

**Pathways to Homeownership:
An Analysis of the Residential Location and Homeownership Choices
of Black Households in Los Angeles**

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Abstract

Recent studies have documented substantially depressed levels of homeownership among African-American households. While prior analyses have focused largely on racial disparities in household financial characteristics, few studies have assessed the potential role of location choice and locational attributes in the homeownership choice decision. This research applies individual-level Census data from the Los Angeles area to explicitly model the residential location and tenure choice decisions of African-American households.

Research findings indicate substantial variation across African-American and white households in the determinants of locational choice among South Central L.A., other parts of Los Angeles, and Inland Empire (San Bernardino County) areas. The predicted location choice of white households was overwhelmingly that of suburban areas of Los Angeles County; in contrast, the typical African-American household was nearly as likely to locate in South Central Los Angeles as in other parts of the County. Further, the probability of white household moves to South Central Los Angeles was relatively insensitive to simulated variation in household socio-economic characteristics and remained throughout at approximately 2 percent. While higher levels of household income exerted significant positive effects on the likelihood of black moves to the Inland Empire, the opposite outcome was shown for white households.

Among blacks that move to San Bernardino County or to South Central Los Angeles, imputation of white economic endowments served to fully close the sizable black-white homeownership choice gap. However, in other Los Angeles neighborhoods, a sizable endowment-adjusted homeownership gap was shown to persist. Overall, assessment of variations in the intra-metropolitan locational and tenure choices of black households indicated several distinct “pathways” to homeownership among black households in Los Angeles. In so doing, the analysis accounted for in excess of three-fourths of the gap in homeownership rates between Los Angeles white and black households.

I. Introduction

Recent years have witnessed substantial academic research and policy debate regarding access to homeownership, particularly among racial and ethnic minorities (see, for example, Painter, Gabriel, and Myers (2001), Wachter and Megbolugbe (1992), Gyourko and Linneman (1996), and Coulson (1999)). In part, the debate derives from sizable and persistent gaps in homeownership attainment between white and minority households. While the U.S. homeownership rate rose perceptibly over recent years to a record 67.1 percent in mid-2000, the longstanding white-minority homeownership gap of about 28 percentage points was little changed. By late 1999, close to 74 percent of whites had achieved homeownership status, compared with only about 46 percent of African-American and Hispanic households. As a stated policy objective, the U.S. Department of Housing and Urban Development seeks to boost the national homeownership rate to 70 percent by 2006. Clearly, achievement of that goal requires significant upward movement in homeownership rates among racial and ethnic minorities.¹

The lower homeownership rates evidenced among African-Americans have been attributed in part to their lower incomes and wealth, among other factors (see, for example, Painter, Gabriel, and Myers (2001), Wachter and Megbolugbe (1992), Gyourko and Linneman (1996), and Coulson (1999)). Results of our recent paper (Painter, Gabriel, and Myers [2001]) indicated that endowment differences (income, education, and immigrant status) largely explained the homeownership choice gap between Latinos and whites in Los Angeles County in 1990. In the research, we also found that Asians were as likely to choose homeownership as were whites, and that immigrant status did not cause lower homeownership rates among Asians. That notwithstanding, our estimates suggested a sizable and persistent endowment-adjusted

¹ The homeownership goal requires that 3.8 million additional families be added to the ranks of U.S. homeowners. Further, to achieve the homeownership goal, HUD estimates that the homeownership gap between minority and nonminority families must be reduced by a full 15 percent.

homeownership choice deficit among African-American households (relative to white households) in Los Angeles County.

This paper seeks to ascertain distinct pathways to homeownership among the black population of Los Angeles County. In a departure from most homeownership analyses, this paper focuses on how locational characteristics and location choice affect the propensity to own among African-American and white households in the Los Angeles area. The research estimates the magnitude of the endowment-adjusted black-white homeownership choice gap among movers to various Los Angeles housing sub-markets; in so doing, it evaluates whether that gap held for blacks across these intrametropolitan locations or whether in some locations blacks would be just as likely as whites to be homeowners, were they not constrained by limited economic endowments.

The study looks at African-Americans (and their white counterparts) who lived in Los Angeles County in 1985, but who had moved during the subsequent five years. It focuses on three groups within the African American community that could be thought likely to have different tastes and preferences with regard to housing; (1) movers to the Inland Empire (San Bernardino County), (2) movers to South Central Los Angeles (LA), and (3) movers to other areas within Los Angeles (LA) County. (See Figure 1 for a map of the distinction of the two Los Angeles areas.) Movers to these locations were distinguished because these destinations represent quite different geographic, socio-economic, demographic, and amenity environments that would likely attract households with differing housing market preferences.

If systemic race-related factors were holding down black homeownership rates beyond economic endowments, it would likely be evidenced in the homeownership choices of all metropolitan area black households. On the other hand, if research findings were to indicate that housing market behavior differed among these groups of black movers, then the “short fall” in the black rate of homeownership might be explainable on the basis of those differences. Thus, the research plan is a multi-step one to identify different “paths” to homeownership within the black

community. First, equations are estimated for these three groups of black movers, explaining their locational decisions. Given significant differences in the determinants of location choice among these black mover groups, separate tenure choice equations are estimated for each group to explain their location-specific homeownership vs. rental choices.² The tenure choice equations are then used to simulate what homeownership rate blacks in each geographic area would be likely to achieve if they had the same economic endowments as whites. The research design then enables new insights as regards the disparate intrametropolitan location and homeownership choices of distinct black mover groups.

Research findings indicate that locational effects and residential location choice vary substantially among African-American and white households and by location. For example, we estimated sizable, significant, and divergent influences of black neighborhood presence on the housing tenure choices of black and white households. The predicted location choice of white households was overwhelmingly that of suburban areas of Los Angeles County; in contrast, the typical African-American household was nearly as likely to locate in South Central Los Angeles as in other parts of the County. Further, the probability of white household moves to South Central Los Angeles was relatively insensitive to simulated variation in household socio-economic characteristics and remained throughout at approximately 2 percent. While higher levels of household income exerted significant positive effects on the likelihood of black moves to the Inland Empire, the opposite outcome was shown for white households.

Unadjusted white-African-American homeownership rate differentials stood at 28, 19, and 18 percentage points, respectively, among Los Angeles County households that moved either to non-central areas of Los Angeles County, to South-Central L.A., or to San Bernardino County during the 1985-1990 period. However, among those who moved to San Bernardino County or to South Central Los Angeles, imputation of white incomes to African-American households served

² The simplifying assumption that a household decides where to live and then chooses between ownership or rental units is the standard formulation in the literature, although the decision is probably more complex

to fully close the sizable homeownership choice gap. Such was not the case for movers to other areas of Los Angeles County, where similar imputations to African-American movers reduced the homeownership gap by one-half to 14 percentage points. In those areas, additional imputations for neighborhood poverty further reduced the African-American-white gap in homeownership choice to 9 percentage points. Overall, assessment of variations in the intra-metropolitan locational and tenure choices of black households provided evidence of several distinct “pathways” to black homeownership in Los Angeles. In so doing, the analysis accounted for in excess of three-fourths of the measured 23 percentage point homeownership gap between white and black households in Los Angeles.³

II. Background

Although numerous papers have investigated the determinants of racial disparities in homeownership, only a few have investigated the potentially important role of locational characteristics in the determination of tenure choice (see, for example, Deng et al [1999] and Newman and Harkness [2002]). There exist numerous theoretical and empirical reasons why locational characteristics may influence the likelihood that households would choose to own. Neighborhood effects figure importantly in both consumption and investment (user cost) aspects of homeownership. In that regard, the local public finance and urban quality-of-life literatures provide ample evidence of the critical role of local amenities in household location choice and in house value determination (see, for example, Blomquist et al [1988], Gyourko and Tracy [1992], and Gabriel, Matthey, and Wascher [2001]).

Neighborhood characteristics also may affect youth outcomes and employment access, and thereby influence both the location and homeownership choice decisions. Linkages between neighborhoods and youth outcomes can occur for a variety of reasons. (See Jencks and Peterson

in reality. Future research will address these concerns.

³ This figure is calculated by taking a weight average of the homeownership gap faced by all African-American households that lived in Los Angeles County in 1985.

[1991] for an extensive review.)⁴ Some of the links have to do with interactions among peers, who serve as role models, provide information, create norms, and enforce norms with peer pressure. Certain neighborhood characteristics may be more appealing to parents with children; advantaged neighborhoods typically have better infrastructure such as school quality, due in part to the parents' ability to contribute time and money to local public education.

At the same time, relatively disadvantaged households may seek to move to better neighborhoods because of improved employment opportunities. Wilson (1987; 1996) documented the movement of many African-American households from central cities to suburbs in search of better employment opportunities. Overall, this movement led to higher poverty concentrations in central city locations (Jargowsky, 1997; Alba and Logan, 1993).⁵

The above discussion has a number of implications for our empirical analysis. First, households are more likely to purchase homes in neighborhoods characterized by favorable amenities. That in turn suggests the importance of accounting for locational variations in house prices and rents in analyses of tenure choice, given anticipated capitalization of intra-urban amenities and neighborhood variations into those terms. Property value capitalization of amenity and neighborhood effects may not be complete, however, suggesting the appropriateness of direct controls for neighborhood effects in the analysis. Also, preferences for neighborhood racial composition may vary systematically by household race or ethnicity, suggesting the importance

⁴ While there is little debate that neighborhoods correlate with the success of youths, the causal impact of the role of neighborhoods is still debated (for example, Rosenbaum [1995], Ludwig, Duncan and Hirschfield [1999], Ludwig et al. [2000], and Katz, et al. [2000] all provide evidence that there is a causal impact of neighborhoods, while Brooks-Gunn, Duncan and Aber [1997], Page and Solon [2000], Glaeser et al. [1996], and Evans et al. [1992] do not). Households may simply sort into neighborhoods that are comprised of households with similar characteristics to their own. In addition, Galster et al. (2000) note that there may be threshold effects in levels of particular neighborhood characteristics that can lead to rapid and large changes in the characteristics of neighborhoods over time that may have long-term impacts on the composition of neighborhoods. This would imply a high correlation of neighborhood characteristics with youth outcomes, but not necessarily a causal impact of those characteristics (Levine and Painter, 2001).

⁵ Some research (e.g., Farley, 1995; Darden and Kamel, 2000) has found similar levels of segregation in the suburbs and in the central cities. However, the research of Clark and Ware (1997) suggests that in

of controls for neighborhood racial composition in racially stratified models of location and homeownership choice.⁶ Finally, some households may choose to live in areas with better job opportunities even if it lowers the probability that they would be able to afford to purchase a home. Thus, households with different preferences for ownership and job access may exhibit different location and tenure choices even if they have similar characteristics.

Two recent studies have jointly modeled household location and tenure choices (Gyourko et al [1999]; Deng et al [1999]). The Gyourko et al (1999) study uses a multinomial logit approach whereby they assume that households choose among four choices: owning in the central city, owning in the suburbs, renting in the central city, and renting in the suburbs. They find significant variation across location in the probability of homeownership for African-American and white households. In addition, they find that African-American homeowners are more likely to own in the central city even if they are not constrained by the necessity of lower priced housing. The Deng et al (1999) study jointly estimates location and tenure choice in a nested logit framework. Their results imply that less desirable neighborhoods may not lead to lower homeownership rates for African-Americans compared with non-minorities, owing to the higher affordability levels of those areas.

III. Data and Sample Characteristics

Data used in this analysis are drawn from the public use microdata sample (PUMS) file of the 1990 decennial census. The data file is comprised of a 5% sample of all individuals living in Los Angeles and San Bernardino Counties. In 1990, the combined counties held over 10 million residents and were dramatically diverse in both their residential composition and in their array of neighborhood living environments. San Bernardino County often is described as the

Southern California, the predominant pattern is less segregation at higher levels of income for African-American households.

⁶ In the analysis presented below, neighborhood racial composition is included as a control in the tenure choice models, but not in the location choice models. The reason is that there were not enough observation in South Central Los Angeles to estimate the full set of location controls by race. The results for San Bernardino were as expected, but are not presented.

heartland of Southern California's Inland Empire, an area characterized by relatively high rates of employment growth and abundant new and relatively affordable housing. Given the research focus on the locational and ownership dynamics of Los Angeles African-American households, we further stratified our Los Angeles County sample into South Central Los Angeles versus other parts of the County. As is well appreciated, South Central Los Angeles is distinguished from other parts of the county as regards the presence of substantially higher levels of black population. The data were sufficiently rich and numerous to identify differences among African-Americans and whites in the economic, demographic, and neighborhood characteristics governing household moves and homeownership choice.⁷

The analysis focuses on both Los Angeles and San Bernardino counties because the time period covered in the analysis (1985-1990) witnessed changes in populations that were unique to those counties and quite different from the surrounding counties in Southern California. The evidence in Table 1 demonstrates that San Bernardino County witnessed a marked expansion in the proportionate representation of African-American households over the decade of the 1980s. By 1990, African-American households represented a full 8 percent of total San Bernardino households, well in excess of the 5-1/3 percent recorded in 1980. In contrast, the African-American household share declined from 14 percent to less than 12 percent in Los Angeles County over this same period, in part reflecting the movement of African-American households into the Inland Empire. Elsewhere in the Los Angeles metropolitan area, notably including Orange and Ventura Counties, African-American household shares were little changed over the

⁷ The regions that we will refer to as neighborhoods in this analysis are Public Use Micro-sample Areas (PUMAs). These are much larger than past analysis of neighborhood effects that have focused on census tracts, blocks, or schools. Los Angeles County is divided into fifty-eight PUMAs, and San Bernardino County is divided into 9 PUMAs. South Central Los Angeles is comprised of 7 geographically contiguous PUMAs representing 10 percent of Los Angeles County population (and over 40 percent of the African-American population). The use of these larger areas eliminates some of the variation in neighborhoods that may exist at smaller levels of geography.

decade at about 2 percent.⁸ Not only did the region experience population shifts in the location of African American households, but the location of African American homeowners changed as well. While less than 5 percent of region-wide African-American homeowners resided in San Bernardino County in 1980, the region-wide proportion increased to 9 percent in 1990.⁹

The residential location and tenure choice equations are estimated using a sample of households who resided in Los Angeles County in 1985 and moved either within-county (South-Central Los Angeles or Other Areas of the County) or to San Bernardino County during the subsequent 1985-1990 period. This sample includes all households that either owned or rented their primary residence, excluding persons who resided in group quarters. By selecting only those households who resided in Los Angeles County in the prior period and excluding those households that may have moved from other areas, we avoid the difficulty of not being able to control for the characteristics of the previous location in the analysis. Finally, the sample was limited to only those household heads that were aged 18-64, because the elderly may have significantly different residential location and tenure choice behavior.

Table 2 allows us to characterize those households that moved to the Inland Empire, relative to those who remained either in South Central L.A. or other parts of Los Angeles County.¹⁰ As shown in the table, the three regions represent substantially different combinations of population demographic, socio-economic, and house price characteristics. While South Central Los Angeles was characterized by similar house prices to those of San Bernardino County, the racial and ethnic composition was very different. South Central Los Angeles was home to substantially higher numbers of African-American, immigrant, and low-income households, relative to other parts of the metropolitan area. Further, African-American

⁸ Over the same period, San Bernardino and other Southern California counties registered marked declines in the share of white households. In San Bernardino County, the white household share declined from 84 to 76 percent over the decade of the 1980s; in Los Angeles County, the white household share fell from 65 to 59 percent.

⁹ Tables available upon request.

households moving to San Bernardino were likely to live in neighborhoods characterized by only 10 percent African-American households, relative to the 68 percent African-American household representation in typical neighborhoods of South Central L.A. African-American moves to other parts of L.A. County were to areas characterized by relatively low levels of minority population, but relatively high levels of house prices. Compared with their African-American counterparts, the majority of the white population lived in communities with much fewer minorities.

The table also indicates substantially lower levels of black household income and wealth in South Central L.A., relative to other parts of Los Angeles or San Bernardino Counties. White income levels were highest in other parts of Los Angeles County, relative to the South Central or San Bernardino areas. (Permanent and transitory income are calculated based on the method of Goodman and Kawai (1982).) As measured in part by differentials in interest and dividend income, table 2 demonstrates similar intrametropolitan racial variations in wealth, with the wealth of African-American significantly lower in all places.¹¹ Thus, there was a sharp contrast between whites and African-American households in their choice of living in San Bernardino. It was the *more* affluent African-American households and the *less* affluent white households that chose to move to San Bernardino County. Nonetheless, at about \$37,000, the relatively higher incomes of African-American households remained well below those of typical white households entering the San Bernardino area.

Homeownership tenure choice among both African-American and white movers to San Bernardino County well exceeded that of L.A. County (Table 2). In the case of African-American movers, the San Bernardino homeownership rate, at 47 percent, was more than double that of Los Angeles County. The within-L.A. County black movers were more likely to be unmarried, relative to their San Bernardino counterparts; in the case of whites, they were also

¹⁰ The areas (pumas) that are characterized as South Central are shown in Figure 1. The pumas that are in this grouping are 6100, 6503, 6504, 6505, 6407, 6421, and 6422.

more likely to have attained a college degree.¹² Movers within L.A. County were more likely to live in neighborhoods containing immigrants and minorities; further, Los Angeles County was characterized by relatively higher median house prices and rents.

IV. Model Specification

Rather than follow a nested logit modeling approach as in Deng et al (1999), our approach is more in spirit of Gyourko et al (1999). We estimate separate tenure choice models by location and race so as to compare homeownership differentials and the determinants thereof among locations. An attribute of the nested logit approach is that it assumes that household tenure and location choices are endogenously determined. However, the Deng et al (1999) data do not provide for the prior residential location of sampled movers; further, the analysis controls only for the effects of locational characteristics on residential location choice. In contrast, our approach focuses only on recent movers and controls for the previous residential location of mover households. Accordingly, our approach provides new insights as regards the effects of household economic, educational and other characteristics on both the direction of intra-metropolitan moves and the choice of tenure in the destination area. Further, in contrast to the nested logit specification, our approach enables us to simulate the impact of household characteristics on the choice of both residential location and homeownership choice.

4.1 Choice of Residential Location

In the location choice model, households choose between South Central L.A., Other Areas of Los Angeles, and San Bernardino Counties, conditional on household characteristics. The multivariate analysis employs a multinomial logit (MNL) specification and is based on a

¹¹ Ideally, we would like to have other measures of ability to finance a down-payment, but none were available. As Charles and Hurst (2001) find, measures of parental wealth are also important in explaining gaps in homeownership between African-Americans and whites.

¹² For example, close to one-half of white within-county movers had attained a college degree, relative to about one-fourth of white movers to San Bernardino County. About 28 percent of African-American movers (regardless of destination) had obtained a college degree, similar to that of white movers to San Bernardino County.

sample of Los Angeles County households that moved during the 1985-1990 period.¹³ There are a total of 27986 households in the sample -- 22971 headed by a white person and 5195 headed by an African-American.

The independent variables of the location choice equation include mover demographic factors (age, marital status, number of people in the household, number of workers in the household, and race-ethnicity) as well as proxies for household income and wealth (permanent income, transitory income, dividend income, and education level of the household). Previous research (Apgar and Pollakowski [1986] and Pollakowski and Edwards [1987]) has indicated that household location choice varies importantly over the lifecycle, as proxied by age, marital status, and number of people in the household. As a proxy for the wealth of the household, we employ a measure of dividend income. Also, as in Gyourko and Linneman (1996), educational attainment of the household head is employed to indicate future earnings potential as well as household wealth. Presumably, households with higher levels of nonsalary income and human capital are more capable of defraying the transactions costs of a move. Further, household educational attainment may serve to proxy in part demands for the locationally differentiated baskets of local public goods. Also, racial variations in both neighborhood racial composition and in locational constraints may have importantly affected household location choice. Finally, the location choice analysis is stratified by household race so as to assess race-related variations in the economic and demographic determinants of location choice.

4.2 Choice of Housing Tenure

We then employ a probit specification to assess the determinants of housing tenure choice among the sampled mover households.¹⁴ As is commonplace in the literature, we assume there exists a latent variable that measures the propensity to own among mover households in the sample. The observable tenure choice indicator is regressed on a vector of demographic,

¹³ We also tested probit specifications of the model; results were similar to those reported here.

economic, and locational variables. Further, the tenure choice model is stratified both by race and by mover destination. In the analysis, there were a total of 21,374 white households that lived in Los Angeles in 1985, and continued to live in Los Angeles in 1990; of those, some 482 households moved to South Central L.A., whereas some 20892 households chose to move to other parts of the county. A total of 1,417 white households moved from Los Angeles to San Bernardino County. Of the 5195 African-American households that lived in Los Angeles in 1985, 2283 households chose to locate in South Central L.A., 2560 chose to move to other parts of Los Angeles County, and 352 moved to San Bernardino County in 1990.

We restrict our tenure choice analysis to a sample of movers. The assumption is that tenure choices of mover households represent the equilibrium choices of all households (see Painter, Gabriel, and Myers [2001] for a fuller discussion of this issue). A possible problem with this approach is that if movers differ systematically from non-movers, standard estimation of tenure choice among movers might be biased. Following the method of Painter (2000), we test for sample selection bias using a bivariate probit model in which we only observe tenure choice among movers, and observe the choice to move among all households. In the samples used in this analysis, there was found to be no correlation between the mobility choice and tenure choice equations. Given those results, our use of a simple probit specification of tenure choice in the sample of movers is appropriate.¹⁵

V. Analysis of Residential Location Choice

Regression coefficients and their standard errors from the MNL model of residential location choice are displayed in Table 3. In all cases, Other Areas of Los Angeles County is used as the reference location. Hence, the estimated MNL coefficients refer to the effects of particular household characteristics on the likelihood of moving to either the South Central L.A. or San

¹⁴ As noted in previous note #2, these tenure choice models are estimated conditional on location choice, as is commonplace in the literature. Future research will relax this assumption.

¹⁵ Results of the sample selection models are available upon request.

Bernardino locations, relative to other parts of L.A. County. To evaluate whether household demographic and socio-economic effects vary by race, the sample was stratified by the white and African-American sub-samples.¹⁶ The estimated MNL coefficients reflect the effects of household characteristics on the likelihood of moving to South Central Los Angeles or San Bernardino County, relative to other parts of Los Angeles County.

The results in Table 3 indicate important variation in household socio-economic, demographic, and neighborhood effects across African-American and white households. For example, the probability of a move to South Central Los Angeles is significantly elevated among middle-aged African-American households (aged 35-64), relative to younger African-American households in the 25-34 age group. In contrast, no significant age effects are estimated for white household moves to South Central L.A. Increases in permanent and transitory income exert significant and depressive effects on the likelihood of moves to South Central L.A. among both African-American and white households. Among white households, however, increases in income also exert a significant, negative effect on the likelihood of moves to the Inland Empire. Increases in number of persons per household exerts a positive and significant effect on likelihood of moves to both South Central L.A. and Inland Empire neighborhoods among both African-American and white households, relative to moves by those households to other areas of Los Angeles County. Also, status as an unmarried head of household exerts a negative and significant influence on moves to San Bernardino County among both white and black households; however, unmarried household head status also significantly reduces the likelihood of black household moves to South Central L.A. Finally, among white movers from L.A. County, attainment of a college degree exerts a sizable, negative and significant effect on the

¹⁶ A likelihood ratio test of the stratified MNL models versus the unified sample model yielded a test statistic of 3844.81. This test statistic is distributed chi-square with 26 degrees of freedom, and enables a rejection of the null hypothesis (that the sample should remain unified) at $p < .001$. As such, results of the unified sample are not presented but are available from the authors on request. This concurs with our prior work on the topic (Gabriel and Rosenthal [1989]) suggesting the appropriateness of such a racial stratification.

probability of white household moves to San Bernardino County. Such was not evidenced in results for African-American households.

Table 4 simulates by race the effects of variations in household socio-economic and educational characteristics on the probability of location in South Central Los Angeles, the Los Angeles Suburbs, and San Bernardino County. The left-hand column of the table provides baseline probabilities of household location in each of the alternative destinations. As is evident, the predicted location choice of white households was overwhelmingly that of suburban areas of Los Angeles County; in contrast, the typical African-American household was nearly as likely to locate in South Central Los Angeles as in other parts of the County.

The other columns utilize a typical African-American homeowner's socio-economic and educational characteristics from each of the three regions studied to note how location choice varies among races and regions. The table shows that the probability distribution of African-American mover location choice is sensitive to population socio-economic characteristics. Using the black MNL coefficient vectors, the imputation of typical characteristics of African-American San Bernardino County movers resulted in substantial decline—to about 38 percent--in the probability of moves to South Central Los Angeles; instead, the probability of African-American moves to San Bernardino County was about doubled—to 12 percent. It is interesting to note that the probability of white household moves to South Central Los Angeles was relatively insensitive to simulated variation in household socio-economic characteristics and remained throughout at approximately 2 percent. In contrast, the imputation of the typical characteristics of the San Bernardino County African-American homeowner resulted in some decline—to about 83 percent—in the probability of white household moves to the Los Angeles suburbs; in that case, the probability of white moves to San Bernardino County more than doubled—to 14 percent.

VI. Analysis of Housing Tenure Choice

The estimated coefficients and their standard errors from probit models of housing tenure choice among recent movers are displayed in Table 5. As suggested above, the analysis focuses

on those households that resided in Los Angeles County in 1985 and moved during the intervening 5 year period to either South Central L.A., other parts of Los Angeles County, or to San Bernardino County. The tenure choice models are stratified by household race for each mover destination.¹⁷

In general, findings contained in Table 5 are consistent with previous literature on housing tenure choice (see, for example, Painter, Gabriel, and Myers [2001]). Among demographic and economic variables, increases in age of household head, married household status, higher transitory and permanent incomes, and higher levels of education all serve to increase homeownership probabilities. Among both black and white movers to more expensive LA suburbs, higher levels of household wealth—as proxied by dividend income—is significant to homeownership choice. Of additional interest, the number of household workers has a depressive effect on the probability of home purchase. This implies that rather than helping to increase the probability of homeownership, net of other factors, if additional workers are required to earn the same level of income, a household is less likely to own.

Table 5 also indicates some notable differences in the determinants of ownership, both across racial groups and geographic stratifications. The estimated permanent income effects associated with homeownership choice among African-American movers to South Central L.A. and San Bernardino County were substantially greater than those of their white counterparts, respectively. Concerning educational attainment, receipt of a college degree served to significantly elevate homeownership choice probabilities only among white movers to Other Parts of Los Angeles County. Among white movers to South Central L.A. and in San Bernardino, household wealth—as proxied by dividend income and educational attainment—had little effect on tenure choice outcomes. Those results were largely similar for black households,

¹⁷ A likelihood ratio test of the stratified models versus the unified sample model yielded a test statistic of 204.04. This test statistic is distributed chi-square with 20 degrees of freedom, and enables a rejection of the null hypothesis (that the sample should remain unified) at $p < .001$. Results of the unified sample are available from the authors on request.

exclusive of the positive and significant dividend income coefficient estimated for black movers to South Central L.A. More sizable and depressive effects of unmarried status were estimated for white households regardless choice of location; those effects were particularly pronounced among white households moving to South Central L.A. Among African-American movers to South Central L.A. and to the Inland Empire, marital status did not play a significant role in tenure choice. Finally, homeownership probabilities increased monotonically with age of household head among both white and black movers to non-central areas of Los Angeles County; in this case, estimated coefficients for the sampled African-American movers were substantially greater than those of their white counterparts. In many cases, age of household head was largely insignificant to housing tenure choice among black and white movers to South Central L.A. and San Bernardino County.

Among neighborhood characteristics, higher levels of PUMA immigrant population served to significantly reduce homeownership choice propensities among both white and black movers to South Central Los Angeles. The estimated coefficient on immigrant population had a negative, significant, but less depressive effect on homeownership tenure choice among white movers to San Bernardino County. In contrast, higher levels of PUMA Asian population served to significantly elevate homeownership propensities among both black and white populations in both South Central and San Bernardino neighborhoods. The estimated positive effects of increases in Asian populations on homeownership choice in South Central Los Angeles were much greater than those estimated for San Bernardino County.

Results further indicated significant variation across racial groups in the effects of neighborhood African-American population on housing tenure choice. Higher levels of African-American population served to significantly boost homeownership tenure choice only among black movers to South Central Los Angeles and to other parts of Los Angeles County. As suggested above, typical destination neighborhoods of black movers in San Bernardino County were characterized by relatively low levels of black population; among black movers to San

Bernardino County, a negative but insignificant coefficient was associated with the presence of neighborhood black population. All things equal, the increased presence of black population served to significantly damp homeownership choice among white movers to non-central parts of L.A. and to San Bernardino County.

Higher destination PUMA house prices significantly lowered homeownership choice among the relatively lower income African-American movers to non-central parts of L.A. and to San Bernardino County. Similarly, higher levels of PUMA poverty population served to significantly depress both black and white homeownership propensities in both South Central Los Angeles and other parts of Los Angeles County.

VII. Simulation of the Tenure Choice Model

Table 2 provided evidence of sizable differentials in African-American-white homeownership rates. Overall, the homeownership gap for African-American households is 23 percentage points. In order to determine the extent to which these gaps reflect variations in endowments (income, wealth and education), we employed a common decomposition technique that has been used in the tenure choice literature (e.g., Wachter and Megbolugbe [1992] and Painter, Gabriel, and Myers [2001]). This model attributes the endowments of white movers to each of the African-American mover households. For example, in the sample of African-American households moving to San Bernardino County, we use the coefficients of the African-American San Bernardino tenure choice equation, and attribute the average endowment of white movers to San Bernardino County to those African-American movers. To the extent that the measured gap in homeownership choice is due to the endowment differentials of African-American mover households, then the simulated gap should close.¹⁸

The key results of this simulation exercise are presented in Table 6. We focus on economic endowments (including household permanent, transitory, and dividend income as well

¹⁸ The alternative way to simulate these effects is to use the white coefficients and attribute the characteristics of the non-white group to white households. Results are invariant to the choice of method.

as educational attainment) and neighborhood-level poverty, because those were the measures with the largest and most important differentials between African Americans and whites. (When other variables were included, the results did not change substantially.) As Table 6 shows, among African-American movers to non-central areas of Los Angeles County, the unadjusted homeownership gap with whites was a substantial 28 percentage points in 1990. In contrast, for African-Americans that moved to South Central L.A. or to San Bernardino County, the unadjusted homeownership gap with whites in 1990 was 19 and 18 percentage points, respectively. As evidenced throughout, the homeownership gap narrowed little by attributing the education levels of white movers to those of African-Americans. In marked contrast, the white-African-American gap in homeownership choice contracted substantially in the wake of attribution of the permanent, transitory, and dividend income levels of white movers to African-Americans. As evidenced in the table, this simulation served to eliminate the white-African-American homeownership gap among movers to South Central and Inland Empire areas. However, a substantial 14 percentage point residual differential remained among black movers to other parts of Los Angeles County, even upon adjustment for racial variations in economic endowments. In that case, additional attention to the socio-economic context of the destination neighborhood was required to further reduce the white-African-American tenure choice gap in other parts of the L.A. County. A simulated reduction in the poverty level of the destination neighborhoods of African-American movers, which derives from the attribution of poverty status of white mover neighborhoods to those of African-Americans, reduced the unexplained residual in white-African-American homeownership choice to 9 percentage points. Note, however, that this simulation did not further account for the likely effects of a change in neighborhood poverty level on local house prices.¹⁹ In total, these simulations suggest that the homeownership gap between African American and whites falls by more than three-fourths.

¹⁹ This is particularly noticeable in South Central L.A. as the simulation suggests that African-American homeownership rates would be 29 percentage points higher than whites after equalizing poverty rates. In

VIII. Conclusions

This research sought an improved understanding of the persistently low levels of homeownership attainment evidenced among African-American households. In a departure from prior work, the study focused on how locational characteristics and location choice affect the propensity to own among African-American and white households in the Los Angeles area. Specifically, we applied Census microdata from the Los Angeles metropolitan area to model the determinants and directions of intra-metropolitan household moves among African-American and white households as well as to evaluate how the determinants of homeownership choice differ between groups and among locations. We then simulated the effects of variations in household socio-demographic, income, wealth, and educational characteristics on household location and tenure choice.

The analysis identified distinct pathways to homeownership for African-American households in the Los Angeles area. After adjusting for differentials in permanent, transitory, and dividend income, research findings indicated that the probabilities of homeownership among African-American households moving to South Central Los Angeles and to San Bernardino County were identical to those of white households. Income gains among black households served to significantly elevate African-American moves to the Inland Empire, whereas similar gains in economic status were shown to depress African-American moves to South Central L.A. This was in contrast to white households, where higher levels of household transitory and permanent income exerted significant negative effects on the likelihood of moves to either South Central Los Angeles or to areas of the Inland Empire (San Bernardino County), relative to other parts of Los Angeles.

Destination areas of white and black movers to San Bernardino County were remarkably similar in socio-economic and ethnic composition. Specifically, those were areas of affordable

the housing market, one would expect changing the poverty level of the neighborhood would be associated with higher house prices, and this would likely mitigate in part the importance of the poverty level

housing stock and limited African-American representation. In marked contrast, black and white movers within Los Angeles County chose more racially segregated neighborhoods of residence. For instance, in South Central and other parts of L.A., higher proportions of black population were shown to significantly boost the likelihood of black homeownership choice. The increased presence of black population served to significantly damp homeownership choice among white movers to non-central parts of L.A. and to San Bernardino County.

A remaining question concerns the residual homeownership choice deficit among African-American movers to other parts of Los Angeles County. One possibility is that our empirical structure did not fully account for the endogeneity of location choice in the tenure choice model. In pursuing this possibility, we found that results of the tenure choice equation were robust to the estimation of a nested logit model that alternatively accounts for the endogeneity of location choice.²⁰ Another possibility is that households with different preferences are choosing to live in the other parts of L.A. County. For example among African-American households, households headed by a single person are most likely to live in other parts of L.A. County. Those black households may be choosing to live in more expensive areas even though they may not be able to own a home. That result could owe to better job opportunities in non-central parts of Los Angeles, better schools, or to racial steering of potential African-American homeowners away from these areas. Unfortunately, our data do not allow us to distinguish between those hypotheses. Improved understanding of remaining differentials in homeownership choice remains the focus of our ongoing research.

differential. In house prices are adjusted as well, the adjusted gap only falls to 15 percentage points.

²⁰ It was reassuring to note that the tenure choice parameter estimates in the nested logit model were similar to those in the simple reduced form version of the model (Deng et al [1999] also find this result.) This suggests the appropriateness of using the results from Table 4 in the simulations. Results of the nested logit models are available upon request.

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Figure 1: African-American Concentration in LA County

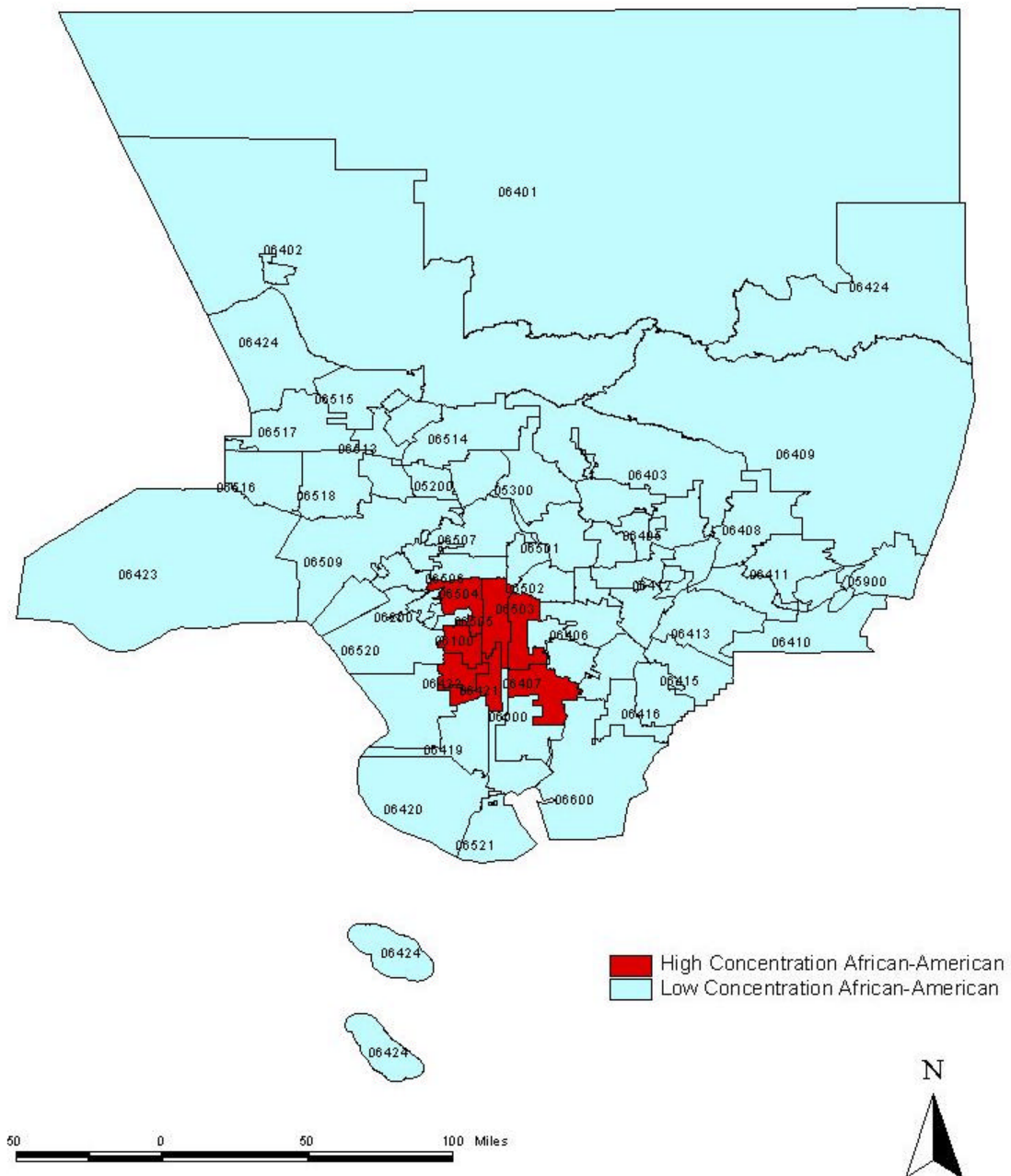


Table 1
Percentage of Households
by Racial Category

Year	Los Angeles County				Orange County			
	All Households		Sample of Movers Only		All Households		Sample of Movers Only	
	1980 N = 51352	1990 N = 96548	1980 N = 29450	1990 N = 52656	1980 N = 14043	1990 N = 32351	1980 N = 8933	1990 N = 19092
White	65.63%	59.15%	64.88%	58.25%	87.55%	76.57%	86.13%	73.85%
Black	14.20%	11.90%	12.89%	11.08%	1.21%	1.75%	1.59%	2.08%
Latino	13.92%	17.20%	14.55%	16.97%	6.86%	12.57%	7.00%	13.24%
Asian	6.25%	11.75%	7.68%	13.70%	4.38%	9.11%	5.28%	10.83%
All Households	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Year	San Bernadino County				Riverside County			
	All Households		Sample of Movers Only		All Households		Sample of Movers Only	
	1980 N = 5806	1990 N = 14784	1980 N = 3805	1990 N = 9523	1980 N = 4496	1990 N = 11998	1980 N = 2933	1990 N = 8099
White	83.67%	76.35%	83.89%	74.80%	83.85%	78.02%	85.20%	77.21%
Black	5.34%	8.04%	5.86%	9.36%	5.60%	5.14%	4.74%	5.25%
Latino	9.18%	11.84%	7.99%	11.40%	8.87%	13.45%	8.39%	13.77%
Asian	1.81%	3.77%	2.26%	4.44%	1.67%	3.38%	1.67%	3.78%
All Households	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Year	Ventura County			
	All Households		Sample of Movers Only	
	1980 N = 3290	1990 N = 7976	1980 N = 2095	1990 N = 19092
White	86.84%	81.22%	87.11%	81.50%
Black	2.28%	2.18%	2.43%	2.36%
Latino	8.02%	11.97%	7.26%	11.37%
Asian	2.86%	4.63%	3.20%	4.77%
All Households	100.00%	100.00%	100.00%	100.00%

Table 2
Average Household Characteristics of those Households
Which Lived in Los Angeles County in 1985

Region of Residence in 1990	Los Angeles County				San Bernadino County	
	South Central LA		LA Suburbs		White	Black
	White	Black	White	Black		
Race						
OWNERSHIP	0.40	0.21	0.49	0.21	0.65	0.47
AGE 18-24	0.07	0.09	0.06	0.09	0.07	0.10
AGE 25-34	0.37	0.35	0.37	0.38	0.36	0.35
AGE 35-44	0.30	0.29	0.31	0.32	0.29	0.34
AGE 45-54	0.14	0.16	0.17	0.14	0.14	0.14
AGE 55-64	0.11	0.11	0.10	0.07	0.13	0.08
NOT MARRIED, MALE HEAD OF HOUSEHOLD	0.32	0.19	0.26	0.23	0.17	0.14
NOT MARRIED, FEMALE HEAD OF HOUSEHOLD	0.26	0.54	0.27	0.44	0.19	0.37
NO HIGH SCHOOL DIPLOMA	0.12	0.24	0.08	0.15	0.13	0.16
HIGH SCHOOL DIP. BUT NO COLLEGE DEGREE	0.53	0.55	0.45	0.54	0.59	0.57
COLLEGE DEGREE OR BETTER	0.36	0.21	0.47	0.31	0.28	0.28
NUMBER OF PEOPLE IN HOUSEHOLD	2.51	3.00	2.46	2.81	2.90	3.43
NUMBER OF WORKERS IN HOUSEHOLD	1.59	1.22	1.63	1.46	1.53	1.49
PERMANENT INCOME (1000s)	51.12	27.29	55.53	35.54	51.55	37.26
TRANSITORY INCOME (1000s)	-6.92	0.82	4.08	1.32	-8.06	-1.73
DIVIDEND INCOME (1000s)	1.62	0.27	2.46	0.38	1.24	0.36
PERCENT OF THE PUMA WHICH IS BLACK	0.44	0.68	0.06	0.11	0.07	0.10
PERCENT OF THE PUMA WHICH IS ASIAN	0.12	0.05	0.10	0.12	0.04	0.04
PERCENT OF THE PUMA WHICH IS LATINO	0.15	0.16	0.13	0.18	0.12	0.13
PERCENT OF THE PUMA WHICH IS BELOW THE POVERTY LINE	0.14	0.22	0.08	0.10	0.10	0.11
LOG OF THE MEDIAN HOUSE PRICE IN THE PUMA	12.05	11.84	12.58	12.41	11.75	11.70
LOG OF THE MEDIAN RENT IN THE PUMA	6.30	6.16	6.45	6.38	6.21	6.21
PERCENT OF THE PUMA WHICH IS IMMIGRANT	0.23	0.19	0.25	0.28	0.11	0.12
NUMBER OF HOUSEHOLDS	482	2283	20892	2560	1417	352

Table 3
Location Choice in 1990
After Living in Los Angeles in 1985
Multinomial Logit Model

VARIABLE	White Households				Black Households			
	South Central LA		San Bernadino		South Central LA		San Bernadino	
	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
AGE 18-24	-0.056	0.201	0.035	0.124	-0.252	0.119	0.297	0.222
OMITTED: AGE 25-34								
AGE 35-44	0.096	0.128	0.130	0.075	0.214	0.081	0.142	0.153
AGE 45-54	0.003	0.163	0.156	0.096	0.493	0.101	0.098	0.203
AGE 55-64	0.222	0.174	0.484	0.099	0.683	0.122	0.294	0.243
NOT MARRIED, MALE HEAD OF HOUSEHOLD	0.226	0.147	-0.889	0.097	-0.296	0.104	-0.659	0.207
NOT MARRIED, FEMALE HEAD OF HOUSEHOLD	-0.222	0.187	-1.098	0.108	-0.253	0.113	-0.599	0.206
OMITTED: MARRIED								
NO HIGH SCHOOL DIPLOMA	-0.019	0.161	-0.185	0.094	0.049	0.089	-0.117	0.181
OMITTED: HIGH SCHOOL DIP. BUT NO COLLEGE DEGREE								
COLLEGE DEGREE OR BETTER	-0.146	0.155	-0.362	0.092	0.103	0.102	-0.047	0.184
NUMBER OF PEOPLE IN HOUSEHOLD	0.089	0.041	0.179	0.023	0.110	0.022	0.195	0.035
NUMBER OF WORKERS IN HOUSEHOLD	0.161	0.115	-0.108	0.066	0.095	0.075	-0.137	0.134
PERMANENT INCOME (1000s)	-0.017	0.007	-0.022	0.004	-0.027	0.004	-0.005	0.008
TRANSITORY INCOME (1000s)	-0.010	0.002	-0.011	0.001	-0.006	0.002	-0.005	0.002
DIVIDEND INCOME (1000s)	0.007	0.008	-0.006	0.006	0.009	0.012	0.007	0.019
CONSTANT	-3.396	0.271	-1.384	0.153	0.270	0.143	-1.930	0.248
Number of Households			22791				5195	
Pseudo-R ²			0.051				0.037	

Notes: Coefficients which are statistically significant at 5% level or greater are in bold.

The comparison region is Los Angeles County, non- central city.

All coefficients are in comparison to this region.

Pseudo-R² = 1- L1/L0 where L1 = value of the likelihood function and L0 is the value of the likelihood function in a constant only model.

Table 4
Predicted Location Choice based on
the Characteristics of a Typical African-American Homeowner in
South Central LA, LA Suburbs, and San Bernardino

<u>Probability of Locating in the three Regions</u>	Baseline Probability	South Central LA Characteristics	LA Suburbs Characteristics	San Bernardino Characteristics
<u>African-American Households</u>				
South Central LA	0.439	0.385	0.360	0.381
LA Suburbs	0.493	0.511	0.542	0.497
San Bernardino	0.068	0.103	0.098	0.121
<u>White Households</u>				
South Central LA	0.021	0.025	0.019	0.026
LA Suburbs	0.917	0.848	0.906	0.833
San Bernardino	0.062	0.128	0.075	0.141

Notes: The typical African-American Homeowner in South Central LA was married with one child, had a high school education, was aged 35-44, with a permanent income of \$44,600, and a transitory income of \$2,800.
The typical African-American Homeowner in the LA Suburbs was married with one child, had a college education, was aged 35-44, with a permanent income of \$51,600, and a transitory income of \$9,650.
The typical African-American Homeowner in San Bernadino was married with two child, had a high school education, was aged 35-44, with a permanent income of \$48,460, and a transitory income of \$800.

Table 5
Determinants of Tenure Choice Among Movers
Probit Model
Race/Ethnicity Stratifications

<u>County in 1985</u> <u>County in 1990</u>	Los Angeles South Central LA				Los Angeles LA Suburbs				Los Angeles San Bernardino			
	White Households		Black Households		White Households		Black Households		White Households		Black Households	
Race/Ethnicity	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
VARIABLE												
AGE 18-24	-0.785	0.343	-0.383	0.222	-0.504	0.056	-0.371	0.201	-0.822	0.181	-0.290	0.404
OMITTED: AGE 25-34												
AGE 35-44	-0.064	0.174	0.157	0.093	0.157	0.025	0.283	0.088	0.128	0.099	0.303	0.223
AGE 45-54	0.161	0.248	0.424	0.110	0.287	0.034	0.432	0.109	0.032	0.134	0.343	0.281
AGE 55-64	-0.190	0.266	0.500	0.119	0.354	0.040	0.693	0.141	0.486	0.149	1.120	0.366
NOT MARRIED, MALE HEAD OF HOUSEHOLD	-0.756	0.205	-0.159	0.116	-0.472	0.032	-0.405	0.109	-0.564	0.129	0.139	0.278
NOT MARRIED, FEMALE HEAD OF HOUSEHOLD	-0.524	0.253	-0.181	0.124	-0.340	0.039	-0.401	0.127	-0.567	0.152	0.039	0.334
OMITTED: MARRIED												
NO HIGH SCHOOL DIPLOMA	-0.260	0.241	0.029	0.099	-0.176	0.039	-0.265	0.112	-0.053	0.124	-0.145	0.261
OMITTED: HIGH SCHOOL DIP. BUT NO COLLEGE DEGREE												
COLLEGE DEGREE OR BETTER	0.216	0.223	0.141	0.116	0.114	0.033	-0.026	0.107	-0.076	0.137	0.185	0.283
NUMBER OF PEOPLE IN HOUSEHOLD	-0.206	0.064	-0.082	0.025	0.029	0.010	-0.078	0.025	-0.031	0.035	-0.057	0.055
NUMBER OF WORKERS IN HOUSEHOLD	-0.045	0.156	-0.133	0.089	-0.268	0.025	-0.160	0.081	-0.211	0.102	-0.392	0.207
PERMANENT INCOME (1000s)	0.024	0.010	0.036	0.005	0.022	0.001	0.025	0.005	0.026	0.007	0.051	0.014
TRANSITORY INCOME (1000s)	0.023	0.005	0.018	0.002	0.011	0.000	0.012	0.002	0.014	0.005	0.035	0.006
DIVIDEND INCOME (1000s)	0.016	0.017	0.065	0.030	0.011	0.003	0.052	0.021	0.013	0.020	-0.034	0.032
PERCENT OF THE PUMA WHICH IS IMMIGRANT	-164.024	37.869	-127.447	27.937	0.842	0.210	0.243	0.893	-21.148	7.509	-26.217	16.133
PERCENT OF THE PUMA WHICH IS BLACK	1.468	4.787	15.067	2.766	-0.476	0.231	2.855	0.589	-6.674	3.251	-6.032	6.433
PERCENT OF THE PUMA WHICH IS ASIAN	84.899	23.242	105.131	21.533	-1.563	0.210	-1.139	0.869	37.795	10.158	38.113	17.593
PERCENT OF THE PUMA WHICH IS LATINO	227.691	55.860	233.793	50.744	-1.032	0.188	0.783	0.777	13.465	6.233	24.745	12.785
PERCENT OF THE PUMA WHICH IS BELOW THE POVERTY LINE	-24.669	12.911	-49.615	10.313	-4.431	0.563	-8.447	2.171	-4.798	6.261	-17.043	9.327
LOG OF THE MEDIAN HOUSE PRICE IN THE PUMA	12.953	3.904	8.732	2.401	-0.939	0.039	-0.931	0.154	-0.007	0.618	-3.153	1.455
LOG OF THE MEDIAN RENT IN THE PUMA	-10.737	4.501	-15.600	3.650	0.487	0.136	0.761	0.609	-1.329	1.319	0.492	2.788
CONSTANT	-92.425	38.937	-26.490	11.166	8.295	0.769	5.770	3.590	8.459	8.762	33.110	12.733
Pseudo-R2	0.313		0.271		0.239		0.293		0.215		0.352	
Number of Households	482		2283		20892		2560		1417		352	
Mean of Dependent Variable	0.405		0.215		0.490		0.209		0.651		0.466	

Note: Coefficients which are statistically significant at 5% level or greater are in bold.

**Table 6
Actual and Predicted Racial Differentials
In Homeownership Rates**

<u>County in 1985</u> <u>County in 1990</u>	Los Angeles LA Suburbs	Los Angeles South Central LA	Los Angeles San Bernardino
White Homeownership Rate	49	40	65
Black Homeownership Rate	21	21	47
	Percentage Point Differential from White rate	Percentage Point Differential from White rate	Percentage Point Differential from White rate
Black Predicted Ownership Rates			
Actual Black/White Gap	28	19	18
Predicted Gap with education levels of whites	28	19	17
Predicted Gap with total income of whites	15	-3	2
Predicted Gap with income and education level of whites	14	-3	1
Predicted Gap with income, education, and neighborhood poverty of whites	9	-29	1
Overall Black/White Homeownership Gap			
	23		
Black/White Homeownership Gap			
Predicted Gap with income, education,	7		
Black/White Homeownership Gap			
Predicted Gap with income, education, and neighborhood poverty of whites	4		

Appendix 1

Variable Definitions

Throughout, the unit of observation is the head of household. Those aged less than 18 years, or greater than 65 years, have been excluded. In all the regressions, only those people who lived in Los Angeles County in 1985, and then lived in either Los Angeles or San Bernardino in 1990 are included.

AGE 18-24	People aged 18 through 24 inclusive.
OMITTED CATEGORY: AGE 25-34	People aged 25 through 34 inclusive.
AGE 35-44	People aged 35 through 44 inclusive.
AGE 45-54	People aged 45 through 54 inclusive.
AGE 55-64	People aged 55 through 64 inclusive.
NOT MARRIED MALE HEAD OF HOUSEHOLD	Head of household is male, and is not married (i.e.; he is divorced, separated, never married or widowed).
NOT MARRIED FEMALE HEAD OF HOUSEHOLD	Head of household is female, and is not married (i.e.; she is divorced, separated, never married or widowed).
OMITTED CATEGORY: MARRIED	Head of household is married, and is not separated.
NO HIGH SCHOOL DIPLOMA	High school not completed, or not yet.
OMITTED CATEGORY: HS DIP/NO COL DEGREE	High school completed, but not four years of post-high school education.
COLLEGE DEGREE OR BETTER	Minimum of four years of post-high school education is completed.
NUMBER OF PEOPLE IN HOUSEHOLD	This number includes people of all ages, including those aged less than 18 years and 65 or older.
NUMBER OF WORKERS IN HOUSEHOLD	A worker is defined as somebody who worked in the year before the census was conducted.
PERMANENT INCOME	Total income predicted according to the method of Goodman and Kawai (1982).
TRANSITORY INCOME	Residual income predicted according to the method of Goodman and Kawai (1982).

DIVIDEND INCOME	All Dividends and interest income earned on financial assets.
ETHNICITY - AFRICAN-AMERICAN	African-American, non-Hispanic.
OMITTED CATEGORY: WHITE	White, non-Hispanic.
LOG OF THE MEDIAN HOUSE PRICE IN THE PUMA	Self explanatory
LOG OF THE MEDIAN RENT IN THE PUMA	Self explanatory
EXPECTED HOUSE PRICE APPRECIATION	Calculated using the previous 5 years average appreciation rates
PERCENT OF THE PUMA THAT IS IMMIGRANT	Self explanatory
PERCENT OF THE PUMA THAT IS AFRICAN-AMERICAN	Self explanatory
PERCENT OF THE PUMA THAT IS ASIAN	Self explanatory
PERCENT OF THE PUMA THAT IS LATINO	Self explanatory
PERCENT OF THE PUMA THAT IS MINORITY	Self explanatory
PERCENT OF THE PUMA THAT IS BELOW THE POVERTY LINE	Poverty Line defined using the U.S. official poverty for each household size