

Draft

Immigration and Sprawl: Race/Ethnicity, Immigrant Status, and Residential Mobility in Household Location Choice

Zhou Yu*

University of Southern California
Los Angeles, CA 90089-0626

Abstract

This paper, using 1990 census microdata, investigates immigrants' residential location choices that are relevant to urban sprawl. Regression models of two location choices are separately estimated, in which households choose from areas with different levels of residential density and new residential development. Measures are taken to account for the lagged effects in residential adjustment. Research results indicate that race/ethnicity and immigrant status are among the most salient determinants of residential location; minorities are more likely to reside in high-density and older neighborhoods; Latino immigrants have higher likelihood of residing in those areas than Asian immigrants; while immigrants are somewhat more likely to live in low density over time, they do not indicate a clear propensity for new residential area. Recent immigrants are not likely to be the culprit of urban sprawl.

Keyword: Urban Sprawl, Race/ethnicity, Immigrant Status, and Residential Location Choice.

* PhD Candidate in the School of Policy, Planning, and Development. This paper benefits from a collaborative project with Gary Painter and Lihong Yang. The research in this paper is supported by the Lambda Alpha International's Land Economics Foundation (LEF) Scholarship. This paper is also prepared under Grant Number H-21390SG from the U.S. Department Housing and Urban Development, Office of University Partnerships. Points of views or opinions in this paper are those of the author and do not necessarily represent the official position or policies of the grantors.

The author thanks for institutional support of USC Lusk Center for Real Estate and USC Population Dynamics Research Group and helpful suggestions from Dowell Myers, Bumsoo Lee, and the session participants at the 2002 ACSP annual meeting. Remaining errors are my own. Corresponding address is Zhou Yu, zyu@usc.edu, Tel: (213) 8211465, Fax: (213)8211466.

1. INTRODUCTION

Urban sprawl, as one of the most avidly discussed urban issues in both policy debate and academic research, has significant implications for urban land resources, regional economics, and housing market. Despite wide recognitions of the consequences of urban sprawl, our knowledge is rather limited over its determinants. Literature has not fully recognized the differences among race/ethnic and immigrant groups with respect to their impacts on suburbanization. Meanwhile, recent resurgence in immigration presents a considerable concern over urban land use. In spite of repeated attempts to link immigration with urban sprawl, there is scant research that substantiates the linkage.

This study is to investigate the relative importance of demographic factors such as age, income, race/ethnicity, and immigrant status in residential location choice. Models employed in this study, taking account for the lagged effects in residential adjustment, better reflect the location choice under equilibrium condition. Continuous measures of location choice, instead of dichotomous measures, are used to better gauge sprawl. Two separate location-choice proxies are used to measure sprawl, which are residential density and area's new residential development. Residential location choice has direct linkages with urban sprawl, because residential use is the largest form of urban land consumption. Previous research suggests that new housing development in the suburb is a major contributing factor to urban sprawl (Clark and Dieleman 1996; Ewing, Pendall, and Chen 2002). Taking place on the urban fringe, such new residential development is more likely to be low density and associated with leapfrog patterns (Burchell et al. 1998; Ewing 1994).

Results indicate that *residential location choice* is very much dependent upon race/ethnicity and immigrant status even after accounting for other socio-demographic

factors and the lagged effects in residential adjustment. Race/ethnicity appears to be a more potent determinant than immigrant status in the location choice, as immigrants do not appear to be more prone to residing in new residential area as their duration in the U.S. extends. While immigrants tend to leave ethnic enclaves over time, they never reach the density level of the metropolitan average, nor do they indicate an increasing propensity for new residential development. Therefore, population growth generated by recent immigrants is not likely to be the culprit for the current patterns of dispersed land use. Instead, changing residential preferences are likely to have more significant impacts on urban form.

2. PUBLIC DEBATES

Rapid suburbanization is evident in many U.S. metropolitan areas. Over the past two decades, urbanized land have grown at a rate 2.5 times faster than the respective population growth in the same period of time (Fulton et al. 2001). As growing numbers of communities start to recognize the implications of urban sprawl, sprawl has become one of the most concerned and contested issues in the field of planning.

An equally intriguing phenomenon is the recent resurgence in immigration.¹ The speed and magnitude set the recent trend apart from that of previous decades. Evidently, immigration has become a new dimension in the sprawl debate as many immigration restrictionists attempt to link immigration-generated population growth with urban sprawl (see, for instance, Snow 2000; Diversity Alliance for a Sustainable America 2001; Kolankiewicz and Beck 2000; Steine 2001). Meanwhile, the counter side argues that population growth is, at the most, a secondary factor in the current dispersed land-use

¹ In this paper, “immigrant” and “foreign-born” are used interchangeably, although the foreign-born population may includes temporary foreign visitors, such as international students and temporary workers, in addition to immigrants.

patterns (Krugman 2001; Gordon and Richardson 2000). Recent research asserts that foreign-born residents have been instrumental to city growth (Glaeser and Shapiro 2001; Frey and Speare 1992). New immigrants may help in the revival of central cities and downtowns (Myers 2001). Despite increasing policy concern and public scrutiny, there has been limited research on the importance of demographic factors in location choice, and on how the recent resurgence of immigrants has shaped urban form.

3. THEORETICAL CONTEXT

Intraurban location choice of residence is the interests of a broad group of researchers. Some researchers have followed an urban economic approach, attempting to explain the density and location choice under the neoclassical consumer theory by which consumer maximize their utility under the limited budget (Mills 1972; Muth 1969; Alonso 1964). The sophisticatedly developed monocentric city model reveals that the determinants of spatial patterns include economic factors, discrimination in housing and lending markets, and neighborhood preferences (O'Sullivan, Sexton, and Sheffrin 1995). The poor with relatively little household income would stay closer to the city center where they consume small amounts of space and commuting costs are minimal. The rich who can afford larger space and commuting would move out to the suburbs. This hypothesis helps explain the phenomena of declining urban density and suburban expansion over the past several decades (Bogue 1956; Muth 1975). The spatial mismatch theory indicates that racial segregation has caused blacks² to stay in the central city and far from their suburban employment opportunities, which in-turn contributes to their poverty (Kain 1975; Kain and Quigley 1970). While the monocentric city model and several extensions provide useful analytical tools in understanding the exiting residential

² References to blacks refer to persons of African Americans who are not Hispanic origin.

patterns, it directs less attention to the differences in residential location choice across race/ethnic and immigrant groups. It also faces many challenges in explaining the urban development as a complex process (see, for instance, Bailey 1999; Wheaton 1979; Giuliano and Small 1991). Recent influx of immigrants has made residential patterns even more multifaceted, presenting a new challenge to the existing theory. Recognition of socio-demographic factors is, therefore, a necessary step for the advancement of the theory of residential location choice. Although rising in real income, lowering commuting cost, and population growth have been considered by many urban economists as the primary causes of the suburbanization (Mills 1972; White 1999), Mark Dynarski (1986) contends that demographic shifts compounded with taste changes in housing consumption should be the main reason for the persistent trend of suburbanization. Indeed, Dynarski's projection of spatial patterns has largely materialized.

Meanwhile, many researchers try to understand residential assimilation of immigrants and race/ethnic diversity in suburbanization. Massey (1985) based on his evaluation on human ecology argues that "ethnic residential segregation reflects larger processes of social change and economic development." From this perspective, spatial assimilation underpins the process through which succeeding cohorts of newcomers gradually disperse over time from ethnic enclaves in the central cities (Massey and Denton 1987; Adelman et al. 2001). Empirical evidence suggests that immigrant groups have suburbanized in a manner closely predicted by the spatial assimilation theory (Alba et al. 1999; Alba and Logan 1991), while residential mobility of blacks are still constrained (Kain 1992; Galster 1987; Farley and Frey 1994; Gabriel and Rosenthal 1989). The spatial assimilation of immigrants is largely dependent on their national origins and their endowment prior to immigration (Allen and Turner 1996). To compare

with Latino or Hispanic-origin immigrants³, Asian-origin households are more likely to experience quicker dispersion and translate their residential assimilation into socioeconomic achievements (White, Biddlecom, and Guo 1993; Frey and Liaw 1999).

4. RECENT STUDIES

4.1 Is Urban Sprawl A Problem?

There has been an enormous amount of research on sprawl spanning over the past half century (Harvey and Clark 1965). There have been many careful reviews of the literature (see, for instance, Burchell et al. 1998; Chin 2002). In general, there are largely two adversarial camps of researchers who disagree on whether sprawl is a problem (Miller 1999). To its critics, sprawl is often cited for encroaching precious farmland and valuable green space, overburdening infrastructure, and exacerbating residential segregation (Stoel 1999; Sierra Club 2001). Dispersed land use patterns are also chastised for causing fragmented land development and heavy reliance on private automobile, which are not only financially burdensome to the society (Katz and Liu 2000; Freilich and Peshoff 1997; Bank of America 1995), but also hindrance to economic efficiency (Ciscel 2001; Nelson and Dueker 1993). A new report released by Smart Growth America points out that sprawl leads to “higher traffic fatality rates, more traffic, and poorer air quality (Ewing, Pendall, and Chen 2002).”

However, some scholars disagree with the above assessment on sprawl. Peiser (1989) and Heikkila and Peiser (1992) suggest that discontinuous patterns of urban growth may be more efficient than continuous urban development patterns shaped by land policy. They further indicate that market forces will eventually mitigate the

³ References to Latino refer to persons of Hispanic origin, who may be of any race.

discontinuous patterns of land use and lead to higher density development even without policy interventions. Gordon and Richardson (1997) argue that current land use patterns may well reflect consumers' preferences and an efficient equilibrium condition of land use. Downs (1999) indicates that, in contrast to a commonly held belief, sprawl has little or no impact on urban decline. Kahn (2001) finds that dispersed land use patterns may provide more affordable housing opportunities for blacks. The heated debates in a way manifest the complexity of the sprawl phenomenon and the needs for further research.

4.2 Causes of Urban Sprawl

In addition to the disagreement over the implications of urban sprawl, researchers have a difficult time to agree on the causes of urban sprawl (Miller 1999). Studies on urban sprawl have largely linked this phenomenon to industrial restructuring, rising household income, land market imperfections, and advancement of transportation technology (Mieszkowski and Mills 1993; Harvey and Clark 1965; Brueckner 2000; Downs 1998). Glaeser et al. (1992; 2001) look at over 100 top metropolitan areas and attribute suburbanization to the aging of the metropolitan areas and employment decentralization. Fulton, Pendall, Nguyen, and Harrison (2001) regard fragmented local governance and ineffective land use policy as the major contributors to urban sprawl. However, Giuliano and Narayan (2002), based on a comparative study of urban form between the United States and Great Britain, find that strong land use control employed in many European countries does not seem to be effective in curtailing suburbanization.

Meanwhile, demographic factors have not been adequately recognized in residential location choice (Sermons 2000). Among the few exceptions, Myers and Gearin (2001) reveal the importance of demographic changes in spatial patterns of

residential settlement, arguing that the aging of the baby boomers will help reverse current trend of suburbanization.

4.3 Immigration and Sprawl

Despite the large disagreement on sprawl, few have questioned the argument that immigration-generated population growth causes sprawl. Furthermore, literature has not fully recognized the significance of immigration on urban policy in general (Myers 1999), and on urban sprawl in particular (Yu 2002). The key question aroused is whether different race/ethnic and immigrant groups behave in a similar manner in the suburbanization process. As exceptions, Myers (1999) has related residential location of immigrants to their upward mobility in his demographic analysis of four major race/ethnic groups in four major immigrant receiving metropolitan areas. The study alludes that new immigrants have filled up the void in central cities, despite a declining preference of established immigrants for living in the city. Fulton, Pendall, Nguyen, and Harrison (2001) indicate that metropolitan areas with large shares of foreign-born residents have higher densities and sprawl less. In the subsequent case studies of the changing density in five major metropolitan areas, they conclude the influx of immigration as one major contributor to the high residential density in Los Angeles Metropolitan Area. Bae (2002) reconfirms the findings that the foreign-born population share is strongly positively associated with metropolitan density. A further test demonstrates that low densities appear to be positively associated with high incomes and low housing prices. One recent empirical study by Yu (2002), implements a national-level demographic analysis of the relationship between population growth and urban sprawl, finding significant differences between U.S.-born and foreign-born residents in

residential patterns. The net changes in household locations between 1980 and 1990 reveal that U.S.-born residents are more prone to inducing sprawl than foreign-born residents, and changing residential preference has a stronger linkage with sprawl than population growth.

In addition, Marcelli (2001) looks at labor market factors in the immigrants' initial settlement decisions. Evidence presented in the paper indicates that, instead of welfare availability, employment and housing are more instrumental in immigrants' decision to have suburbs as their initial settlement choice. While the study provides some insights about location choice of new immigrants, the model specification and data do neither look at the location choice of established immigrants, nor allow inclusion of many important variables, such as housing tenure status, household income, educational attainment, immigrant status, and residential mobility. Furthermore, the study does not address the question whether there are differences in location choice between U.S.-born and foreign-born residents.

4.4 Insufficiencies in Existing Studies

Despite a large volume of research devoted to the study of urban sprawl and location choice of immigrants, significant questions remain unanswered. First, it is still unclear whether Asians and Latinos, as emerging minority groups, are disproportionately represented in high density and older neighborhoods as much as blacks. Second, how much differences are there between these minority groups with respect to their determinants of location choice. Third, the location choice literature has not sufficiently addressed how upward mobility leads immigrants to similar residential areas as white,

non-Hispanic households, as their duration in the United States extends. These concerns will be specifically addressed in the analysis.

In addition, there are three major concerns over the methodology employed in the existing studies. The first concern is the lack of consideration of the lagged effects in residential location choice. Housing as a unique commodity has a low turnover rate, especially among owners and established households. Households do not fully present their preferences for location until they move. Current spatial patterns of residence have in a way manifested the residential choice made in previous periods. A snapshot of the residential patterns is not fully reflective of the equilibrium condition of the housing market. In this regard, there are three major issues. First, existing literature documents that the legacy of racial segregation has significant implications to current residential patterns. The lagged effects of location choice are attributable to the persistent black-white separation, despite the Fair Housing Act having been in effective for more than thirty years (Farley and Frey 1994; Yinger 1979). Second, the lagged effects are particularly evident in older neighborhoods where residents are more settled, yielding fewer opportunities for location adjustment through residential mobility (Myers, Choi, and Lee 1997). Third, given the fact that immigrants are systematically different from their native-born counterparts in their likelihood to move (Long 1988), cross-sectional estimation of immigrant's location choice may lead to a misinterpretation of the impact of age and immigrant status⁴. While the lagged effects in residential adjustment has been well recognized in tenure choice literature (Maisel 1966; Pitkin and Myers 1994;

⁴ Optimal solutions for the lagged effects include using longitudinal models or cohort analysis, which would provide the ability to capture the long-term of location choice. Unfortunately, available dataset does not allow for such research settings.

Ihlanfeldt 1981; Painter, Gabriel, and Myers 2001)⁵, it has not received sufficient recognition in the location choice literature. The research design employed in this study remedies this problem.

The second concern is that most research on the suburbanization of immigrants has used broad, though statistically convenient, dichotomous location options—urban versus suburban residence (see, for instance, Alba and Logan 1991; Alba et al. 1999; Frey and Speare 1992; Mieszkowski and Mills 1993; Kasarda et al. 1997; Sanchez and Dawkins 2001) or categorical location choices (Gabriel and Rosenthal 1989). This practice seems problematic in light of metropolitan areas becoming increasingly polycentric and decentralized (see, for instance, Kloosterman and Musterd 2001; Champion 2001; Giuliano and Small 1991). The urban and suburban dichotomy is particularly problematic in Los Angeles, because the metropolitan area does not conform the traditional central city versus suburban distinction that has been employed elsewhere (Marcelli 2001). For instance, Los Angeles' suburb —San Fernando Valley is included in the Central City designation by the Census Bureau, which does not reflect of the conventional sense of central city. Furthermore, the dichotomous location settling limits the extent to which one is able to interpret the implications of immigration on density—the core issue of urban sprawl, since suburbs may not always be associated with low density or new residential development. For instance, although Monterey Park is the suburb of Los Angeles, the area is characterized by both high residential density and high

⁵ There are significant variations in the successive immigrant cohorts. Without proper adjustment, cross-sectional models may yield biased estimates when interpreting the coefficients longitudinally (Borjas 1985). Investigating the longitudinal phenomenon of housing tenure choice with a snap shot observation may be an elusion of either the declining quality of immigrants over time or the changes in the composition mix of the immigrants. In addition to the aging effect experienced by native-borns, immigrants experience period effect and cohort effect. With the Census 2000 PUMS data, it may be possible to track residential location choice of immigrants within a cohort framework.

concentration of immigrants. Even within the suburb, the level of residential density and new residential development is very much different across regions as metropolitan areas become increasingly polycentric. In this study, location choice will be analyzed as continuous variables.

Another difficulty with past research is that, except for Marcelli (2001), most sprawl studies use an aggregate approach in their statistical analysis. Macro-level analysis does not provide sufficient insights into the forces affecting the individual residential location choice (Romanos 1976). Such aggregate approach could also conceal important details on the differences of location choice within metropolitan areas and across race/ethnic and immigrant groups, because immigrants' higher density living could be a mere reflection of their lower income, more workers per household, or unique life stages. Macro-level analysis across metropolitan areas may also ignore the fact that the compositional differences of immigrants between gateway metropolitan areas and metropolitan areas with fewer immigrants. This study will employ a micro-level approach to study household behavior in residential location choice.

5. DATA AND RESEARCH SETTINGS

The main source of data is the 5 percent Public Use Microdata Sample (PUMS) in the 1990 decennial census. To analyze the determinants of location choice, we have drawn data for Urbanized Area in Los Angeles Consolidated Metropolitan Statistical Area (CMSA).⁶ There are a total of 92 Public Use Micro Areas (PUMA) in the Los Angeles CMSA, and 79 of them are located in Urbanized Area. Los Angeles region is

⁶ Los Angeles CMSA comprises four individual Primary Metropolitan Statistical Areas (PMSA), which are Los Angeles–Long Beach PMSA, Anaheim–Santa Ana PMSA, Riverside–San Bernardino PMSA, and Oxnard–Ventura PMSA.

known for its large number of immigrants and high housing prices to compare with the rest of the United States. This analysis is applied to white⁷, black, Asian, and Latino households whose primary residences were in these 79 PUMAs in 1990. The samples are limited to the household with householders aged between 18 and 64, excluding those who reside in group quarters.

Maps 1 to 4 respectively present the distributions of white, black, Asian, and Latino households by PUMA in Urbanized Area of Los Angeles CMSA. It is clear that the residential patterns differ by race/ethnicity. While white residents are more likely to be in the outskirts of the metropolitan area, minority groups tend to occupy the central locations. Whereas Latinos and blacks are concentrated in separate areas, Asian residents seem to be more scattered. Asians are no longer concentrated in the traditional ethnic enclaves of the central cities. Instead, they start to congregate in suburbs such as San Gabriel and Monterey Park, forming “ethnoburbs (Li 1998).” Map 5 shows the share of households who are immigrants by PUMA. In general, immigrants are disproportionately present in central locations of the metropolitan area.

[Map 1 to 5 about here]

There has been much discussion with respect to the measures of sprawl (see, for instance, Malpezzi 1999; Torrens and Alberti 2000; Burchell et al. 1998; Galster et al. 2001; Ewing, Pendall, and Chen 2002). In this study, two separate measures of location choice are employed in the multivariate statistical analyses. Residential density by PUMA (natural logarithm of the number of households per square kilometer) is used as the primary proxy measure to distinguish location choice. The larger the value, the

⁷ References to whites refer to persons of non-Hispanic whites.

denser the area is. Following a similar procedure introduced by Marcelli (2001), the level of new residential development by PUMA (natural logarithm of the share of all houses built over the past ten years)⁸ is employed as an additional proxy measure of location choice. The higher the value, the newer the area is. Then, the values are assigned to all the households that live in the respective PUMAs. Map 6 and 7 respectively show residential density and the level of new residential development by PUMA. As expected, the maps indicate that the central area of Los Angeles CMSA is high in residential density and relatively old to compare with other part of the metropolitan area. Minority groups are more likely to be present in those high-density and old neighborhoods. Meanwhile, new residential development is not always associated with low density, as their correlation coefficient is only 0.48.

[Map 6 and 7 about here]

The independent variables used in the location choice model include current homeownership status, demographic factors (race-ethnicity, age group, marital status, number of persons in the household, number of workers in the household, migration origin, and migration history), and socio-economic factors (income, education level of the householder). Owner occupied housing is usually larger in size than rental housing and more likely to locate in the suburbs. *Income* is regarded as the major determinant of the capability that a household is able bid for their residential location. Households with higher income have more leverage in choosing their residential locations and spaces (O'Sullivan 1996). *Household composition* influences the spatial patterns of households.

⁸ A thirty-year level analysis is also performed. Results are largely consistent with the ten-year level measurement. Results are available upon request.

Whereas households with more people and children have a higher demand for space and more likely to locate in lower density area, households with more workers would prefer to stay closer to the city center to save commuting cost (Hochman and Ofek 1977). The use of this set of demographic variables enables the researcher to capture factors related to preferences of households correlated with demographic characteristics such as the life cycle (Skaburskis 1996).

Appendix I and II report the mean values of all variables used in the study, displayed by race/ethnicity for the full sample and for the movers-only sample respectively. Rather than discuss all of the differences in detail, we focus on some of the larger differences concerning residential density, the likelihood of living in new residential development, and immigrant status in Figures 1 to 3. These figures present data by race/ethnicity in full sample and movers-only sample. As expected, there are sizeable differences between whites and blacks in many socioeconomic indicators. To compare with whites, black households have a higher probability of residing in high density and old residential area. Meanwhile, Latinos and Asians, having a rather similar socioeconomic profile, lie somewhere in between blacks and whites.

[Figure 1 to 3 about here]

The analysis also emphasizes immigrant status or immigrant length of stay in the U.S., which is important to examine the implications of immigrants' assimilation on urban form. While whites and blacks are largely U.S. born, the majority of Latino and Asian are immigrants with diverse immigration path, as indicated in Figure 3. Figure 3 also demonstrates a higher ratio of new immigrants, defined as those who came within the last 5 years, in the movers sample than in the full sample. Another notable

observation is that, to compare with Latinos, Asians have a larger share of residents who are recent immigrants and came within the last 15 years.

The control variables employed in the models include migration origin (entered as a series of categorical variables indicating whether the household moved from within Los Angeles CMSA, moved from within California, moved from elsewhere in the U.S., or moved from outside the U.S.) and contextual variables to capture local housing market conditions (housing price and rent).⁹ Although these control variables may play an important role in explaining differences in suburbanization, they are not the interest of this paper and will not be specifically interpreted.

5.1 Empirical Model

Empirical research on location choice at the household level has largely followed a multivariate setting, comparing residential location of different groups while controlling for both household characteristics and housing market factors that are relevant to such decision (see, for instance, Alba and Logan 1991; Alba et al. 1999; Gabriel and Rosenthal 1989; Rosenbaum and Friedman 2001). Any significant unexplained differences remaining after all other independent variables have been controlled for can be attributable to preferential differences, unequal access to the housing market, or some parameters overlooked.

This study employs a sample of movers in the multivariate analysis to address the lagged effects in residential adjustment. To avoid possible sample selection biases, a selection adjustment procedure is employed to account for the likelihood that someone

⁹ This paper uses PUMA as the geographical unit of local housing market. The information regarding the housing price and rent is based on this unit. Housing price is measured as the 25th percentile home price and rent as the median rent in one PUMA. The use of these proxies follows Gyourko and Linneman (1996).

may move in estimation of models of residential location choice. More specifically, the probability that one moved in last five years is seen as endogenously determined through a comparative evaluation of expected benefits and costs from mobility.¹⁰ A probit estimation is used to capture the decision to move. The probability of moving is estimated on factors such as life cycle indicators, household characteristics, economic conditions, and contextual variables (Rossi 1955; Sanchez and Dawkins 2001; Cadwallader 1992; South and Deane 1993). Then, a location choice equation is estimated, corrected for possible selectivity bias by a quantity estimated in the probability model.¹¹ Painter (2000) presents a similar procedure which was used to adjust for the lagged effects in housing tenure choice. Controlling mobility is particularly relevant for the current analysis due to the large share of Asian and Latino residents who are movers and immigrants, as reflected in Figure 5.

6. RESULTS

In the first phase of the multivariate analysis, the data of all four race/ethnic groups are pooled together in two separate estimations of residential location choice. In the following section, the two location choice models by the levels of residential density and new residential development by PUMA will be called “the density model” and “the new development model” respectively for simplicity. Each of the two sets of estimations includes three sub-models, which are the full sample model, the movers-only model, and the model with sample selection adjustment. In the regression estimation, the reference household is chosen to be white renters, married, aged 25-34, with a high school diploma,

¹⁰ Results of the residential mobility regression are available upon request.

¹¹ In this analysis, the selection equation has binary dependent variable whether households have moved within the last five years, and the location choice equation use a continuous dependent variable. The location choice model correcting for selection bias is adapted from Greene (1997).

and a non-immigrant. The coefficients from regression analyses of the two location-choice measures are displayed in Table 1 and 2 respectively.

Many coefficients are consistent across the three models and have expected signs. Results from the density model presents that being homeowners, larger households, married-couple family households, and non-immigrants increase the likelihood of living in low-density area. Having more workers in one's household, not having a high school diploma, and being a minority household increase the probability of residing in high-density area or the central part of the metropolitan area. At the same time, results from the new development model indicate that being homeowners and married-couple family households, and having higher level of education in general increase the probability of living in new residential area. In addition, many coefficient estimates confirm the spatial assimilation theory and previous research findings. As immigrants' length of stay in the United States extends, the discrepancies between U.S.-born and foreign-born residents decrease and immigrants become more prone to living in low density. Latino immigrants are more likely to be present in high density and old neighborhoods than Asian immigrants.

Meanwhile, there are some differences across these models. The most important change is that the age of the householder, being a black householder, and being an immigrant householder do not predict denser residence or a higher likelihood of residing in old neighborhoods, as much as predicted by the full sample model. In particular, the location choice with the full sample attributes a large positive effect for older householders with respect to residing in high density, and a large negative effect for older householders to live in new residential areas. In the movers models, such large differences are either reduced or becoming statistically insignificant. For example, in

Table 1, the coefficient on a householder aged 35-44 was 0.013 in the full sample density model, and becomes -0.015 in the model with sample selection. In addition, the black-white gap in location choice becomes somewhat smaller. In Table 2, the coefficient on blacks' likelihood of residing in new residential area was -0.331 in the model of full sample, and becomes -0.260 in the model with sample selection.

These findings confirm our original hypothesis that there are lagged effects in location choice. Once controls for the lagged effects are included, being older, blacks, and new immigrants does not predict a higher likelihood of residing in high density and old neighborhoods as much as was previously thought. However, accounting for such lagged effects only further explain a small portion of the locational differences between blacks and whites.

Also evidenced in the Table 1 and 2 is the fact that the two sets of location choice models predict different outcomes with respect to immigrants' residential assimilation. Immigrants' duration of residence in the U.S., which is a strong determinant of their location choice in the density model, becomes statistically insignificant in the new development model. Said alternatively, while immigrants over time become more likely to reside in low-density area, their chance of living in new residential area does not increase.

Perusal of regression findings for the pooled sample also indicates that race/ethnicity and immigrant status are among the most significant determinants of residential location choice. Blacks seem to be the most disadvantaged group in the likelihood of residing in both low density and new residential areas. Another interesting finding is that, in contrast to existing studies, permanent income is not a significant factor

in location choice. Previous research indicates that coefficients can differ substantially by race/ethnicity (Alba et al. 1999; Alba and Logan 1991; Gabriel and Rosenthal 1989). Natural questions arise as to what extent that these effects remain if the location choice models are estimated separately within each race/ethnic group. The coefficients from regression analyses are displayed in Appendix 3 and 4 respectively for the two measures of location choice.¹² Results indicate patterns that are largely consistent with the results of the pooled samples.

6.1 Model Simulation

The empirical model is further employed to conduct policy simulations. Those exercises seek to quantitatively evaluate (1) the extent to which residential density is different by race/ethnicity and immigrant status, (2) how much differences between the Latino immigrants and Asian immigrants with respect to spatial assimilation, and (3) whether immigrants' upward mobility would lead them to similar level of residential density as non-Hispanic whites, as immigrants' duration in the United States extends.

To explore these questions, a decomposition technique which is commonly used in the studies of labor market discrimination (Oaxaca 1973; Blinder 1973), homeownership attainment (Bostic and Surette 2001; Wachter and Megbolugbe 1992; Painter, Gabriel, and Myers 2001), and intra-metropolitan location choice (Gabriel and Rosenthal 1989). This method attributes the socio-demographic characteristics of the full sample to households in each of the concerned race/ethnic and immigrant groups. For

¹² To evaluate whether socio-demographic variables have a differential effect on residential location for different race/ethnic groups, the analyses estimates location choice of the four race/ethnic groups separately. Since sample correction are applied to both sets of models. After a series of diagnostic tests, it appears that there is no significant heteroscedasticity and multicollinearity at present and the residuals are distributed normally. While the pattern of results is largely consistent with the estimations in the pooled model, there are a few important exceptions.

example, in the sample of black households, we use the coefficients of the black household, attribute them to the full sample, and predict the average residential density of blacks. Then, we compare the predicted results with the estimation of the full sample. If one group's predicted residential density or likelihood of residing in new residential area is higher than that of the full sample, we regard that group as a sprawl contributor. The simulation provides a more straightforward way to comparing the location choice by residential density across groups. Figure 4 and 5 show the simulation results of the density model and the residential development model respectively. Three comparisons are reported, (1) the four race/ethnic groups, (2) Asian groups by immigrant status, and (3) Latino groups by immigrant status.

There are expected signs of residential assimilation over time, evidenced by decreasing residential density as immigrants' length in the United States extends. While Latino and Asian immigrants indicate a similar trend of decreasing density over time, Asians are more likely to reside in low-density than Latinos. Meanwhile, the new residential development model does not predict a clear pattern of residential assimilation. In other words, immigrants are not more likely to residing new residential area as their duration in the U.S. extends. Despite the differences across immigrant groups, race/ethnicity remain the most discernable factor of residential density, evidenced by the larger differences across the four groups. Even through immigrants are more prone to low density over time, they never reach the level of non-Hispanic whites who has the lowest predicted residential density and highest likelihood of residing in new residential area. This result is achieved after controlling for other socio-demographic factors and the lagged effects in residential adjustment.

7. CONCLUDING REMARKS

To better understand the mechanism of the sprawl phenomena, this study investigated the determinants of intra-metropolitan residential location choice, with particular focuses on race/ethnicity and immigrant status. Residential location choice at the micro level provides a superior measure of urban sprawl than the aggregate level residential patterns, as it links specific household characteristics with their location choice. The multivariate setting enables to explicitly control for factors other than the concerned ones.

The novelty of the study lies in three factors. First, it accounted for the lagged effects in residential adjustment, namely, a move is prerequisite to fully revealing residential preferences in location choice model. Research findings suggest, without the adjustment, models rely on cross-sectional data would overestimate the importance of age and black-white differentials in residential location choice. This outcome contradicts to many previous findings on the effects of aging on suburbanization (e.g. Alba et al. 1999). Second, the study employed continuous measures of residential location choice instead of the widely used dichotomous measure between central city and suburb. The continuous measure is less restrictive and better reflects the impacts of socio-demographic factors on urban form at the micro-level, permitting a direct analysis of immigrants' residential assimilation and its implications on urban form. Such research setting also helps reveal the fact that, even though immigrants may eventually become as suburbanized as U.S.-born white residents as their duration in the U.S. extends, their preferences for low density and new residential development never reaches the level of U.S.-born white residents. Third, this study introduced two proxy measures of residential location choice,

in which households choose from areas with different levels of residential density and new residential development. Residential location choice is fundamental to decipher the mechanism of the sprawl phenomena, as low density and new residential development on the urban fringe have been considered as major contributors to urban sprawl.

Analysis of the Urbanized Area within the Los Angeles Consolidated Metropolitan Statistical Area, based on the 1990 Census 5 percent Public Use Microdata Sample, indicates race/ethnicity and immigration status as the key determinants of residential location choice. Immigrants are found to have very different residential behavior than that of U.S.-born white residents. Subsequent model simulation reveals that race/ethnicity is a more potent determinant than immigrant status in location choice, which confirms previous research findings in the New York region (e.g. Rosenbaum and Friedman 2001). While minorities as a whole are more likely to reside in high-density and older neighborhoods, blacks appears to be even more disadvantaged than Asians and Latinos. Accumulating evidence suggests that blacks are still constrained in their access to the housing market, which is also consistent with previous research findings (e.g. Adelman et al. 2001; Massey and Denton 1987). Whereas immigrants in general are disproportionately present in high-density and older areas than native-born residents, Latino immigrants have a higher chance than Asian immigrants to be in those areas. Further, the two sets of location choice measure reveal a different pattern of residential assimilation. While immigrants become more prone to low density over time, their likelihood of living in new residential areas does not seem to increase.

Interestingly, controlling for the lagged effects, while have significant impacts on the coefficients of age and race/ethnicity, do not have much effect on immigrant status.

This result may be reflective of the fact that mover and non-movers have a rather comparable residential patterns evidenced in Figures 1 and 2. The research findings imply that, depending on race/ethnicity and immigrant status, population growth and changing socioeconomic status would have different implications on urban form. If urban sprawl is characterized as low density and new residential development, the residential preferences of non-Hispanic whites are more likely to induce sprawl. This outcome may come as a disappointment to immigration restrictionists who have embraced curtaining immigration as the way to ameliorate sprawl.

Nevertheless, immigrants' residential behavior is not a permanent characteristic of individual immigrants. Over time, they adapt themselves to the host society, improve their socioeconomic status, and become more upward mobile. Their closer resemblance to the residential behavior of native-born white residents is a desirable outcome from the perspective of immigrants' residential assimilation, but may present a concern to urban land use. New immigrants have been instrumental in revitalizing many old neighborhoods. These new arrivals have provided a solid base upon which urban planners can seek gentrification. In one possible scenario, the new immigrants would maintain their preferences for compact city living, develop a sustained attachment to the high-density areas, and eventually transform those older neighborhoods into more attractive residential areas. It is then possible to draw more native-born residents back to the city, thus reverse the trend of sprawl. If planners consider urban sprawl as a negative form of urban development, they need to better understand the unique characteristics of immigrants, recognize the reasons for their compact city living, and maintain their preferences for compact-city living. Meanwhile, policy makers need to look into why

black residents still disproportionately reside in high density and old neighborhood, and see if there are any barriers in their location attainment.

One important topic for future research is to simultaneously model the location choices. In this study, we estimated the factors that separately influence two residential location choices. While there are controls for location characteristics such as the price of housing, and rents, there is a relatively new literature (Gabriel and Painter 2001; Deng, Ross, and Wachter forthcoming) that suggests that consideration of possible endogeneity in location choices can yield important insights into how households make these decisions. To the extent that households make both decisions simultaneously, future research will investigate how sensitive the results of this study are to the possible endogeneity.

More generally, the present analysis has illustrated the potential insights into study of urban form that can be gained from analysis of residential location choice with microdata. Further research may use the forthcoming 2000 Census micro data to more specifically investigate how the residential patterns have changed over the 1990s from a cohort longitudinal perspective. Another possibility is to extend this research to other gateway metropolitan areas such as New York and San Francisco and see how much differences there are across regions.

REFERENCES:

Adelman, Robert M., Hui-shien Tsao, Stewart E. Tolnay, and Kyle D. Crowder. 2001. Neighborhood disadvantage among racial and ethnic groups: Residential location in 1970 and 1980. *Sociological Quarterly*, Fall, 603-632.

Alba, Richard D., John R. Logan, Brian J. Stults, Gilbert Marzan, and Wenquan Zhang. 1999. Immigrant Groups in the Suburbs: A Reexamination of Suburbanization and Spatial Assimilation. *American Sociological Review* 64 (3):15.

Alba, Richard, and John R. Logan. 1991. Variations on Two Themes: Racial and Ethnic Patterns in the Attainment of Suburban Residence. *Demography* 28:431-453.

Allen, James P., and Eugene J. Turner. 1996. Spatial Patterns of Immigrant Assimilation. *Professional Geographer* 48 (2):140-155.

Alonso, William. 1964. *Location and Land Use*. Cambridge, Mass.: Harvard University Press.

Bae, Chang-Hee Christine. 2002. Does Immigration Lead to Sprawl? In *Papers presented at the Forty-First Annual Meeting of Western Regional Science Association, February 17-20, 2002*. Monterey, CA.

Bailey, Timothy J. 1999. Modeling the Residential Sub-market: Breaking the Monocentric Mould. *Urban Studies* 36 (7):1119.

Bank of America. 1995. *Beyond Sprawl: New Patterns of Growth to Fit the New California*: San Francisco: Bank of America.

Blinder, Alan S. 1973. Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8 (Fall): 436-455.

Bogue, Donald J. 1956. The Spread of Cities. *American Economic Review* 46 (2):284-292.

Borjas, George J. 1985. Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants. *Journal of Labor Economics* 3 (4):463-489.

Bostic, Raphael W., and Brian J. Surette. 2001. Have the Doors Opened Wider? Trends in Homeownership Rates by Race and Income. *The Journal of Real Estate Finance and Economics* 23 (3):24.

Brueckner, Jan K. 2000. Urban Sprawl: Diagnosis and Remedies. *International Regional Science Review* 23 (2):12.

Burchell, Robert W., Local transit Government policy United States, Urban policy United States, Land use United States, Cities and towns United States Growth, and Suburbs United States. 1998. *The Costs of sprawl-- revisited*. Washington, D.C.: National Academy Press.

Cadwallader, Martin T. 1992. *Migration and Residential Mobility: Macro and Micro Approaches*. Madison, Wis.: University of Wisconsin Press.

Champion, A. G. 2001. A changing demographic regime and evolving polycentric urban regions: Consequences for the size, composition and distribution of city populations. *Urban Studies*, Apr, 657-677.

Chin, Nancy. 2002. *Unearthing the Roots of Urban Sprawl: A Critical Analysis of Form, Function and Methodology, Working Paper No.47*: Centre for Advanced Spatial Analysis, University College London.

Ciscel, David H. 2001. The Economics of Urban Sprawl: Inefficiency as a Core Feature of Metropolitan Growth. *Journal of Economic Issues* 35 (2):405-415.

Clark, William A.V., and F.M. Dieleman. 1996. *Households and Housing: Choices and Outcomes in the Housing Market*. New Brunswick, NJ: Center for Urban Policy Research.

Deng, Yongheng, Stephen L. Ross, and Susan M. Wachter. forthcoming. Racial differences in homeownership: the effect of residential location. *Regional Science and Urban Economics*.

Diversity Alliance for a Sustainable America. 2001. Advertisement: President George Bush and Governor Gray Davis. . . Why Do We Have An Energy Crisis? *New York Times*, May 31, 2001, A21.

Downs, Anthony. 1998. How America's Cities Are Growing: The Big Picture. *The Brookings Review* 16 (4):8-12.

———. 1999. Some Realities About Sprawl and Urban Decline. *Housing Policy Debate* 10 (4):955-975.

Dynarski, Mark. 1986. Household Formation and Suburbanization, 1970-1980. *Journal of Urban Economics* 19:71-87.

Ewing, Reid. 1994. Characteristics, Causes, and Effects of Sprawl: A Literature Review. *Environmental and Urban Issues* 21 (2): 1-15.

Ewing, Reid, Rolf Pendall, and Don Chen. 2002. *Measuring Sprawl and Its Impact: The Character and Consequences of Metropolitan Expansion*. Washington, DC: Smart Growth America.

Farley, Reynolds, and William H. Frey. 1994. Changes in the Segregation of Whites From Blacks During the 1980s: Small Steps Toward a More Integrated Society. *American sociological review* 59 (1):23-45.

Freilich, Robert H., and Bruce G. Peshoff. 1997. The Social Costs of Sprawl. *The Urban Lawyer* 29 (2):183-198.

Frey, William H., and Kao-Lee Liaw. 1999. Internal Migration of Foreign-Born Latinos and Asians: Are They Assimilating Geographically? In *Migration and restructuring in the United States: a geographic perspective*, edited by K. Pandit and S. D. Withers. Lanham, Md.: Rowman & Littlefield Publishers.

Frey, William H., and Alden Speare, Jr. 1992. The Revival of Metropolitan Population Growth in the United States: An Assessment of Findings from the 1990 Census. *Population and development review* 18 (1):129.

Fulton, William, Rolf Joseph Pendall, Mai Nguyen, and Alicia Harrison. 2001. *Who Sprawls Most? How Growth Patterns Differ Across the U.S.* Washington D.C.: Center on Urban and Metropolitan Policy, Brookings Institution.

- Gabriel, Stuart A., and Stuart S. Rosenthal. 1989. Household Location and Race: Estimates of a Multinomial Logit Model. *The Review of Economics and Statistics* 71 (2):240-250.
- Gabriel, Stuart, and Gary Painter. 2001. Paths to Homeownership: An Analysis of the Residential Location and Homeownership Choices of Black Households in Los Angeles. *Lusk Working Paper Series* 2001-1007.
- Galster, George C. 1987. Residential Segregation and Interracial Economic Disparities: A Simultaneous-Equations Approach. *Journal of Urban Economics* 21:22-44.
- Galster, George C. , Royce Hanson, Michael R. Ratcliffe, Hal Wolman, Stephen Coleman, and Jason Freihage. 2001. Wrestling Sprawl to the Ground: Defining and Measuring an Elusive Concept. *Housing Policy Debate* 12 (4):681-718.
- Giuliano, Genevieve, and Dhiraj Narayan. 2002. Another look at travel patterns and urban form: The US and Great Britain. *Lusk Working Paper Series* 2002-1009.
- Giuliano, Genevieve, and Kenneth A. Small. 1991. Subcenters in the Los Angeles region. *Regional Science and Urban Economics* 21 (2):163-182.
- Glaeser, Edward L. , Hedi D. Kallal, Jose A. Scheinkman, and Andrei Shleifer. 1992. Growth in Cities. *Journal of Political Economy*, Dec., 1992, 1126-1152.
- Glaeser, Edward L., and Jesse M. Shapiro. 2001. City Growth and the 2000 Census: Which Places Grew, and Why. Washington D.C.: Center on Urban and Metropolitan Policy, Brookings Institution.
- Gordon, Peter, and Harry W. Richardson. 1997. Are Compact Cities a Desirable Planning Goal? *Journal of the American Planning Association* 63 (1):95-107.
- . 2000. Defending Suburban Sprawl. *The Public Interest* 139:65-71.
- Greene, William H. 1997. *Econometric Analysis*. 3rd ed. Englewood Cliffs, N.J.: Prentice Hall.
- Harvey, Robert O., and William A. V. Clark. 1965. The Nature and Economics of Sprawl. *Land Economics* 61 (1):1-9.
- Heikkila, Eric J., and Richard B. Peiser. 1992. Urban sprawl, density, and accessibility. *Papers in Regional Science* 72 (2):127-38.
- Hochman, Oded, and Haim Ofek. 1977. The Value of Time in Consumption and Residential Location in an Urban Setting. *American Economic Review* 19:996-1003.
- Ihlanfeldt, Keith Ray. 1981. An Empirical Investigation of Alternative Approaches to Estimation of the Equilibrium Demand for Housing. *Journal of Urban Economics* 9:97-105.
- Kahn, Matthew E. 2001. Does Sprawl Reduce the Black/White Housing Consumption Gap? *Housing Policy Debate* 12 (Part 1):77-86.
- Kain, John F. 1975. Chpt 6. Theories of Residential Locations and Realities of Race. In *Essays on urban spatial structure*, edited by J. F. Kain. Cambridge, Mass.: Ballinger Pub. Co.

- . 1992. The Spatial Mismatch Hypothesis: Three Decades Later. *Housing Policy Debate* 3 (2):371-459.
- Kain, John F., and John M. Quigley. 1970. Measuring the Value of Housing Quality. *Journal of the American Statistical Association* 65 (330):531-546.
- Kasarda, John D. , J. Appold, Stuart H. Sweeney, and Elaine Sieff. 1997. Central-City and Suburban Migration Patterns: Is a Turnaround on the Horizon? *Housing Policy Debate* 8 (2):307-359.
- Katz, Bruce, and Amy Liu. 2000. Moving Beyond Sprawl: Toward a Broader Metropolitan Agenda. *Brookings Review* 18 (2):31-34.
- Kloosterman, Robert C., and Sako Musterd. 2001. The polycentric urban region: Towards a research agenda. *Urban Studies*, Apr, 623-633.
- Kolankiewicz, Leon, and Roy Beck. 2000. Sprawl in California: NumbersUSA.com.
- Krugman, Paul. 2001. My Beautiful Mansionette. *New York Times*, May 23, A.27.
- Li, Wei. 1998. Anatomy of a New Ethnic Settlement: The Chinese Ethnoburb in Los Angeles. *Urban Studies* 35 (3):479.
- Long, Larry. 1988. *Migration and Residential Mobility in the United States, The Population of the United States in the 1980s*. New York: Russell Sage Foundation.
- Maisel, Sherman J. 1966. Rates of Ownership, Mobility, and Purchase. In *Essays in Urban Land Economics*, edited by R. E. R. Program. Los Angeles, CA: University of California at Los Angeles, Real Estate Research Program.
- Malpezzi, Stephen. 1999. *Estimates of the Measurement and Determinants of Urban Sprawl in U.S. Metropolitan Areas, Working Paper (99-06)*: The Center for Urban Land Economics Research, University of Wisconsin.
- Marcelli, Enrico A. 2001. *From the Barrio to the 'Burbs: Immigration and Urban Sprawl in Southern California, Working Paper*. San Diego: The Center for Comparative Immigration Studies, UC San Diego.
- Massey, Douglas S. 1985. Ethnic residential segregation: a theoretical synthesis and empirical review. *Sociology and Social Research* 69:315-350.
- Massey, Douglas S., and Nancy A. Denton. 1987. Trends in the Residential Segregation of Blacks, Hispanics, and Asians: 1970-1980. *American Sociological Review* 52 (6):802-825.
- Mieszkowski, Peter, and Edwin S. Mills. 1993. The Causes of Metropolitan Suburbanization. *Journal of Economic Perspectives* 7 (3):135-147.
- Miller, D. W. 1999. Searching for Common Ground in the Debate Over Urban Sprawl. *The Chronicle of Higher Education*, June 10, 1999, A15.
- Mills, Edwin S. 1972. *Studies in the Structure of the Urban Economy*. Baltimore: Johns Hopkins University Press.
- Muth, Richard F. 1969. *Cities and Housing; the Spatial Pattern of Urban Residential Land Use*. Chicago,: University of Chicago Press.

- . 1975. *Urban Economic Problems*. New York: Harper & Row.
- Myers, Dowell. 1999. Demographic Dynamism and Metropolitan Change: Comparison of Los Angeles, New York, Chicago, and Washington, D.C. *Housing Policy Debate* 10 (4):919-955.
- . 1999. Upward Mobility in Space and Time: Lessons from Immigration. In *America's Demographic Tapestry*, edited by J. W. Hughes and J. J. Seneca. New Brunswick, NJ: Rutgers University Press.
- . 2001. Demographic futures as a guide to planning - California's Latinos and the compact city. *Journal of the American Planning Association* 67 (4):383-397.
- Myers, Dowell, S. Simon Choi, and Seong Woo Lee. 1997. Constraints of Housing Age and Migration on Residential Mobility. *Professional Geographer* 49 (1):14-28.
- Myers, Dowell, and Elizabeth Gearin. 2001. Forum: Current Preferences and Future Demand for Denser Residential Environments. *Housing Policy Debate* 12 (4):633-660.
- Nelson, Arthur C., and Kenneth J. Dueker. 1993. The Exurbanization of America and Its Planning Policy Implications. *Journal of Planning Education and Research* 9 (2):91-100.
- Oaxaca, Ronald. 1973. Male-Female Wage Differentials in Urban Labor Market. *International Economic Review* 14 (3):693-709.
- O'Sullivan, Arthur. 1996. *Urban economics*. 3rd ed. Chicago: Irwin.
- O'Sullivan, Arthur, Terri A. Sexton, and Steven M. Sheffrin. 1995. Property Taxes, Mobility, and Home Ownership. *Journal of Urban Economics* 37 (1):107-129.
- Painter, Gary. 2000. Tenure Choice with Sample Selection: Differences among Alternative Samples. *Journal of Housing Economics* 9 (3):197-213.
- Painter, Gary, Stuart A. Gabriel, and Dowell Myers. 2001. Race, Immigrant Status, and Housing Tenure Choice. *Journal of Urban Economics* 49 (1):150-167.
- Peiser, Richard B. 1989. Density and Urban Sprawl. *Land Economics* 65 (3):193-204.
- Pitkin, John, and Dowell Myers. 1994. The Specification of Demographic Effects on Housing Demand: Avoiding the Age-Cohort Fallacy. *Journal of Housing Economics* 3 (September):240-250.
- Romanos, Michael C. 1976. *Residential spatial structure, Lexington Books regional science monograph series*. Lexington, Mass.: Lexington Books.
- Rosenbaum, Emily, and Samantha R. Friedman. 2001. Differences in the Locational Attainment of Immigrant and Native-Born Households with Children in New York City. *Demography* 38 (3):337-348.
- Rossi, Peter Henry. 1955. *Why families move*. 2d ed. Beverly Hills: Sage Publications.
- Sanchez, Tomas. W., and C. J. Dawkins. 2001. Distinguishing City and Suburban Movers: Evidence from the American Housing Survey. *Housing policy debate* 12 (Part 3):607-631.
- Sermons, M. William. 2000. Influence of Race on Household Residential Utility. *Geographical analysis* 32 (3):225-246.

- Sierra Club. 2000. *Sprawl Costs Us All: How Your Taxes Fuel Suburban Sprawl* [Internet]. Sierra Club 2001 [cited 2000]. Available from <http://www.sierraclub.org/sprawl>.
- Skaburskis, Andrejs. 1996. Race and Tenure in Toronto. *Urban Studies* 33 (2):223.
- Snow, Kate. 2000. Ads Linking 'Urban Sprawl' with Immigration Stir Controversy in Virginia. *CNN-U.S. News*, Oct. 3, 2000.
- South, Scott J., and Glenn D. Deane. 1993. Race and Residential Mobility: Individual Determinants and Structural Constraints. *Social forces* 72 (1):147-168.
- Steine, Dan. 2001. Immigration vs. Sprawl. *New York Times*, May 30, 22.
- Stoel, Thomas B., Jr. 1999. Reining in Urban Sprawl - Can US Cities Diverge from the Path of Sprawl and Escape its Damaging Environmental Consequences? *Environment* 41 (4):6-11.
- Torrens, Paul M., and Marina Alberti. 2000. *Measuring Sprawl, Working Paper No.27*: Centre for Advanced Spatial Analysis, University College London.
- Wachter, Susan M., and Isaac Megbolugbe. 1992. Racial and Ethnic Disparities in Homeownership. *Housing Policy Debate* 3 (2):333-370.
- Wheaton, William C. 1979. Monocentric Models of Urban Land Use: Contributions and Criticisms. In *Current Issues in Urban Economics*, edited by P. M. Mieszkowski and M. R. Straszheim. Baltimore: Johns Hopkins University Press.
- White, Michael J., Anne E. Biddlecom, and Shenyang Guo. 1993. Immigration, Naturalization, and Residential Assimilation Among Asian Americans in 1980. *Social Forces* 72 (September):93-117.
- White, Michelle J. 1999. Urban Areas with Decentralized Employment: Theory and Empirical Work. In *Handbook of Regional and Urban Economics. Volume 3, Chapter 36.*, edited by P. Cheshire and E. S. Mills. Amsterdam ; New York: North-Holland.
- Yinger, John. 1979. Prejudice and Discrimination in the Urban Housing Market. In *Current Issues in Urban Economics*, edited by P. M. Mieszkowski and M. R. Straszheim. Baltimore: Johns Hopkins University Press.
- Yu, Zhou. 2002. Does Immigration Induce Urban Sprawl? A Demographic Analysis for the U.S. *Planning Forum* 8:41-63.

Table 1. Estimation Results of Location Choice by Residential Density for Full Sample, Movers Only Sample, and Sample with Selection Correction

Variable	Full Sample of Households		Movers Only Sample		Sample-Selection Correction	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Intercept	11.17**	0.0612	10.82**	0.0805	10.83**	0.0805
Owners	-0.1249**	0.0040	-0.1403**	0.0053	-0.1225**	0.0186
Omitted: Renters						
Age 18-24	-0.0263**	0.0081	-0.0289**	0.0089	-0.0278**	0.0090
Omitted: Age 25-34						
Age 35-44	0.0133**	0.0049	-0.0148*	0.0061	-0.0146*	0.0061
Age 45-54	0.0276**	0.0057	-0.0225**	0.0078	-0.0218**	0.0078
Age 55-64	0.0774**	0.0059	0.0089	0.0092	0.0095	0.0092
Not Married, Male Head Of Household	0.0572**	0.0056	0.0659**	0.0072	0.0695**	0.0081
Not Married, Female Head	0.0414**	0.0068	0.0533**	0.0092	0.0652**	0.0151
Omitted: Married						
No High School Diploma	0.0298**	0.0057	0.0427**	0.0077	0.0520**	0.0120
Omitted: High School Dip. W/ College						
College Degree Of Better	-0.0196**	0.0060	-0.0078	0.0079	-0.0218	0.0161
Number Of People In Household	-0.0140**	0.0013	-0.0152**	0.0017	-0.0153**	0.0017
Number Of Workers In Household	0.0145**	0.0039	0.0108*	0.0052	0.0034	0.0092
Permanent Income (1000s)	-0.0002	0.0003	0.0001	0.0003	0.0007	0.0007
Transitory Income (1000s)	-0.0007**	0.0000	-0.0008**	0.0001	-0.0008**	0.0001
Black	0.3948**	0.0066	0.3540**	0.0089	0.3647**	0.0140
Asian	0.2680**	0.0120	0.2435**	0.0176	0.2466**	0.0178
Latino	0.0879**	0.0069	0.0940**	0.0095	0.1039**	0.0137
Omitted: Non-Hispanic White						
Immigrant	0.2136**	0.0141	0.2256**	0.0162	0.2183**	0.0177
Immigrant* Asian	-0.1106**	0.0147	-0.0845**	0.0206	-0.0845**	0.0206
Immigrant* Latino	0.0711**	0.0109	0.0640**	0.0146	0.0638**	0.0146
Came To U.S. 5-10 Years Ago	-0.0324*	0.0136	-0.0278	0.0151	-0.0230	0.0159
Came To U.S. 10-15 Years Ago	-0.0440**	0.0141	-0.0376*	0.0162	-0.0313	0.0174
Came To U.S. 15-20 Years Ago	-0.0950**	0.0152	-0.1008**	0.0185	-0.0917**	0.0206
Came To U.S. 20-30 Years Ago	-0.1457**	0.0150	-0.1597**	0.0189	-0.1472**	0.0226
Came To U.S. More Than 30 Years Ago	-0.1668**	0.0168	-0.1683**	0.0239	-0.1509**	0.0294
Omitted: Came To U.S. In The Past 5 Yrs.						
Moved From Within California	-0.1248**	0.0091	-0.0976**	0.0093	-0.0976**	0.0093
Moved From Within U.S.	-0.0507**	0.0064	-0.0294**	0.0067	-0.0295**	0.0067
Moved From A Foreign Country	-0.0269*	0.0125	-0.0090	0.0134	-0.0089	0.0134
Omitted: Moved From Within Los Angeles CMSA						
The 25th Percentile Housing Price (Log)	0.1653**	0.0056	0.2407**	0.0075	0.2405**	0.0075
Puma Median Rent(Log)	-0.8877**	0.0118	-0.9779**	0.0156	-0.9776**	0.0156
Correlation Coefficient (rho)					-0.071	
Mills-Lambda					-0.043	0.043
Adjusted R-squared		0.166		0.167		
Number of Observations		135,708		76,594		

*: significant at 5% confidence level

** : significant at 1% confidence level

Note: To ensure proper model convergence, estimation in this table is based on the Heckman's (1979) two-step efficient estimates.

Table 2. Estimation Results of Location Choice by New Residential Development for Full Sample, Movers Only Sample, and Sample with Selection Correction

Variable	Full Sample of Households		Movers Only Sample		Sample-Selection Correction	
	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Dependent Variable: <u>Share of houses built last 10 years by PUMA</u>						
Intercept	-0.6859**	0.0493	-0.5089**	0.0645	-0.5140**	0.0645
Owners	0.0440**	0.0032	0.0900**	0.0043	0.0838**	0.0056
Omitted: Renters						
Age 18-24	0.0283**	0.0065	0.0355**	0.0072	0.0371**	0.0072
Omitted: Age 25-34						
Age 35-44	-0.0183**	0.0039	0.0043	0.0049	-0.0007	0.0057
Age 45-54	-0.0605**	0.0046	-0.0049	0.0063	-0.0147	0.0084
Age 55-64	-0.1100**	0.0047	-0.0248**	0.0074	-0.0388**	0.0109
Not Married, Male Head Of Household	-0.0334**	0.0045	-0.0511**	0.0058	-0.0505**	0.0058
Not Married, Female Head	-0.0302**	0.0055	-0.0482**	0.0074	-0.0478**	0.0074
Omitted: Married						
No High School Diploma	-0.0256**	0.0046	-0.0349**	0.0062	-0.0353**	0.0062
Omitted: High School Dip. W/ College						
College Degree Of Better	-0.0030	0.0048	-0.0107	0.0063	-0.0100	0.0063
Number Of People In Household	-0.0027**	0.0011	-0.0032*	0.0014	-0.0034*	0.0014
Number Of Workers In Household	-0.0158**	0.0031	-0.0091*	0.0042	-0.0098*	0.0042
Permanent Income (1000s)	0.00059**	0.0002	0.0002	0.0003	0.0003	0.0003
Transitory Income (1000s)	0.00025**	0.0000	0.0001*	0.0001	0.0001*	0.0001
Black	-0.3311**	0.0053	-0.2586**	0.0071	-0.2601**	0.0072
Asian	-0.1768**	0.0097	-0.1639**	0.0141	-0.1635**	0.0141
Latino	-0.1089**	0.0055	-0.0889**	0.0076	-0.0907**	0.0077
Omitted: Non-Hispanic White						
Immigrant	-0.0208	0.0113	-0.0379**	0.0130	-0.0302*	0.0138
Immigrant* Asian	0.0203	0.0119	-0.0063	0.0165	-0.0062	0.0165
Immigrant* Latino	-0.0289**	0.0087	-0.0411**	0.0117	-0.0412**	0.0117
Came To U.S. 5-10 Years Ago	0.0161	0.0109	0.0049	0.0121	0.0011	0.0123
Came To U.S. 10-15 Years Ago	-0.0016	0.0113	-0.0108	0.0130	-0.0166	0.0134
Came To U.S. 15-20 Years Ago	0.0182	0.0122	0.0277	0.0148	0.0206	0.0154
Came To U.S. 20-30 Years Ago	0.0213	0.0121	0.0471**	0.0152	0.0388*	0.0159
Came To U.S. More Than 30 Years Ago	0.0211	0.0135	0.0475*	0.0191	0.0383	0.0199
Omitted: Came To U.S. In The Past 5 Yrs.						
Moved From Within California	0.1264**	0.0073	0.0900**	0.0075	0.0899**	0.0075
Moved From Within U.S.	0.0846**	0.0051	0.0575**	0.0053	0.0575**	0.0053
Moved From A Foreign Country	0.0645**	0.0101	0.0523**	0.0107	0.0523**	0.0107
Omitted: Moved From Within Los Angeles CMSA						
The 25th Percentile Housing Price (Log)	-0.4691**	0.0045	-0.5453**	0.0060	-0.5454**	0.0060
Puma Median Rent(Log)	0.7152**	0.0095	0.8332**	0.0125	0.8333**	0.0125
Correlation Coefficient (rho)					0.040	0.023
Mills-Lambda					0.019	0.011
Log likelihood					-128,210	
Adjusted R-squared		0.137		0.162		
Number of Observations		135,708		76,594		

*: significant at 5% confidence level

**: significant at 1% confidence level

Figure 1. Average Residential Density (Households per square kilometer by PUMA)

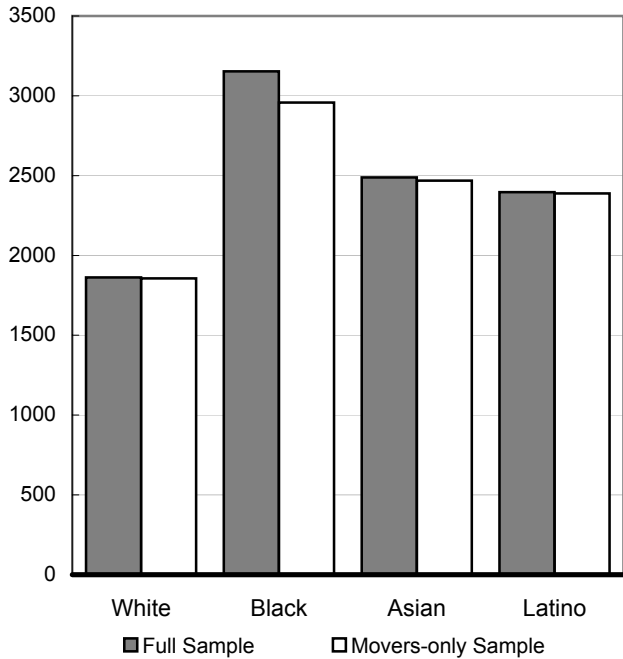


Figure 2. Likelihood of Living in New Residential Area (Share of houses built last 10 years by PUMA)

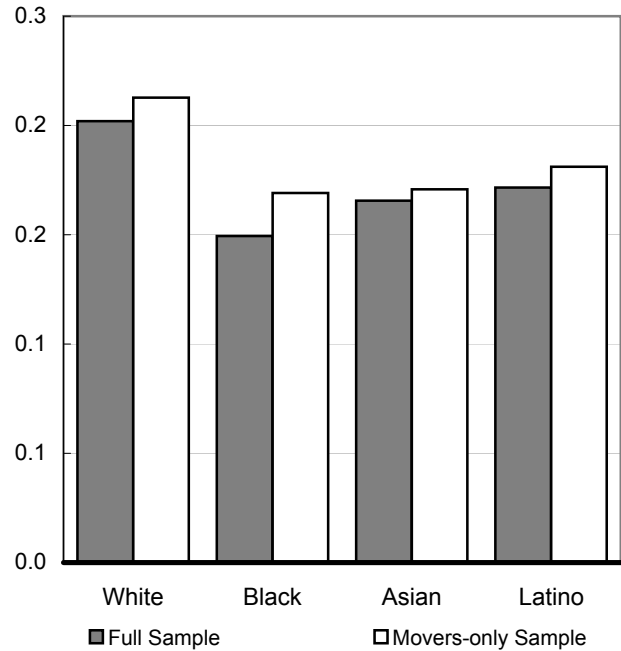


Figure 3. Share of Households by Immigrant Status by Race/Ethnicity in Full Sample and Movers-only Sample

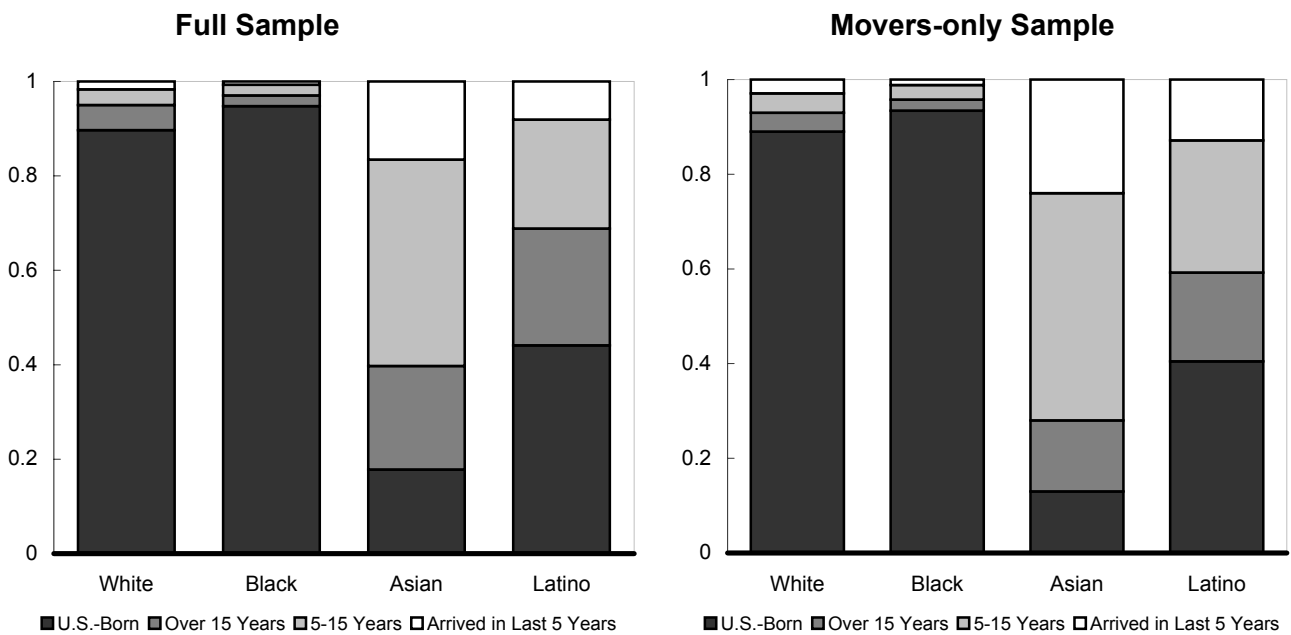
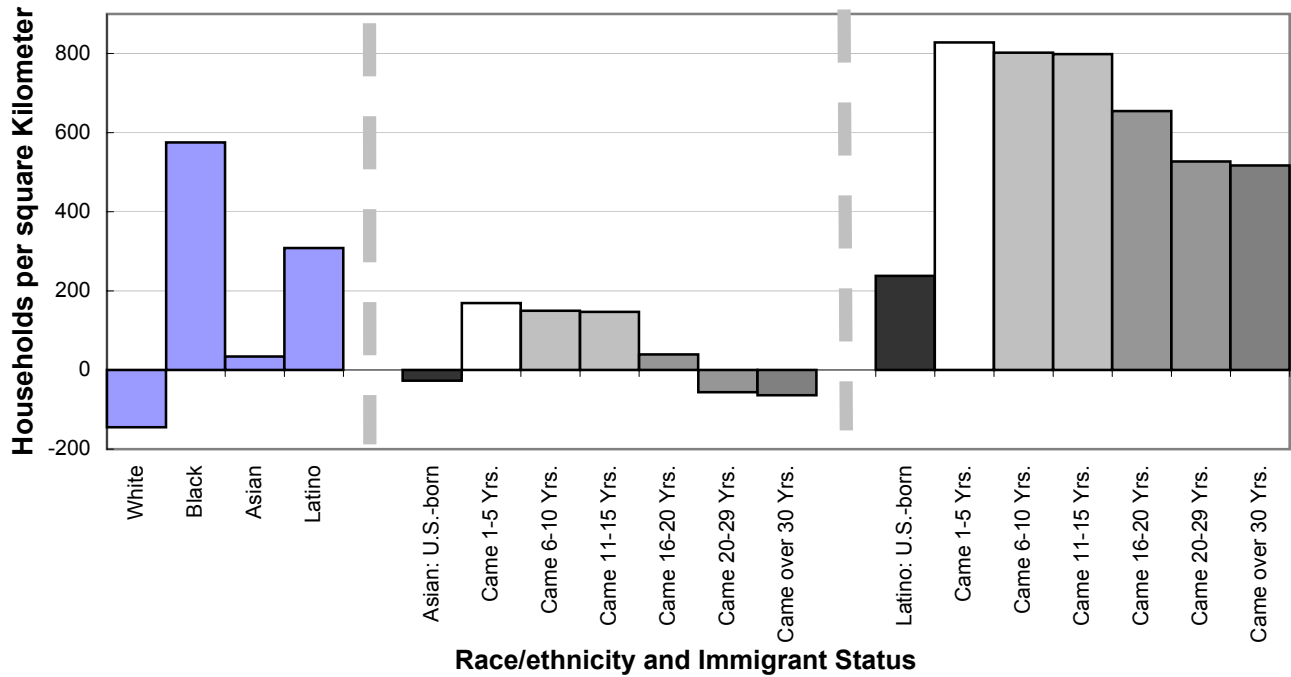
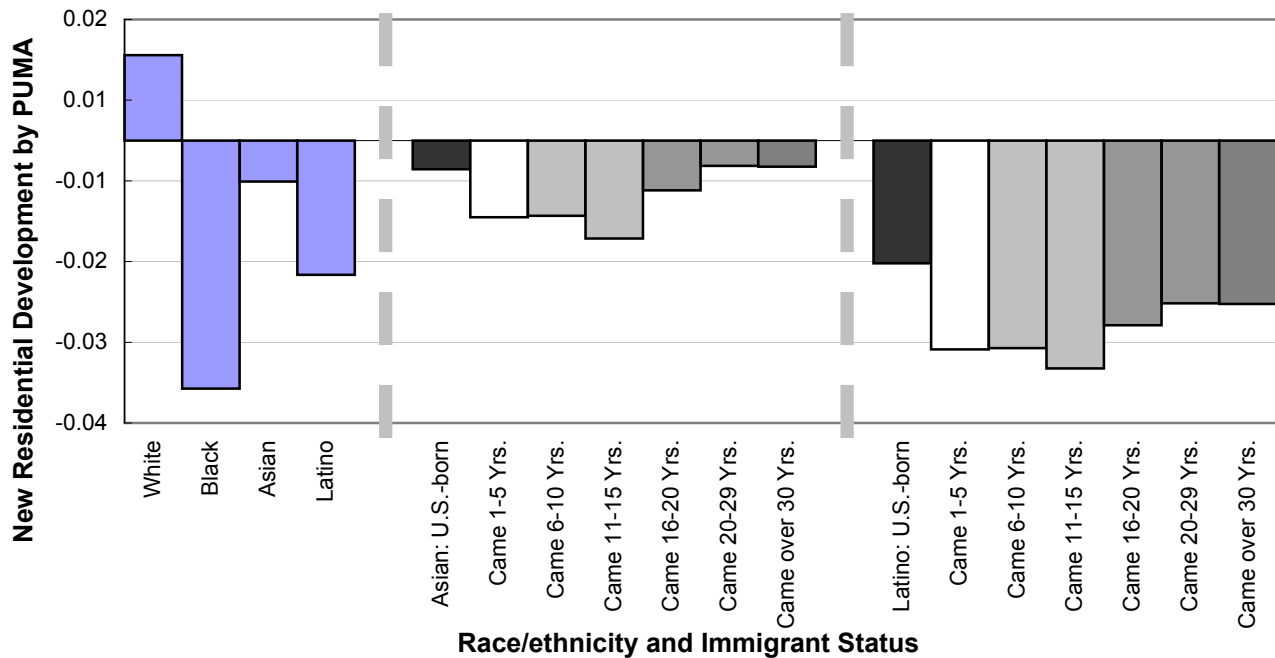


Figure 4. Predicted Residential Density by Race/Ethnicity and Immigrant Status



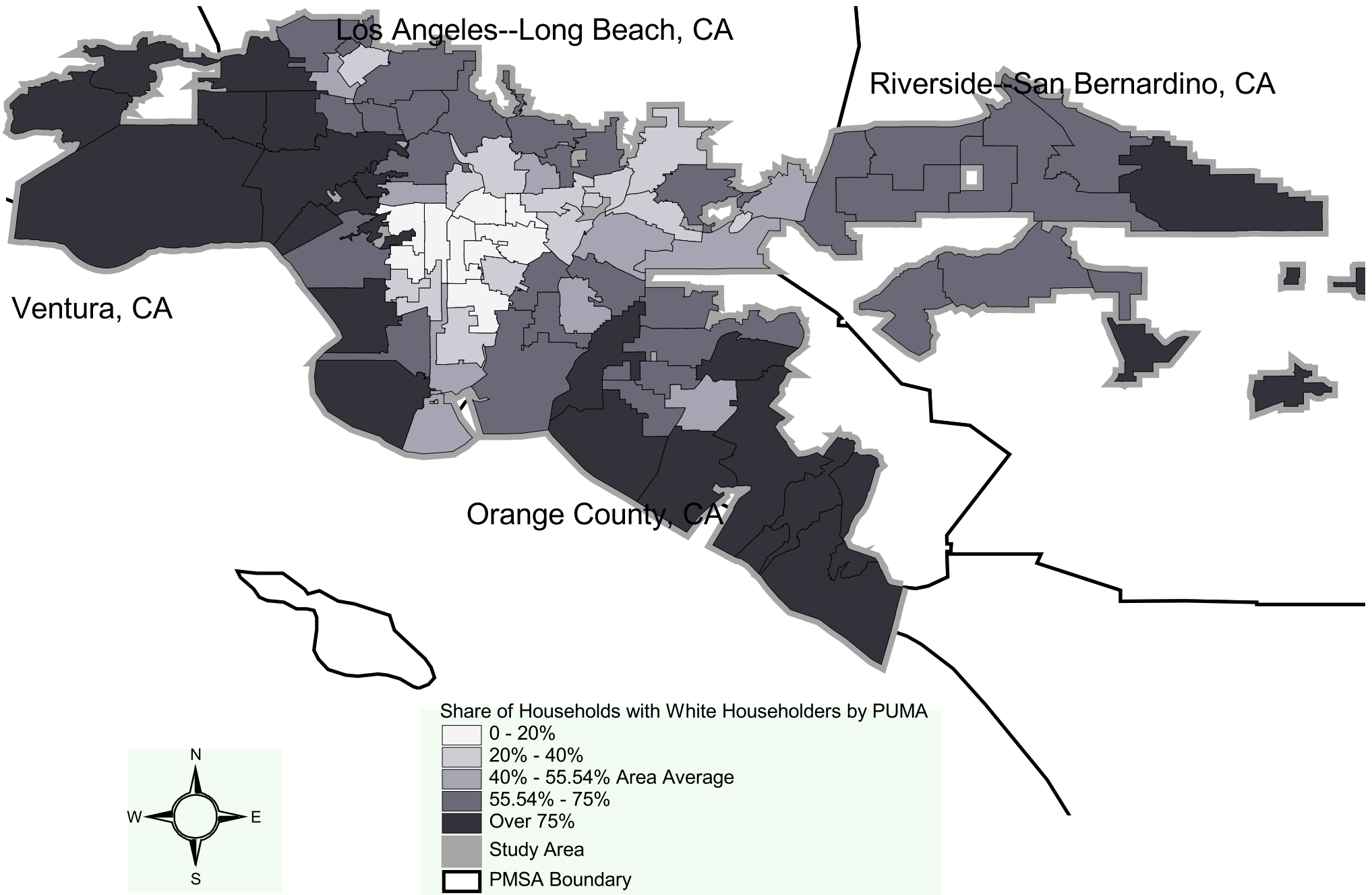
Note: Predicted residential density by all groups is the reference group.

Figure 5. Predicted Likelihood of Residing in New Residential Area by Race/Ethnicity and Immigrant Status

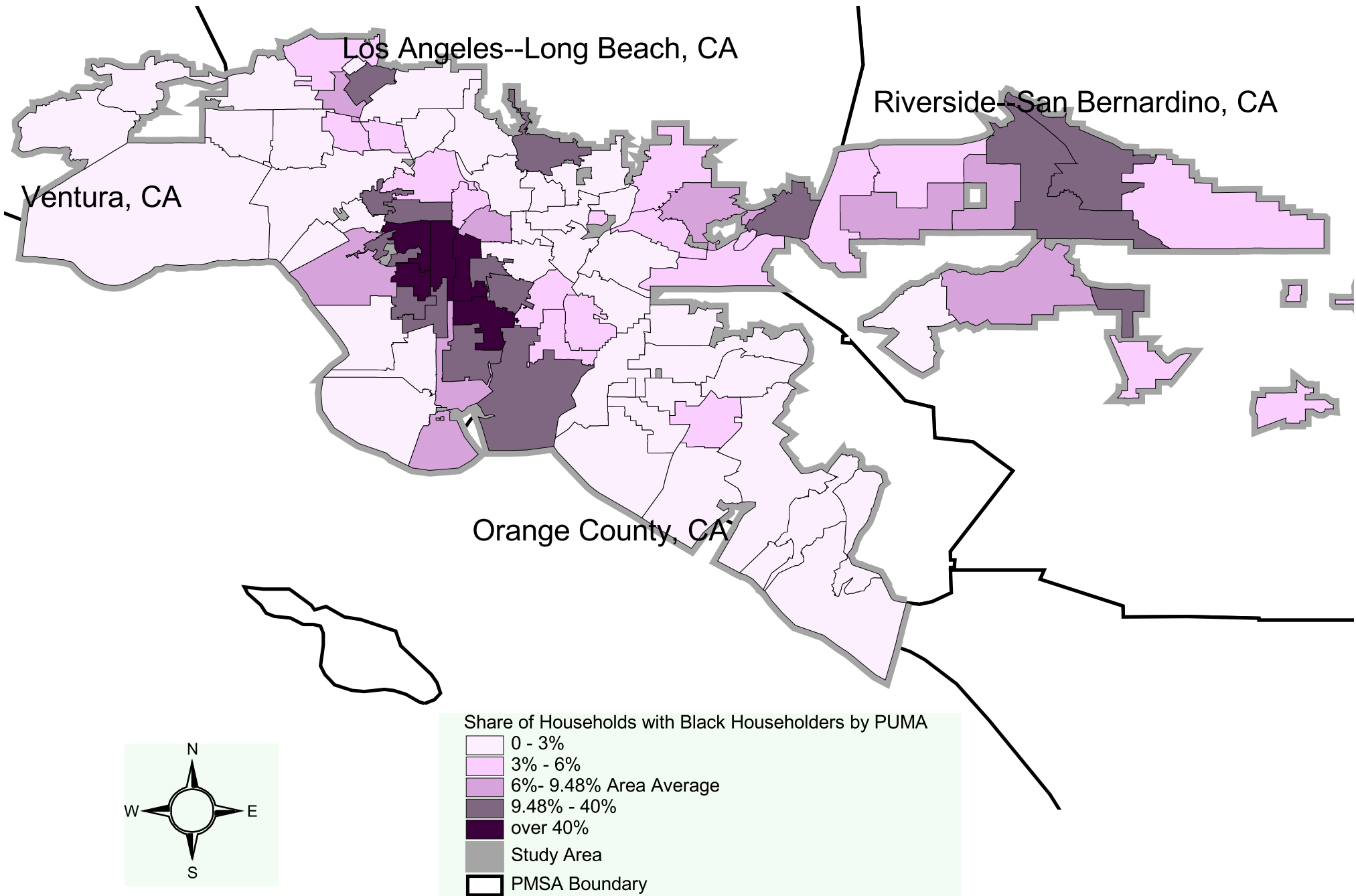


Note: Predicted likelihood of residing in new residential area by all groups is the reference group.

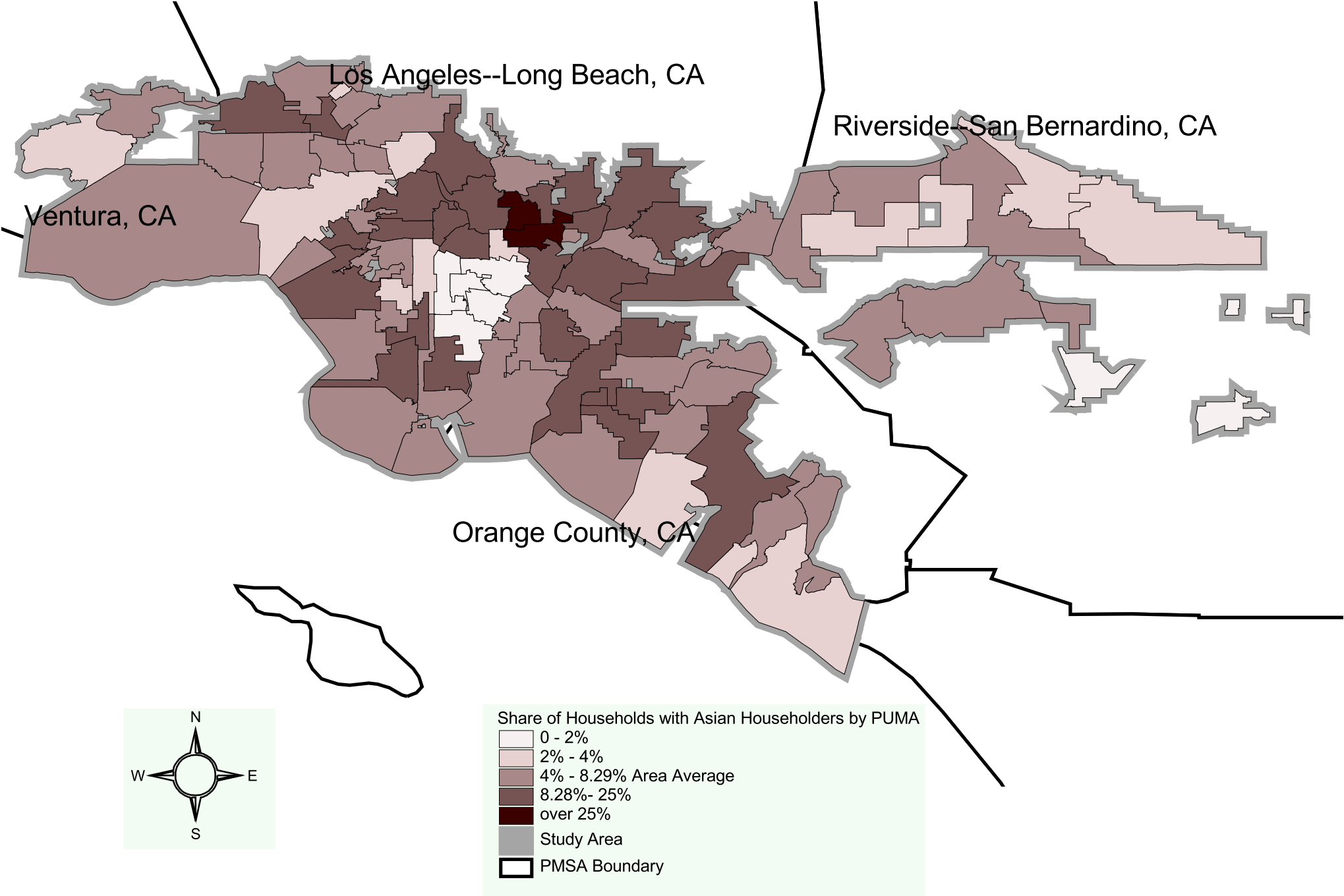
Map1. Percent Households Headed by Whites in Urbanized Area of Los Angeles CMSA



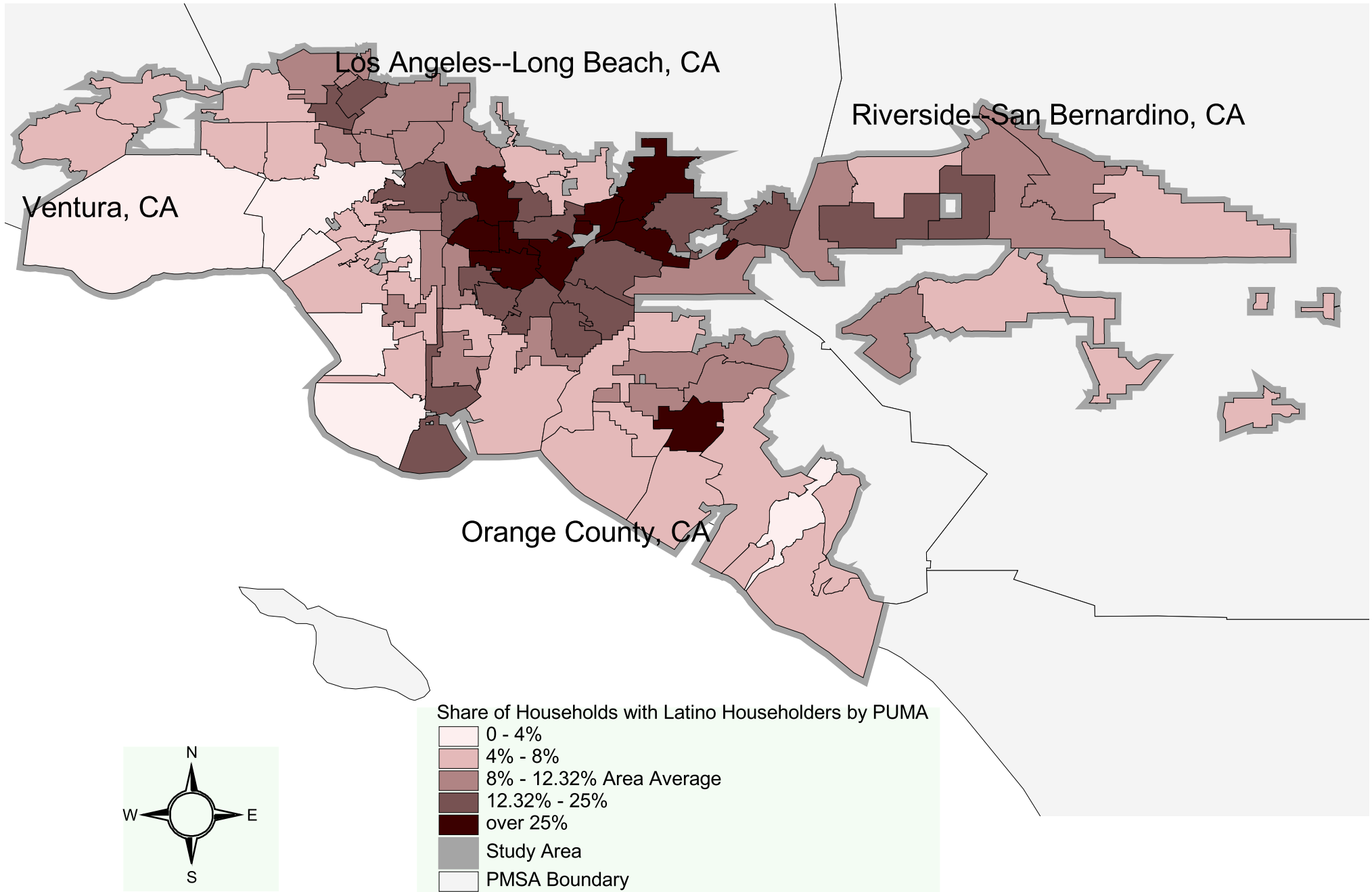
Map 2. Percent Households Headed by Blacks in Urbanized Area of Los Angeles CMSA



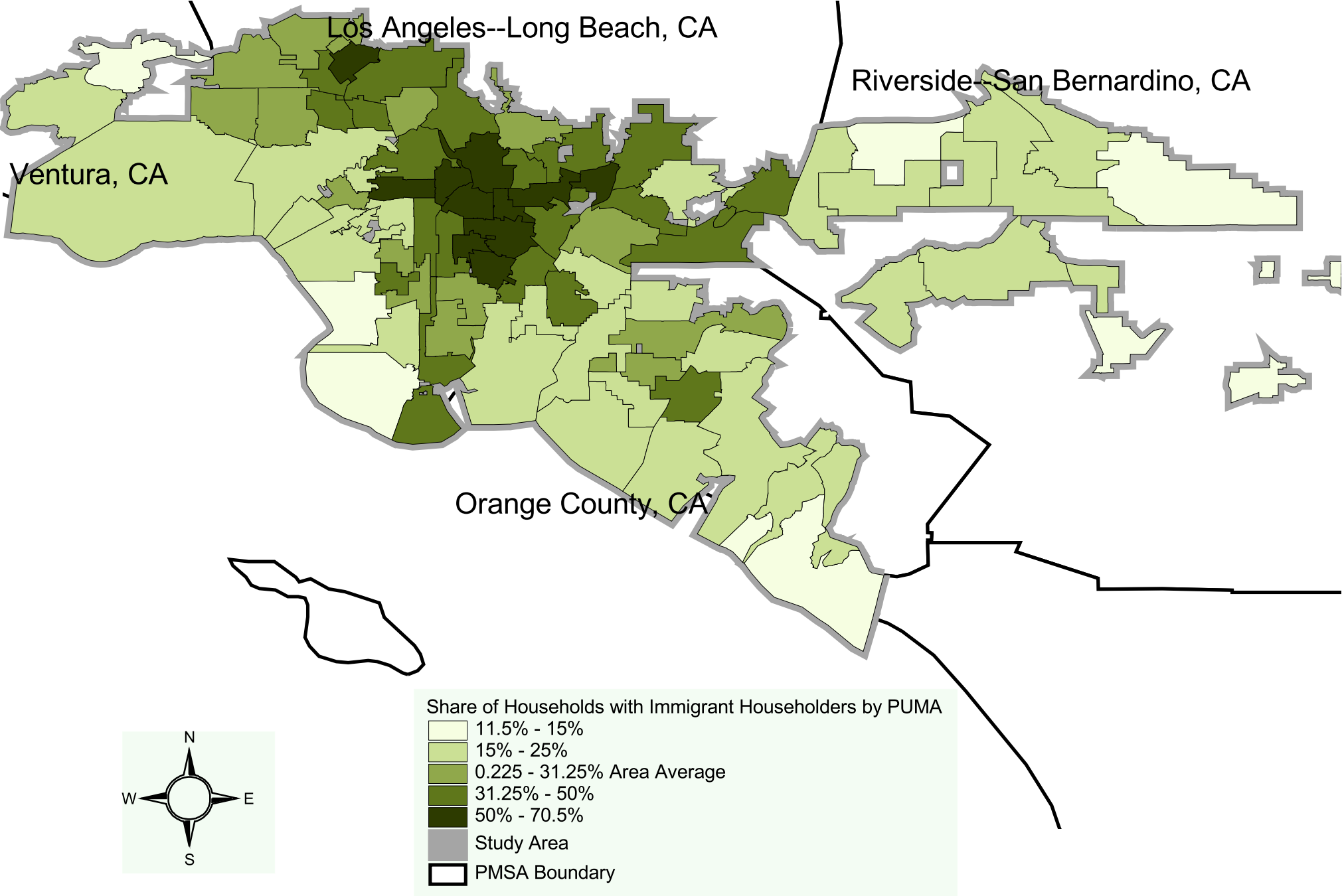
Map 3. Percent Households Headed by Asians in Urbanized Area of Los Angeles CMSA



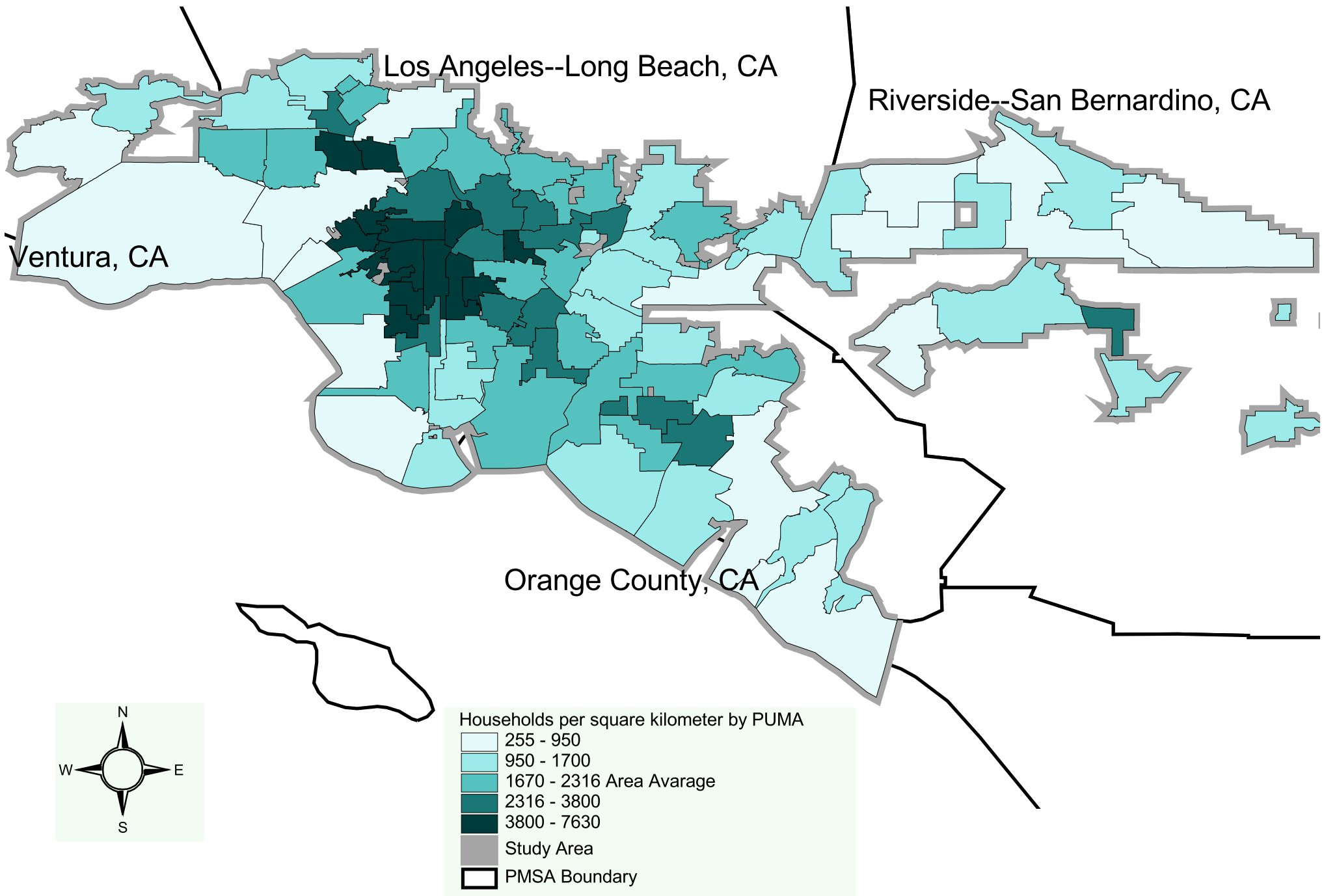
Map 4. Percent Households Headed by Latinos in Urbanized Area of Los Angeles CMSA



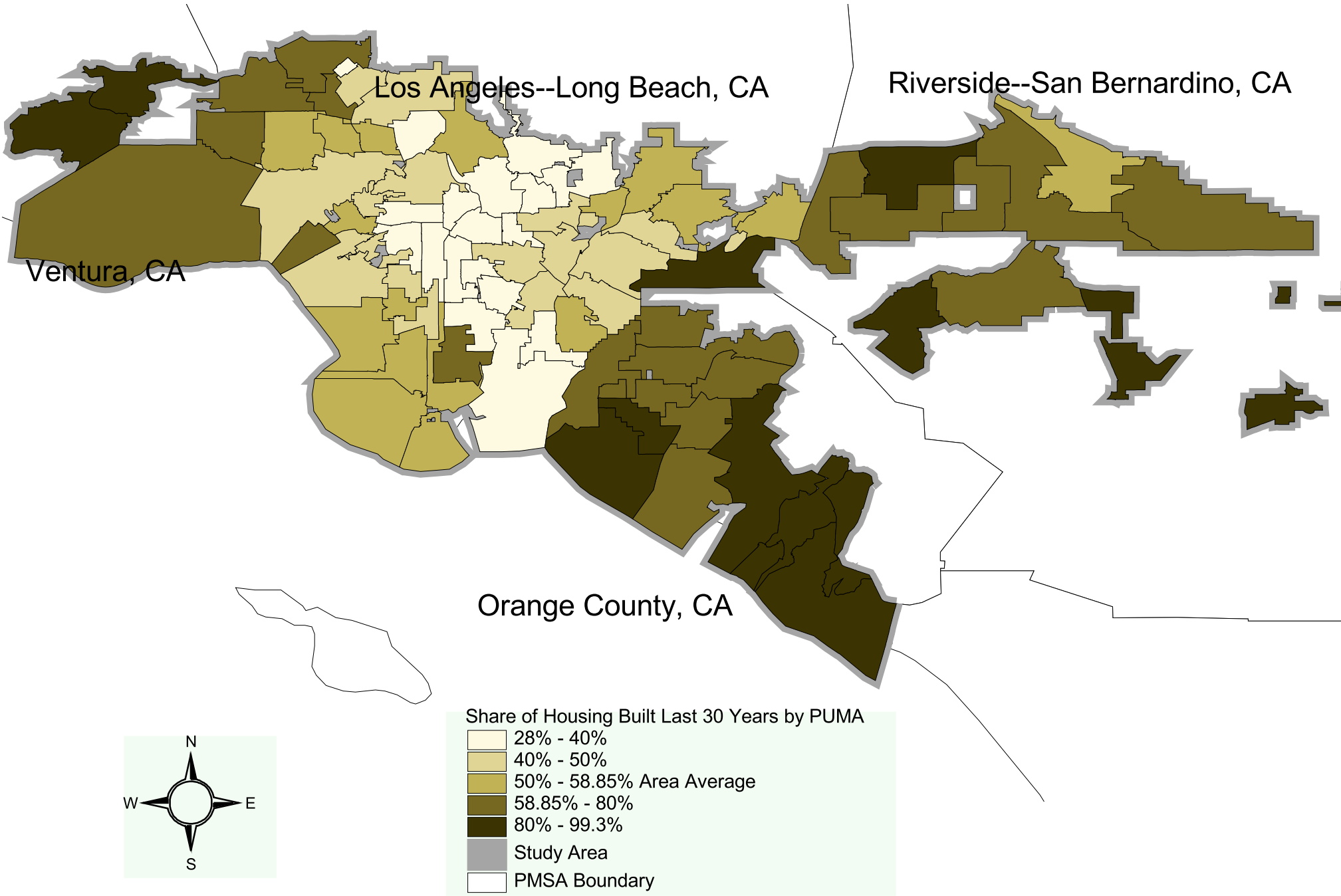
Map 5. Percent Households Headed by Immigrants in Urbanized Area of Los Angeles CMSA



Map 6. Residential Density in Urbanized Area of Los Angeles CMSA



Map 7. Percent Housing Built over the Past 30 Years in Urbanized Area of Los Angeles CMSA



Appendix I. Variable Summary Statistics

Variable	<u>Full Sample</u>		<u>White Only</u>		<u>Black Only</u>		<u>Asian Only</u>		<u>Latino Only</u>	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Natural Log of Households per Square Kilometer by PUMA	7.465	0.651	7.334	0.636	7.891	0.623	7.641	0.605	7.620	0.585
Share of Housing Built Last 10 Yrs. by PUMA	0.188	0.115	0.202	0.120	0.149	0.111	0.166	0.094	0.172	0.099
Ownership Rate	0.540	0.498	0.594	0.491	0.366	0.482	0.565	0.496	0.413	0.492
Age 18-24	0.054	0.226	0.049	0.215	0.062	0.241	0.042	0.200	0.079	0.270
Age 25-34	0.272	0.445	0.262	0.439	0.275	0.446	0.260	0.439	0.320	0.466
Age 35-44	0.286	0.452	0.283	0.450	0.284	0.451	0.331	0.471	0.272	0.445
Age 45-54	0.213	0.409	0.218	0.413	0.215	0.411	0.228	0.420	0.182	0.386
Age 55-64	0.175	0.380	0.189	0.392	0.164	0.370	0.139	0.346	0.147	0.354
Not Married-couple Family Household, Male Householder	0.195	0.396	0.211	0.408	0.191	0.393	0.136	0.343	0.171	0.377
Not Married-couple Family Household, Female Householder	0.245	0.430	0.236	0.424	0.439	0.496	0.163	0.369	0.223	0.416
No High School Diploma	0.161	0.368	0.084	0.278	0.187	0.390	0.133	0.339	0.472	0.499
High School Dip. W/ College	0.428	0.495	0.450	0.497	0.528	0.499	0.314	0.464	0.358	0.479
College Degree or Better	0.411	0.492	0.466	0.499	0.285	0.452	0.553	0.497	0.170	0.376
Number Of People In Household	2.962	1.726	2.604	1.372	2.943	1.698	3.583	1.831	3.995	2.312
Number Of Workers In Household	1.737	0.988	1.697	0.866	1.449	0.967	1.890	1.120	1.967	1.261
Permanent Income (1000s)	52.492	24.813	58.718	22.043	35.984	24.490	51.455	25.624	38.052	24.319
Transitory Income (1000s)	0.738	37.572	1.110	41.603	0.029	24.196	-0.092	36.543	0.221	25.943
Non-Hispanic White	0.639	0.480								
Black	0.095	0.293								
Asian	0.106	0.308								
Latino	0.160	0.366								
Immigrant	0.248	0.432	0.103	0.305	0.052	0.223	0.822	0.383	0.559	0.497
Came To U.S. In The Past 5 Yrs.	0.042	0.201	0.017	0.130	0.007	0.083	0.166	0.372	0.081	0.273
Came To U.S. 5-10 Years Ago	0.056	0.230	0.015	0.122	0.013	0.113	0.249	0.433	0.117	0.322
Came To U.S. 10-15 Years Ago	0.050	0.219	0.018	0.132	0.010	0.100	0.188	0.390	0.114	0.318
Came To U.S. 15-20 Years Ago	0.033	0.179	0.008	0.090	0.008	0.090	0.108	0.311	0.099	0.298
Came To U.S. 20-30 Years Ago	0.041	0.199	0.022	0.146	0.011	0.105	0.084	0.277	0.108	0.311
Came To U.S. More Than 30 Years Ago	0.024	0.154	0.023	0.151	0.003	0.056	0.027	0.162	0.040	0.196
Moved From Within California	0.034	0.180	0.040	0.196	0.017	0.129	0.031	0.174	0.020	0.140
Moved From Within U.S.	0.075	0.263	0.090	0.286	0.066	0.248	0.064	0.244	0.029	0.168
Moved From A Foreign Country	0.039	0.193	0.020	0.141	0.010	0.102	0.143	0.350	0.060	0.238
The 25th Percentile Housing Price (log)	12.097	0.419	12.174	0.426	11.796	0.387	12.113	0.322	11.960	0.346
Puma Median Rent (log)	6.490	0.199	6.533	0.189	6.321	0.172	6.491	0.181	6.418	0.189
Number of Observations	135,730		86,781		12,851		14,393		21,687	

Appendix II. Variable Summary Statistics -- Movers Only

Variable	<u>Movers-only</u>		<u>White Movers</u>		<u>Black Movers</u>		<u>Asian Movers</u>		<u>Latino Movers</u>	
	<u>Sample</u>		<u>Only</u>		<u>Only</u>		<u>Only</u>		<u>Only</u>	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Natural Log of Households per Square Kilometer by PUMA	7.450	0.658	7.321	0.649	7.813	0.641	7.631	0.607	7.613	0.591
Share of Housing Built Last 10 Yrs. by PUMA	0.199	0.123	0.213	0.128	0.169	0.128	0.171	0.098	0.181	0.107
Ownership Rate	0.399	0.490	0.443	0.497	0.210	0.407	0.470	0.499	0.279	0.449
Age 18-24	0.086	0.280	0.081	0.272	0.096	0.295	0.058	0.234	0.121	0.326
Age 25-34	0.387	0.487	0.386	0.487	0.390	0.488	0.336	0.472	0.426	0.494
Age 35-44	0.294	0.456	0.292	0.455	0.295	0.456	0.346	0.476	0.262	0.440
Age 45-54	0.150	0.357	0.153	0.360	0.141	0.348	0.175	0.380	0.125	0.330
Age 55-64	0.083	0.276	0.088	0.284	0.078	0.268	0.085	0.279	0.066	0.249
Not Married-couple Family Household, Male Householder	0.232	0.422	0.256	0.437	0.219	0.414	0.153	0.360	0.204	0.403
Not Married-couple Family Household, Female Householder	0.254	0.435	0.250	0.433	0.453	0.498	0.168	0.374	0.223	0.416
No High School Diploma	0.156	0.363	0.078	0.268	0.166	0.372	0.138	0.345	0.472	0.499
High School Dip. W/ College	0.423	0.494	0.445	0.497	0.546	0.498	0.309	0.462	0.353	0.478
College Degree or Better	0.421	0.494	0.477	0.499	0.289	0.453	0.553	0.497	0.175	0.380
Number Of People In Household	2.917	1.745	2.522	1.348	2.876	1.643	3.536	1.853	4.023	2.375
Number Of Workers In Household	1.696	0.941	1.650	0.786	1.385	0.886	1.806	1.102	1.966	1.265
Permanent Income (1000s)	48.913	24.086	55.250	21.168	32.836	23.576	47.080	25.096	34.489	23.676
Transitory Income (1000s)	0.737	36.334	0.852	40.056	0.377	23.796	-0.167	35.985	1.191	25.454
White	0.628	0.483								
Black	0.090	0.287								
Asian	0.122	0.328								
Latino	0.160	0.366								
Moved From Within California	0.060	0.237	0.072	0.259	0.032	0.175	0.048	0.214	0.036	0.185
Moved From Within U.S.	0.133	0.339	0.162	0.368	0.122	0.328	0.098	0.297	0.052	0.221
Moved From A Foreign Country	0.069	0.253	0.037	0.188	0.019	0.138	0.220	0.414	0.107	0.309
The 25th Percentile Housing Price (log)	12.103	0.422	12.172	0.437	11.844	0.390	12.119	0.323	11.968	0.353
Puma Median Rent (log)	6.493	0.200	6.531	0.196	6.344	0.173	6.497	0.180	6.423	0.190
Immigrant	0.277	0.447	0.110	0.313	0.066	0.248	0.870	0.336	0.596	0.491
Came To U.S. In The Past 5 Yrs.	0.069	0.254	0.029	0.169	0.012	0.109	0.240	0.427	0.129	0.335
Came To U.S. 5-10 Years Ago	0.075	0.264	0.021	0.142	0.018	0.132	0.296	0.456	0.154	0.361
Came To U.S. 10-15 Years Ago	0.057	0.231	0.021	0.142	0.013	0.113	0.184	0.387	0.125	0.331
Came To U.S. 15-20 Years Ago	0.031	0.173	0.008	0.091	0.009	0.096	0.086	0.281	0.088	0.284
Came To U.S. 20-30 Years Ago	0.031	0.173	0.017	0.131	0.012	0.107	0.051	0.221	0.078	0.269
Came To U.S. More Than 30 Years Ago	0.014	0.117	0.014	0.117	0.002	0.046	0.012	0.111	0.021	0.144
Number of Observations	76,606		48,085		6,924		9,370		12,217	

Appendix 3. Estimation Results of Location Choice by Residential Density and Race/Ethnicity in Movers Only Sample

Dependent Variable: <u>Natural Log of Households per square kilometer by PUMA</u>								
	<u>White Only Sample</u>		<u>Black Only Sample</u>		<u>Asian Only Sample</u>		<u>Latino Only Sample</u>	
Variable	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Intercept	10.24**	0.1021	12.88**	0.2789	11.75**	0.2357	11.22**	0.1963
Owners	-0.0822**	0.0252	-0.1304	0.1099	-0.1171**	0.0174	-0.2018**	0.4190
Omitted: Renters								
Age 18-24	-0.0352*	0.0137	-0.0352	0.0350	-0.0300	0.0272	0.0095	0.0207
Omitted: Age 25-34								
Age 35-44	0.0199	0.0211	-0.0515	0.0591	0.0243	0.0201	-0.0469	0.0334
Age 45-54	0.0362	0.0384	-0.0457	0.1245	0.0359	0.0340	-0.0787	0.0614
Age 55-64	0.1119*	0.0556	-0.0105	0.1642	0.1041*	0.0432	-0.1348	0.0926
Not Married, Male Head Of Household	0.0799**	0.0097	0.0307	0.0270	0.0551**	0.0192	0.0334*	0.0166
Not Married, Female Head	0.0708**	0.0126	0.0536*	0.0269	0.0022	0.0242	0.0413*	0.0210
Omitted: Married								
No High School Diploma	0.0317**	0.0120	0.0387	0.0217	0.0129	0.0192	0.0197	0.0141
Omitted: High School Dip. W/ College								
College Degree Of Better	-0.0210	0.0113	-0.0192	0.0249	-0.0348	0.0194	0.0342	0.0225
Number Of Persons In Household	-0.0240**	0.0031	-0.0234**	0.0050	-0.0051	0.0038	-0.0006	0.0030
Number Of Workers In Household	0.0037	0.0073	-0.0156	0.0172	0.0425**	0.0123	0.0146	0.0109
Permanent Income (1000s)	0.00105*	0.4595	0.0004	0.0011	-0.0019*	0.0008	-0.0004	0.0008
Transitory Income (1000s)	-0.0008**	0.0001	0.0005	0.0004	-0.0010**	0.0002	-0.0009**	0.0003
Immigrant	0.2930**	0.0275	0.1871*	0.0733	0.0649	0.0566	0.2612**	0.0510
Came To U.S. 5-10 Years Ago	-0.0605*	0.0352	-0.1513	0.0891	-0.0048	0.0292	-0.0250	0.0344
Came To U.S. 10-15 Years Ago	-0.0068	0.0338	-0.1467	0.1032	0.0087	0.0385	-0.0636	0.0457
Came To U.S. 15-20 Years Ago	-0.0895*	0.0413	-0.1038	0.1051	-0.0877	0.0487	-0.0999	0.0533
Came To U.S. 20-30 Years Ago	-0.1415**	0.0349	-0.2202*	0.0400	-0.1142	0.0614	-0.1656**	0.0579
Came To U.S. More Than 30 Years Ago	-0.1406**	0.0370	-0.2065	0.1656	-0.1026	0.0791	-0.1963**	0.0688
Omitted: Came To U.S. In The Past 5 Yrs.								
Moved From Within California	-0.1016**	0.0113	-0.0971*	0.0390	-0.0978**	0.0254	-0.1395**	0.0258
Moved From Within U.S.	-0.0196*	0.0081	-0.0880**	0.0213	-0.0324	0.0185	-0.0490*	0.0217
Moved From A Foreign Country	0.0206	0.0236	-0.0939	0.0572	-0.0397	0.0226	-0.0110	0.0207
Omitted: Moved From Within CMSA								
The 25 th Percentile Housing Price (Log)	0.0682**	0.0094	0.9616**	0.0291	0.6548**	0.0209	0.4789**	0.0189
Puma Median Rent(Log)	-0.5640**	0.0201	-2.5899**	0.0641	-1.8457**	0.0374	-1.4820**	0.0348
Correlation Coefficient (rho)	-0.242		0.174		-0.076		0.385	
Mills-Labmda	-0.153**	0.053	0.099	0.211	-0.039	0.076	0.208	0.137
Adjusted R-squared		0.046		0.240		0.266		0.210
Number Of Observations (Full Sample)		86,781		12,851		14,393		21,687
Censored Observations (Non-Movers)		38,696		5,927		5,023		9,470

*: significant at 5% confidence level

**: significant at 1% confidence level

Note: To ensure proper model convergence, estimation in this table is based on the Heckman's (1979) two-step efficient estimates.

Appendix 4. Estimation Results of Location Choice by New Residential Development and Race/Ethnicity, Sample of Movers with Selection Correction

Dependent Variable: <u>Share of houses built last 10 years by PUMA</u>								
	<u>White Only Sample</u>		<u>Black Only Sample</u>		<u>Asian Only Sample</u>		<u>Latino Only Sample</u>	
Variable	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error	Coeff.	Std. Error
Intercept	0.2264*	0.078	-5.836**	0.256	-1.162**	0.197	-1.740**	0.166
Owners	0.1043**	0.007	0.0519	0.027	0.0117	0.012	0.0790**	0.013
Omitted: Renters								
Age 18-24	0.0360**	0.009	0.0696**	0.026	0.0851**	0.022	-0.0044	0.015
Omitted: Age 25-34								
Age 35-44	0.0070	0.008	-0.0125	0.021	-0.0346**	0.013	0.0109	0.013
Age 45-54	-0.0006	0.012	-0.0282	0.032	-0.0361	0.019	-0.0070	0.019
Age 55-64	-0.0168	0.015	-0.0887*	0.041	-0.0815**	0.023	-0.0180	0.025
Not Married, Male Head Of Household	-0.0528**	0.007	-0.0124	0.023	-0.0193	0.016	-0.0214	0.014
Not Married, Female Head	-0.0422**	0.009	-0.0574*	0.025	-0.0217	0.020	-0.0255	0.018
Omitted: Married								
No High School Diploma	-0.0179*	0.009	-0.0661**	0.020	-0.0198	0.016	-0.0088	0.012
Omitted: High School Dip. W/ College								
College Degree Of Better	-0.0109	0.008	0.0044	0.023	0.0174	0.016	0.0075	0.018
Number Of Persons In Household	0.0124**	0.002	-0.0002	0.005	-0.0111**	0.003	-0.0123*	0.002
Number Of Workers In Household	-0.0277**	0.006	0.0151	0.016	-0.0091	0.010	0.0099	0.010
Permanent Income (1000s)	0.0000	0.000	-0.0001	0.001	0.0008	0.001	-0.0002	0.001
Transitory Income (1000s)	0.0002**	0.000	-0.0010**	0.000	0.0001	0.000	0.0002	0.000
Immigrant	-0.0249	0.022	-0.2476**	0.072	-0.0199	0.031	-0.0617*	0.025
Came To U.S. 5-10 Years Ago	-0.0160	0.025	0.2395**	0.084	0.0116	0.021	0.0091	0.020
Came To U.S. 10-15 Years Ago	-0.0201	0.026	0.2262*	0.089	0.0316	0.024	-0.0352	0.022
Came To U.S. 15-20 Years Ago	0.0004	0.032	0.1251	0.096	0.0890**	0.029	0.0047	0.025
Came To U.S. 20-30 Years Ago	0.0186	0.027	0.2042*	0.092	0.1140**	0.034	0.0242	0.027
Came To U.S. More Than 30 Years Ago	0.0206	0.029	0.2940	0.156	0.1110*	0.050	0.0285	0.037
Omitted: Came To U.S. In The Past 5 Yrs.								
Moved From Within California	0.0883**	0.009	0.0921*	0.037	0.0813**	0.021	0.0926**	0.023
Moved From Within U.S.	0.0562**	0.006	0.0896**	0.020	0.0351*	0.016	0.0830**	0.019
Moved From A Foreign Country	0.0446*	0.018	0.2125**	0.055	0.0290	0.019	0.0374*	0.018
Omitted: Moved From Within CMSA								
The 25 th Percentile Housing Price (Log)	-0.5832**	0.007	-0.6645**	0.028	-0.3715**	0.018	-0.4418**	0.017
Puma Median Rent(Log)	0.7884**	0.015	1.8506**	0.061	0.5830**	0.032	0.8164**	0.031
Correlation Coefficient (rho)	0.032	0.033	0.015	0.084	0.036	0.061	-0.004	0.054
Mills-Labmda	0.015	0.016	0.008	0.045	0.015	0.027	-0.002	0.025
Log likelihood	-80,769		-12,862		-12,919		-20,289	
Number Of Observations (Full Sample)	86,781		12,851		14,393		21,687	
Censored Observations (Non-Movers)	38,696		5,927		5,023		9,470	

*: significant at 5% confidence level

**: significant at 1% confidence level