

# DIFFERENT PATHS TO HOMEOWNERSHIP

## A CLOSER LOOK AT RACIAL DISPARITIES IN LOS ANGELES



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**DIFFERENT PATHS TO  
HOMEOWNERSHIP**  
*A Closer Look at Racial Disparities  
in Los Angeles*

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## EXECUTIVE SUMMARY: THE INSTITUTE PERSPECTIVE

This working paper constitutes an important contribution to our knowledge by further explaining the residual racial disparity in homeownership rates between African Americans and whites in Los Angeles in 1990 (first analyzed by professors Painter and Gabriel in *The Decision to Own: The Impact of Race, Ethnicity, and Immigrant Status* published by the Research Institute for Housing America). The previous study showed that roughly half of the raw differential could be attributed to the poorer socioeconomic endowments of African Americans. This working paper goes further. Using a new methodology, it eliminates the gap entirely for half of the African Americans in the sample. And for the other half, it reduces the gap between those African Americans and comparable whites by 60 percent. The research now accounts for over three-fourths of the original measured homeownership gap of 22 percent between white and African American households.

This working paper builds upon the original study's important findings. Both papers deal with one of the key issues facing researchers and policymakers: Why is the homeownership rate for minorities much lower than it is for whites?

A key finding of the earlier research was that attributing endowments of more affluent whites to Hispanics, Asian Americans, and recent immigrants studied in the Los Angeles area raised their homeownership rates to levels comparable to or even greater than whites. While that research also showed that the weaker economic status among African Americans in Los Angeles explained much of the differential in homeownership rates, a racial differential still existed.

This working paper addresses that remaining differential by asking the following questions: Do all African Americans have lower, endowment-adjusted homeownership rates? Or are some African Americans on "paths" to homeownership that are statistically comparable to like white households?

The follow-up study presented here produced some intriguing results. The study looks more closely at the same population of African Americans as the earlier study. The authors divide their sample into mutually exclusive groups that seem to be on different tracks in the housing market: movers to outlying San Bernardino County, movers to South Central Los Angeles, and movers to other areas within Los Angeles County. The study verifies that these groups are on different "paths," as the groups reacted differently to changing economic and demographic developments in choosing a destination.

Having established these differences, Painter and Gabriel then statistically estimate why members of each group choose homeownership over renting. Having applied the same "endowment" approach to each group as the previous paper did to all African Americans as a whole, the authors find that the racial disparity is not uniform among

all African Americans in the study. Rather, the African Americans who moved to either San Bernardino County or to South Central Los Angeles were just as likely to be homeowners as whites if they had the same resources. These two groups constituted half of the sample. The homeownership gap for the remaining half of the original sample (African Americans who located in other areas within Los Angeles County) was reduced significantly from 28 percent to 11 percent.

The import of these results goes beyond learning about racial differences in homeownership in one city in the country. First, they demonstrate that the use of statistical models must be kept in perspective. Researchers still have a lot to learn about how minorities (and whites) make their housing market decisions. As Painter and Gabriel demonstrate, reworking a model to account for previously unexplored behavior can significantly change results that are consistent with—but not necessarily due to—discrimination.

Second, the results are significant because they show that the homeownership decision is one involving many factors. Racial affinity and antipathy both have been documented as important factors in where people choose to live. The results for the locational choice model in this study also demonstrate that the social and economic characteristics of a neighbor are important in determining where one lives. And groups that differ in their geographic preferences also differ when it comes to tenure choice decisions. While a family may prefer to own its own home, it may have strong preferences to live in a neighborhood with desirable amenities and with good access to job opportunities. Thus, it may move to such an area even if the opportunities to buy a home that it can afford are limited. As the authors note, those sorts of factors could well explain the homeownership disparity between white and African American movers to other areas within Los Angeles County.

However, the study should not be interpreted as ruling out that both subtle and not-so-subtle discrimination may be at work. Discrimination—or the legacy of past discrimination and segregation—may contribute to the all-important weaker economic endowments among minorities, to their locational decisions, or to the outcome of their home and mortgage shopping processes. This research should spur others to explore in more depth how the interrelated issues of race, preferences, economic disparities, and economic/racial living patterns affect housing opportunities for all minority groups. While we must be vigilant to end housing and mortgage discrimination, public policymakers must have a much better understanding of how people choose where to live and what this means for their housing choice.

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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. In so doing, the analysis identifies distinct pathways to homeownership for African American households in the Los Angeles area. Research findings indicate substantial variation across African American and white households in the determinants of locational choice among South Central LA, other areas within LA County, and San Bernardino County (or Inland Empire) areas. While African American households with higher incomes move to the Inland Empire, the opposite is true for white households. Among African Americans who move to San Bernardino County or to South Central LA, imputation of white economic endowments serves to fully close the sizable African American/white homeownership choice gap. In contrast, in other Los Angeles neighborhoods, the endowment adjustment lowered the homeownership gap by only 60 percentage points, leaving a residual differential between whites and African Americans.

## 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 between white and minority households. While the overall homeownership rate rose in recent years to a record 67.1 percent, the longstanding white/minority homeownership gap of about 28 percentage points did not narrow. By late 1999, close to 74 percent of whites were homeowners, compared to 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.<sup>1</sup>

The low homeownership rate among African Americans can be attributed in part to their lower incomes and wealth, among other factors (see, for example, Wachter and Megbolugbe 1992; Gyourko and Linneman 1996; and Coulson 1999). Recent research

sponsored by the Research Institute for Housing America (Painter, Gabriel, and Myers 2000, 2001) also speaks to this point. That research found that endowment differences (income, education, and immigrant status) largely explained the homeownership choice gap between Hispanics and whites in LA County in 1990. The research also indicated that Asians were as likely to choose homeownership as were whites and that immigrant status did not cause lower homeownership rates among Asians. However, the research did *not* find that adjusting endowments completely eliminated the lower homeownership rates (relative to white households) among African American households studied in LA County.

The research reported here explores that unexplained difference in more detail. In particular, evidence was examined to see if that gap held for all African Americans or if some groups within the African American community would just as likely be homeowners as whites if they were not constrained by different economic endowments.

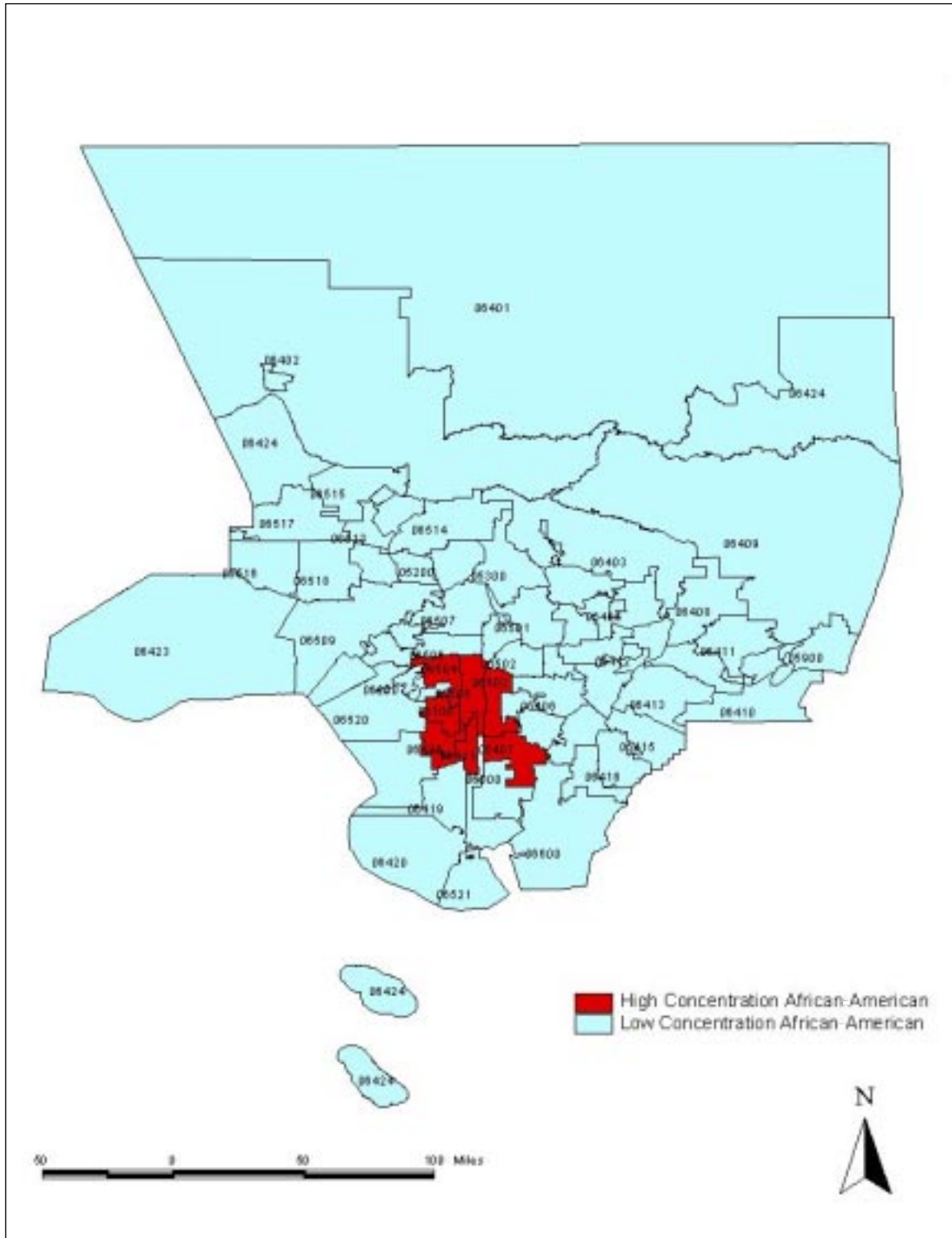
The study looks at both whites and African Americans who lived in LA County in 1985, but who had moved during the subsequent five years. It focuses on three groups within the African American community that could be thought likely to have different tastes and preferences with regard to housing: 1) movers to San Bernardino County, 2) movers to South Central LA, and 3) movers to other areas within LA County. (See figure 1 for a map distinguishing the two Los Angeles areas.) These groups were chosen because their destinations represent quite different geographic and socioeconomic environments which would likely attract households with different housing market preferences.

All three groups would be affected if purely race-related factors—beyond economic endowments—were holding down African American homeownership rates. On the other hand, if housing market behavior was different among these groups, the overall “shortfall” among those African Americans under study might be explainable on the basis of those differences. Thus, the research plan was a multistep one to determine if there are different “paths” to homeownership within the African American community.

First, location choice equations were estimated, stratified by race and destination. Second, separate tenure choice equations were estimated for each group to explain their choice of homeownership or rental tenure.<sup>2</sup> Third, those tenure choice equations were used to simulate African American homeownership rates in each geographic area using the economic endowments of whites.

Research findings indicate that housing market choices do vary among African American and white households by location. Moreover, the results showed that the homeownership gap could be explained for several groups. Unadjusted white/African American homeownership rate differentials stood at 28, 19, and 18 percentage points, respectively, among movers to other areas within LA County, movers to South Central LA, and movers to San Bernardino County. Among those who moved to San Bernardino

Figure 1. African American Concentration in LA County



County or to South Central LA, imputation of white household incomes to African American households served to fully close the sizable homeownership choice gap. Such was not the case for movers to other areas within LA County, where that and additional imputations to African American movers still left a residual of 11 percentage points in the endowment-adjusted homeownership gap.

These and other findings are developed in the paper. Section II provides further background for the study, while Section III describes data and sample characteristics. In Section IV, discrete choice models of household location and homeownership tenure choice are specified, while Sections V and VI report the results of the estimation of those models. Results of simulation of the tenure choice equation are presented in Section VII. Section VIII summarizes the findings.

## II. BACKGROUND

Although numerous papers have investigated the determinants of racial disparities in homeownership, only a few have investigated the potentially important role of neighborhood characteristics in the determination of tenure choice (see, for example, Deng, Ross, and Wachter 1999; and Newman and Harkness 2002). Numerous theoretical and empirical reasons suggest that neighborhood characteristics may influence the likelihood that households would choose to own. Neighborhood characteristics figure importantly in both consumption and investment (user cost) aspects of homeownership. Extensive documentation of the critical role of neighborhood characteristics in household location choice and in house value determination can be found in the local public finance and urban quality-of-life literatures (see, for example, Blomquist, Berger, and Hoehn 1988; Gyourko and Tracy 1991; and Gabriel, Matthey, and Wascher 2001).

Neighborhood characteristics also may affect youth outcomes and employment access and thereby influence both location and homeownership choice decisions. Linkages between neighborhoods and youth outcomes can occur for a variety of reasons, making certain neighborhood characteristics more appealing to parents with children. (See Jencks and Peterson 1991 for an extensive review.)<sup>3</sup> At the same time, relatively disadvantaged households may seek to move into neighborhoods that have better characteristics because of improved job opportunities. Wilson (1987, 1996) documented the movement of many African American households from central cities to suburbs in search of better employment opportunities. This and other movements led to increased residential segregation and higher poverty concentrations in central city locations (Jargowsky 1997; and Alba and Logan 1993).<sup>4</sup>

House prices are a key factor in tenure choice decisions, and neighborhood characteristics are likely to be capitalized in house prices. Property value capitalization of amenity and neighborhood effects may not be complete, however. If that is the case,

direct controls for neighborhood effects are appropriate in the analysis (Blomquist, Berger, and Hoehn 1988; Gyourko and Tracy 1991; and Gabriel, Mattey, and Wascher 2001). Also, preferences for neighborhood racial composition may vary systematically by household race or ethnicity, suggesting the importance of controls for neighborhood racial composition in racially stratified models of location and homeownership choice.<sup>5</sup> Finally, some households may choose to live in areas with better job opportunities even if this lowers, on net, 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.

Only two studies have incorporated both tenure and location choice together in one analysis (Gyourko, Linneman, and Wachter 1999; and Deng, Ross, and Wachter 1999). The Gyourko, Linneman, and Wachter study uses a multinomial logit in which households choose among four choices: owning in the central city, owning in the suburbs, renting in the central city, and renting in the suburbs. It finds significant variation across location in the probability of homeownership for African American and white households. In addition, it finds 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, Ross, and Wachter study jointly estimates location and tenure choice in a nested logit model. Their results imply that less desirable—but more affordable—neighborhoods may not lead to lower homeownership rates for African Americans compared to nonminorities.

### **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 a 5 percent sample of all individuals living in LA County and San Bernardino County. 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.<sup>6</sup>

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 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, our LA County sample was further stratified into South Central LA versus other areas within LA County. As can be well appreciated, South Central LA is distinguishable

from other parts of the county due to substantially larger populations of African Americans.

The analysis focuses on both LA County and San Bernardino County because the time period covered in the analysis (1985–90) 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. African American households represented over 9 percent of total San Bernardino County households in 1990, well in excess of the 5.9 percent recorded in 1980. In contrast, the African American household share declined from nearly 13 percent to 11 percent in LA County during this same period, in part reflecting the movement of African American households into San Bernardino County. Elsewhere in the Los Angeles metropolitan area, notably including Orange and Ventura counties, African American household shares were little changed over the decade at about 2 percent.<sup>7</sup>

The residential location and tenure choice equations are estimated using a sample of households that resided in LA County in 1985 and moved either within county (South Central LA or other areas within LA County) or to San Bernardino County during the subsequent 1985–90 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 LA County in the initial period and excluding those households that may have moved into LA County from other areas, the characteristics of the previous location can be controlled for 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.

Tables 2 and 3 present key comparative information on the three groups of movers. As shown in the tables, movers to the three regions represent substantially different combinations of population demographic, socioeconomic, and neighborhood distinction characteristics. For example, areas to which movers located in South Central LA had similar house prices to destinations in San Bernardino County; however, the racial and ethnic compositions of those areas were very different. South Central LA destinations were home to substantially higher numbers of African American, immigrant, and low-income households relative to destinations in other parts of the metropolitan area. For example, African American households moving to San Bernardino County 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 LA. African American moves to other areas within LA 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 located in communities with much fewer minorities.

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**Table 1. Changing Patterns of Residence among Whites and African Americans within Counties in the Los Angeles Metropolitan Area (Percentage of Area Population Based on 5 Percent Sampling)**

	1980	1990	Change 1980–90
Los Angeles County			
White	64.88	58.25	-6.63
African American	12.89	11.08	-1.81
Hispanic	14.55	16.97	2.42
Asian	7.68	13.70	6.01
All households	100.00	100.00	
San Bernardino County			
White	83.89	74.80	-9.09
African American	5.86	9.36	3.50
Hispanic	7.99	11.40	3.41
Asian	2.26	4.44	2.18
All households	100.00	100.00	
Ventura County			
White	87.11	81.50	-5.61
African American	2.43	2.36	-0.07
Hispanic	7.26	11.37	4.11
Asian	3.20	4.77	1.57
All households	100.00	100.00	
Orange County			
White	86.13	73.85	-12.28
African American	1.59	2.08	0.49
Hispanic	7.00	13.24	6.24
Asian	5.28	10.83	5.55
All households	100.00	100.00	
Riverside County			
White	85.20	77.21	-8.00
African American	4.74	5.25	0.51
Hispanic	8.39	13.77	5.38
Asian	1.67	3.78	2.11
All households	100.00	100.00	

The tables also indicate substantially lower levels of African American household income among movers to South Central LA relative to other areas within LA County or San Bernardino County. Income of white movers to other areas within LA County was noticeably higher than that of those locating in South Central LA or San Bernardino County. (Permanent and transitory income are calculated based on the method of Goodman and Kawai 1982.) Thus, there was a sharp contrast between white and African American movers: it was the *more* affluent African American households and the *less*

**Table 2. Average Household Characteristics of Movers in Study Sample**

Characteristic	Location in 1990					
	South Central LA		Other areas within LA County		San Bernardino County	
	White	Afr. Am.	White	Afr. Am.	White	Afr. Am.
Homeowner (percent)	40	21	49	21	65	47
Age of household head (percent)						
18–24	7	9	6	9	7	10
25–34	37	35	37	38	36	35
35–44	30	29	31	32	29	34
45–54	14	16	17	14	14	14
55–64	11	11	10	7	13	8
Education (percent)						
No high school diploma	12	24	8	15	13	16
High school diploma only	53	55	45	54	59	57
College degree	36	21	47	31	28	28
Family characteristics (percent)						
Not married, male head of household	32	19	26	23	17	14
Not married, female head of household	26	54	27	44	19	37
Household members (totals)						
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
Income (in \$1,000)						
Permanent income	51.12	27.29	55.53	35.54	51.55	37.26
Transitory income	-6.92	0.82	4.08	1.32	-8.06	-1.73

See appendix for definitions.

**Table 3. Average Household Characteristics of Movers in Study Sample**

Characteristic	Location in 1990					
	South Central LA		Other areas within LA County		San Bernardino County	
	White	Afr. Am.	White	Afr. Am.	White	Afr. Am.
Area demographic composition (percent)						
African American	44	68	6	11	7	10
Asian	12	5	10	12	4	4
Hispanic	15	16	13	18	12	13
Immigrant	23	19	25	28	11	12
Income below poverty line (percent)	14	22	8	10	10	11
Median house price (in \$1,000)	12.05	11.84	12.58	12.41	11.75	11.70
Median rent (in \$1,000)	6.30	6.16	6.45	6.38	6.21	6.21

See appendix for definitions.

affluent white households that chose to move to San Bernardino County. Nonetheless, at just over \$37,000, the incomes of African American households entering San Bernardino County were well below those of their white counterparts.

Both African American and white movers to San Bernardino County were much more likely to become homeowners than comparable households that stayed in LA County. In the case of African American movers, the San Bernardino County homeownership rate, at 47 percent, was more than double that in other areas within LA County. African American movers to other areas within LA County were more likely to be unmarried relative to their San Bernardino County counterparts; in the case of whites, they were also more likely to have attained a college degree.<sup>8</sup> Movers within LA County were more likely to live in neighborhoods containing immigrants and minorities; further, LA County destinations were characterized by relatively higher median house prices and rents.

## IV. MODEL SPECIFICATION

Rather than follow a nested logit modeling approach like Deng, Ross, and Wachter (1999), this study follows a location choice model more in spirit with Gyourko, Linneman, and Wachter (1999). Separate tenure choice models are estimated by location and race to compare the sensitivity of effects and homeownership differentials across location. The advantage of a nested logit approach is that it assumes that tenure and location choices are determined endogenously. The key differences between the Deng, Ross, and Wachter approach and the model used here are that in the former 1) the previous location of households that moved is not known, and 2) a combined sample of movers and nonmovers is used in the analysis. This study's approach provides new insights regarding 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. The equation for locational choice in a nested model only includes location characteristics that vary across areas; the influence of household characteristics on locational choice is captured elsewhere in the model. In this study, a key goal was to explicitly study the impact of household characteristics and preferences on location choice.

### **Choice of Residential Location**

In the location choice model, households choose between South Central LA, other areas within LA County, and San Bernardino County, conditional on household characteristics. The multivariate analysis employs a multinomial logit specification and is based on a sample of LA County households that moved during the 1985–90

period.<sup>9</sup> The location choice analysis is stratified by household race to assess race-related variations in the economic and demographic determinants of location choice.

The sample included a total of 27,986 movers: 22,791 headed by a white person and 5,195 headed by an African American. Among the white households, the vast majority (20,892) relocated to other areas within LA County. Some 482 households moved to South Central LA. A total of 1,417 white households moved from Los Angeles to San Bernardino County. Of the 5,195 African American households that lived in Los Angeles in 1985, 2,283 households chose to locate in South Central LA, 2,560 chose to move to other areas within LA County, and 352 moved to San Bernardino County in 1990.

The independent variables of the location choice equation include mover demographic (age, marital status, number of people in the household, and number of workers in the household) and economic factors (measures of permanent income, transitory 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 life cycle, as proxied by age, marital status, and number of people in the household. As in Gyourko and Linneman (1996), educational attainment of the household head is employed to indicate future earnings potential as well as the wealth of the household. Further, household educational attainment may serve as a proxy for differential demands for local public goods. Racial variations in both neighborhood preferences and in locational constraints may have importantly affected household location choice.

### **Choice of Housing Tenure**

A probit specification is employed to assess the determinants of housing tenure choice among each group of mover households.<sup>10</sup> As is commonplace in the literature, a latent variable exists that measures the propensity to own among mover households in the sample. The observable tenure choice indicator is regressed on a vector of demographic, economic, and locational variables. Further, the tenure choice model is stratified both by race and by mover destination.

The analysis is restricted 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). The potential problem with this approach is that if movers differ systematically from nonmovers, standard estimation of tenure choice among movers might be biased. Following the method of Painter (2000), sample selection bias is found using a bivariate probit model that only observes tenure choice among movers and the choice to move among all households. No correlation between the mobility choice and tenure choice equations was found in the sample. Given those results, the use of a simple probit specification of tenure choice in the sample of movers is appropriate.<sup>11</sup>

## V. ANALYSIS OF RESIDENTIAL LOCATION CHOICE

Table 4 shows coefficients and their standard errors from the residential location choice regressions. In all cases, other areas within LA County is used as the reference location. Hence, the estimated coefficients refer to the effects of particular household characteristics on the likelihood of moving to either South Central LA or San Bernardino County.

**Table 4. Regression Results: Multinomial Logit Model of Locational Choice among Movers**

	White households				African American households			
	S. Central LA destination		San Bernardino destination		S. Central LA destination		San Bernardino destination	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Age 18-24	-0.050	0.201	0.030	0.124	<b>-0.251</b>	<b>0.119</b>	0.299	0.222
OMITTED: Age 25-34								
Age 35-44	0.096	0.127	0.130	0.075	<b>0.214</b>	<b>0.081</b>	0.142	0.153
Age 45-54	0.011	0.163	0.149	0.096	<b>0.495</b>	<b>0.101</b>	0.100	0.203
Age 55-64	0.241	0.173	<b>0.467</b>	<b>0.098</b>	<b>0.687</b>	<b>0.122</b>	0.297	0.244
Not married, male head of household	0.227	0.148	<b>-0.890</b>	<b>0.097</b>	<b>-0.297</b>	<b>0.104</b>	<b>-0.660</b>	<b>0.207</b>
Not married, female head of household	-0.218	0.187	<b>-1.101</b>	<b>0.108</b>	<b>-0.252</b>	<b>0.113</b>	<b>-0.598</b>	<b>0.206</b>
OMITTED: Married								
No high school diploma	-0.021	0.162	-0.183	0.094	0.050	0.089	-0.116	0.181
OMITTED: High school diploma only								
College degree	-0.144	0.155	<b>-0.363</b>	<b>0.092</b>	0.102	0.102	-0.047	0.184
Number of people in household	<b>0.090</b>	<b>0.041</b>	<b>0.179</b>	<b>0.023</b>	<b>0.109</b>	<b>0.022</b>	<b>0.195</b>	<b>0.035</b>
Number of workers in household	0.152	0.114	-0.100	0.065	0.093	0.074	<b>-0.139</b>	<b>0.134</b>
Permanent income (in \$1,000)	<b>-0.016</b>	<b>0.007</b>	<b>-0.022</b>	<b>0.004</b>	<b>-0.027</b>	<b>0.004</b>	-0.005	0.008
Transitory income (in \$1,000)	<b>-0.010</b>	<b>0.002</b>	<b>-0.011</b>	<b>0.001</b>	<b>-0.006</b>	<b>0.002</b>	<b>-0.004</b>	<b>0.002</b>
Constant	<b>-3.401</b>	<b>0.271</b>	-1.382	0.153	0.268	0.143	<b>-1.931</b>	<b>0.248</b>
Number of households			22,791				5,195	
Pseudo-R <sup>2</sup>			0.051				0.037	

Notes: S.E. = standard error. Coefficients statistically significant at the 5 percent level or greater are in bold. The comparison region is LA County, non-central city. Pseudo-R<sup>2</sup> = 1 - L1/L0 where L1 = value of the likelihood function and L0 is the value of the likelihood function in a constant only model.

The results in table 4 indicate important variation in household socioeconomic, demographic, and neighborhood effects across African American and white households by location of destination.<sup>12</sup> For example, the probability of a move to South Central LA is significantly elevated among African American households with a head of household aged 35 and over relative to younger African American households whose head is in the 25–34 age group. In contrast, no significant age effects are estimated for

white household moves to South Central LA. Increases in permanent and transitory income exert significant and depressive effects on the likelihood of moves to South Central LA 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 San Bernardino County. Increases in number of persons per household exerts a positive and significant effect on likelihood of moves to both South Central LA and San Bernardino County among both African American and white households. Also, status as an unmarried head of household exerts a negative and significant influence on moves to San Bernardino County among both white and African American households; however, unmarried household head status also significantly reduces the likelihood of African American household moves to South Central LA. Finally, attainment of a college degree exerts a sizable negative and significant effect on the probability of white household moves to San Bernardino County. Such was not evidenced in results for African American households.

## VI. ANALYSIS OF HOUSING TENURE CHOICE

Given the results showing significant differences among movers to the three different areas, individual tenure choice equations were estimated for each group. The estimated coefficients and their standard errors from probit models of housing tenure choice for those groups are displayed in table 5.<sup>13</sup>

In general, findings contained in table 5 are consistent with previous literature on housing tenure choice (see, for example, Painter, Gabriel, and Myers 2001). One concern about the empirical structure is that it does not fully account for the endogeneity of location choice in the tenure choice model. However, results of the tenure choice equation were robust to the estimation of a nested logit model that accounts for the endogeneity of location choice; the tenure choice parameter estimates in the nested logit model were about the same as those in the simple reduced form version of the model. (Deng, Ross, and Wachter 1999 also find this result.) This suggests the appropriateness of using the results from the specifications used in this model in the simulations.<sup>14</sup>

Among the 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. Of additional interest, the number of household workers has a depressive effect on the probability of home purchase. This implies that, net of other factors, a household is less likely to own if additional workers are required to earn the same level of income.

Table 5 also indicates some notable differences in the determinants of ownership across both racial groups and geographic stratifications. The estimated permanent income

**Table 5. Regression Results: Probit Model of Tenure Choice among Movers**

	South Central LA				Others areas within LA County				San Bernardino County			
	White households		Afr. Am. households		White households		Afr. Am. households		White households		Afr. Am. households	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Age 18–24	<b>-0.786</b>	<b>0.341</b>	-0.402	0.223	<b>-0.495</b>	<b>0.056</b>	-0.363	0.202	<b>-0.821</b>	<b>0.181</b>	-0.292	0.403
OMITTED: Age 25–34												
Age 35–44	-0.058	0.174	0.148	0.093	<b>0.156</b>	<b>0.025</b>	<b>0.288</b>	<b>0.088</b>	0.131	0.099	0.301	0.222
Age 45–54	0.211	0.247	<b>0.421</b>	<b>0.110</b>	<b>0.300</b>	<b>0.034</b>	<b>0.447</b>	<b>0.108</b>	0.051	0.134	0.348	0.280
Age 55–64	-0.142	0.258	<b>0.508</b>	<b>0.118</b>	<b>0.390</b>	<b>0.040</b>	<b>0.712</b>	<b>0.141</b>	<b>0.502</b>	<b>0.147</b>	<b>1.114</b>	<b>0.367</b>
Not married, male head of household	<b>-0.725</b>	<b>0.208</b>	-0.172	0.117	<b>-0.471</b>	<b>0.032</b>	<b>-0.404</b>	<b>0.109</b>	<b>-0.571</b>	<b>0.129</b>	0.135	0.277
Not married, female head of household	<b>-0.534</b>	<b>0.253</b>	-0.184	0.124	<b>-0.334</b>	<b>0.038</b>	<b>-0.390</b>	<b>0.127</b>	<b>-0.567</b>	<b>0.152</b>	0.038	0.334
OMITTED: Married												
No high school diploma	-0.279	0.241	0.026	0.099	<b>-0.180</b>	<b>0.039</b>	<b>-0.248</b>	<b>0.112</b>	-0.061	0.125	-0.142	0.260
OMITTED: High school diploma only												
College degree	0.216	0.225	0.143	0.116	<b>0.116</b>	<b>0.033</b>	-0.029	0.107	-0.079	0.136	0.186	0.283
Number of people in household	<b>-0.200</b>	<b>0.065</b>	<b>-0.088</b>	<b>0.025</b>	<b>0.032</b>	<b>0.010</b>	-0.080	0.025	-0.032	0.035	-0.055	0.055
Number of workers in household	-0.060	0.156	-0.138	0.089	<b>-0.284</b>	<b>0.025</b>	-0.167	0.081	<b>-0.218</b>	<b>0.101</b>	-0.387	0.207
Permanent income (in \$1,000)	<b>0.025</b>	<b>0.010</b>	<b>0.036</b>	<b>0.005</b>	<b>0.022</b>	<b>0.001</b>	<b>0.026</b>	<b>0.005</b>	<b>0.026</b>	<b>0.007</b>	<b>0.050</b>	<b>0.013</b>
Transitory income (in \$1,000)	<b>0.024</b>	<b>0.005</b>	<b>0.019</b>	<b>0.003</b>	<b>0.011</b>	<b>0.001</b>	<b>0.013</b>	<b>0.002</b>	<b>0.015</b>	<b>0.004</b>	<b>0.035</b>	<b>0.006</b>
PUMA percentage: Immigrant	<b>-165.028</b>	<b>37.264</b>	<b>-130.261</b>	<b>27.913</b>	<b>0.823</b>	<b>0.210</b>	0.440	0.892	<b>-21.397</b>	<b>7.513</b>	-26.757	16.194
PUMA percentage: African American	2.025	4.661	<b>15.364</b>	<b>2.764</b>	<b>-0.471</b>	<b>0.231</b>	<b>2.889</b>	<b>0.589</b>	<b>-6.988</b>	<b>3.284</b>	-5.957	6.461
PUMA percentage: Asian	<b>86.545</b>	<b>23.060</b>	<b>107.316</b>	<b>21.510</b>	<b>-1.558</b>	<b>0.210</b>	-1.355	0.871	<b>38.786</b>	<b>10.194</b>	<b>38.503</b>	<b>17.553</b>
PUMA percentage: Hispanic	<b>231.140</b>	<b>55.374</b>	<b>239.033</b>	<b>50.704</b>	<b>-1.029</b>	<b>0.188</b>	0.647	0.775	<b>13.634</b>	<b>6.231</b>	<b>25.240</b>	<b>12.832</b>
PUMA percentage: Below poverty line	<b>-25.542</b>	<b>12.741</b>	<b>-50.793</b>	<b>10.307</b>	<b>-4.384</b>	<b>0.561</b>	<b>-8.498</b>	<b>2.170</b>	-4.833	6.277	-17.315	9.353
Log of median house price in PUMA	<b>12.956</b>	<b>3.822</b>	<b>8.950</b>	<b>2.398</b>	<b>-0.923</b>	<b>0.039</b>	<b>-0.923</b>	<b>0.154</b>	-0.040	0.617	<b>-3.129</b>	<b>1.465</b>
Log of median rent in PUMA	<b>-10.613</b>	<b>4.486</b>	<b>-15.979</b>	<b>3.647</b>	<b>0.466</b>	<b>0.136</b>	0.758	0.606	-1.338	1.320	0.440	2.799
Constant	<b>-93.829</b>	<b>38.007</b>	<b>-27.063</b>	<b>11.124</b>	<b>8.229</b>	<b>0.766</b>	5.665	3.582	8.919	8.749	<b>33.157</b>	<b>12.734</b>
Pseudo-R <sup>2</sup>	0.310		0.265		0.237		0.289		0.215		0.351	
Number of households	482		2,283		20,892		2,560		1,417		352	
Mean of dependent variable	0.405		0.215		0.490		0.209		0.651		0.466	

Notes: S.E. = standard error. PUMA = Public Use Microsample Area. Coefficients statistically significant at the 5 percent level or greater are in bold.

effects associated with homeownership choice among African American movers to South Central LA and San Bernardino County were greater than those of their white counterparts. Receipt of a college degree served to significantly elevate homeownership choice probabilities only among white movers to other areas within LA County. In South Central LA and San Bernardino County, educational attainment did not significantly affect tenure choice outcomes, after controlling for income and other household effects.

Sizable and depressive effects of unmarried status were estimated for white households regardless of location; those effects were particularly pronounced among white households moving to South Central LA. Marital status did not play a significant role in tenure choice among African American movers to South Central LA and to San Bernardino County. Finally, homeownership probabilities increased monotonically with age of household head among both white and African American movers to other areas within LA County; in this case, estimated coefficients for the sampled African American movers were less than those of their white counterparts. In marked contrast, age of household head was largely insignificant to housing tenure choice among African American and white movers to South Central LA and San Bernardino County.

Among neighborhood characteristics, higher levels of Public Use Microsample Area (PUMA) immigrant population served to significantly reduce homeownership among both white and African American movers to South Central LA. 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 African American and white populations in both South Central LA and San Bernardino County. The estimated effects of high levels of Asian populations on household homeownership choice in South Central LA are 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 tenure choice. Higher levels of African American population served to significantly boost homeownership tenure choice only among African American movers to South Central LA and other areas within LA County. As suggested above, typical destination neighborhoods of African American movers in San Bernardino County were characterized by relatively low levels of African American population; among African American movers to San Bernardino County, a negative but insignificant coefficient was associated with the presence of neighborhood African American population. In marked contrast, increased presence of African American population served to significantly depress homeownership choice among white movers to other areas within LA County and to San Bernardino County.

Higher destination PUMA house prices significantly lowered homeownership choice among the relatively lower income African American movers to other areas within LA

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County and to San Bernardino County. Similarly, higher levels of PUMA poverty population served to significantly depress both African American and white homeownership propensities in South Central LA and other areas within LA County.

## VII. SIMULATION OF THE TENURE CHOICE MODEL

Table 2 provided evidence of sizable differentials in African American/white homeownership rates among movers. For African American movers to other areas within LA County, the unadjusted homeownership gap with whites was a substantial 28 percentage points in 1990. In contrast, for African Americans who moved to South Central LA and San Bernardino County, the unadjusted homeownership gaps with whites in 1990 were 19 and 18 percentage points, respectively.

To determine the extent to which these gaps reflect variations in economic circumstances and endowments (income and education), a widely used decomposition technique is employed from 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, for African American households moving to San Bernardino County, the study used the coefficients of the African American San Bernardino tenure choice equation and attributes the average endowment of white movers to San Bernardino County to those African American movers. If the model is fully specified, the simulation should eliminate the gap due to the endowment and other economic differences of African American mover households.<sup>15</sup>

The key results of this simulation exercise are presented in table 6. The focus is on income, education, and poverty level of a neighborhood, because those variables represented the largest and most important differentials between African Americans and whites. (When other variables were included, the results did not change substantially.) The homeownership gap narrows little by attributing the education levels of white movers to those of African Americans. In fact, among movers to South Central and other areas within LA County, education attainment, all else equal, appears to play little residual role in narrowing the homeownership gap. In marked contrast, the white/African American gap in homeownership choice contracts substantially when the permanent and transitory income levels of white movers are attributed to African Americans. This simulation serves to more or less eliminate the white/African American homeownership gap among movers to South Central LA and San Bernardino County.

While adjustment of income differentials does eliminate 40 percent of the racial tenure choice gap in other areas within LA County, a 17 percentage point residual differential remains. However, the socioeconomic context of the destination neighborhood appears important in further reducing the white/African American tenure choice gap. A

**Table 6. Explaining the Homeownership Gap between African Americans and Whites among Movers from LA County (Percentage of Sample Cohort)**

	Destination		
	South Central LA	Other areas within LA County	San Bernardino County
White homeownership rate	40	49	65
African American homeownership rate	<u>21</u>	<u>21</u>	<u>47</u>
Measured gap	19	28	18
Gap after adjusting for education attainment	19	28	17
Gap after adjusting for education attainment and income	-3	17	1
Gap after adjusting for education attainment, income, destination, and poverty levels	-29	11	1

Source: Measured gap from a 5 percent sample of all individuals living in LA County and San Bernardino County. Data drawn from the PUMS file of the 1990 decennial census. Adjustments use regression results from study.

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) reduces the unexplained residual in white/African American homeownership choice to 11 percentage points.<sup>16</sup>

## VIII. CONCLUSION

This research sought an improved understanding of the persistently low levels of homeownership attainment evidenced among African American households in the Los Angeles area. In a departure from prior work, the study focused on how different housing market behavior, reflected in location choice, affects the propensity to own among African American and white households. Specifically, census microdata from the Los Angeles metropolitan area was utilized to model the determinants and directions of intra-metropolitan household moves among African American and white households as well as to evaluate how the paths to homeownership differ between groups and among locations. The effects of variations in household socio-demographic and economic characteristics were simulated on household location and tenure choice.

The analysis did, in fact, identify distinct pathways to homeownership for African American households in the Los Angeles area. African American households with higher incomes were more likely to have moved to San Bernardino County, whereas similar gains in economic status were shown to depress African American moves to South Central LA. 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 LA or to San Bernardino County. Destination areas of white and African American movers to San Bernardino County were remarkably similar

in socioeconomic and ethnic composition. Specifically, those were areas of affordable housing stock and limited African American representation. In marked contrast, African American and white movers to other areas within LA County chose more racially segregated neighborhoods of residence.

Looking at the tenure choice of these different groups, the research indicated that the probabilities of homeownership among African American households moving to South Central LA and San Bernardino County were identical to those of white households after adjusting for income differentials. However, adjusting income differentials and other differences between African Americans and whites only reduced—but did not eliminate—the disparity in homeownership between African American and white movers who located in other areas within LA County. If tastes and preferences are the same and the housing market operates efficiently, one would not expect such a disparity. Thus, one possibility is that households with different preferences are choosing to live in other areas within LA County. For example, African American households headed by a single person are most likely to live in other areas within LA County. These 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, better schools, or racial steering of potential African American homeowners away from these areas. Of course, it is also possible that there is discrimination of one sort or another involved in this geographic area. Unfortunately, our data do not allow us to distinguish between those hypotheses. Improved understanding of such persistent differentials in homeownership choice remains the focus of our ongoing research.

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## NOTES

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, the Department of Housing and Urban Development estimates that the homeownership gap between minority and nonminority families must be reduced by a full 15 percentage points.
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 in reality. Future research will address these concerns.
3. 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, Duncan, and Pinkston (2000); and Katz, Kling, and Liebman (2000) all provide evidence that there is a causal impact of neighborhoods, while Brooks-Gunn, Duncan, and Aber (1997); Solon, Page, and Duncan (2000); Glaeser, Sacerdote, and Scheinkman (1996); and Evans, Oates, and Schwab (1992) do not. Households may simply sort into neighborhoods that are comprised of households with similar characteristics to their own. In addition, Galster, Quercia, and Cortes (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 2000).
4. Some research (e.g., Farley 1995, and Darden and Kamel 2000) has found similar levels of segregation in the suburbs and central cities. However, the research of Clark and Ware (1997) suggests that in Southern California, the predominant pattern is less segregation at higher levels of income for African American households.
5. Neighborhood racial composition is included in the analysis as a control in the tenure choice models but not in the location choice models. The reason is that there was not enough observation in South Central LA to estimate the full set of location controls by race. The results for San Bernardino were as expected but are not presented.
6. The geographic entities referred to as neighborhoods in this analysis are Public Use Microsample Areas (PUMAs). These are much larger than past analyses of neighborhood effects that have focused on census tracts, blocks, or schools. LA County is divided into 58 PUMAs, and San Bernardino County is divided into nine PUMAs. South Central LA is comprised of seven geographically contiguous PUMAs representing 10 percent of the LA 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. The areas (PUMAs) that are characterized as South Central LA are shown in figure 1. The PUMAs that are in this grouping are 6100, 6503, 6504, 6505, 6407, 6421, and 6422.
7. 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 1980s; in LA County, the white household share fell from 65 to 59 percent.
8. 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.

9. Probit specifications of the model were also tested; results were similar to those reported here.
10. As noted, these tenure choice models are estimated conditional on location choice, as is commonplace in the literature. Future research will relax this assumption.
11. Results of the sample selection models are available upon request.
12. A likelihood ratio test of the stratified multinomial logit 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  $p < 0.001$ . 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.
13. 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  $p < 0.001$ . Results of the unified sample are available from the authors on request.
14. Results of the nested logit models are available upon request.
15. The alternative way to simulate these effects is to use the white coefficients and attribute the characteristics of the nonwhite group to white households. Results are invariant to the choice of method.
16. This is particularly noticeable in South Central LA as the simulation suggests that African American homeownership rates would be 29 percentage points higher than those for whites after equalizing poverty rates. In the housing market, one would expect a falling poverty level of the neighborhood to be associated with higher house prices, and this would likely mitigate the importance of the poverty level differential. However, this simulation is partial in nature and fails to account for the likely effects of a change in neighborhood poverty level on local house prices. If house prices are adjusted as well, the adjusted gap only falls to 15 percentage points.

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## APPENDIX: 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 LA County in 1985, and then lived in either LA County or San Bernardino County in 1990 are included.

Age 18–24	People aged 18 through 24 inclusive.
OMITTED: 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: Married	Head of household is married and is not separated.
No high school diploma	High school not yet completed.
OMITTED: High school diploma only	High school only completed.
College degree	Minimum of four years of post–high school education 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 one 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).
Log of median house price in PUMA	Self-explanatory.
Log of median rent in PUMA	Self-explanatory.
PUMA percentage: Immigrant	Self-explanatory.

PUMA percentage: African American	Self-explanatory.
PUMA percentage: Asian	Self-explanatory.
PUMA percentage: Hispanic	Self-explanatory.
Income below poverty line	Poverty line defined using the U.S. official poverty for each household size.

