro status (that is, central-city residence). Hence we cannot use the 1970 and 1980 IPUMS to measure, on a city-by-city basis, the movement of middle (and upper) class blacks to the suburbs, and thus determine whether the extent of such movement might be correlated with the level of segregation, in such a way to explain the emergence of a negative relationship between egregation and the black/white value ratio in the 1970s.

martial status, a measure of family size, region indicators, and migrant status indicators. A positive

coefficient in Table 5 implies that, conditional on being in a metropolitan area, the likelihood of central-city

residence increased with income, and a negative coefficient implies the opposite.

In 1940, income and suburban residence were uncorrelated among whites, while higher income

blacks were more likely to live in central cities. By 1960, income was negatively associated with central-

city residence among whites, while among blacks, the correlation was still positive (if statistically

insignificant) as late as 1970. As the Wilson hypothesis predicts, the correlation between income and

central-city residence among blacks turns negative sometime in the 1970s, to such an extent that it was

similar in magnitude to the correlation among whites by 1980. The correlation for blacks became even

more negative during the 1980s while that for whites remained stable.

However, (considerable) caution should be exercised before ascribing too much explanatory power

to the Wilson hypothesis. First, although the regressions support the premise of the Wilson hypothesis

(that higher income blacks once lived in the central cities, but now do not), they do not demonstrate that the

departure of higher-income blacks from central cities actually <u>caused</u> the coefficient of the segregation-race

interaction term in our value regressions to turn negative in the 1970s. Unfortunately, exploration in that

direction is impeded by the lack of metro area identification in the 1960 IPUMS sample and by the lack of

simultaneous revelation of metro area codes and central-city status in the 1970 IPUMS (see footnote 29).

Second, it is clear from Table 5 that, although positive, the black income coefficient was trending

downward before 1970 – that is, the process identified by Wilson appears to pre-date the 1970s and,

therefore, is unlikely to fully explain of the sign reversal in the relationship between segregation and the

black/white value ratio in the 1970s.[33]

Riots and the Housing Value Gap

The 1960s witnessed a series of violent race-related riots which could have been a contributing

factor, through a variety of channels, to the relative deterioration of black neighborhoods in metropolitan

areas. For example, along with the riots' immediate and direct destruction of property in black

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[33]It is possible that "bad" ghettos require that a certain percentage of high-income blacks leave the central city – that is, a "tipping" phenomenon – in which case the Wilson hypothesis might still explain the sign reversal, despite the inconsistency in timing.

neighborhoods, it is possible that business establishments that were looted or damaged during a riot closed

their doors permanently, causing job loss and a deterioration in neighborhood well-being. Moreover,

participation in a riot might have a "treatment effect" that encouraged future criminality; law-abiding

households concerned for their personal and property's safety might have fled to the suburbs (or to other

cities); urban businesses unaffected by the riot might have relocated, and new business investment curtailed

or shifted, to suburban locations. It is well understood by social scientists that the 1960s riots were not

random events, even when what sparked the occurrence of a particular riot was an accidental death or an

altercation with police that rapidly escalated (see, for example, Spillerman 1970; Lieske 1978; Carter

1986; Myers 1997). Thus, we are not arguing that any correlation between riots and the relative value of

black-owned housing would necessarily be causal. However, the existence of a connection could still be a

useful guidepost for future research -- that is, a riot might be a sufficient statistic for whatever host of

factors (truly) caused the correlation between segregation and the relative value of black housing to turn

strongly negative after 1970.

Our data on riots are from three sources. The first is the report from hearings before the Senate's

Permanent Subcommittee on Investigations headed by John L. McClellan (U.S. Senate 1967).[34] The

Subcommittee's staff identified cities that had experienced riots and then surveyed the mayors of those

cities seeking information about the proximate causes and severity of the event. These data cover the years

1965 to 1967; and, therefore, exclude riots occurring in 1968 (such as those following the assassination of

Martin Luther King). We have supplemented the McClellan report with information on the 1968 riots

collected by the Civil Disorder Clearinghouse of the Lemberg Center for the Study of Violence at Brandeis

University, as published in the Center's newsletter, the Riot Data Review, and from Spillerman (1970).[35]

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[34] It is not clear from the testimony of Robert Emmet Dunne and Crichton Jones, who collected and
organized the Subcommitees statistics, exactly how the cities were identified, or what criteria were used to
determine whether the disturbance was "major" and therefore worthy of inclusion in the study. See Part 1
of the hearings for the testimony, the data, and the survey instrument sent to the mayors.

[35] There are various sources of published data on the 1960s riots: for example, the McClellan
report, the so-called "Kerner Commission" report; the reports of the Lemberg Center; and an index prepared
by the New York Times. Each source used somewhat different (and, unfortunately, incompletely specified)
criteria to determine whether a specific civil disturbance constituted a race riot. Of the three, McClellan
appears to use the most stringent criteria, with an emphasis on high levels of violence (number of deaths),
involvement of law enforcement (number of arrests), and destruction of physical property (looting, arson),
while the Lemberg Center used the loosest criteria (see Baskin, Hartweg, Lewis, and McCullough 1971).
Unfortunately, the data collected by the Lemberg Center do not overlap (in terms of timing) those collected

To explore the relationship between civil unrest in the 1960s and subsequent changes in the residual housing value gap, we ran regressions similar to those of Table 4, but we separated the sample into two groups: households residing in metro areas that had a riot (riot = 1) and those in areas that did not (riot = 0). We are primarily interested in whether the increase in negative correlation between segregation and the residual gap in the 1970s was concentrated in the riot cities – that is, whether the change in the coefficient of the interaction term was greater in the riot than in the non-riot cities. If this is false, or if the explanatory power is weak, it is unlikely that the riots, or their underlying causes, had anything to do with the intensification of "bad" ghettos in the 1970s. The results, comparing riot and non-riot cities, are shown in Table 6.

In 1970, the negative relationship between segregation and the relative value of black housing was no stronger in riot cities than in non-riot cities. Thus, if the riots were the <u>only</u> reason for the negative connection between segregation and the relative value of black homes, the effect was not yet reflected in owners' self-reported property values.[36] Over the course of the 1970s the magnitude of the coefficient of the race-segregation interaction term in the riot cities became increasingly negative to a much greater extent than in the non-riot cities, such that more than two-thirds of the overall increase in the negative effect of segregation on relative black values can be explained.[37] Thus the riots, or whatever caused them, do have

by McClellan; consequently, we cannot infer a statistical rule which could then be used to classify the Lemberg riots according to the same criteria used by McClellan. Instead, we read through the verbal descriptions of the riots contained in the Lemberg reports, singling out those incidents in 1968 that involved numerous arrests, violence, and property damage; in short, the same criteria used by McClellan. Finally, we compared our list with the data set compiled (at the time) by Spillerman (1970). Our initial list of riot cities was less comprehensive than Spillerman's (or Carter 1986) mainly because the Spillerman data include riots in small metropolitan areas that are not separately identified in the IPUMS; however, we were able to identify some additional riot cities from the comparison. Neither our data (nor, for that matter, Spillerman's) includes post-1968 riots. However, according to Baskin, Hartweg, Lewis, and McCullough, Jr. (1972, p. 6), the "major riots" (in the sense identified by the McClellan committee) occurred between 1965 and 1968, and thus are reflected in our riot variable.

[36] Unfortunately, because the 1960 IPUMS does not contain information on the SMA of residence, it is not possible to investigate the "before riot" pattern of home values. We have experimented with excluding southern cities from the samples and found that doing so for 1980 has little effect on the results, but doing so in 1970 seems to matter. In particular, in 1970 the race × segregation coefficient turns positive (but statistically insignificant) for the non-riot cities but remains negative (but small and statistically insignificant) for the riot cities.

[37] According to Row 5 of Table 4, the overall change in the coefficient of the race-segregation interaction term between 1970 and 1980 was approximately -0.58 (= -0.770 + 0.195). The corresponding change in the riot cities (from Table 6) was -0.40 (= -0.83 + 0.43). Thus, the change in the coefficient of the race-segregation interaction term in the riot cities can account for at most 69 percent (= 0.40/0.58) of

explanatory power. However, it is also apparent that a negative relationship between segregation and the relative value of black housing emerged in the non-riot cities in the 1970s: that is, the riots cannot be the full story.

If neither the Wilson hypothesis nor the 1960s riots provide a complete explanation of why ghettos turned "bad" when they did, what else might? It is well known that crime rates rose in the 1970s in the 1980s, although the extent to which rising crime was an underlying cause or a consequence of "ghettos-gone-bad" is unclear.[38] Perhaps the answer, as Denton and Massey (1993) suggest, lies in the superimposition of the unique events of the 1960s on a (much) longer term process of "urban decline", reinforced by slow economic growth in the 1970s. The riots of the 1960s may have accelerated the process of inner-city economic decline, but population (and employment) decentralization within metropolitan areas was well underway before the riots occurred (Margo 1992) Commuting times for blacks appear to have increased since 1970, which may have been a factor contributing to rising rates of idleness (Cutler and Glaeser 1997, p. 863). Similarly, long-term shifts of employment away from manufacturing had a disproportionately negative effect on the earnings and employment prospects of black men, especially those with a high school degree or less. Declines in the relative demand for less-educated black labor continued through the 1980s, as a consequence of technological changes in manufacturing and other sectors that increased the relative demand for educated labor (Bound and Holzer 2000; Madden 2000). In light of the Wilson (1987) hypothesis, and Denton and Massey's simulations, such declines may have been particularly potent in their ability to generate negative externalities in black neighborhoods; and, consequently, declining property values relative to whites.[39]

4. Conclusion

This paper documents substantial racial convergence in the value of owner-occupied housing,

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the increase in the negative effect of segregation on relative black housing values.

[38]That is, rising crime is arguably a consequence (or rather, a symptom), not a cause of "bad" ghettos. Grogger and Willis (1998) argue that the introduction of crack cocaine caused a rise in urban crime in the 1980s but, based on the cities where crack use became prevalent (for example, New York), it is difficult to believe that its introduction was independent of "bad" ghettos in the first place.

[39] Cutler and Glaeser (1997, p. 862) show that an index of "education exposure" for blacks (the index is greater than zero if blacks are residentially concentrated among more educated people of either race, and negative if the reverse were true) in 1990 was lower in cities with high levels of segregation.

beginning at least as early as 1940. Over the same period, Collins and Margo (2001) found convergence in the rate of home ownership. However, the process of convergence in housing market outcomes has been neither smooth over time nor evenly spread across places. In fact, most of the convergence in housing values occurred before 1970. Both observable characteristics and unobservable forces (reflected in movement of the residual term) pushed strongly toward more equality in the value of owner-occupied housing up to 1970.

The post-1970 story is rather different. During the 1970s, despite continuing relative improvements in observable household characteristics, overall convergence in housing values stalled and the residual value gap widened. In metropolitan areas, this residual widening can be accounted for by a dramatic change in the empirical relationship between residential segregation and the racial value gap. We find that prior to 1970, there was little or no correlation between the level of an area's segregation and the area's racial gap in home values, but by 1980 the relationship had turned strongly negative, and the correlation became even stronger by 1990. That is, in the language of Cutler and Glaeser (1997) and from a variety of socioeconomic viewpoints (Collins and Margo 2000) ghettos became "bad", and the impact was manifested in downward pressure on the relative value of black-owned homes in the 1970s, pressure that continued in central cites in the 1980s.

This finding led us to examine two channels that might link segregation and widening residual value gaps after 1970: the migration of higher-income blacks to the suburbs, and the aftermath of race-related riots, both of which might have lowered unobserved neighborhood quality. Of course, these are not mutually exclusive, or even necessarily independent, channels. Furthermore, they are not the only channels worthy of investigation, but given their prominence, we viewed them as especially promising routes for exploration.

We did find support for the premise of the Wilson hypothesis in that the correlation between income and suburban residence was positive for blacks up to 1970 but negative thereafter; however, the size of the positive correlation was already declining before 1970, suggesting that the Wilson hypothesis is unlikely to be the full story. We also found that by 1980, the negative effect of segregation on the racial value gap was more pronounced in cities that had experienced riots in the 1960s than in cities that did not. However, even in cities without riots, the segregation-value gap connection had turned increasingly

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negative by 1980, implying that the riots or their causes cannot solely explain the adverse turn in the relationship between segregation and the racial value gap in the 1970s.

The analysis in this paper could be profitably extended in several directions. First, it would be useful to continue to probe the factors underlying the changing relationship between relative black home values and segregation in the 1970s. We have explored some possibilities in this paper, but these are far from a complete understanding. Second, the roles of federal, state, and local anti-discrimination policies in housing markets have remained in the background of this paper, but a direct assessment of the policies' impacts would be helpful, especially if the policies significantly increased the pace of higher-income blacks' out-migration from central cities. Third, school desegregation efforts and households' responses to those efforts have not been directly addressed in this paper but may be important to the post-1970 location decisions of households; and, therefore, possibly to the evolution of the racial value gap. Fourth, it will be important to update the trends reported in this paper with data from the 2000 IPUMS, when it becomes available. Lastly, our focus in this paper has been on male-headed households. Female-headed households, however, are less likely to be home owners, and it is certainly plausible that family structure also affects housing values. Given the magnitude of racial differences in the incidence of female headship, a complete assessment of the factors influencing the long-run evolution of racial differences in housing values will require an examination of the role of racial differences in household structure.

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Table 1: Black/White Value of Owner-Occupied Housing, by Region

	1940	1960	1970	1980	1990
Northeast					
Full Sample	0.6410	0.6238	0.6571	0.6492	0.7184
Metro Areas	0.6348	0.5884	0.6163	0.6205	0.6772
Central Cities	0.6687	0.6568	0.7076	0.6924	0.6334
Midwest					
Full Sample	0.5508	0.6889	0.7116	0.6239	0.6777
Metro Areas	0.5127	0.6292	0.6562	0.5752	0.5931
Central Cities	0.5920	0.7246	0.7659	0.6501	0.6024
South					
Full Sample	0.3433	0.5184	0.6023	0.6339	0.6594
Metro Areas	0.3912	0.5679	0.6203	0.6282	0.6518
Central Cities	0.4556	0.6191	0.6686	0.5968	0.6093
West					
Full Sample	0.5973	0.7460	0.7798	0.7791	0.9145
Metro Areas	0.5758	0.7105	0.7430	0.7373	0.8426
Central Cities	0.5598	0.7255	0.7417	0.6894	0.6828
All U.S.					
Full Sample	0.3677	0.5482	0.6181	0.6195	0.6476
Metro Areas	0.4449	0.5803	0.6235	0.6056	0.6207
Central Cities	0.5065	0.6530	0.6920	0.5756	0.5263

Notes: Samples consist of black and white male household heads between 20 and 64 years of age who are not in school. Since 1960, house and property values have been top-coded. Approximately, the top three percent of households in 1960 (above $35,000), 1970 (above $50,000), and 1990 (above $400,000) are topcoded. The top one percent in 1980 (above $200,000) are top-coded, but values are not top-coded in 1940. The average value of the top-coded category in 1960 is estimated by multiplying the top-code by the ratio of the average value of homes in the top three percent in 1940 to the value of homes at the 97th percentile (a factor of 1.436716). Similar multiples are formed for 1970, 1980, and 1990 on the basis 1940's data. All farms, condominiums, trailers, properties used for commercial purposes, properties with 10 acres or more, and owner-occupied units in multifamily buildings are excluded for comparability over time. Some observations are included here but not in the regressions below. In particular, those with missing household head or housing characteristics are not excluded here, except in cases where missing metro status information is a limiting factor. For example, those with "in metro area, cental city status unknown" would be included in the "metro area" averages but not the "central city" averages. The coverage of the IPUMS metro status variable changes over time, but we have not attempted to standardize the coverage above. In the subsequent regressions we do check results for robustness to those changes in coverage. Observations are weighted using household weights from the IPUMS.

Source: Data are from the IPUMS (Ruggles and Sobek 1997).

Table 2: Regression Estimates and Decomposition of Racial Gap in Housing Values, 1940-1990

Panel A: Controlling for Household Characteristics

Controls	1940	1960	1970	1980	1990
(1) None	-1.154*	-0.642*	-0.492*	-0.493*	-0.404*
(2) Household	-0.319*	-0.186*	-0.124*	-0.232*	-0.168*

Panel B: Decomposition of change in log value gap (black - white), 1940-1970

Characteristics	Contribution to Change, 1940-1970
Age	0.0066
Education	0.0355
Family Size and Marital Status	-0.0053
Log Annual Income	0.1388
Central-City Residence	0.2323
Suburban Residence	-0.0544
Migrant Status	-0.0111
Midwest	-0.0350
South	0.1337
West	-0.0129
Sum of change accounted for	0.4282
Residual Change	0.2334
Total Change	0.6616

Panel C: Regressions including controls for housing characteristics

Controls	1940	1960	1970	1980	1990
(1) Household, Rooms, Structure Age, Attach.	-----	-0.145*	-0.094*	-0.212*	-0.152*
(2) Row above + Bathrooms, Heating System	-----	-0.050	-0.025	-0.182*	-----

Notes: The dependent variable is the log of house value. "Household" characteristics include the head's age (quartic), head's years of education (quadratic), head's log annual income, head's marital status (indicator), family size (linear), head's migrant status (indicators), region of residence (indicators), and central-city and suburban status (indicators). Top coded income (1940-1980) is multiplied by a factor of 1.4 before taking logs. The number of rooms is entered linearly; the age, attachment status, number of bathrooms, and heating system are entered as indicator variables. The δ coefficient measures the difference between black and white log of value of owner-occupied housing, conditional on the characteristics (as described in text). A "*" indicates statistical significance at the 5 percent level or better. Samples include male household heads, ages 20-64, not in school, living in owner-occupied housing, with a reported occupation. All farms, condominiums, trailers, properties used for commercial purposes, properties with 10 acres or more, and owner-occupied units in multifamily buildings are excluded for comparability over time. We also exclude households with metro status reported as "in metro area, central-city status unknown." These restrictions appear to have a small impact on the baseline results in Row 1 of Panel A. Nonetheless, the IPUMS metro variable's geographic coverage does change over time, and therefore, so does the geographic composition of the samples. In particular, in 1960 and 1970 residents of several states have missing metro values and are therefore automatically excluded from the regressions. To check the robustness of the results to the coverage change, we ran all the regressions from Panel A with samples that discarded all residents of states which had been assigned missing metro values in 1960 or 1970 (according to IPUMS documentation). The coefficients of row 1 with the exclusions in place are: 1940 = -1.114; 1960 = -0.623; 1970 = -0.484; 1980 = -0.511; 1990 = -0.473. Thus, the only year in which the results change markedly is 1990. Note that in 1940, only wage and salary workers are included because the income variable available for that year applies only to wage and salary income. The change in the racial value gap decomposed in Panel B (according to separate regressions coefficients for blacks) is not equal to that shown in Panel A (according to regressions with both whites and blacks).

Source: Data are from the IPUMS (Ruggles and Sobek 1997).

Table 3: The Racial Gap in Housing Values, Analysis of Metropolitan Areas

	1940	1960	1970	1980	1990
Panel A: Estimates of δ for Metropolitan Area Residents					
(1) Household	-0.460*	-0.174*	-0.112*	-0.241*	-0.177*
(2) Row 1 + SMA fixed effects	-0.456*	-----	-----	-0.284*	-0.277*
(3) Household, Rooms, Structure Age, Attach.	-----	-0.124*	-0.077*	-0.217*	-0.165*
(4) Row 3 + SMA fixed effects	-----	-----	-----	-0.265*	-0.262*
(5) Row 3+ Bathrooms, Heating System	-----	-0.054*	-0.036*	-0.198*	-----
(6) Row 5 + SMA fixed effects	-----	-----	-----	-0.241*	-----
Panel B: Estimates of δ for Central-city Residents					
(1) Household	-0.448*	-0.156*	-0.095*	-0.254*	-0.229*
(2) Row 1 + SMA fixed effects	-0.457*	-----	-----	-0.266*	-0.280*
(3) Household, Rooms, Structure Age, Attach.	-----	-0.110*	-0.057*	-0.221*	-0.211*
(4) Row 3 + SMA fixed effects	-----	-----	-----	-0.258*	-0.269*
(5) Row 3 + Bathrooms, Heating System	-----	-0.058*	-0.028*	-0.205*	-----
(6) Row 5 + SMA fixed effects	-----	-----	-----	-0.232*	-----

Notes: See the notes to Table 2 for a description of samples and variables. SMA identification codes are not available in 1960 and are not available in the same samples that report central-city status in 1970. A "*" denotes statistical significance at the 5 percent level or better.
Sources: Data are from the IPUMS (Ruggles and Sobek 1997).

Table 4: Segregation and the Racial Gap in Housing Values

Controls	1940	1970	1980	1990
Household, SMA fixed effects, w/o CC dummy				
Race	-0.644*	-0.229*	0.256*	0.616*
Race × Segregation Index	0.268	0.018	-0.818*	-1.377*
Household, SMA fixed effects, w/ CC dummy				
Race	-0.648*	-----	0.212*	0.544*
Race × Segregation Index	0.268	-----	-0.682*	-1.208*
Household, Rooms, Structure Age, Attach., SMA fixed effects, w/o CC dummy				
Race	-----	-0.2281*	0.205*	0.527*
Race × Segregation Index	-----	0.1035	-0.670*	-1.176*
Household, Rooms, Structure Age, Attach., SMA fixed effects, w/ CC dummy				
Race	-----	-----	0.193*	0.509*
Race × Segregation Index	-----	-----	-0.630*	-1.133*
Household, Rooms, Structure Age, Attach., Bathrooms, Heating, SMA fixed effects, w/o CC dummy				
Race	-----	0.048	0.299*	-----
Race × Segregation Index	-----	-0.195*	-0.770*	-----
Household, Rooms, Structure Age, Attach., Bathrooms, Heating, SMA fixed effects, w/ CC dummy				
Race	-----	-----	0.286*	-----
Race × Segregation Index	-----	-----	-0.726*	-----

Notes: The IPUMS do not report SMA codes for 1960, and so unfortunately, we cannot examine the connection between segregation and housing values in that year. The "Race" indicator equals one when the household head is black. See the notes to Table 2 for a discussion of the samples. The segregation measure is a "dissimilarity index" with values between zero (no segregation) and one (complete segregation). Observations located in places without a segregation measure are automatically excluded from the regressions. A "*" denotes statistical significance at the 5 percent level or better.

Sources: Housing data are from the IPUMS (Ruggles and Sobek 1997). Segregation data are from Cutler, Glaeser, and Vigdor (1999).

Table 5: Probit Coefficients for Central-city Residence of Metropolitan Area Residents

	1940	1960	1970	1980	1990
Coefficients on Log Income					
Black	0.0440*	0.0171*	0.0011	-0.0398*	-0.0840*
White	0.0006	-0.0486*	-0.0465*	-0.0479*	-0.0418*

Notes: The dependent variable is a dummy which equals one if the household head resides in the central-city of a metropolitan area. Samples include both home owners and renters, and observations are weighted by household weights. Top-coded income figures are multiplied by 1.4 (before converting to log form). Coefficients represent dF/dx, the change in the probability of central-city residence for a unit change in the dependent variable. A "*" indicates statistical significance at the 5 percent level or better. Each coefficient reported above is taken from a separate regression. In 1940, the sample is limited to wage and salary workers (for whom income data are reported in the census). The regressions also include a quartic in age, marital status, family size, region of residence, and migrant status.
Source: Data are from the IPUMS (Ruggles and Sobek 1997).

Table 6: Riots, Residential Segregation, and the Racial Housing Value Gap

	1970		1980	
	Riot = 0	Riot = 1	Riot = 0	Riot = 1
Household and Housing Characteristics and SMA Fixed Effects				
Race	0.0700	0.0214	0.0777	0.3426*
Race × Segregation	-0.2090	-0.1915*	-0.4304*	-0.8282*

Notes: The dependent variable is the log of housing value. Samples include only those resident in metropolitan areas with segregation indices available. Regression specification includes household and housing characteristics (except dummy variable for within-metro status) and SMA dummies. A "*" indicates statistical significance at the 5 percent level or better. The 1980 sample has excluded those with indeterminate central-city status, but this is not possible in 1970; expanding the 1980 sample to more closely match 1970s coverage has a very small effect on the coefficients.

Sources: Census data are from the IPUMS (Ruggles and Sobek 1997). Segregation indices are from Cutler, Glaeser, and Vigdor (1999). See text for discussion of riot variable.