

Immigrants and housing markets in mid-size metropolitan areasⁱ

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Abstract

The recent trend of immigrants arriving in mid-size metropolitan areas has received growing attention in the literature. This study examines the success of immigrants in the housing markets of a sample 60 metropolitan areas using Census microdata in both 2000 and 2005. The results suggest that immigrants are less successful in achieving homeownership and more likely to live in overcrowded conditions than native-born whites of non-Hispanic origin. The immigrant effect on homeownership differs by geography and by immigrant group. Finally, we find evidence that immigrant networks increase the likelihood of becoming a homeowner.

Keywords: Homeownership; Immigration; Overcrowding; Mid-size metropolitan areas

Introduction

Immigrantsⁱⁱ are expected to continue to arrive in the United States in large numbers and transform the racial and ethnic makeup of the country in the coming decades (Passel and Cohn, 2008). While immigrants continue to arrive in traditional “gateway” metropolitan areasⁱⁱⁱ, immigrants have begun to disperse from established gateways as well as migrate directly to new destinations (Frey, 2004; Frey and Liaw, 2005; Hempstead, 2007). Painter and Yu (2008) document the increase in the population of immigrants in emerging gateways, and in particular, the large increase in new immigrants in these areas.^{iv} However, these trends in immigrant settlement are now present in many smaller metropolitan areas (Frey, 2002b; Singer, 2004; Waters and Jimenez, 2005).

The literature has recently begun to document the changing patterns of immigrant settlement (e.g., Camarota and Keeley, 2001 ; Massey, Durand, and Malone, 2002; Kandel and Parrado, 2005; Light, 2006; Hempstead, 2007), and shift its focus toward immigrant incorporation in non-traditional destinations (e.g., Gozdziaik and Martin, 2005 ; Marrow, 2005; Zúñiga and Hernández-León, 2005). While the housing literature (e.g., Coulson, 1999; Painter, Gabriel, and Myers, 2001; Yu and Myers, 2007) has examined the different factors that lead various immigrant groups to achieve homeownership, these studies have either been national in scope or have focused on the gateway metropolitan areas in which most immigrants live. Painter and Yu (2008) was the first to focus on the housing outcomes of immigrants who moved recently in a wider cross section of large metropolitan areas, and their work suggests that while there is a transition period for new migrants in adapting to the housing markets, immigrants who

have lived in these areas for over 10 years do as well as native-born households who made similar moves.

As Table 1 demonstrates, the increase in the immigrant population is a national phenomenon. While immigrant share of the total population remains above 25% in established gateway metropolitan areas, the immigrant share in emerging gateways climbed from 12.8% in 2000 to 15.6% in 2005. Within a spectrum of 60 mid-size metropolitan areas^v, the percentage increased from 7.4% to 9% (Appendix 1 provides more details on the 60 mid-size metropolitan areas). There has also been a gradual shift in the settlement patterns of newly arrived immigrants.^{vi} There has been a 27% increase in the new immigrant population in mid-size metropolitan areas, which is in contrast to the decline in established gateways. However, the overall average changes in the mid-size metropolitan areas obscure large variation across these areas. For example, Salem, OR, experienced an increase in the share of the immigrant population of over 3 percentage points from 2000-2005, and over 9 percentage points since 1990. Fort Myers, FL, saw 94 percent increase in immigrant population or an increase in the share of the immigrant population of over 5 percentage points from 2000-2005, and almost 9 percentage points since 1990. Among the 60 mid-size metropolitan areas, 5 metros experienced increases in the immigrant share of the population over 3 percentage points since 2000, and 17 of them experienced increases in the immigrant share of the metropolitan population over 5 percentage points since 1990. Because most of these metropolitan areas began with immigrant population shares under 5 percentage points, these changes are substantial. Of further importance is the fact that, as is the case in the emerging gateways, close to half

of the immigrant population in these metropolitan areas have arrived in the United States less than 10 years ago (Table 1).

[Tables 1 and 2 about here]

As mentioned earlier, previous research on immigrants and housing (Painter, et al., 2001; Painter and Yu, 2008) has focused primarily on large metropolitan areas. In order to fill this void in the literature, this study will examine the success of immigrants in housing markets in mid-sized metropolitan areas. The reasons are two-fold. First, spatial assimilation theory (Massey, 1995) suggests that moving away from places where co-ethnics reside may signal the ability of immigrants to achieve better housing outcomes in the economic mainstream. On the other hand, some have argued (Light, 2006) that immigrants may have been “deflected” to mid-size metropolitan areas by the high cost of living in traditional gateways. If this were true, then immigrants to these new destinations may have worse housing outcomes relatively to their U.S-born counterparts.

The second reason to study these mid size markets is to understand the extent to which there exists residential assimilation in these new immigrant destinations. To that end, we analyze two measures that describe the relationship between housing and immigrant status. First, we estimate the likelihood that someone becomes a homeowner. Beyond its role as indicator of residential assimilation, this study focuses on homeownership because research shows that owning one’s home generates positive externalities and has long-lasting effects on the well-being of residents, their children, and their neighbors (e.g., Rohe and Stewart, 1996; Green and White, 1997; Haurin, Parcel, and Haurin, 2002). Second, we use a measure of overcrowding because it is also a measure of residential assimilation and is a key criterion in allocating federal housing

subsidies (Fisher, 1959; Grigsby and Rosenburg, 1975; Fisher, 1976; Baer, 1990).^{vii}

Research has documented that many immigrant households have resorted to sharing space with others as a way to cope with the high costs of housing (Angel and Tienda, 1982; Choi, 1993; Myers, Baer, and Choi, 1996; Evans, Lepore, and Allen, 2000; Joint Center for Housing Studies, 2007; Rosenbaum and Friedman, 2007). Further, crowded housing conditions are perceived to lower the quality of life and have deleterious effects on the surrounding communities. It is unclear however whether immigrants still have high rates of overcrowding relative to native-born residents in mid-size metropolitan areas where housing is more affordable and where overcrowding is less prevalent than traditional gateways. It is also unclear whether the two housing measures yield the same results on immigrant assimilation in mid-size metropolitan areas. Focusing on both of these outcomes provides a more nuanced view of the success of immigrants in these housing markets.

This study also tests a number of hypotheses concerning the factors that influence the homeownership rates and the living conditions of immigrants in the mid-size metropolitan areas. Using microdata from the 2000 Decennial Census and the 2005 American Community Survey, we assess the differential success of immigrants across 6 categorizations of mid-size metropolitan areas in both years. Each metropolitan area is characterized as either a high growth, medium growth or low/no growth in the immigrant population. In addition, each area is characterized as having either a relatively high initial immigrant population or a relatively low immigrant population. Presumably, the dynamics of the housing markets and the social networks of immigrants (Alba and Logan, 1992; Krivo, 1995) that exist in the metropolitan area may be important predictors of

homeownership rates and living conditions. For select immigrant groups, we are able to conduct a more in-depth analysis of strength of their networks. In addition, we are able to test for the importance of English proficiency, immigrant place of origin, and current region of residence. We examine the evidence in both 2000 and 2005, which allow us to investigate whether the run-up in housing prices in the early part of the decade may have changed the housing outcomes of immigrants in mid-size metropolitan areas.

Background

Immigrant growth in mid-size metropolitan areas

Immigrants and their U.S.-born descendants are expected to grow by 117 million in the next four decades, making up 82 percent of the U.S. population growth of the period (Passel and Cohn, 2008). This population growth will have important implications for housing demand at a time when aging baby boomers are expected to retire and leave the housing market in the coming decades (Frey and DeVol, 2000; Myers, 2007). As indicated in Table 1, an increasing share of the immigrant growth will take place in mid-size metropolitan areas. (e.g., Frey and DeVol, 2000; Singer, 2004; Hempstead, 2007; Massey, 2008). In contrast to traditional gateway regions, many mid-size metropolitan areas had not received many new immigrants since the 1965 immigration reform (Camarota and Keeley, 2001; Frey, 2003). The effect of immigration on these mid-size metropolitan areas is likely to be different than on traditional gateways.

Not only do immigrants have impacts on the housing markets of mid-size metropolitan areas, but the context of these new destinations will play a significant role in immigrant assimilation. Many recent immigrants, in contrast to earlier arrivals, have settled directly in mid-size metropolitan areas and begun their adaptation outside the

gateways (Gozdziak and Martin, 2005; Hempstead, 2007). A growing number of foreign-born households have also migrated from gateways to mid-size metropolitan areas. Previous studies have shown that the geographic diffusion from traditional gateways is instrumental in immigrant assimilation (Greenwood, Klopfenstein, and McDowell, 2002). Immigrants often move to nontraditional receiving areas to pursue better labor market opportunities (Hernandez-Leon and Zuniga, 2000). Gurak and Kritz (2005) show that, as an important step of assimilation, immigrants have begun to settle in places that have relatively small share of their co-ethnic population, suggesting many mobile immigrants may no longer rely on ethnic support as much as immigrants who live in traditional gateways. Hall (2008) finds that interstate migration has a positive effect on immigrants' employment and earnings and that immigrants who migrated to areas with smaller relative immigrant population tend to have better labor market outcomes than those who moved to areas with relatively large immigrant population. In contrast to the growing literature on immigrants' labor market behaviors in the new destinations; however, we know relatively little about immigrant's housing outcomes in the mid-size metropolitan areas. Ley (2007) suggests that the housing market plays an important yet often neglected role in immigrants' decisions to settle in new destinations. Rising housing prices in traditional gateways in the early 2000s may have attracted many immigrants to mid-size metropolitan areas where housing is more affordable. Because of these population shifts, Waters and Jimenez (2005) suggested in a recent review to shift the research focus to mid-size metropolitan areas.

Immigrants' housing outcomes and assimilation

Most research agrees that immigrants, in general, have worse housing outcomes than native-born, non-Hispanic white residents (whites). At the same time, they disagree on how long the housing gaps will last and the extent to which the gaps can be explained by the unique characteristics of immigrants.

Krivo (1995) and Coulson (1999) suggest that household attributes and metropolitan characteristics are responsible for the low homeownership rates of immigrants. Their research suggests immigrants still have significant housing gaps after accounting for these and other relevant factors. Such gaps are largest among newly arrived immigrants (McConnell and Akresh, 2008). Borjas (2002) find that the homeownership gap between native-born and immigrant households has increased from 1980 to 2000. The growing housing gap is largely due to immigrants' residential location choice and changes in their national origins. Immigrants from Latin America, who have lower skill profiles than other immigrants, tend to have the largest homeownership gaps that can not be explained by other factors.

Recent studies have shown that the literature has failed to account for the fact that new immigrants are more mobile and tend to cluster in immigrant gateways (Myers and Lee, 1998; Painter, et al., 2001; Painter, Yang, and Yu, 2003). After controlling for this sample selection bias, most immigrants catch up rapidly in immigrant gateways and would have homeownership probabilities similar to native-born white residents in a decade or two after their arrival in the U.S. The literature, however, has not examined immigrants in mid-size metropolitan areas where there have been large increases in immigrant population in recent decades. As discussed previously, these areas are

important to study because the immigrant population is expected to grow more rapidly in mid-size metropolitan areas as immigrants disperse from traditional settlement areas or migrate directly from foreign countries.

The theoretical literature is ambiguous as to whether we would expect immigrants to be more successful in the housing markets in mid-size metropolitan areas. Massey's (1985) conception of spatial assimilation suggests that minority members settling in new destinations live in areas that have fewer of their coethnics and have more opportunities to connect with native-born residents. When applying the concept of spatial assimilation to the process of immigrants settling in mid-size metropolitan areas, such decisions reflect that an immigrant has become less reliant on ethnic support, and would suggest that immigrants will achieve better housing outcomes in areas with a lesser minority concentration. In addition, immigrants, who directly settled in mid-size metropolitan areas, may have better housing outcomes because housing is more affordable.

On the other hand, rapid immigrant growth may have saturated the gateway metropolitan areas in recent decades, diminishing economic opportunity and pushing immigrants away from those areas (Heer, 2002). Immigrants may have been "deflected" to mid-size metropolitan areas by the high cost of living and an increasingly hostile environment in traditional gateways, such as those documented in Light (2006). If this was the case, immigrants who settle in mid-size metropolitan areas may do worse than their counterparts in the gateway metropolitan areas because there exists fewer ethnic support networks to provide assistance in the housing market. One would expect that English proficiency may play a particularly important role in housing outcomes in mid-

size metropolitan areas, since immigrants have more direct contact with native-born population in mid-size metropolitan areas.

In addition, recent research on assimilation has challenged the traditional notion of spatial assimilation. For example, Alba, Logan, and Zhang (2002) propose the concept of ethnic communities among immigrants in gateway metropolitan areas. Their findings suggest that immigrants may choose to live together even with elevated socioeconomic status. This would provide groups the opportunity to share their unique socioeconomic ties and provide access to ethnic resources rather than immersing into white majority neighborhoods through spatial assimilation. Painter et al (2004) suggests that this clustering may be an explanation for the high homeownership rates observed among Chinese immigrants in the gateway metropolitan areas. To the extent that such clustering does not exist in smaller metropolitan areas, homeownership rates may be depressed.

Data

This analysis relies on data from the 5% Public Use Microdata Sample (PUMS) file of the 2000 Decennial Census and the 2005 file of the American Community Survey (ACS) downloaded from *Integrated Public Use Microdata Series* (Ruggles, et al., 2003). The 1990 5% PUMS data will also be used to provide comparisons. As mentioned previously, the geographic focus of this analysis is on mid-size metropolitan areas. To select a sample of 60 mid-size metropolitan areas among the largest 200 metropolitan areas, we first eliminated the large gateway metropolitan areas and the emerging gateways described by Painter and Yu (2008). Then we selected the sample based on geographic diversity and diversity in the size of the immigrant population in these metropolitan areas.^{viii}

Next, we classified the 60 metropolitan areas based on the growth in the immigrant share of the total metropolitan population from 2000-2005. We placed 20 metropolitan areas in three categories each: High growth, Medium growth, and Low/no growth^{ix}. Then the 60 metropolitan areas are classified as having a high level of immigrants if the immigrant share of the metro population was over 8 percent in 2005. While these classifications are a bit arbitrary, and changes in the classifications will be tested during sensitivity analysis, they provide a sense for how the size of the immigrant population and the growth in the immigrant population may predict success in the housing market. Further, we also include geographic identifiers for residence in a metropolitan area in the Rustbelt or in the Sunbelt.^x

As Table 2 and Appendix 1 demonstrate, there are important systematic differences in the immigrant population across the metropolitan classification types. Focusing on the 2005 data, the low (immigrant population) growth metropolitan areas, whether they have a very high percentage of immigrants (24%) or a low percentage (3.7%) have a much smaller percentage (33-37%) of new immigrants (defined as those foreign-born who came to the United States in the last 10 years) in the immigrant population than do the medium and high growth areas. These later areas have at least 43% of the immigrants that have recently arrived, with the highest percentage (59%) in the high growth, but low immigrant concentration areas. Presumably, these systematic differences could portend the varied success of immigrants in the housing market. There are also differences in the immigrant population across the Rustbelt and the Sunbelt (Table 3). The Rustbelt metropolitan areas have the smallest proportion of immigrants, but the highest proportion (49%) of recent immigrants in the immigrant population.

[Table 3 about here]

Dependent variables

As mentioned previously, this analysis focuses on two indicators of housing success—homeownership and overcrowding.^{xi} As shown in Table 4, there are systematic differences in the rates of homeownership and overcrowding across the 6 classifications of metropolitan areas. Across all metropolitan areas, immigrants have lower homeownership and higher overcrowding rates than does the whole population. Differences in the homeownership rates between immigrants and the whole population are most pronounced in high immigrant growth areas with relatively low immigrant populations, and they are least pronounced in low immigrant growth areas with relatively high immigrant populations. A significant portion of this difference is due to a composition effect, as the latter metropolitan areas have a significantly higher percentage of recently arrived immigrants. At the same time, recent immigrants have the highest homeownership rates in the metropolitan areas with the largest proportion of immigrants in the population, suggesting that networks may play a role in homeownership attainment (Krivo 1995; Alba and Logan 1992). Overcrowding is also highest in the metropolitan areas with the highest proportion of immigrants, suggesting that some households may be choosing more crowded living conditions to enable attainment of homeownership (Rosenbaum and Friedman, 2007; Yu and Myers, 2007). The differences across metropolitan areas in immigrant overcrowding rates are the largest when comparing the low growth areas with high immigrant presence (31%) and low immigrant presence (7.8%) in 2005.

The sample in this analysis includes household heads in the 60 metropolitan areas in both the 2000 Census and the 2005 ACS. The households either own or rent their current residence, and we have excluded persons who reside in group quarters. The samples are limited to those householders that are aged between 18 and 64. In addition, the sample is classified into four race/ethnic groups, which are non-Hispanic white, non-Hispanic black, non-Hispanic Asians and Pacific Islanders (Asians), and Latinos (Hispanics).^{xii}

Independent variables

Both the housing tenure choice model and the overcrowding model are estimated using a sample of recent movers in a model that controls for the probability that someone is a mover (Painter, 2000). The independent variables used in both models include demographic factors (age group, race-ethnicity, marital status, whether children are present at the household, number of workers in the household, recency of arrival), economic factors (household income, education level of the householder), and variables to capture local housing market conditions (housing price and rent).^{xiii} The bivariate probit model with sample selection (Painter, 2000) includes a selection equation that estimates the probability that a household will move.^{xiv} In the selection equation, the same set of independent variables is used, with the addition of a set of occupation dummies that may be related to the probability of moving.^{xv} The literature has shown these variables are important determinants in the decision to move (e.g., Rossi, 1955; Long, 1988; Farley, 1996).

There is no direct measure of wealth available in these data. Following Gyourko and Linneman (1996), our analysis uses the educational attainment of the householder as a

proxy to indicate the future earning potential as well as the wealth of the household. Presumably, households with higher levels of education may have access to greater resources because of the support networks that they have established.^{xvi}

We also include variables that are likely to be important predictors for homeownership and overcrowding for immigrants. These variables are typically linked to the level of assimilation into the host society. First, immigrants' duration of stay are included (e.g., Krivo, 1995; Myers, Megbolugbe, and Lee, 1998) because the time spent in the United States is a proxy for assimilation. Second, English ability allows immigrants to expand their residential choices beyond their ethnic community and enhance their ability to achieve homeownership after migration. In addition, speaking English only also suggests a high degree of acculturation to the U.S. (Alba and Logan, 1992). To that end, variables that describe whether the head of the household speaks only English or does not speak English well are included in the model (the omitted variable is households that speak English well, but not exclusively).

Table 5 presents the summary statistics for the variables used in the analysis. As noted in previous tables, immigrants have lower homeownership rates and much higher rates of overcrowding. In addition, Latino immigrants have higher rates of overcrowding than do Asian immigrants. Immigrants have higher rates of marriage, and significantly larger households than native-born whites. They are also more likely to have children at home and have slightly more workers per household. Asian immigrants have similar incomes and higher education levels than white households, but Latino household income and education levels are much lower. Asian and Latino immigrants have similar immigration history, with the largest wave coming into the U.S. in the last 10 years.

Finally, Latino immigrants are concentrated in the Sunbelt and have minimal presence in the Rustbelt. In contrast, most Asian immigrants in our sample live outside the Sunbelt and the Rustbelt.

[Table 5 about here]

Results

As mentioned briefly earlier, the empirical approach in this analysis is to estimate probit models to determine the probability that a household will be a homeowner and the probability that a household will live in overcrowded conditions. In both models, we control for the probability that someone is a mover to address potential sample selection bias in cross sectional data (see Painter (2000) for a discussion of these issues).^{xvii} Table 6 presents the estimates of models of housing tenure choice for the 2000 Census that differ in the inclusion of geographic controls. The basic results are consistent with the housing tenure choice literature. Among demographic and economic variables, higher ages, having one or more children at home, being married, having higher levels of education, multiple workers, higher incomes, lower house prices, and higher rents all increase the likelihood of owning a home. Minority households and immigrants are less likely to own a home, and Asian immigrants have slightly lower unexplained homeownership rates than Latino immigrants. This is contrast to previous research on the gateways (e.g., Painter, Yang, and Yu, 2003), which found that Asian immigrants have a substantially higher probability of homeownership than do Latino immigrants. Another difference from previous research on the gateways is that immigrants do not always catch up to the homeownership rates of native-born whites as their length of stay in the U.S. increases. While the negative effect of immigrant status is greatly reduced

after an immigrant has been in the U.S. for more than 10 years, the effect still exists among those who came to the U.S. for more than 20 years. Finally, as expected due to the ability to access credit markets (Ratner, 1996; Cheney and Cheney, 1997) and the labor market (Chiswick, 1991; Park, 1999), English proficiency increases the likelihood that someone will be a homeowner.

The correlation coefficient between the homeownership and the move equation is positive and significant at the 1% level, suggesting that controlling for the probability of moving is important in estimating the probability of owning using cross-sectional data. The positive correlation coefficient implies that unobservables are positively influencing both the move decision and housing tenure decision. Painter (2000) shows that such controls are particularly important for obtaining unbiased coefficient estimates for the age and immigrant status variables.

[Table 6 about here]

The geographic classifications for the mid-size metropolitan areas are included in Model II (Table 6). Other than the coefficients on the age variables, most other effects are similar to before. With respect to the new variables, households in the low immigrant growth areas are the less likely to be a homeowner, with the lowest probabilities associated with areas with low growth and high immigrant concentrations. On the other hand, immigrants have higher probabilities of homeownership in the mid-size metropolitan areas that have low rates of immigrant growth and high concentrations of immigrants, suggesting that immigrant networks may be very important in helping immigrants achieve homeownership over time. The results also suggest that households which live in the Rustbelt or Sunbelt have higher homeownership rates than in other

locations, but immigrants have lower homeownership rates in the Rustbelt metropolitan areas, where there are fewer immigrants in residence.

Table 7 presents the estimates for the likelihood that a household lives in overcrowded conditions. The results for the socioeconomic variables suggest that younger households, married households, householders with less education, households with children, and those that live in higher housing cost areas are more likely to live in overcrowded conditions. In addition, higher income reduces the likelihood of overcrowding. As expected, immigrants are much more likely to live in overcrowded conditions, and while this probability declines with time in the United States, it does not go away. In contrast to previous research on the gateways where Latino immigrants are much more likely to live in overcrowded conditions than Asian immigrants (e.g., Myers and Lee, 1996; Rosenbaum and Friedman, 2004), Asian immigrants have similar levels of overcrowding as Latino immigrants in these mid-size metropolitan areas.

[Table 7 about here]

Once the variable denoting the 6 geographic classifications are added to the model (Model II: Table 7), the size of the negative effect of rental prices increases, suggesting that there are regional effects that were imbedded in the estimate on the rental variable. Overall, metropolitan areas with a high concentration of immigrants are more likely to have residents living in overcrowded conditions, although only immigrants in high immigrant growth areas have higher likelihoods than the native-born households in those areas to live in overcrowded conditions. These results also suggest that residents are more likely to live in overcrowded conditions in the Sunbelt, while immigrants in the Sunbelt are less likely to live in overcrowded conditions.

Next, we replicate the models for the 2005 sample (Table 6: Model III and IV). During the period from 2000-2005, there was significant growth in the immigrant population in some of the study areas. This was also a period of dramatic increases in house prices throughout the country; most noticeably in the gateway metropolitan areas. While most of the estimates are similar, there are some differences to highlight. First, new immigrants (came to the U.S. in the last 10 years) tend to fare worse in 2005 than in 2000. The national increases in housing price in the early part of the 2000s may have had a particularly negative impact on the homeownership probabilities of newly arrived immigrants. Second, immigrants appear to catch up more quickly after 10 years in the United States. In addition, immigrants in high immigrant concentration areas in 2005 have consistently higher probabilities of homeownership when compared to their native-born counterparts.

The most notable finding on overcrowding (Table 7: Model III and IV) is that the immigrants' probabilities of living in overcrowded conditions have not significantly changed over the period. Similar to the results in 2000, living in a high immigrant concentration or a high immigrant growth area increased the likelihood that an immigrant would live in overcrowded conditions.

The correlation coefficients between the probability of moving and the probability of living in overcrowded conditions in Table 7 changed signs from a negative value in 2000 to positive in 2005. This suggests that unobserved factors have had different impacts on moving and overcrowding during the period. The reversal may signify a major change in the housing market, possibly due to considerable increases in housing

prices over the period, but future research is needed to determine the long term relationship between mobility and living in overcrowded conditions.

Additional tests

The previous results related to the metropolitan area context definitions are suggestive that the composition of the population may be related to our measures of success in the housing market. In particular, immigrants tend to have higher homeownership rates net of other factors in places with larger immigrant populations. To further investigate the role of networks and metropolitan context, we conduct two additional tests.

First, we narrow our sample to focus on two immigrant groups (Mexican and Chinese) for whom there are sufficient observations in the 2000 Census data to conduct more finely tuned tests of networks. Next, we create additional variables that may proxy for the presence of ethnic resources in a metropolitan area. One would expect that immigrant networks would be more established and stronger in places that have a greater share of immigrants that have been in the country for longer than 10 years (Toussaint-Comeau and Rhine, 2004; Hyndman, Schuurman, and Fiedler, 2006). For Mexican immigrants, we would expect stronger networks in places that there have greater concentrations of Mexican immigrants and Spanish speaking immigrants. Finally, we include a variable that measure the percentage immigrant in a metropolitan area in the model. The effect of this variable is indeterminate as a greater number of immigrants that are not of one's own ethnic group may signal a metropolitan area whose housing markets are more open to immigrants, or it may signal greater competition for the type of housing that immigrants would be looking to purchase.

The results (Table 8) suggest that these networks may be important.^{xviii} As evidenced in Model I, Mexican immigrants are more likely to own a home in metropolitan with a greater percentage of earlier arrived immigrants that have been in the United States for more than 10 years. We also find that the percentage of Mexican immigrants in a metropolitan area is positively associated with the homeownership rates of Mexican immigrants. Interestingly, the coefficient on the percentage of other Latino immigrants^{xix} in the area is similar and also statistically significant. This suggests that language may be the more salient factor. Finally, it should be noted that while these effect sizes are statistically significant, they are much smaller than the coefficient estimates on the metropolitan context variables that describe immigrant growth and presence in the metropolitan area.

Next we replicate these results in the Chinese immigrant population (Table 8: Model II). The results on the percentage of Chinese immigrants in the metropolitan area are similar to the results on the percentage of Mexicans in the area. An increase in the percentage of Chinese immigrants in the area (see Painter, Yang, Yu, 2004 for similar results) greatly increases the likelihood of owning a home. In contrast to the results for Mexican immigrants, greater numbers of other Asian immigrants has no impact on the likelihood of homeownership.^{xx} Despite emigrating from the same region of the world, the lack of language and cultural homogeneity may prevent any positive network effects among different Asian groups.^{xxi}

Our final test of the robustness of the results on metropolitan context involves altering the definition what is a high immigrant growth or a high presence metropolitan area. In order to make general statements about these smaller metropolitan areas, it is

important to make sure our choice of cutoff points are not influencing the results.^{xxii}

Overall, we found the results for immigrant households to be robust.^{xxiii} We found in both 2000 and 2005 that immigrants in areas with a high presence of immigrant households have higher homeownership rates than other households. At the same time, immigrants are more likely to live in overcrowded conditions in these areas. These results are suggestive of the fact that immigrant households in these areas with more immigrants are more willing to live in overcrowded conditions in order to achieve homeownership (for similar results see Painter and Yu, 2008).

Conclusion

As immigration is no longer confined to large gateway metropolitan areas, it is important to access the success and integration of immigrants in housing markets throughout the United States. Overall, many of the results presented in study are similar to research on immigrants in the housing markets of the gateways (Painter et al, 2001), and the emerging gateways (Painter and Yu, 2008). However, unlike the previous research which showed that after 10 years of residence in the United States, immigrants are as likely as similar native-born households to own a home, the results presented for these smaller metropolitan areas suggest that the homeownership gap between immigrants and U.S.-born residents are larger than those in the gateways and small homeownership deficits persist even as immigrant length of stay in the United States is longer. This may be due to the fact that the immigrant communities are less settled in these areas, and that immigrants have higher expected mobility in the future. At the same time, the data show that immigrants have substantial diversity across socioeconomic

status, and their actual homeownership rate will reflect that diversity more than their immigrant status.

Across the United States, there are substantial differences in the composition of immigrant populations. In some places, there are very small immigrant populations, but a high percentage of new immigrants. In other places, there are more established immigrant communities with little change over the study period (2000-2005). We find that this diversity does impact the likelihood that an immigrant will purchase a home. The results suggest that immigrants are more successful in attaining homeownership in areas that have larger concentrations of immigrant populations. Further, the analysis of the sample of Mexican and Chinese immigrants suggest that living in areas with larger networks of immigrants that are more settled and greater numbers of households that speak one's own language may lead to higher homeownership rates. Unlike some previous research (Painter et al, 2001), we find that Asian do not have better housing outcomes than Latino immigrants after controlling for other factors despite having different socioeconomic characteristics, on average.

The results on overcrowding suggest that immigrants are much more likely to live in overcrowded conditions, and that this does not diminish entirely with time in the United States. Part of this is due to larger families, and part of this is due multiple generations living in the same household. Overcrowding is most prevalent in high immigrant growth and high immigrant concentration areas, but as was suggested by the results on homeownership, overcrowding does not necessarily lead to lower homeownership for immigrants. Different from previous studies (e.g., Myers and Lee,

1996), Asian immigrants do not fare better than Latinos in these mid-size metropolitan areas after adjusting for other factors.

This research continues a long tradition that investigating the immigrant assimilation across the United States. Unlike a prediction of Massey's (1985) spatial assimilation hypothesis and findings reported in the labor market studies (e.g., Gurak and Kritz, 2000; Hall, 2008), immigrants settling to smaller metropolitan are not more successful than their counterparts in gateway metropolitan areas. In contrast, we find consistently that immigrants are more successful in the smaller metropolitan areas when there are larger networks of immigrant households that are established in these areas. While one cannot make definitive statements about the success of immigrants in the housing markets of smaller metropolitan areas compared to the traditional gateways, due to possible sample selection issues, this research is able to establish the importance of networks across the cross section of smaller metropolitan areas. Future research is needed to investigate what types of networks are the most likely to be helpful, and if there are certain population thresholds for one's own immigrant group that are needed in a metropolitan to increase the likelihood of success in the housing market.

Finally, while this research hints at the fact that housing price increases in the first half of the decade may have impacted immigrant housing outcomes, future research should investigate how much the run up in housing prices, and their subsequent fall has impacted immigrant housing outcomes. The recent market downturn may have a particularly detrimental effect on the housing outcomes of immigrants who tend to be more mobile than U.S-born residents. In particular, we might expect an exodus of immigrants from areas which have weaker immigrant networks. The impacts could also

vary significantly between immigrant groups. For instance, less educated immigrants who have seen a large increase in unemployment may have suffered even more, but future research is needed to determine how the economic downturn has impacted immigrant across the different communities in the United States.

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ⁱⁱ In this paper, the terms "immigrant" and "foreign-born" are used interchangeably. While we are primarily interested in immigrants, the decennial censuses only report information on birthplace, instead of residency status. Some foreign-born in the U.S. do not have permanent residency status or U.S. citizenship and may return to their country of origin.

ⁱⁱⁱ These established gateway metropolitan areas are usually defined as the New York CMSA, Chicago CMSA, Miami CMSA, Los Angeles CMSA, San Francisco CMSA, and San Diego MSA because they have the largest numbers of settled immigrants and continue to receive the largest numbers of new immigrants.

^{iv} Emerging gateways include Atlanta MSA, Boston-Worcester-Lawrence CMSA, Dallas-Fort Worth CMSA, Denver-Boulder-Greeley CMSA, Houston-Galveston-Brazoria CMSA, Las Vegas MSA, Orlando MSA, Philadelphia-Wilmington-Atlantic City CMSA, Phoenix-Mesa MSA, Sacramento-Yolo CMSA, Seattle-Tacoma-Bremerton CMSA, Tampa-St. Petersburg-Clearwater MSA, Washington-Baltimore CMSA, and West Palm Beach-Boca Raton MSA (Frey, 2002a; Singer, 2004; Painter and Yu, 2008). These areas have experienced a large increase in immigrant population in recent years.

^v The choice of these 60 mid-size metropolitan areas will be discussed later.

^{vi} Newly arrived immigrants here are defined as those foreign-born who came to the U.S. in the last 10 years.

^{vii} A household lives in an overcrowded condition if there is more than one person per room in that household.

^{viii} We first select top 150 most populated metropolitan areas out of a total of 251 metropolitan areas in the U.S. These metropolitan areas include both freestanding metropolitan statistical areas (MSAs) and primary

metropolitan statistical areas (PMSAs). We then delete established and emerging gateway metropolitan areas from the 150 metropolitan areas. 105 metropolitan areas are left. We then use changes in immigrant share of the total population to select the 60 metropolitan areas, which are categorized into three groups: high immigrant growth, moderate immigrant growth, and slow immigrant growth metropolitan areas. As a result, they represent the full spectrum of the mid-size metropolitan areas.

^{ix} High growth areas refer to those mid-size metropolitan areas that experienced 0.47 to 1.82 percentage points increase in immigrant share of the population from 2000 to 2005; medium growth (1.85 to 5.31 percentage points change); and low/no growth (-0.87 to 0.15 percentage points change).

^x The Rustbelt metropolitan areas are located in the states of Michigan, New York, Illinois, Indiana, Ohio, Pennsylvania. The Sunbelt metropolitan areas are located in the states of Nevada, Arizona, New Mexico, Texas, Alabama, Louisiana, Georgia, Alabama, Florida, South Carolina, Mississippi.

^{xi} We follow previous studies (e.g., Myers, et al., 1996; Myers and Lee, 1996) and define households that have more than one person per room as overcrowded. We rely on the Decennial Census Public Use Microdata and American Community Survey (ACS) Microdata to calculate overcrowding rates in 2000 and 2005 respectively.

^{xii} Because this analysis is focused on the experiences of largest immigrant groups, we choose to exclude both non-Hispanic white and African immigrants due to small sample sizes. We also exclude native-born Asians and Latinos due to small sample sizes. Multiracial residents and those who do not belong to the aforementioned groups are also excluded.

^{xiii} 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).

^{xiv} We define movers as those who moved in the last 5 years.

^{xv} The models were estimated in this study both with and without occupation status as an additional identifying variable in the selection equation. Without the occupation variables, the model is identified on the functional form of the bivariate normal distribution. See Painter (2000) for further discussion of these issues. The results did not differ with the inclusion of the additional variables.

^{xvi} Charles and Hurst (2002) find that parental wealth is a very important predictor of homeownership, and that over 80% of white households borrow money from parents for a downpayment. Although these data do not reveal this information, education is likely to be correlated with the presence of greater parental wealth.

^{xvii} The housing choice model with correction for selection bias is adapted from Van de Ven and Van Pragg (1981) and used in Painter (2000) to study housing tenure choice, in which both the selection equation and the housing choice equation have binary dependant variables. The selection equation uses a probit model with the choice to move as the dependent variable with controls for socioeconomic factors that may affect the moving propensity of households. Housing tenure choice is assumed to be observed only if a household moves. It is assumed that the error terms in both models are jointly normally distributed with correlation coefficient ρ . The resulting model is estimated using a maximum-likelihood procedure to obtain the parameters of each equation and the correlation between each choice. This modeling procedure has been applied in two recent papers, Painter *et. al.* (2001) and Painter *et. al.* (2003). Formally, the log likelihood function that is estimated is the following,

$$L = \sum_{i \in S}^{y_i=1} \ln[\Phi_2(X_i \beta, Z_i \gamma, \rho)] + \sum_{i \in S}^{y_i=0} \ln[\Phi_2(-X_i \beta, Z_i \gamma, \rho)] + \sum_{i \notin S} \ln[1 - \Phi_1(Z_i \gamma)]$$

where S is the set of observations for which OWN_i or $OVERCROWDING_i$ is observed, M_1 is the standard cumulative normal and M_2 is the cumulative bivariate normal distribution function. Results from the sample selection equations are available upon request.

^{xviii} As would be expected for immigrants, the unobserved factors that lead to higher rates of mobility are inversely related to the probability of owning a home. This is in contrast to the results for the whole sample.

^{xix} Other Latino immigrants refer to Latino immigrants who are not of Mexican origin.

^{xx} Other Asian immigrants refer to Asian immigrants who are not ethnic Chinese.

^{xxi} We attempted to replicate these models in the 2005 ACS, but due to small sample size, we were unable to obtain plausible estimates. While the results for the Mexican sample are similar to the 2000 data, some of the coefficients for the Chinese sample are implausibly large and of the wrong sign.

^{xxii} We first separate high immigrant growth metropolitan areas from low growth ones if the metropolitan areas experienced a 1.32 percent point increase in immigrant share of the total population from 2000 to 2005. Using this cutoff point, we are able to have the same number of high growth and low growth areas. Second, we regard metropolitan areas that have more than 11.2 percent of immigrant population as high immigrant concentration metropolitan areas, and the rest as low concentration areas. We use this number because immigrants made up about 11.2 percent of U.S. total population in 2000. The vast majority of the metropolitan areas (46 out of 60) had immigrant share of the total population below 11.2 percent in 2000.

^{xxiii} Results are not shown, but available upon request.

Table 1. Population by Metropolitan Status, 2000-2005

2000					
Metropolitan Status	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived
Established Gateway Metros	58,089,646	15,167,591	5,880,918	26.1	38.8
Emerging Metros	48,183,144	6,170,513	2,963,436	12.8	48.0
The 60 Metros	41,238,364	3,050,549	1,344,149	7.4	44.1

2005					
Metropolitan Status	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived
Established Gateway Metros	59,860,209	16,605,305	5,527,219	27.7	33.3
Emerging Metros	51,933,900	8,113,973	3,743,066	15.6	46.1
The 60 Metros	42,802,203	3,847,065	1710012	9.0	44.4

2000-2005			
Metropolitan Status	% growth in total population	% growth in total immigrants	% growth in newly arrived immigrants
Established Gateway Metros	3.0	9.5	-6.0
Emerging Metros	7.8	31.5	26.3
The 60 Metros	3.8	26.1	27.2

Note: New immigrants refer to those who came to the U.S. in the last 10 years.

Table 2. Population by Metropolitan Status, 2000-2005

2000						
Metropolitan Status	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived	
High Growth and High Presence	5,762,809	600,505	260,364	10.4	43.4	
Mid Growth and High Presence	8,199,785	719,997	356,554	8.8	49.5	
Low Growth and High Presence	3,362,072	809,301	285,970	24.1	35.3	
High Growth and Low Presence	6,283,241	293,284	168,012	4.7	57.3	
Mid Growth and Low Presence	11,541,896	405,225	187,826	3.5	46.4	
Low Growth and Low Presence	6,088,561	222,237	85,423	3.7	38.4	

2005						
Metropolitan Status	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived	
High Growth and High Presence	6,424,954	866,950	374,969	13.5	43.3	
Mid Growth and High Presence	8,702,812	912,706	445,054	10.5	48.8	
Low Growth and High Presence	3,602,526	863,787	283,779	24.0	32.9	
High Growth and Low Presence	6,567,119	455,137	269,145	6.9	59.1	
Mid Growth and Low Presence	11,497,173	524,915	252,737	4.6	48.1	
Low Growth and Low Presence	6,007,619	223,570	84,328	3.7	37.7	

2000-2005			
Metropolitan Status	% growth in total population	% growth in total immigrants	% growth in newly arrived immigrants
High Growth and High Presence	11.5	44.4	44.0
Mid Growth and High Presence	6.1	26.8	24.8
Low Growth and High Presence	7.2	6.7	-0.8
High Growth and Low Presence	4.5	55.2	60.2
Mid Growth and Low Presence	-0.4	29.5	34.6
Low Growth and Low Presence	-1.3	0.6	-1.3

Note: New immigrants refer to those who came to the U.S. in the last 10 years.

Table 3. Population and Immigrants in Sunbelt and Rustbelt Metros, 2000-2005

	2000				
	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived
Sun-belt Metros	12,598,571	1,457,414	571,147	11.6	39.2
Non Sun and non Rust Belt Metros	15,140,402	1,037,195	500,708	6.9	48.3
Rust-belt Metros	13,499,391	555,940	272,294	4.1	49.0

	2005				
	Total population	Total immigrants	Newly arrived immigrants (came in last 10 years)	% immigrants	% immigrants that are newly arrived
Sun-belt Metros	13,638,242	1,825,210	727,546	13.4	39.9
Non Sun and non Rust Belt Metros	15,727,704	1,324,430	638,149	8.4	48.2
Rust-belt Metros	12,738,832	697,425	344,317	5.5	49.4

	2000-2005		
	% growth in total population	% growth in total immigrants	% growth in newly arrived immigrants
Sun-belt Metros	8.3	25.2	27.4
Non Sun and non Rust Belt Metros	3.9	27.7	27.4
Rust-belt Metros	-5.6	25.4	26.5

Note: New immigrants refer to those who came to the U.S. in the last 10 years.

Table 4. Homeownership Rates and Overcrowding Rates by Metropolitan Status

	2000						2005					
	Homeownership Rates			Overcrowding Rates			Homeownership Rates			Overcrowding Rates		
	Total population	Total immigrants	New immigrant arrivals	Total population	Total immigrants	New immigrant arrivals	Total population	Total immigrants	New immigrant arrivals	Total population	Total immigrants	New immigrant arrivals
Established Gateway Metros	53.6	44.7	22.4	14.1	33.4	38.4	56.0	48.2	25.2	10.1	22.1	26.8
Emerging Metros	62.0	49.2	26.7	7.0	27.0	33.2	63.3	53.6	31.1	4.9	16.6	21.2
The 60 Mid-size Metros	65.2	51.1	26.8	5.3	27.8	32.3	65.7	53.4	28.5	4.1	20.0	23.9
High Growth and High Presence	61.6	50.9	26.9	10.4	38.9	44.8	64.2	55.9	28.1	6.4	24.4	25.4
Mid Growth and High Presence	65.8	47.9	26.8	5.4	25.1	31.9	67.4	50.1	28.4	3.4	16.1	22.1
Low Growth and High Presence	58.5	58.7	40.2	20.0	33.1	39.9	58.1	57.5	32.7	15.9	31.0	42.5
High Growth and Low Presence	62.8	43.8	18.1	4.0	27.7	29.6	65.4	46.1	24.3	3.0	18.3	22.3
Mid Growth and Low Presence	64.8	53.5	22.9	3.2	14.7	20.6	66.8	53.4	30.9	2.0	10.5	14.3
Low Growth and Low Presence	65.0	56.7	19.2	2.7	11.8	12.8	66.7	58.7	25.7	2.5	7.8	12.1
Sun-belt Metros	63.6	54.6	31.1	9.3	34.6	39.5	63.3	56.4	30.1	7.4	25.8	30.9
Non Sun and non Rust Belt Metros	62.8	46.6	23.8	4.7	24.0	30.3	63.2	49.8	27.4	3.3	16.6	21.3
Rust-belt Metros	69.3	50.5	25.1	2.7	17.3	24.2	70.9	52.9	27.7	2.0	12.1	15.8

Note: New immigrants refer to those who came to the U.S. in the last 10 years.

Table 5. Summary Statistics

	2000								2005							
	Full Sample		U.S.-born Non Hispanic Whites		Asian Immigrants		Latino Immigrants		Full Sample		U.S.-born Non Hispanic Whites		Asian Immigrants		Latino Immigrants	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Homeownership Rates	0.662	0.473	0.713	0.452	0.510	0.500	0.459	0.498	0.669	0.471	0.728	0.445	0.599	0.490	0.472	0.499
Overcrowding Rates	0.047	0.211	0.021	0.142	0.231	0.422	0.417	0.493	0.036	0.223	0.015	0.145	0.148	0.431	0.294	0.570
Age Groups																
Age 18-24	0.066	0.248	0.061	0.240	0.059	0.236	0.091	0.288	0.069	0.253	0.065	0.247	0.051	0.221	0.077	0.267
Age 25-34	0.220	0.414	0.209	0.407	0.283	0.451	0.319	0.466	0.209	0.407	0.196	0.397	0.257	0.437	0.319	0.466
Age 35-44	0.289	0.453	0.288	0.453	0.295	0.456	0.301	0.459	0.258	0.437	0.251	0.434	0.319	0.466	0.322	0.467
Age 45-54	0.257	0.437	0.265	0.441	0.230	0.421	0.189	0.392	0.267	0.442	0.276	0.447	0.227	0.419	0.182	0.386
Age 55-64	0.169	0.374	0.176	0.381	0.133	0.340	0.099	0.299	0.197	0.398	0.212	0.408	0.146	0.353	0.099	0.299
Marital Status																
Married	0.560	0.496	0.587	0.492	0.682	0.466	0.679	0.467	0.534	0.499	0.564	0.496	0.678	0.467	0.619	0.486
Not Married, Male Head Of Household	0.186	0.389	0.188	0.391	0.148	0.355	0.154	0.361	0.200	0.400	0.200	0.400	0.143	0.350	0.187	0.390
Not Married, Female Head	0.254	0.435	0.225	0.417	0.170	0.375	0.166	0.372	0.266	0.442	0.236	0.425	0.179	0.383	0.194	0.395
Number of Workers at Home	1.335	0.726	1.365	0.693	1.382	0.907	1.457	1.018	1.261	0.718	1.291	0.692	1.360	0.854	1.383	0.920
Children at Home	0.501	0.500	0.476	0.499	0.582	0.493	0.746	0.435	0.476	0.499	0.448	0.497	0.607	0.488	0.696	0.460
Household Income (1000s)	60.02	57.00	64.40	58.81	62.82	65.22	37.38	40.78	58.11	51.19	63.36	53.04	63.12	57.14	34.68	32.68
Educational Attainment																
College Degree or Better	0.288	0.453	0.316	0.465	0.460	0.498	0.078	0.268	0.310	0.462	0.343	0.475	0.497	0.500	0.092	0.288
High School Dip. W/ College	0.587	0.492	0.596	0.491	0.364	0.481	0.295	0.456	0.589	0.492	0.593	0.491	0.378	0.485	0.385	0.487
No High School Diploma	0.125	0.331	0.088	0.283	0.176	0.380	0.627	0.484	0.101	0.302	0.064	0.246	0.125	0.331	0.524	0.499
English Proficiency																
Speak English Only	0.919	0.272	0.972	0.165	0.098	0.298	0.059	0.235	0.904	0.294	0.974	0.160	0.123	0.328	0.044	0.205
Speak English Well But Not Only	0.057	0.233	0.025	0.157	0.732	0.443	0.489	0.500	0.065	0.247	0.024	0.154	0.730	0.444	0.472	0.499
Speak English Not Well	0.023	0.151	0.003	0.051	0.170	0.375	0.452	0.498	0.030	0.171	0.002	0.046	0.147	0.355	0.484	0.500
Housing Price and Rent																
The 25th Percentile Housing Price (log)	11.263	0.397	11.303	0.374	11.482	0.440	11.067	0.538	11.554	0.461	11.590	0.441	11.856	0.502	11.450	0.632
Puma Median Rent (log)	6.343	0.175	6.352	0.171	6.441	0.199	6.256	0.225	6.497	0.170	6.501	0.168	6.593	0.204	6.436	0.209
Race/ethnicity																
U.S.-born Non-Hispanic Whites	0.807	0.394	1.000	0.000					0.782	0.413	1.000	0.000				
U.S.-born Blacks	0.133	0.340							0.140	0.347						
Asian Immigrants	0.022	0.147			1.000	0.000			0.027	0.162			1.000	0.000		
Latino Immigrants	0.038	0.190					1.000	0.000	0.051	0.219				1.000	0.000	
Moved in the Last 5 Years	0.562	0.496	0.542	0.498	0.702	0.457	0.714	0.452	0.516	0.500	0.490	0.500	0.628	0.483	0.669	0.470
Immigrant	0.060	0.237			1.000	0.000	1.000	0.000	0.078	0.268			1.000	0.000	1.000	0.000
Come To U.S. in the Past 10 Yrs.	0.020	0.141			0.368	0.482	0.324	0.468	0.028	0.166			0.329	0.470	0.384	0.486
Came To U.S 10-19 Years Ago	0.020	0.140			0.325	0.468	0.342	0.474	0.023	0.150			0.298	0.458	0.299	0.458
Came To U.S 20-29 Years Ago	0.013	0.112			0.225	0.418	0.209	0.407	0.016	0.127			0.264	0.441	0.185	0.388
Came To U.S 30-39 Years Ago	0.006	0.078			0.074	0.262	0.117	0.322	0.010	0.097			0.108	0.311	0.132	0.338
Metropolitan Status																
High Growth and High Presence	0.115	0.319	0.114	0.318	0.117	0.321	0.216	0.411	0.123	0.329	0.120	0.325	0.607	0.488	0.235	0.424
Mid Growth and High Presence	0.315	0.465	0.325	0.468	0.379	0.485	0.253	0.435	0.314	0.464	0.323	0.468	0.179	0.383	0.267	0.443
Low Growth and High Presence	0.041	0.199	0.028	0.164	0.175	0.380	0.367	0.482	0.042	0.201	0.027	0.163	0.143	0.350	0.297	0.457
High Growth and Low Presence	0.144	0.351	0.143	0.351	0.085	0.278	0.076	0.265	0.144	0.351	0.144	0.351	0.333	0.471	0.100	0.300
Low Growth and Low Presence	0.254	0.435	0.255	0.436	0.169	0.375	0.058	0.233	0.249	0.432	0.251	0.434	11.856	0.502	0.071	0.257
Mid Growth and Low Presence	0.131	0.337	0.135	0.342	0.075	0.264	0.031	0.173	0.128	0.334	0.135	0.341	0.147	0.355	0.029	0.167
Metropolitan Status																
The Sunbelt	0.229	0.420	0.206	0.405	0.197	0.398	0.650	0.477	0.238	0.426	0.210	0.407	0.208	0.406	0.602	0.490
Outside Sunbelt or Rustbelt	0.382	0.486	0.389	0.488	0.493	0.500	0.270	0.444	0.386	0.487	0.394	0.489	0.459	0.498	0.305	0.461
The Rustbelt	0.388	0.487	0.404	0.491	0.310	0.463	0.080	0.271	0.376	0.484	0.396	0.489	0.333	0.471	0.093	0.290
Obs.	13,403,091		10,819,422		294,848		503,363		14,389,503		11,255,625		388,126		728,317	

Note: The whole sample includes native-born non Hispanic whites, native-born blacks, Asian immigrants and Latino immigrants.

Incomes, housing price and rent are adjusted to 2000 dollar.

Table 6. Probit Estimates of Homeownership

Model	I		II		III		IV	
	2000				2005			
	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
Intercept	1.055 ***	0.028	1.580 ***	0.019	1.818 ***	0.017	1.128 ***	0.018
Age Groups (Omitted: Age 25-34)								
Age 18-24	-0.594 ***	0.003	-0.700 ***	0.002	-0.685 ***	0.002	-0.676 ***	0.002
Age 35-44	0.331 ***	0.005	0.584 ***	0.001	0.522 ***	0.001	0.522 ***	0.001
Age 45-54	0.424 ***	0.008	0.891 ***	0.001	0.837 ***	0.001	0.838 ***	0.001
Age 55-64	0.628 ***	0.010	1.177 ***	0.002	1.121 ***	0.002	1.127 ***	0.002
Marital Status (Omitted: Married)								
Not Married, Male Head Of Household	-0.625 ***	0.002	-0.629 ***	0.001	-0.562 ***	0.001	-0.575 ***	0.001
Not Married, Female Head	-0.637 ***	0.002	-0.609 ***	0.001	-0.537 ***	0.001	-0.554 ***	0.001
Number Of Workers In Household	0.112 ***	0.001	0.071 ***	0.001	0.009 ***	0.001	0.012 ***	0.001
Children at Home	0.194 ***	0.001	0.128 ***	0.001	0.084 ***	0.001	0.084 ***	0.001
Household Income (1000s)	0.007 ***	0.000	0.006 ***	0.000	0.010 ***	0.000	0.010 ***	0.000
Education (Omitted: High School Dip. W/ College)								
College Degree or Better	0.140 ***	0.001	0.055 ***	0.001	0.097 ***	0.001	0.098 ***	0.001
No High School Diploma	-0.242 ***	0.002	-0.190 ***	0.001	-0.184 ***	0.001	-0.183 ***	0.002
English Proficiency (Omitted: Speak English Well But Not Only)								
Speak English Only	0.124 ***	0.003	0.077 ***	0.002	0.060 ***	0.002	0.046 ***	0.002
Speak English Not Well	-0.128 ***	0.004	-0.108 ***	0.003	-0.062 ***	0.003	-0.069 ***	0.003
Housing Price and Rent								
The 25th Percentile Housing Price (log)	-0.170 ***	0.002	-0.173 ***	0.002	-0.133 ***	0.001	-0.134 ***	0.002
Puma Median Rent (log)	0.074 ***	0.006	0.029 ***	0.004	-0.045 ***	0.004	0.041 ***	0.004
Racial/ethnic Groups (Omitted: U.S.-born Non-Hispanic Whites)								
U.S.-born Blacks	-0.549 ***	0.002	-0.438 ***	0.001	-0.449 ***	0.001	-0.458 ***	0.001
Asian Immigrants	-0.866 ***	0.006	-0.931 ***	0.009	-0.921 ***	0.004	-1.038 ***	0.008
Latino Immigrants	-0.707 ***	0.006	-0.907 ***	0.009	-0.825 ***	0.003	-0.959 ***	0.008
Immigrant Status (Omitted: Come To U.S. in the Past 10 Yrs.)								
Came To U.S 10-19 Years Ago	0.564 ***	0.005	0.607 ***	0.004	0.888 ***	0.003	0.882 ***	0.003
Came To U.S 20-29 Years Ago	0.659 ***	0.006	0.753 ***	0.005	0.905 ***	0.004	0.891 ***	0.004
Came To U.S 30-39 Years Ago	0.642 ***	0.009	0.797 ***	0.007	0.848 ***	0.005	0.811 ***	0.005
Metropolitan Status (Omitted: Low Immigrant Growth and Low Immigrant Presence)								
High Growth and High Presence			0.018 ***	0.002			0.031 ***	0.002
Mid Growth and High Presence			0.096 ***	0.002			0.085 ***	0.002
Low Growth and High Presence			-0.370 ***	0.003			-0.338 ***	0.003
High Growth and Low Presence			0.152 ***	0.002			0.128 ***	0.002
Mid Growth and Low Presence			0.006 ***	0.002			0.015 ***	0.002
Immigrants in High Growth and High Presence			-0.024 **	0.009			0.152 ***	0.008
Immigrants in Mid Growth and High Presence			-0.014	0.008			0.117 ***	0.008
Immigrants in Low Growth and High Presence			0.505 ***	0.009			0.603 ***	0.008
Immigrants in High Growth and Low Presence			-0.159 ***	0.010			-0.052 ***	0.009
Immigrants in Mid Growth and Low Presence			0.001	0.009			0.214 ***	0.008
Metropolitan Status (Omitted: Outside Sunbelt and Rustbelt Metros)								
Sunbelt Metros			0.069 ***	0.001			0.061 ***	0.001
Rustbelt Metros			0.246 ***	0.001			0.280 ***	0.001
Immigrants in Sunbelt Metros			0.128 ***	0.005			0.081 ***	0.004
Immigrants in Rustbelt Metros			-0.242 ***	0.005			-0.155 ***	0.004
Correlation Coefficient (rho)	0.191 ***	0.004	0.138 ***	0.005	0.088 ***	0.004	0.053 ***	0.004
Pseudo R2	0.308		0.312		0.305		0.309	
Log likelihood	-11,500,000		-11,500,000		-11900000		-11900000	
Number of observations	13,403,091				14,389,503			

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 7. Probit Estimates of Overcrowding

Model	I		II		III		IV	
	2000				2005			
	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
Intercept	-1.881 ***	0.049	-0.478 ***	0.051	-2.066 ***	0.043	-1.482 ***	0.045
Age Groups (Omitted: Age 25-34)								
Age 18-24	0.023 ***	0.005	0.036 ***	0.005	-0.052 ***	0.004	-0.050 ***	0.004
Age 35-44	0.113 ***	0.006	0.092 ***	0.007	-0.119 ***	0.005	-0.140 ***	0.005
Age 45-54	0.126 ***	0.010	0.086 ***	0.012	-0.326 ***	0.008	-0.357 ***	0.008
Age 55-64	0.203 ***	0.013	0.154 ***	0.014	-0.383 ***	0.011	-0.431 ***	0.011
Marital Status (Omitted: Married)								
Not Married, Male Head Of Household	-0.125 ***	0.003	-0.116 ***	0.003	-0.041 ***	0.004	-0.030 ***	0.004
Not Married, Female Head	-0.176 ***	0.003	-0.165 ***	0.003	-0.206 ***	0.004	-0.194 ***	0.004
Number Of Workers In Household	0.157 ***	0.002	0.165 ***	0.002	0.221 ***	0.002	0.224 ***	0.002
Children at Home	0.738 ***	0.004	0.751 ***	0.004	0.864 ***	0.003	0.859 ***	0.003
Household Income (1000s)	-0.003 ***	0.000	-0.003 ***	0.000	-0.006 ***	0.000	-0.006 ***	0.000
Education (Omitted: High School Dip. W/ College)								
College Degree or Better	-0.375 ***	0.003	-0.365 ***	0.003	-0.312 ***	0.004	-0.300 ***	0.004
No High School Diploma	0.327 ***	0.002	0.327 ***	0.003	0.387 ***	0.003	0.383 ***	0.003
English Proficiency (Omitted: Speak English Well But Not Only)								
Speak English Only	-0.146 ***	0.004	-0.125 ***	0.004	-0.334 ***	0.005	-0.302 ***	0.005
Speak English Not Well	0.232 ***	0.004	0.222 ***	0.004	0.165 ***	0.004	0.136 ***	0.004
Housing Price and Rent								
The 25th Percentile Housing Price (log)	0.069 ***	0.004	0.063 ***	0.004	0.078 ***	0.004	0.060 ***	0.004
Puma Median Rent (log)	-0.112 ***	0.009	-0.345 ***	0.009	-0.178 ***	0.010	-0.243 ***	0.010
Racial/ethnic Groups (Omitted: U.S.-born Non-Hispanic Whites)								
U.S.-born Blacks	0.393 ***	0.003	0.418 ***	0.003	0.287 ***	0.003	0.296 ***	0.003
Asian Immigrants	0.893 ***	0.009	0.928 ***	0.014	0.774 ***	0.007	0.606 ***	0.015
Latino Immigrants	0.975 ***	0.009	0.964 ***	0.013	0.640 ***	0.007	0.431 ***	0.015
Immigrant Status (Omitted: Come To U.S. in the Past 10 Yrs.)								
Came To U.S 10-19 Years Ago	0.038 ***	0.005	0.015 **	0.005	-0.097 ***	0.006	-0.125 ***	0.006
Came To U.S 20-29 Years Ago	-0.065 ***	0.006	-0.104 ***	0.007	-0.230 ***	0.007	-0.281 ***	0.007
Came To U.S 30-39 Years Ago	-0.206 ***	0.010	-0.241 ***	0.011	-0.529 ***	0.010	-0.612 ***	0.010
Metropolitan Status (Omitted: Low Immigrant Growth and Low Immigrant Presence)								
High Growth and High Presence			0.163 ***	0.004			0.054 ***	0.005
Mid Growth and High Presence			0.184 ***	0.004			0.014 **	0.005
Low Growth and High Presence			0.427 ***	0.006			0.207 ***	0.008
High Growth and Low Presence			-0.074 ***	0.004			-0.144 ***	0.005
Mid Growth and Low Presence			0.027 ***	0.003			-0.096 ***	0.004
Immigrants in High Growth and High Presence			0.197 ***	0.011			0.319 ***	0.014
Immigrants in Mid Growth and High Presence			-0.082 ***	0.010			0.179 ***	0.013
Immigrants in Low Growth and High Presence			-0.123 ***	0.012			0.310 ***	0.016
Immigrants in High Growth and Low Presence			0.152 ***	0.012			0.402 ***	0.015
Immigrants in Mid Growth and Low Presence			-0.019	0.011			0.128 ***	0.015
Metropolitan Status (Omitted: Outside Sunbelt and Rustbelt Metros)								
Sunbelt Metros			0.055 ***	0.003			0.130 ***	0.004
Rustbelt Metros			-0.110 ***	0.003			-0.065 ***	0.003
Immigrants in Sunbelt Metros			-0.185 ***	0.006			-0.198 ***	0.007
Immigrants in Rustbelt Metros			0.121 ***	0.006			0.032 ***	0.007
Correlation Coefficient (rho)	-0.539 ***	0.009	-0.511 ***	0.011	0.210 ***	0.014	0.246 ***	0.015
Pseudo R2	0.263		0.270		0.241		0.249	
Log likelihood	-8,865,106		-8,854,847		-8,897,621		-8,890,100	
Number of observations	13,403,091				14,389,503			

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 8. Probit Model of Homeownership by Ethnic Groups in 2000

Model	I		II	
	Mexican		Chinese	
Variables	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
Intercept	2.033 ***	0.091	-9.088 ***	0.334
Age Groups (Omitted: Age 25-34)				
Age 18-24	-0.339 ***	0.009	-0.431 ***	0.046
Age 35-44	0.349 ***	0.005	0.311 ***	0.023
Age 45-54	0.532 ***	0.007	0.579 ***	0.033
Age 55-64	0.817 ***	0.010	0.653 ***	0.047
Marital Status (Omitted: Married)				
Not Married, Male Head Of Household	-0.260 ***	0.007	-0.285 ***	0.029
Not Married, Female Head	-0.387 ***	0.007	0.123 ***	0.027
Number Of Workers In Household	0.044 ***	0.003	0.217 ***	0.016
Children at Home	0.359 ***	0.006	0.649 ***	0.020
Household Income (1000s)	0.004 ***	0.000	0.009 ***	0.000
Education (Omitted: High School Dip. W/ College)				
College Degree or Better	0.048 ***	0.011	-0.361 ***	0.025
No High School Diploma	-0.048 ***	0.005	-0.080 *	0.033
English Proficiency (Omitted: Speak English Well But Not Only)				
Speak English Only	0.006	0.010	0.085 *	0.034
Speak English Not Well	-0.211 ***	0.005	-0.171 ***	0.029
Housing Price and Rent				
The 25th Percentile Housing Price (log)	-0.453 ***	0.010	-0.300 ***	0.037
Puma Median Rent (log)	0.327 ***	0.024	1.681 ***	0.084
Immigrant Status (Omitted: Come To U.S. in the Past 10 Yrs.)				
Came To U.S 10-19 Years Ago	0.558 ***	0.005	0.647 ***	0.021
Came To U.S 20-29 Years Ago	0.730 ***	0.007	0.996 ***	0.030
Came To U.S 30-39 Years Ago	0.907 ***	0.010	0.842 ***	0.053
Metropolitan Status (Omitted: Low Immigrant Growth and Low Immigrant Presence)				
High Growth and High Presence	0.012	0.013	0.245 ***	0.042
Mid Growth and High Presence	0.057 ***	0.011	0.118 **	0.035
Low Growth and High Presence	-0.178 ***	0.016	-0.504 ***	0.068
High Growth and Low Presence	0.024	0.012	0.516 ***	0.040
Mid Growth and Low Presence	0.023	0.013	0.160 ***	0.035
Metropolitan Status (Omitted: Outside Sunbelt and Rustbelt Metros)				
Sunbelt Metros	0.030 ***	0.006	0.063 *	0.029
Rustbelt Metros	0.031 **	0.009	-0.030	0.021
Metropolitan Context				
Percent Earlier Arrived Immigrant**** in Respective Immigrant Group	0.031 **	0.009	0.001	0.001
Percent Mexican (or Chinese) in Total Metro Population	0.004 ***	0.001	0.113 **	0.037
Percent Latino (Other than Mexican)/Asian(Other than Chinese) in Total Metro Pop	0.005 ***	0.000	-0.016	0.008
Correlation Coefficient (rho)	-0.962 ***	0.002	-0.361 ***	0.034
Pseudo R2		0.145		0.354
Log likelihood		-367,628		-37,538
Number of observations		416,136		51,735

* $p < .05$; ** $p < .01$; *** $p < .001$

Appendix 1. The Categorization of Mid-size Metropolitan Areas

	a: High Immig Growth	0: Low Immig Presence	S: Sunbelt	2005			Change in Immig Share 00-05	Percent Immig Growth 00-05
	b: Moderate Immig Growth	1: High Immig Presence	R: Rustbelt	# Immig	Population	% Immig		
	c: Low Immig Growth							
Mid-size Metropolitan Areas								
Bakersfield, CA	a	1	S	148,397	726,158	20.4	4.01	5.79
Charlotte-Gastonia-Rock Hill, SC	a	1	S	144,181	1,665,022	8.7	1.86	2.61
Fayetteville-Springdale, AR	a	1		32,916	356,560	9.2	2.29	3.29
Fort Myers-Cape Coral, FL	a	1	S	77,284	538,768	14.3	5.31	6.99
Fort Pierce, FL	a	1	S	46,153	376,223	12.3	2.83	4.21
Lakeland-Winterhaven, FL	a	1	S	50,719	531,209	9.5	3.18	3.80
Modesto, CA	a	1	S	100,405	495,418	20.3	1.83	3.65
Salem, OR	a	1		43,459	290,603	15.0	3.18	3.66
Sarasota, FL	a	1	S	73,440	658,854	11.1	2.14	3.17
Springfield-Holyoke-Chicopee, MA	a	1		53,995	563,752	9.6	2.31	2.22
Stockton, CA	a	1	S	151,903	643,673	23.6	3.57	6.35
Boise City, ID	a	0		38,412	501,353	7.7	2.51	3.28
Eugene-Springfield, OR	a	0		24,552	331,118	7.4	2.54	2.72
Greensboro-Winston Salem-High Point, NC	a	0		98,292	1,297,207	7.6	2.00	2.28
Greenville-Spartanburg-Anderson SC	a	0	S	53,495	830,757	6.4	2.61	2.83
Hickory-Morgantown, NC	a	0		24,370	348,079	7.0	2.22	2.32
Lansing-E. Lansing, MI	a	0	R	27,169	436,674	6.2	1.92	1.99
Nashville, TN	a	0		85,903	1,306,998	6.6	1.85	2.18
Omaha, NE/IA	a	0		44,646	610,779	7.3	2.18	2.46
Richmond-Petersburg, VA	a	0		65,619	1,024,695	6.4	1.88	2.08
Albuquerque, NM	b	1	S	69,437	766,870	9.1	1.04	1.67
Colorado Springs, CO	b	1		44,593	539,087	8.3	1.82	2.24
Detroit, MI	b	1	R	385,821	4,402,493	8.8	1.25	1.24
Minneapolis-St. Paul, MN	b	1	R	270,270	2,993,533	9.0	1.77	2.18
Portland-Vancouver, OR	b	1		246,060	1,917,857	12.8	1.57	2.41
Providence-Fall River-Pawtucket, MA/RI	b	1		145,517	1,022,772	14.2	1.19	1.37
Raleigh-Durham, NC	b	1		142,104	1,317,143	10.8	1.45	2.62
Salt Lake City-Ogden, UT	b	1		139,510	1,422,805	9.8	1.27	1.87
Tacoma, WA	b	1		67,351	740,929	9.1	0.68	1.23
Tucson, AZ	b	1	S	121,111	901,573	13.4	1.35	2.29
Charleston-N.Charleston, SC	b	0	S	20,808	468,050	4.4	0.80	0.99
Cincinnati OH/KY/IN	b	0	R	49,969	1,459,708	3.4	0.66	0.65
Grand Rapids, MI	b	0	R	64,724	992,210	6.5	1.00	1.13
Little Rock-North Little Rock, AR	b	0		22,969	594,848	3.9	1.64	1.70
Mobile, AL	b	0	S	18,380	550,694	3.3	1.05	1.12
Norfolk-VA Beach-Newport News, VA	b	0		85,736	1,556,317	5.5	1.09	1.22
Oklahoma City, OK	b	0		69,511	918,684	7.6	1.07	1.34
Pittsburgh-Beaver Valley, PA	b	0	R	66,333	2,152,836	3.1	0.47	0.35
Spokane, WA	b	0		20,316	421,707	4.8	0.55	0.67
St. Louis, MO-IL	b	0	R	115,706	2,631,638	4.4	1.25	1.31
Brownsville-Harlingen-San Benito, TX	c	1	S	92,850	378,930	24.5	-0.43	2.41
El Paso, TX	c	1	S	193,326	706,049	27.4	-0.17	1.18
Honolulu, HI	c	1		165,808	883,575	18.8	-0.87	-0.15
McAllen-Edinburg-Pharr-Mission, TX	c	1	S	197,570	674,995	29.3	-0.19	4.60
Reno, NV	c	1	S	50,823	376,072	13.5	-0.50	0.96
Santa Barbara-Santa Maria-Lompoc, CA	c	1	S	81,570	377,453	21.6	-0.01	-0.74
Visalia-Tulare-Porterville, CA	c	1	S	88,182	400,027	22.0	-0.54	1.42
Appleton-Oskosh-Neenah, WI	c	0		9,024	362,883	2.5	-0.19	-0.11
Augusta-Aiken, GA-SC	c	0	S	14,307	458,271	3.1	0.10	0.21
Killeen-Temple, TX	c	0	S	20,595	302,206	6.8	-0.01	0.06
Macon-Warner Robins, GA	c	0	S	8,545	332,349	2.6	0.06	0.18
Pensacola, FL	c	0	S	14,585	413,834	3.5	-0.06	0.06
Peoria, IL	c	0	R	7,222	331,895	2.2	0.15	0.09
Rochester, NY	c	0	R	58,873	1,000,901	5.9	0.02	-0.03
Saginaw-Bay City-Midland, MI	c	0	R	8,657	390,892	2.2	-0.06	-0.09
Shreveport, LA	c	0	S	6,342	388,217	1.6	-0.20	-0.22
Springfield, MO	c	0		5,376	333,048	1.6	0.06	0.12
Syracuse, NY	c	0	R	30,188	704,520	4.3	0.12	0.06
Wichita, KS	c	0		33,318	547,263	6.1	-0.05	0.03
Youngstown-Warren, OH-PA	c	0	R	9,323	557,557	1.7	-0.37	-0.50

Note: Low immigrant growth metropolitan areas refer to those that had -0.87 to 0.15 percentage points increase in immigrant share.

Moderate immigrant growth metropolitan areas refer to those that had 0.47 to 1.82 percentage points increase in immigrant share.

High immigrant growth metropolitan areas refer to those that had 1.85 to 5.31 percentage points increase in immigrant share.

Low immigrant presence metropolitan areas refer to those areas in which less 8 percent of metropolitan population are immigrants.

High immigrant presence metropolitan areas refer to those areas in which more than 8 percent of metropolitan population are immigrants

Sunbelt states include Alabama, Arizona, Florida, Georgia, Louisiana, Mississippi, Nevada, New Mexico, South Carolina, and Texas.

Rustbelt states include Illinois, Indiana, Michigan, Minnesota, New York, Ohio, and Pennsylvania.