

**Suggested Running Head: Race, Immigrant Status, and  
Housing Tenure Choice**

**Race, Immigrant Status, and Housing Tenure Choice**

by

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## **Race, Immigrant Status, and Housing Tenure Choice**

### **Abstract**

This paper applies Census microdata from 1980 and 1990 to assess the determinants of housing tenure choice among racial and ethnic groups in the Los Angeles metropolitan area. Like previous research, our results indicate that endowment differences (income, education, and immigrant status) largely explain the homeownership gap between Latinos and whites. In contrast to previous work, we find that Asians are as likely to choose homeownership as are whites, and that status as an immigrant did not portend lower homeownership rates among Asians. However, the endowment-adjusted homeownership choice differential between whites and blacks remains sizable; further, that gap more than doubled between 1980 and 1990, to a full 11 percentage points.

JEL Classification: R21

## 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, Wachter and Megbolugbe [18], Gyourko and Linneman [8], and Coulson [3]). While the aggregate homeownership rate moved up during past decades, homeownership attainment lagged significantly among blacks and Latinos. Further, the gap in homeownership attainment across minority and white households widened markedly during the 1980s. For example, some 54 percent of white households in Los Angeles County were homeowners in 1980 (Table 1); while that proportion was substantially below the national average, it well-exceeded the damped rates for blacks and Latinos in the county, which ranged from 38 to 40 percent. Although homeownership rates among white households in Los Angeles County moved up to about 57 percent over the course of the decade, those of blacks declined perceptibly, to about 37 percent. Asian households scored significant gains over the course of the 1980s, so as to reach homeownership levels close to those of white households.

The lower homeownership rates evidenced among minorities may be partially attributed to their lower incomes and wealth, and younger age, among other factors (see, for example, Wachter and Megbolugbe [18], Gyourko and Linneman [8], Coulson [3]). In the wake of ongoing and large-scale international migration to U.S. cities, the effect of immigrant status on housing tenure outcomes also has become a focus of policy attention, as recent immigrants have been found to have lower homeownership rates than natives (Pitkin *et al.* [16], Myers *et al.* [12], and Coulson [3]). More generally, an assessment of differential race-ethnicity effects in homeownership determinants has become increasingly relevant, given the growing racial and ethnic diversity of American society.

In a recent paper, Coulson [3] systematically analyzed the importance of income, market prices, demographics, and immigration status in explaining homeownership differentials among

blacks, whites, Hispanics, and Asians. He found that resource differentials explained much of the black-white and Hispanic-white gaps in homeownership. He further found that immigrants had substantially lower rates of homeownership, and accounting for that factor helped to explain the lower homeownership of both Hispanics and Asians. While the Coulson study provided new insights regarding the role of immigrant status in homeownership attainment, the model specification did not allow for differential race-ethnicity effects in homeownership determinants.

There are two primary aspects of this analysis that distinguishes it from Coulson's work. First, in a method similar to Wachter and Megbolugbe [18], we have stratified our sample by race and ethnicity, thus enabling a test of stability of homeownership determinants across the different subgroups. That procedure enables an assessment, for example, of the differential effect of immigrant status among Asians versus Latinos, or whether the income effect may be more influential for blacks than whites. Without stratification, or the use of a relatively cumbersome series of interaction effects, these differential effects cannot be tested. This method further enables an assessment of educational and financial endowments on homeownership, focusing both on variation in endowment effects across race-ethnicity and immigrant groups and on the magnitude of reduction in the homeownership gap that would derive from a closure in endowment differentials. Due to limitations of the American Housing Survey (AHS) used by Wachter and Megbolugbe [18], they were unable to study the impact of immigration or the tenure choices of Asians.

The second aspect of this study that is different from the recent literature on homeownership choice is a reliance on a sample of recent movers.<sup>1</sup> Most recent studies of homeownership evaluate cumulative attainment of homeownership (tenure status) among a sample of existing households (Wachter and Megbolugbe [18], Gyourko and Linneman [8], and Coulson [3]). The cumulative approach has been justified by the view that homeownership is a

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<sup>1</sup> Unlike most recent studies, this study focuses on a sample of households that have changed residence within the prior five years, 1975-80 and 1985-90.

long term decision based as much upon anticipated future needs as on present needs (Wachter and Megbolugbe [18], Edin and Englund [4]). However, among households who are age 45 or older, cumulative attainment of homeownership may largely reflect the lagged effects of past choices. Tenure decisions of recent movers more closely reflect equilibrium conditions and avoid that lagged effect (Ihlanfeldt [10], Boehm, Herzog, and Schlottmann [1]).<sup>2</sup>

A key drawback to basing analysis of tenure choice on a sample of recent movers concerns possible sample selection bias. Renters and others predisposed to not settling into long-term owner-occupancy are over-represented in a sample of recent movers. For that reason, estimates of the determinants of tenure choice could be biased. Although census data do not report the tenure of households prior to their move, we can estimate a model of their likelihood of entering the mover sample. To address possible sample selection bias, this study uses a Heckman-style correction [9] described by Painter [15]. As such, the tenure choice analysis is distinguished both by its reliance on a sample of recent movers and by a correction for sample selection bias.

This research uses 1980 and 1990 Census microdata from a single very large metropolitan area, the Los Angeles-Long Beach PMSA, which consists of Los Angeles County. In 1990, this area held 8.9 million residents and was dramatically diverse in both its residential composition and in its array of neighborhood living environments. These data are sufficiently rich and numerous to identify differences across race-ethnicity and immigrant groups in the economic and demographic determinants of homeownership choice.<sup>3</sup>

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<sup>2</sup> Cohort analysis may be employed as an alternative to cumulative attainment in static, cross-sectional samples (Myers, Megbolugbe, and Lee 1998). A focus on mover households achieves dynamic analysis of cross-sectional samples by a means different than the cohort method.

<sup>3</sup> Los Angeles is unique in that the homeownership rate in California and especially in Los Angeles County was far below the national average (57.5% and 50.4%, respectively, versus 68.0% for the nation). While these data are taken from the 1990 Census, which is used in this analysis, CPS (1998) data show remarkably identical homeownership rates. Part of the reason for the lower homeownership in California was due to high relative prices, and the consequent lack of housing affordability. However, the low homeownership rate may also be attributed to the population mix. In Los Angeles County, the percentage of non-Hispanic whites among all households declined by 7 percentage points from 1980 to 1990, and the

Results of this analysis indicate the importance of household endowments in an explanation of tenure choice differentials among whites and minorities. In that regard, the homeownership choice gap between whites and Latinos can be fully explained by differences in endowments, notably including inter-group variations in income, education, and immigrant status. However, contrary to Coulson's [3] results, we find that Asian immigrants are not less likely to be homeowners than whites, although the effect persists for Latino immigrants. In contrast, while the unexplained portion of the homeownership choice differential between whites and blacks was relatively small in 1980, it more than doubled to a full 11 percentage points by 1990. While systematic differences across whites and blacks in access to housing and housing finance markets undoubtedly were of consequence, the precise causal mechanism remains a topic for future research.

## **II. Data**

Data used in this analysis are drawn from the public use microdata sample (PUMS) file of the 1980 and 1990 decennial census. The file is comprised of a 5% sample of all individuals living in Los Angeles County, which constitutes the Los Angeles-Long Beach primary metropolitan statistical area. The data provide detailed information about both the housing unit, and the individuals who reside in that unit. The sample sizes are much smaller for 1980 than 1990, because detailed information about migration status was not coded by the Census Bureau for one-half of the 5% sample. Nevertheless, the 1980 sample is approximately ten times larger than comparable data available from the AHS for the study area. In addition, these Census data contain information on migration histories and immigration status that is not obtainable from the AHS.

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percentage of Asians doubled. In addition, there was a small decrease in the number of black households and a small increase in the relative percentage of Latinos. While these factors are more prominent in Los Angeles than in most metropolitan areas, a rapid change is sweeping many U.S. metropolitan areas. Analysis of trends in Los Angeles in 1980 and 1990 likely provide some preview of future changes elsewhere between 2000 and 2010. Sufficient data for detailed analysis of the actual 1990s experience will not become available until after release of full results from the 2000 census in 2002.

As discussed above, the sample for the tenure choice analysis is restricted to households that had moved into their current residence within five years of the census. The full sample of households is used for the selection equation that determines the probability that a household chose to move in the previous five years. This full sample includes all households which either own or rent their primary residence, excluding persons who reside in group quarters. We further restrict our analysis to four racial/ethnic categories: white, non-Hispanic; black, non-Hispanic; Hispanic, non-Asian; and Asian. Finally, the sample is limited to only those household heads that are aged 18-64, because the elderly may have significantly different tenure choice behavior.

The independent variables of the tenure choice equation include demographic factors (race-ethnicity, age, marital status, number of people in the household, number of workers in the household, migrant origin and history), as well as economic (salary income, dividend and other income, education level of the householder), and other factors which affect housing tenure choice. Like most other studies, wealth effects cannot be measured directly with the data at hand. As such, we must rely on proxies. As a measure of current wealth, we utilize the interest and dividend component of current income. Following Gyourko and Linneman [8], educational attainment of the household head is similarly employed to indicate the future earnings potential as well as the wealth of the family. Presumably, households with higher levels of human capital and nonsalary income are more capable of meeting downpayment requirements.

The analysis further adjusts for immigrant status and history (interacted with ethnicity and by years in the U.S. since immigration) as well as migrant origin (entered as a series of categorical variables indicating whether the household moved from within Los Angeles County, moved from elsewhere in the U.S., or moved from outside the U.S.). Controlling for immigration timing and ethnicity, newcomers to a region may have lower homeownership probabilities than do longer-term residents. Newcomers by definition are mobile and are more often drawn from the ranks of renters. Migrants may also undertake extensive search prior to investment in housing. Also, relative to local homeowners who may have benefited from substantial house

price appreciation in previous years, migrants, who arrive without the benefit of similar increases in home equity, may be characterized by more binding homeownership affordability constraints.

The present study is focused on a single metropolitan area, unlike most studies that utilize a national sample of observations. Like the Coulson [3] and Gyourko and Linneman [8] studies, we do not distinguish intra-metropolitan variations in house prices or rents; instead, we assume that households moving within the metropolitan area face the same rent and price frontier. To assess the appropriateness of that assumption, however, we include measures of intra-county house prices and rents as a robustness check. Areas with relatively high house values or low rents may be expected to depress the transition to homeownership. In addition, for this neighborhood-level analysis, we alternatively include measures of neighborhood social composition, so as to assess the robustness of the estimated price and endowment effects to the inclusion of neighborhood indicators.<sup>4</sup>

In general, sampled white and Asian households are characterized by much higher levels of wage and salary income, dividend income, and educational attainment, relative to their black and Latino counterparts.<sup>5</sup> For example, approximately one quarter of black and Latino households had obtained a college degree in 1990, well below the levels recorded for other groups. Similarly, wage and salary income averaged about \$30,000 for black and Latino households in 1990, far below the \$47,000 recorded for white households. Further, unmarried females comprised about 47 percent of black household heads in 1990, compared to levels ranging from 17 to 27 percent among other racial and ethnic groups. Finally, a full one-fourth of Asian households had arrived in the U.S. during the latter half of the 1980s; the proportion of new immigrants among the Asian population was far in excess of those recorded for the other racial and ethnic groups.

### **III. Analysis of Tenure Choice**

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<sup>4</sup> These variables may also proxy for supply-side effects that vary by neighborhood.

As mentioned previously, our study focuses on the homeownership choice decisions of recent movers. Residential length-of-stay among homeowners well exceeds that of renters; accordingly, homeownership rates overall are relatively damped among the recent mover sample. As shown in Table 2, only about one-third of black and Latino movers chose homeownership tenure status in 1980; close to one-half of white and Asian movers achieved homeownership during that period. Table 2 further indicates a substantial decline over the course of the 1980s in homeownership rates among all race-ethnic groups. By decade's end, for instance, less than one-fifth of black movers in Los Angeles County achieved homeownership status; among the Latino population that ratio approximated one-fourth. As is well appreciated, house prices accelerated sharply in Los Angeles County over the latter half of the 1980s to levels well in excess of those recorded in most other parts of the state and nation.<sup>6</sup> As mentioned previously, race-ethnicity variations in tenure choice owe in part to systematic differences across those groups in housing affordability, but the affordability gap as measured by the median housing price/income ratio did not actually worsen over the period (Painter, Gabriel, and Myers [14]: Table 3).

*i. Econometric Model: Tenure Choice with Sample Selection*

The multivariate analysis employs a probit specification of the tenure choice among recent movers. As discussed previously, the tenure choice decisions of recent movers are more likely to reflect equilibrium conditions, relative to analyses of homeownership rates for the population as a whole. As is commonplace in the literature, we assume there exists a latent variable OWN\* 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 other factors affecting the housing tenure decision.

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<sup>5</sup> Tables containing summary statistics for the whole sample and for the race-ethnicity stratifications are available in the longer working paper version of this study (Painter, Gabriel, and Myers [14]).

<sup>6</sup> According to the California Association of Realtors, only about 14 percent of households in Los Angeles County could afford the median priced home in 1989, which sold for about \$200,000. In contrast, the National Association of Realtors estimates that approximately 50 percent of U. S. households could afford the median priced home during that year, which sold for about \$100,000.

In the model of movers, we do not observe a household's choice of tenure if they do not move. Therefore, standard estimation of tenure choice among movers is biased.<sup>7</sup> Following Painter [15], we correct for sample selection bias by employing a variant of Heckman's [9] selection model. The model of tenure choice among movers which corrects for selection bias is adapted from Van de Ven and Van Pragg [17] (see also Boyes, Hoffman, and Low [2]), in which both the selection equation and the tenure choice equation have binary dependent variables.

As with the standard formulation, we assume that there is an underlying relationship,

$$OWN_i^* = X_i \beta + \epsilon_{1i}$$

such that we observe only the binary outcome,

$$\begin{aligned} OWN_i &= 1, \text{ if } OWN_i^* > 0 \text{ and} \\ OWN_i &= 0, \text{ if } OWN_i^* \leq 0. \end{aligned}$$

However, we only observe  $OWN_i$  for observation  $i$  if  $MOVE_i = 1$ , where  $MOVE_i^*$  is taken from the underlying relationship,

$$\begin{aligned} MOVE_i^* &= Z_i \gamma + \epsilon_{2i}, \text{ where} \\ MOVE_i &= 1, \text{ if } MOVE_i^* > 0 \text{ and} \\ MOVE_i &= 0, \text{ if } MOVE_i^* \leq 0. \end{aligned}$$

Finally, we make the assumption that  $\epsilon_{1i}$ , and  $\epsilon_{2i}$  are jointly normally distributed with correlation coefficient  $\Delta$ . This allows maximum likelihood estimation of the log likelihood function

$$L = \sum_{i \in S} \ln[\Phi_2(X_i \mathbf{b}, Z_i \mathbf{g}, \mathbf{r})] + \sum_{i \in S} \ln[\Phi_2(-X_i \mathbf{b}, Z_i \mathbf{g}, \mathbf{r})] + \sum_{i \notin S} \ln[1 - \Phi_1(Z_i \mathbf{g})]$$

where  $S$  is the set of observations for which  $OWN_i$  is observed,  $M_1$  is the standard cumulative

normal and  $M_2$  is the cumulative bivariate normal distribution function. Unlike the standard

Heckman selection model, the bivariate probit with sample selection is weakly identified without

the use of identifying assumptions in the selection equation (Greene [7]). Likelihood ratio tests

confirm that they are not necessary.

## ii. Model results

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<sup>7</sup> As Painter [15] illustrates, the bias is concentrated in the age and immigrant variables as both are strong

Marginal changes in probabilities ( $Dp/Dx$ ) and their standard errors from 1990 probit models of housing tenure choice among recent movers are displayed in Table 3 for the unified sample; estimation results for each of the race-ethnicity stratifications are contained in Table 4.<sup>8</sup> (Results from 1980 estimation are available in the longer working paper version of this study {Painter, Gabriel, and Myers [14]}. Any differences in the results are noted below.) The findings from the unified sample are consistent with previous literature on housing tenure choice. Among demographic and economic variables, higher ages, being married, having larger households, higher incomes and higher levels of education all increase homeownership probabilities. Effect sizes are robust across time, except in the case of status as a single household head. This effect size fell by a third, likely reflecting the rise in single-person owner-occupiers over the course of recent decades. Of additional interest, the number of household workers has a relatively modest (3 percentage points), but significant, depressive effect on the probability of home purchase. This implies that rather than helping to increase the probability of home ownership, net of other factors, if additional workers are required to earn the same level of income, a household is less likely to own.

After controlling for the various economic and demographic effects discussed above, Table 3 indicates significant effects of household race-ethnicity in the determination of tenure choice; further, the race effects increased very substantially among black households over the course of the 1980-1990 period (from 6 to 11 percentage points). Latinos are found to have slightly lower homeownership probabilities (3.7 percentage points) and Asians are found to have slightly higher homeownership probabilities (3.4 percentage points), with the coefficients on these groups relatively stable over the period.

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predictors for whether someone will choose to move or not.

<sup>8</sup> The coefficients and standard errors for the probit model estimates are converted into marginal changes in the probability of the homeownership evaluated at the mean of the independent variables. Results from the estimation of the sample selection equation are available in Painter [15].

The analysis further controls for the effects of immigrant status on homeownership likelihood. In Table 3, immigrant status is interacted with household race-ethnicity and with date of arrival in the U.S. Results of the analysis indicate that status as an Asian immigrant results in a slightly elevated probability of homeownership (not significant), whereas that probability is significantly reduced by 12 percentage points in the case of Latino immigrants. In addition, estimation results reflect the expected diminished homeownership probabilities of recent migrants (those who arrived during the prior 5 years) relative to immigrants who arrived in the U.S. in the more distant past. Findings indicate a positive relationship between length of time in the U.S. and probability of homeownership choice, with the maximum probability among those who had entered 10-15 years ago.

In the analyses reported on below, we test the null hypothesis of homogeneity of the tenure choice coefficient vector across the race-ethnicity groupings. Results of that analysis provide credence for full race-ethnicity stratification of the tenure choice models. Although many of the demographic characteristics are not significantly different from each other, we can strongly reject the null hypothesis of similar coefficient vectors across groups ( $p$ -value  $< .0001$ ).

Table 4 presents coefficient estimates from the race-ethnicity stratifications of the tenure choice model. There are some notable differences across groups. As is evident, the estimated income effects differ significantly across the race-ethnicity stratifications. The homeownership effects of increases in wage and salary income among Latinos substantially exceed those of other race and ethnic groups. At the same time, the impact of dividend and interest income was more important for both black and Asian households when compared to white households. Concerning educational attainment, receipt of a college degree serves to substantially elevate the homeownership choice probabilities of Asian movers, relative to their white counterparts.

Finally, Table 4 provides evidence of sizable and significant differences in homeownership probability among Asian and Latino immigrants. Relative to immigrants who had arrived in the U.S. during the prior 5 years, homeownership probabilities moved up non-

monotonically with duration of residence in the U.S. among Latino immigrants. Those recent arrivals had a 13 percentage point smaller homeownership probabilities than Latino natives. After 15 years in the U.S., immigrants were as likely to own as natives. Immigrant status is much less important for Asians than Latinos. In fact, we find that recent Asian immigrants are as likely to own as Asian natives, and that the only class of immigrants with lower homeownership probabilities than natives are in the category of those who arrived over 30 years ago.

These findings on Asian homeownership are in stark contrast to Coulson [3] who found lower homeownership rates for Asian immigrants. The differences are due to two factors. First, Coulson does not allow for the coefficient on immigrant status to vary by ethnicity. As we have shown, large differences exist. Second, estimation of the tenure choice model with sample selection among movers controls for the probability that Asian immigrants are more likely to move than are natives. As shown in Painter [15], failure to control for this possibility will also to the erroneous conclusion that Asians immigrants are less likely to own.

#### **IV. Model Simulation**

Table 2 provided evidence of sizable differentials in black-white and Latino-white homeownership rates; further, those gaps widened significantly over the 1980-1990 period. In order to determine the extent to which these gaps reflect variations in endowments (income, education, and other characteristics), we employ a decomposition technique which is commonly used in studies of labor market discrimination (Oaxaca and Ransom [12]), and has also been applied to measuring racial gaps in educational attainment (Levine and Painter [11]), intrametropolitan household location (Gabriel and Rosenthal [5]), and homeownership status (Wachter and Megbolugbe [18]). This method attributes the endowments of whites to each of the households in the other ethnic groups. For example, in the sample of black households, we use the coefficients from the black household sample, and attribute the average white endowment to

those households. To the extent that the measured gap in home ownership rates is due to gaps in the endowment of minority households, then the simulated gap should close.<sup>9</sup>

Table 5 shows the results of this method for attributing the income, the education, and all characteristics of white households to the black households in the sample. For black movers in 1980, the homeownership gap with whites was substantial at 15 percentage points. As evidenced in the table, this gap narrows by 1 percentage point by attributing the education level of white movers to blacks, and by 7 percentage points by attributing the income of whites movers to blacks. Attributing all of the income, educational, and socioeconomic characteristics of white movers to blacks serves to reduce the predicted gap in homeownership rates to 3 percentage points. While this remaining unexplained portion of the white – black differential in housing tenure choice was quite small in 1980, it increased almost fourfold to 11 percentage points, in 1990. In fact, the raw percentage point gap that was explained by differences in characteristics between whites and blacks actually fell by a percentage point between 1980 and 1990.

The story is markedly different for Latino households. The actual white - Latino homeownership choice differential in 1980 was 8 percentage points, about half of the white – black differential. Eliminating the Latino income deficit closes the gap by 6 percentage points, whereas removing the Latino educational deficit closes the gap by 4 percentage points. In sum, household education and income differentials would account for all of the gap in homeownership between Latinos and whites. In 1990, the raw gap increased by 8 percentage points, similar to the increase in the gap between black and whites. However, attributing the all endowments of whites to Latino mover households serves to reduce the tenure choice differential between white and Latino movers to only 3 percentage points.

The simulations in Table 5 confirm the findings from Table 4 concerning immigrant status. They demonstrate that the housing tenure choice rates of Asian immigrant, who have been

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<sup>9</sup> 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.

in the United States for 5 - 10 years and are endowed identically to whites, are higher than those of the whites. On the other hand, being an immigrant does predict a large deficit in homeownership for Latinos. In 1980 and 1990, the gap in homeownership rates of whites and Latino immigrants was 12 and 30 percentage points, respectively. In both years, attributing the educational and income endowments of white movers to those of Latino immigrant movers closes that gap by about 12 percentage points.

In sum, this exercise suggests that for Latinos, the damped rate of homeownership choice can be attributed to length of stay in the United States, and to relatively lower levels of income (from all sources), education, and to immigrant status. This result suggests that policies that lead to higher levels of training and human capital investment among Latino households would substantially raise homeownership rates. In marked contrast, the endowment-adjusted homeownership deficit between blacks and whites increased almost fourfold to a full 11 percentage points over the 1980 – 1990 period.

The interpretation of the sizable endowment-adjusted homeownership choice differential between blacks and whites remains open to interpretation. The residual black - white gap could be due to systematic differences in access to housing and housing finance markets and/or to other difficult to measure and omitted factors that are correlated with household race. While Yinger [19] and others have provided evidence of discrimination in housing markets, there is little reason to believe that such behaviors worsened between 1980 and 1990. Further, as Levine and Painter [11] show, attributing the black – white gap in educational attainment to discrimination is not always appropriate, in that an endowment simulation (as above) predicts substantially higher rates of educational attainment for blacks than for whites, in the case where blacks have the average characteristics of whites. This can result in an interpretation of reverse discrimination, which is equally precarious. Therefore, it is important that future research identify other race-related correlates that help to explain the residual black – white tenure choice differential.

## V. Robustness Checks

Our model specification excludes intrametropolitan house price and rent terms, based on the assumption that Los Angeles County constitutes a single market for housing. This specification is consistent with recent additions to the tenure choice literature (see, for example, Wachter and Megbolugbe [18], Gyourko and Linneman [8], and Coulson [3]), which used metropolitan level variation house prices and rents to identify those effects. At the same time, it is prudent to assess the robustness of our estimation results to the exclusion of terms reflecting intra-metropolitan variation in house prices and rents.

Los Angeles County is divided into fifty-eight regions called Public Use Micro-sample Areas (PUMAs).<sup>10</sup> We obtained proxies for each area's housing affordability conditions by including a measure for the price of entry level homes (the 25<sup>th</sup> percentile home price across the PUMA) and for the rent (the median rent across the PUMA). In addition, we included variables for neighborhood racial composition, poverty status, and educational profile to allow for the price effects to vary by neighborhood. When all variables are included in the model, the estimated price and rent effects are small and insignificant, while the area's proportion neighborhood black population, proportion neighborhood Latino population, and proportion neighborhood poverty population all serve to significantly damp the probability of homeownership choice (Painter, Gabriel, and Myers [14]: Table 9). These findings indicate the robustness of the basic model results to the exclusion of controls for intra-metropolitan house price and rent variation, lending credibility to the assumption that Los Angeles County constitutes a single price regime.

Our final robustness check concerns the sensitivity of parameter estimates to the use of permanent income instead of current income. As noted by Ihlanfeldt [10], the use of permanent income may be most appropriate when using a sample of recent movers. Using the method of Goodman and Kawai [6], we substituted permanent income for the income variables in the tenure

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<sup>10</sup> They are not intended to comprise neighborhoods, but are meant to divide the population into fairly equal segments.

choice equation.<sup>11</sup> The main difference is the reduction in importance of the education variables, as they probably serve as proxies of permanent income. The remainder of the results are robust to the use of permanent income. Because we wanted to highlight the differences between the effect of wage income and dividend or interest income, we chose to present the results in this format.

## **VI. Conclusion**

This analysis applied Census microdata from the Los Angeles PMSA to assess the effects of changing population mix on homeownership patterns. Like previous research (Wachter and Megbolugbe [18], Gyourko and Linneman [8], and Coulson [3]), we highlight the importance of race and immigrant status to tenure choice. We demonstrate not only that differences in endowments explain most of the homeownership gap between whites and minorities, but also that minorities are more sensitive to changes in income than are whites. Nevertheless, our findings differ from prior studies along several important dimensions.

First, we find that Asians are as likely to choose homeownership as are whites. This is in contrast to Coulson [3], who estimated lower homeownership probabilities for Asians. Also, status as an immigrant did not portend lower homeownership rates among Asians. This result is dependent on allowing for differential effects of immigration by race/ethnicity and on the use of the tenure choice model with sample selection among recent movers. Second, results of our analysis indicate that the homeownership choice differential between whites and Latinos can be fully explained by the differences in endowments. In particular, elevating the income, education, and immigration status of Latinos to that of whites serves to close the gap in homeownership.

In contrast, we find that the unexplained portion of the homeownership choice differential between blacks and whites moved up by almost fourfold between 1980 and 1990 to a full 11 percentage points.<sup>12</sup> While a portion of the gap may be due to differences in access to

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<sup>11</sup> In this method, permanent income is the predicted value of a regression of income on a set of demographic and human capital characteristics. Results are available upon request.

<sup>12</sup> This result is primarily due to an increase in the actual housing choice gap between blacks and whites, which grew by 7 percentage points over the decade. The other reason for the increase in the unexplained

housing and housing finance (Wachter and Megbolugbe [18], Yinger [19]), it is not likely that access differentials between blacks and whites have worsened substantially over the period. Therefore, future research is needed to identify other factors that may help explain the endowment-adjusted black – white tenure choice differential.

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portion of the gap is that endowments were only able to explain 50 percent of the gap in 1990, and were able to explain 71 percent of the gap in 1980.

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**Table 1**  
**Homeownership Rates of Households**  
**by Racial Category**

All Households		
Year	1980 N = 51352	1990 N = 96548
White	53.80%	57.22%
Black	38.40%	36.78%
Latino	40.50%	40.07%
Asian	49.97%	55.70%
All Households	49.52%	51.66%

**Table 2**  
**Homeownership Rates of Households**  
**by Racial Category**

Sample of Movers Only		
Year	1980 N = 29450	1990 N = 52656
White	36.66%	41.84%
Black	21.55%	19.62%
Latino	28.42%	26.36%
Asian	41.98%	45.88%
All Households	33.93%	37.31%

**Table 3**  
**Determinants of Tenure Choice Among Movers**  
**Probit Model with Sample Selection**

VARIABLE	Dp/Dx	Std. Error
AGE 18-24	-0.103	0.008
AGE 35-44	0.033	0.005
AGE 45-54	0.047	0.009
AGE 55-64	0.046	0.011
NOT MARRIED, MALE HEAD OF HOUSEHOLD	-0.142	0.005
NOT MARRIED, FEMALE HEAD OF HOUSEHOLD	-0.139	0.005
NO HIGH SCHOOL DIPLOMA	-0.057	0.006
COLLEGE DEGREE OR BETTER	0.041	0.004
NUMBER OF PEOPLE IN HOUSEHOLD	0.009	0.001
NUMBER OF WORKERS IN HOUSEHOLD	-0.028	0.002
WAGE&SALARY	0.005	0.000
WAGE&SALARY SQUARED	-1.290E-05	6.693E-07
DIVIDEND AND INTEREST INCOME	0.005	0.000
OTHER INCOME	0.003	0.000
MOVED FROM WITHIN CALIFORNIA	-0.079	0.006
MOVED FROM WITHIN U.S.	-0.172	0.005
MOVED FROM A FOREIGN COUNTRY	-0.136	0.011
IMMIGRANT	-0.041	0.013
IMMIGRANT*LATINO	-0.119	0.021
IMMIGRANT*ASIAN	0.027	0.017
ETHNICITY- BLACK	-0.110	0.006
ETHNICITY- LATINO	-0.037	0.007
ETHNICITY- ASIAN	0.034	0.013
CAME TO U.S. 5-10 YEARS AGO	0.033	0.012
CAME TO U.S. 10-15 YEARS AGO	0.101	0.014
CAME TO U.S. 15-20 YEARS AGO	0.122	0.016
CAME TO U.S. 20-30 YEARS AGO	0.133	0.016
CAME TO U.S. MORE THAN 30 YEARS AGO	0.095	0.019
Correlation Coefficient ( $\Delta$ )	0.343	0.047
Log Likelihood Function	-81237	
Number of Households	52656	
Mean of Dependent Variable	0.373	

Note: Reference household is married, aged 25-34, has a high school diploma, moved from within Los Angeles county, and is a native born white. If an immigrant heads a household, the reference immigrant household is the household that arrived less than 5 years prior.

**Table 4**  
**Determinants of Tenure Choice Among Movers**  
**Probit Model with Sample Selection**  
**Race/Ethnicity Stratifications**

Race/Ethnicity	White Households		Black Households		Latino Households		Asian Households	
	Dp/Dx	Std. Error	Dp/Dx	Std. Error	Dp/Dx	Std. Error	Dp/Dx	Std. Error
VARIABLE								
AGE 18-24	-0.125	0.012	-0.054	0.016	-0.098	0.016	-0.057	0.027
AGE 35-44	0.049	0.008	0.032	0.013	0.036	0.016	0.005	0.013
AGE 45-54	0.089	0.013	0.039	0.024	0.063	0.028	-0.046	0.018
AGE 55-64	0.087	0.017	0.059	0.033	0.101	0.042	-0.075	0.023
NOT MARRIED, MALE HEAD OF HOUSEHOLD	-0.185	0.007	-0.072	0.014	-0.103	0.013	-0.099	0.015
NOT MARRIED, FEMALE HEAD OF HOUSEHOLD	-0.170	0.007	-0.084	0.011	-0.126	0.012	-0.097	0.014
NO HIGH SCHOOL DIPLOMA	-0.058	0.009	-0.015	0.010	-0.049	0.010	-0.066	0.016
COLLEGE DEGREE OR BETTER	0.039	0.005	0.039	0.009	0.034	0.012	0.063	0.011
NUMBER OF PEOPLE IN HOUSEHOLD	0.016	0.002	-0.004	0.003	0.013	0.002	0.008	0.003
NUMBER OF WORKERS IN HOUSEHOLD	-0.050	0.004	-0.008	0.006	-0.038	0.005	0.005	0.006
WAGE&SALARY	0.005	0.000	0.004	0.000	0.008	0.000	0.005	0.000
WAGE&SALARY SQUARED	-1.310E-05	7.020E-07	-9.100E-06	2.450E-06	-2.730E-05	2.746E-06	-1.150E-05	2.604E-06
DIVIDEND AND INTEREST INCOME	0.005	0.001	0.010	0.003	0.005	0.002	0.011	0.002
OTHER INCOME	0.003	0.000	0.002	0.000	0.004	0.001	0.004	0.000
MOVED FROM WITHIN CALIFORNIA	-0.096	0.008	-0.037	0.018	-0.035	0.017	-0.095	0.019
MOVED FROM WITHIN U.S.	-0.205	0.007	-0.086	0.012	-0.120	0.019	-0.167	0.017
MOVED FROM A FOREIGN COUNTRY	-0.192	0.020	-0.087	0.032	-0.072	0.020	-0.139	0.020
IMMIGRANT	-0.045	0.023	0.103	0.054	-0.128	0.025	0.047	0.027
CAME TO U.S. 5-10 YEARS AGO	0.070	0.027	-0.085	0.036	0.047	0.027	0.018	0.020
CAME TO U.S. 10-15 YEARS AGO	0.116	0.028	-0.048	0.044	0.155	0.032	0.063	0.025
CAME TO U.S. 15-20 YEARS AGO	0.094	0.032	-0.031	0.051	0.245	0.037	0.029	0.027
CAME TO U.S. 20-30 YEARS AGO	0.094	0.029	-0.047	0.043	0.280	0.039	0.014	0.032
CAME TO U.S. MORE THAN 30 YEARS AGO	0.097	0.030	-0.046	0.058	0.227	0.045	-0.051	0.045
Correlation Coefficient ( $\Delta$ )	0.199	0.075	0.453	0.199	0.131	0.252	0.662	0.073
Log Likelihood Function		-48245		-9138		-13561		-9770
Number of Households		30672		5834		8937		7213
Mean of Dependent Variable		0.418		0.196		0.264		0.459

Note: Reference household is married, aged 25-34, has a high school diploma, moved from within Los Angeles county, and is a native born white. If an immigrant heads a household, the reference immigrant household is the household that arrived less than 5 years prior.

**Table 5**  
**Actual and Predicted Racial Differentials**  
**In Homeownership Rates**

<u>Year</u>	1980	1990
	Percentage Point Differential from White rate	Percentage Point Differential from White rate
<b>White Homeownership Rate</b>		
(1980 = 37 Percent; 1990 = 43 Percent)		
<b>Black Predicted Ownership Rates</b>		
Actual Black/White Gap	15	22
Predicted Gap with Dividend income of whites	13	20
Predicted Gap with Total income of whites	8	16
Predicted Gap with Education levels of whites	14	22
Predicted Gap with Income and education level of whites	6	15
Predicted Gap with All levels like whites	3	11
<b>Latino Predicted Ownership Rates</b>		
Actual Latino/White Gap	8	16
Predicted Gap with Dividend income of whites	6	15
Predicted Gap with Total income of whites	2	9
Predicted Gap with Education levels of whites	4	13
Predicted Gap with Income and education level of whites	-3	5
Predicted Gap with All levels like whites	1	3
<b>Latino-Immigrant in US for 5-10 years</b>		
Actual Latino/White Gap	12	30
Predicted Gap with Dividend income of whites	10	29
Predicted Gap with Total income of whites	4	23
Predicted Gap with Education levels of whites	10	28
Predicted Gap with Income and education level of whites	0	20
Predicted Gap with All levels like whites	7	19
<b>Asian-Immigrant in US for 5-10 years</b>		
Actual Asian/White Gap	-19	-3
Predicted Gap with Dividend income of whites	-20	-4
Predicted Gap with Total income of whites	-20	-7
Predicted Gap with Education levels of whites	-18	-3
Predicted Gap with Income and education level of whites	-18	-7
Predicted Gap with All levels like whites	-13	-5

Note: Coefficients for the simulations are taken from models using the samples indicated  
Results from the 1980 model estimation are available upon request

