Has homeownership been inflated? The role of variable household formation in distorting homeownership rates between groups and over time

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Abstract

Conventional definition of homeownership is based on the share of households, which ignores the variable effects of household formation. We study whether such omission leads to a distorted assessment of trends and differentials in homeownership. In the 1990s, many groups experienced a decline in household formation, which indirectly elevated the overall homeownership rate by removing renters. Moreover, Asians have very low household formation but high homeownership rates, which are in contrast to Latinos and African Americans. We find that higher homeownership rates for Asians stems from their suppressed level of renter household formation and their greater share of adults not forming households. The overall conclusion is that, without accounting for household formation, current measures of homeownership are a deficient indicator of housing success.

"The more ownership there is in America, the more vitality there is in America, and the more people have a vital stake in the future of this country." –President George W. Bush, June 17, 2004 (The Bush Administration 2004)

Homeownership is an important means of wealth building and a key barometer of housing well-being in America (Rossi and Weber 1996; Rohe, Van Zandt, and McCarthy 2002). Because of the favorable collective experience with homeownership, it has been the cornerstone of President Bush's "ownership society" agenda (The Bush Administration 2004). Under the Clinton and Bush administrations, a goal was set to increase the homeownership rate to a record high, primarily by extending homeownership to previously underserved groups.

The 1990s saw a concerted increase in homeownership rates in most U.S. metropolitan areas (Myers et al. 2005). The national rate increased by two percentage points in the 1990s and reached a record high of 66.2 percent in 2000, reversing the decade of homeownership decline in the 1980s (Simmons 2001; Woodward and Damon 2001; Myers et al. 1992). The increase in homeownership has been explained by a number of factors, including the spread of innovative mortgage lending practices, strong incentive for investment, the economic prosperity during the late 1990s, and declining interest rates (Myers 2001; Gabriel and Rosenthal 2002). Rising homeownership rate has been extolled as evidence of successful housing policy {Gabriel, 2001 #2082; Eggers, 2001 #6880}. However, it also has been observed that most age groups save the elderly merely kept even with past homeownership rates and much of the overall increase can be explained by the aging of the large baby boom generation into age brackets with higher homeownership rates (Myers 2001).

What has not been generally recognized is that the common definition of homeownership rates may significantly distort these trends and their interpretation. Conventionally defined as the share of households that are owner occupants, analysis of homeownership rates may be fundamentally flawed because it ignores the effects of the underlying variation in the rate of household formation. The observed differentials or trends over time could derive from different causes and have different implications than generally assumed. Simply stated, if most foregone household formation is withdrawn from the rental category, then lower household formation creates an upward distortion of homeownership rates. In this view, rising homeownership rates might not indicate housing prosperity but instead housing distress that excludes renters from the market. Or, in another case, demographic groups with higher

homeownership rates might achieve that result by cultural practices that encourage sharing of living quarters rather than renting separate dwelling units. Thus both the interpretation of trends over time or of differences between groups could be biased by reliance on the homeownership rate calculated in a *per household* basis. The alternative is to define homeownership on a *per capita* basis so that all those who may have foregone household formation are included in the denominator. In fact, for improved analysis it is preferable to separately identify both renter householders and owner householders relative to all those who are non-householders (non-heads).

This paper explores the biases stemming from the conventional formulation of ownership rates through a comparison of conclusions drawn from per household and per capita methods. Changes over time and differences between groups are explicitly modeled for both renter and owner households relative to adults who have not formed households. This overall goal is pursued through two specific research objectives.

One objective of the paper is to investigate whether or not recent rises in homeownership are exaggerated by declining household formation. We will evaluate whether or not the rise in homeownership rate which is taken as a sign of *success* of the ownership society can be judged an artifact of hidden *distress* among renters that is depressing household formation.

Our second objective to evaluate how much any differences in household formation intrudes into analytical conclusions about homeownership differentials between groups. In particular, Asian households have been identified as having unusually high homeownership rates, especially in view of the fact that the majority are immigrants and newcomers to the United States. Asians have a homeownership rate almost on par with that of native-born, white non-Hispanic households (Painter, Gabriel, and Myers 2001; Painter, Yang, and Yu 2003). The high homeownership rates have been widely touted as evidence of Asians' successful adaptation to the U.S. and as an emblem of their model minority status. This contrasts particularly with African Americans who, despite their high household formation rates, have lower homeownership. To what extent does the lower household formation among Asians contribute to this perception of great homeownership success?

Research findings to be reported indicate that household formation does play an important role in homeownership attainment, even after accounting for

other confounding factors. Of the four major ethnic groups in the U.S., Asians have the lowest rate of renter household formation, which is translated into their high homeownership rates. Meanwhile, there was a decline in household formation in many demographic groups during the 1990s, which helps explain the rise in the aggregate homeownership rate. Therefore, high homeownership rates do not always reflect housing success.

In the following section, we first review previous studies and look at alternative ways in which homeownership may rise. After a summary description of major trends in household formation and homeownership rates, we use multinomial logistic regression to investigate the preferences of people to form renter or owner households in the 100 most populous metropolitan areas. Particular attention is given to racial/ethnic differences and changes over the decade. We then conclude with a discussion of the implications from our findings.

Previous studies

There has been a long-standing recognition of demographic effects on housing (see e.g., Hendershott 1988; Borsch-Supan 1986; Leppel 1986; Carliner 1975; Ermisch 1991; Pitkin 1990). Fresh realization of the growing importance of demographic effects has spawned a new wave of research that pays close attention to the demographic determinants of housing demand (see e.g., Haurin et al. 1997; Green 1996; Myers 2004 ; Masnick, McArdle, and Belsky 1999; Riche 2003; Skaburskis 1999). There is a great diversity in the way different demographic groups adjust their household consumptions. For instance, the elderly who already own homes are largely insulated from market fluctuations, whereas young households and new immigrants, as new housing market entrants, directly encounter the full market forces.

Researchers debate the exact effects of demographic changes on the housing market. Some authors argue that demographic effects dominate more refined relationships of market adjustment (Myers 2004; Chevan 1989; Masnick 2002), while others consider market forces as the main determinant of changing housing consumption patterns (Gyourko and Linneman 1997; Green and Hendershott 1996; Haurin and Rosenthal 2004). Despite the differences in interpretation, few would deny demographic changes as a vital force affecting housing consumptions.

It is challenging to pinpoint exactly how changing household formation affects homeownership, because the homeownership rate is not based on all members of the population but only on those who have formed households. As a result of this challenge, only a few prior studies have addressed the relationship in any way. Borsch-Supan (1986) controls for the endogeneity of household formation in estimating housing demand. Demand-side housing program is found to create a substantially more housing demand than originally anticipated, because it encourages the formation of independent households. Haurin, Hendershott, and Kim (1994) examines the tenure choice of American youth by controlling for possible sample selection biases associated with household formation and labor supply. Household formation affects youth's housing demand.

Recent studies have expanded their scope and begun to look at changes over time. An analysis of homeownership trends in 50 states from 1990 to 2000 reported a sizable inverse correlation (-0.33) between changes in headship rates and changes in homeownership rates (Myers 2001). A subsequent study of the baby boomer cohort in the largest 100 metropolitan areas observed larger increases in the homeownership rate between 1990 and 2000, net of human capital and supply and demand factors, when the headship rate increased less (Myers et al. 2005).

Although the limited research has pointed to a possible link between household formation and homeownership, it is not conclusive whether declining household formation has contributed to the recent rise in homeownership rate. Nor do we know the extent to which racial/ethnic difference in homeownership rates was due to variable rates of household formation or other confounding factors.

In contrast to the limited number of studies that link household formation to housing demand, there have been numerous studies on homeownership attainment. Most studies have used household as the unit of analysis (e.g., Coulson 1999; Alba and Logan 1991; Yu 2006). Researchers usually use the demographic characteristics of householder to represent those of the whole household. The rational is that home purchase is a household decision. However, this rational is problematic in longitudinal studies. Household formation has changed over time. The number of households is altered in the denominator of the per household homeownership rate.

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An alternative to the per household measure is the per capita measure of homeownership, which use population instead of household as the denominator of homeownership (e.g., Myers and Lee 1998; Myers and Park 1999). There are, however, potential limitations associated with this approach. It does not differentiate non-head from renter head. Nor does it account for the large variations between racial/ethnic groups in their likelihood of forming renter households. In this research, we try to remedy this problem by using tri-nominal logit model and explicitly model for both renter head and owner head relative to non-head.

The importance of addressing underlying variations in household formation takes on even greater importance in the case of ethnic groups that have different cultural practices of living arrangements, especially those groups that are growing from immigration. In these cases, homeownership attainment becomes more behaviorally complex and assumes added theoretical meaning. Immigrants in general have lower homeownership rates than native-born residents. Researchers worry that immigrants may have suffered from structural problems in their access to housing, changing economic conditions, and racial/ethnic discrimination (Krivo 1995; Borjas 2002). Yet, homeownership attainment changes rapidly with increasing length of residence (e.g., Myers and Lee 1998), and it has been commonly used as an indicator of assimilation and economic integration in the literature of immigration and race/ethnicity (Alba and Nee 2003). However, sharp differences in household formation also exist between immigrants and native-born groups, and so much of the apparent increase in homeownership could be confounded with changing rates of formation.

Asian residents present a noteworthy case because they attain a very high homeownership rate, even though most of them are immigrants and came to the U.S. recently (Myers, Megbolugbe, and Lee 1998; Painter, Yang, and Yu 2003; Yu and Myers forthcoming). Net of other relevant factors, their rate is almost on par with that of native-born, non-Hispanic whites. The high homeownership of Asians has been regarded as a sign of Asian's successful adaptation to the U.S.

In contrast to Asians, African-Americans or blacks have persistently low homeownership, despite the fact that almost all of them were born in the U.S. The literature has well documented the black-white homeownership gap, which can not be fully explained by blacks' low socioeconomic status (Flippen 2001; Bianchi, Farley, and Spain 1982; Horton 1992; Wachter and Megbolugbe 1992). Despite

much improvement in recent year, the gap remains large (Bostic and Surette 2001; Freeman 2005). The lower prevalence of married couple households among blacks is well-recognized, but the implications for overall household formation rates have not been explored. Moreover, to date the literature has not connected the very high levels of household formation among blacks to their lower than expected homeownership. It remains to be discovered how much of the household formation effect on homeownership can be explained by adjustments for marital status, income or other factors.

A more comprehensive assessment of demographic factors in homeownership attainment requires attention to important variations in the population base. Differences in household formation between groups surely intrude into the conventional calculation of homeownership rates on a per household basis. This has implications for our understanding of differences between age groups, ethnic groups and immigrants compared to native born. With the rapid changes in composition of the U.S. population, this also is likely to have implications for trends in the overall rate of homeownership.

Alternative understandings of homeownership

There are two different ways in which homeownership increases (Masnick, McArdle, and Belsky 1999). The construction of the *homeownership rate* is presented in the following equation:

$$Ownership\_Rate = \frac{Owner\_HHs}{Owner\_HHs + Renter\_HHs},$$

where the number of owner-occupied households is divided by the sum of owner and renter-occupied households. Conventional wisdom suggests that homeownership grows when renters change to homeowners. Given the same number of household in the denominator, the increase in the number of owners in the numerator would increase the overall homeownership rate. This is an ideal scenario of homeownership increase, because homeownership opportunities are expanded to more households.

In contrast, the removal of renters from the denominator (or a slower renter growth than owner growth) will also cause the homeownership rate to rise even if none of those renters transfer to homeownership in the numerator. For instance, in time of rapid rise in housing price, many vulnerable individuals may have postponed household formation or/and dropped out of the housing market.

In this case, people would delay their household formation as evidenced by declining headship rates. Instead of an increase in the numerator in the first scenario, there would be a decline in the denominator. Under this scenario, however, rising homeownership does not reflect better accessibility to homeownership. In fact, this would suggest a decline in housing opportunities, since renters are squeezed out of the housing market.

Renter distress is difficult to detect because the eliminated households are not available to be interviewed in official government surveys. Accordingly, we must detect their absence through surveys of people rather than households. The key question is what percent of *adult*s are renting or owning housing units, not only what percent of *households* are homeowners. The two concepts have different denominators in the calculation. The former is often called the household formation rate or the headship rate[1]. When that rate is rising, more people are establishing independent living quarters, usually as renters. It is much easier for housing market entrants to form renter households than to form owner households. On the flip side, when the rate is falling, typically it is the ranks of renters or would-be renters that are being depleted. This is because homeownership attainment is a quasi-accumulative process, owners seldom change their tenure status back to renters (Pitkin 1990). Inadvertently, the overall homeownership rate may increase despite fewer people forming independent households. .

At-risk groups for potential renter distress

This section uses bivariate analysis to examine the association between household formation and homeownership attainment.

Low renter household formation of Asians

Figure 1 compares homeownership rates (the dark line) and headship rates (the grey line) by racial/ethnic and age groups in the year 2000. The rates of household formation and homeownership tend to rise to early elderly years, except Asians which peak much earlier. However, there are large variations between age and racial/ethnic groups. Blacks have unusually high headship

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[1] Household formation defined as the percent of a given population group that is the head of a separate living unit. The higher the rate, the more often that people form independent households.

rates, even higher than their ownership. In contrast, Asians have the lowest headship rates.

Figure 1 about here

In the year 2000, whites have the highest homeownership rates (72.9%), followed by Asians (53.5%). Latinos (46.3%) and blacks (47.3%) have the lowest homeownership rates. Based on the measure of homeownership rates alone, one may conclude that both Asians and whites have better access to homeownership than blacks and Latinos.

Once we consider household formation, the conclusion is quite counter-intuitive. Whites have high headship rate of 50.0%. That is, half of all whites head individual households. In contrast to whites who have broad access to both renter and owner occupied housing, Asians achieved high homeownership by having fewer households per capita (38.3%). Furthermore, Asians have the smallest number of renters per capita (17.8%). Therefore, the high homeownership does not necessarily suggest that Asians are more successful in achieving homeownership than blacks and Latinos. In fact, blacks have a very low homeownership rate because they have the largest number of renters per capita (25.0%) of all racial/ethnic groups.

All of the above reveals cross-sectional relationships instead of changes over time. The bivariate analysis does not control for other confounding factors. But those are easier to describe, to understand, and to carry out.

Declining household formation among Latinos

We disaggregate the changes in household formation and homeownership rates by specific age groups. To simplify our interpretation, we focus on Latinos only. Figure 2 shows that almost all age groups had increases in homeownership rates. The large increase is accompanied by declining headship rates in almost all age groups. The association between rising homeownership and declining household formation is so striking that Latino homeownership rate appears to have been artificially inflated by removing renter households in the 1990s.

Figure 2 about here

In this section, we have used descriptive analysis to detect possible renter distress and the impacts on homeownership. While circumstantial evidence

presented above supports our arguments, multivariate analyses at the individual level will provide more conclusive answers to our research questions.

Individual-level Analysis

In this section, we treat household formation as an individual decision and further examine how the choice of household formation affects homeownership attainment at the personal level, while controlling for other confounding factors. We will not only examine household formation cross-sectionally, but also track changes from 1990 to 2000.

Sample and Data

The study uses the decennial censuses 5% Public Use Microdata Samples (PUMS) in both 1990 and 2000 from the IPUMS data base (Ruggles et al. 2003). The sample for analysis is at the level of individual person who does not live in group quarters.

The sample includes only males who are 15 years or older. We follow Chevan (1989) and Myers and Lee (1998) and assign all of the headship/homeownership shared by married couples to the male spouse. We set this restriction for four reasons. First, most males work and report personal income. Second, the labor force participation rates of males are more consistent across racial/ethnic groups and more reliable over time than those of females (Smith and Ward 1985). Third, while females comprise a growing share of householders[2] over time, their share is still significantly lower than that of males. There are also large generational differences (Myers 1992). Fourth, immigrant households tend to be systematically different from native-born residents in their likelihood of having females as householders. Focusing on males only permits more consistent comparisons. Ultimately, we select males because we do not want to arbitrarily assign household headship/homeownership to husbands or wives. Chevan (1989) reveals that similar results would be reached in case females are used in the analysis under equivalent procedures, since men and women share their housing status.

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[2] According to U.S. Census Bureau, head/householder refers to the first person listed on the census form. In the 1980 questionnaire, the decennial census began to use "householder" instead of "head of household. And this reference person could be any household member in whose name the property was owned or rented. Prior to 1970, enumerators were instructed to record the male as the head of house

Geographic Areas

We limit our sample to the 100 most populous metropolitan areas where there are significant numbers of immigrants and minorities. The boundaries the 100 metropolitan areas are in accordance with the geographic definitions used in the 2000 census. The names of the metropolitan areas are listed in Appendix 1. The areas are comprised of one or more whole counties, with the exception of the New England region where metro areas are built from aggregations of townships. Data from the 1990 census is re-arranged to conform to these 2000 definitions. For this study we do not use primary metropolitan statistical areas that are subsets of the larger consolidated metropolitan statistical areas. Instead, we use the whole CMSA as a unit. Thus, our set of 100 most populous metropolitan areas includes both CMSAs and freestanding MSAs. About 70 percent of U.S. population lives in these areas.

Analytical Strategy

There are two major stages in the multivariate analysis. First, we simply look at a cross-section and estimate for the year 1990 only. Cross-sectional pattern is relatively easy to interpret and understand. We will study the relative importance of factors in household formation and investigate why Asians have a high homeownership rate, despite most of them being immigrants. This is also to set up a reference point so that we can measure changes from 1990 to 2000.

In the second stage, we pool the data from 1990 and 2000 to examine changes. This is to study the way in which changing household formation has affected homeownership rates in the 1990s.

In each stage, four successive models are estimated: a race/ethnicity only model, a model that adds age, a model that adds immigrant status, and a model that adds income, other human capital factors, and variables that capture housing price and rent. This setting is to test the extent to which individual characteristics will augment the results of demographic variable only model.

Methods

Multinomial logistic regression is used to estimate the probabilities of any individual being a non-householder (non-head), a renter householder (renter head), or an owner householder (owner head). In other words, there are three categories in the dependent variable. Any individual in the sample would fall

into one of these three categories in the sample. The three category variable is of our key interest as it reveals the tenure and headship status of the person.

The cross-sectional model used in the first stage is specified as follows:

(O) = AG + RACE + MG + X + Y

The pooled cross-section model is specified as follows:

(O) = Year + AG + (Year x AG) + RACE + (Year x RACE) + MG + (Year x MG) + X + Y

(O)   =   householder status (Non-head or non householder = 0, renter head = 1, and owner head= 2),

Year   =   census year (1990 = 0 and 2000 = 1),

AG   =   age group,

RACE =   racial/ethnic group,

MG   =   immigrant group,

X =   individual characteristics, and

Y =   changing metropolitan context.

(O) is the outcome variable of interest. For the present analysis, we pay particular attention to race/ethnicity. RACE includes five groups which are non-Hispanic whites, blacks, Asian and Pacific Americans, Latinos, and others (reference group = non-Hispanic whites). The behavior of other racial groups in the sample is expressed as a deviation from the reference group.

MG is the immigrant year of arrival, coded as immigrants who came in last 10 years, in last 10-20 years, in last 20-30 years, and more than 30 years ago (reference group = native-born). AG or age group is coded as 15-24, 25-34, 35-44, 45-54, 55-64, or 65-74 (reference group = 35-44). Immigrant status and age are especially important dimensions of household formation, because headship rates vary predictably by age and immigrant status (Skaburskis 1994; Smith et al. 1984).

There are large age variations in household formation between racial/ethnic groups, as shown in Figure 1. While immigrants and minority groups tend to have lower homeownership rates than native-born whites of

non-Hispanic origin, few studies have examined their differences in household formation.

In the second stage of the analysis, we add the variable "Year" to capture overall changes from 1990 to 2000. In addition, a set of interaction variables, (Year * RACE), (Year * MG), and (Year * AG) are included to separately identify additional changes in age, racial/ethnic, and immigrant groups. The coefficients for AGE, RACE, or MG alone pertain to 1990 only in the pooled cross-sectional model.

Individual characteristics

The model controls a set of individual characteristics (*X)*, which include personal income, educational attainment, martial status, and housing price and rent. (See Table 3 for a full list of the variables). Income is an important determinant of household formation. Rising real income has increased the real affordability of housing and resulted in a steady increase in household formation after WWII (Carliner 1975; Hendershott 1988).

Educational attainment is the principal measure of human capital, serving as a proxy for future earnings. Therefore, more educated should have a higher propensity to form independent household than less educated. In general, whites and Asians tend to have a higher level of education than blacks and Latino.

Marital status also affects household formation {Sweet, 1990 #2125}. Relative to those who are not currently married, married couples should be more likely to form independent households. Blacks have a substantially lower prevalence of married couple households than Asians, which may help explain their large differences in household formation.

In addition, housing price and rent affect household formation and subsequent tenure decision (Rosen and Rosen 1980). We follow Gyourko and Linneman (1997) and construct housing price and rent at the PUMA (Public Use Microdata Area) level. Housing price is measured as the 25th percentile home price and rent as the median rent in the respective PUMA. High housing price and rent decrease housing affordability and deter household formation, particularly among young people (Smith et al. 1984; Ermisch 1999; Haurin, Hendershott, and Kim 1993). It is, however, unclear the extent to which this set of individual characteristics ameliorates racial/ethnic differences in household formation.

Descriptive findings

Descriptive findings are presented first in Table 1, which also reports the variables used in the multivariate analysis. The mean values are computed separately for full sample, non-heads, renter heads, and owner heads in 1990 and 2000. As expected, most non-heads are young people who are younger than 25. When young people form independent households, they are more likely to be renters. Regarding race/ethnicity, white is the largest group of all. Most of the observations were born in the U.S., while the size of new immigrants who came in the last 10 years is the largest group of all immigrants.

There are very pronounced differences in socioeconomic status. Owner heads have the highest personal income, while non-head the lowest. More educated and currently married are the largest group among owner households. Relative to non-heads and renter heads, owner heads live in areas of lower rent and housing price. The mean values are quite similar between 1990 and 2000. If the differences in household formation are caused by variable individual characteristics and changing metropolitan context, demographic differences in household formation should attenuate and even disappear after controlling for these confounding factors.

Table 1 about here

Cross-sectional estimation of household formation in 2000

The first stage of the multivariate analysis looks at a cross-section only and examines household formation and homeownership attainment in the year 2000 only. Table 2 reports coefficient estimates and relative risk ratios with a separate section for each of the four models. There are two columns for each section. The left column reports the probability of being renter heads, while the right column shows the probability of being owner heads.

The first section of the table includes racial/ethnic group only. The baseline group is non-head, which is omitted from the table. As expected, minority groups all have lower rates of household formation than whites, evidenced by the negative values of log odds.

Table 2 about here

The second section adds age group as independent variables to capture age variations across racial/ethnic groups. Young people have lower rates of household formation indicated by the negative log odds in age group 15-34. After controlling for age differences, minority groups are still less likely to form independent households than whites.

The third section includes immigrant status as independent variables, because a large share of Asians and Latinos are immigrants. Clearly, new immigrants have lower rates of household formation than native-born residents. When forming independent households, they are also more likely to form renter households. However, controlling for immigrant status helps explain only a small part the differences between minorities and whites.

The fourth section adds individual characteristics, which include personal income, educational attainment, martial status, and housing price and rent. Living in married households, residing in areas of lower housing prices and rents, and having higher levels of education and income are all positively associated with household formation. Accounting for individual characteristics significantly attenuate the demographic differences in household formation, evidenced by smaller odds ratio values in the successive models. However, there are still significant variations across demographic groups.

To better present our research finding, we graph the relative risk ratios of racial/ethnicity variables in Figure 3. Again, the reference group is non-Hispanic white, which is omitted from the figure. For each set of estimations in each racial/ethnic group, there are three data points reported. The first point is about renter household formation, reporting the relative risk ratio of the study group relative to that of whites. If the ratio is lower than 1, the group has a lower probability of renter household formation than whites. The second point reports owner household formation. The third point on each line shows the ratio between the two relative risk ratios. If this ratio is greater than 1, then the group has a higher homeownership probability than whites.

Figure 3 about here

We first look at the race only model (thin dashed line). Minorities are not only less likely to form independent households than whites, but also having lower homeownership rates. After controlling for age, immigrant status and other confounding factors (the thickest line with empty dots), the differences are gradually attenuated between minority groups and whites. In other words, the

racial gaps in household formation and homeownership are attributable to age, immigration and other confounding factors. Since many Asians and Latinos are immigrants, the results of Latinos and Asians are particularly sensitive to the inclusion of immigration variables. Meanwhile, Latinos and blacks significantly reduce their differences after controlling for socioeconomic differences.

Noticeably, Asians have slightly higher homeownership probabilities than whites after controlling all the factors. This is because Asians have a significantly lower rate of renter household formation than other groups. More specifically, Asians are only 59 percent as likely to form renter households as whites. Despite Asians' high per household homeownership rate, they are not much better in their access to owner-occupied housing than blacks and Latinos. In fact, Asians are only about 61 percent as likely to form owner household as are whites, a rate only slightly higher than those of blacks and Latinos. This helps explain why Asians had a particularly high homeownership rate in 1990, despite most of them being immigrants. After controlling for all the factors, Asians still have an extremely low rate of renter household formation.

Without considering household formation, the per household homeownership measure does not adequately indicate housing prosperity. From the perspective of household formation, Asians are neither better than blacks in attaining homeownership nor more successful than Latinos in their adaptation to the U.S.

Multinomial estimation of household formation, 1990-2000

In the second stage, we focus on changes between 1990 and 2000, by adding "Year" and a set of interaction variables to the model. The estimates are reported in Table 3 following the same sequence as that in Table 2.

Table 3 about here

To facilitate the presentation, we graphically present the relative risk ratios of household formation by four racial/ethnic groups in Figure 4. The figure shows changes in household formation (Year*RACE) from 1990 to 2000 (1990 as the reference). Any data points lower than 1 suggests lower probabilities from 1990 to 2000.

Figure 4 about here

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If we look at race only (thin dashed line), most groups are more likely to form independent households and have higher homeownership probabilities from 1990 to 2000. This corroborates with previous findings, which show an increase in aggregate homeownership rate in the 1990s. Once we control for everything (the thickest line with empty dots), however, the story is quite different. Figure 4 reveals that, holding everything else constant, there has been a decline in household formation in most racial/ethnic groups. In other words, fewer independent households were formed per capita at the end of the decade. This is evidenced by most relative risk ratios being lower than 1.0.

Asians experienced the largest decline in owner household formation, which was translated into a steep decline in their homeownership probability at the end of the 1990s. Despite declining household formation, all groups except for Asians have similar or higher homeownership probabilities over the 1990s. Whites lead all groups in their advancement in homeownership. However, the increases in homeownership are largely due to the *declining rate* of household formation rather than the transformation of renters to owners. For blacks and whites, renter household formation experienced a larger decline than owner household formation. Therefore, homeownership rate was artificially inflated over time. In this case, rising homeownership does not necessarily indicate housing prosperity.

Discussion

Overall, what is the pattern of household formation and how has changing household formation affected homeownership rates in the U.S.? Clearly, there are large variations in household formation across racial/ethnic groups, even after controlling for age, immigrant status, and other confounding factors.

Asians have high homeownership rates, due in large part to their very low rates of renter household formation. In fact, on a per capita basis, Asians have a number of homeowners similar to blacks and Latinos and far fewer than whites. For Asians, their high ownership rate comes at the expense of depressed household formation. In contrast, blacks and Latinos seem to have formed "too many" renter households, which have lead to their relatively low homeownership rates.

While we can not completely separate the cultural preferences of low household formation from structural barriers, the low rate of household

formation has clearly inflated the homeownership rates of Asians in 1990. The differences between blacks and Asians would be much smaller had we measured homeownership on a per capita basis. Once we take household formation into consideration, Asians do not seem to be better adapted to the U.S. than other immigrants. These findings are in contrast to previous research.

From 1990 to 2000, most groups had lower rates of household formation. However, depending on racial/ethnic groups, declining household formation has different effects on homeownership. Declining household formation has inadvertently increased the aggregate homeownership rates in general, and the homeownership rates of whites and blacks in particular. The exception is Asians, who experienced significant declines in both owner household formation and homeownership rates. Once we examine homeownership through the lens of household formation, we have a better understanding of the dynamics of homeownership attainment.

So what forces may have led to the depressing rate of household formation? First, the 1990s witnessed one of the longest periods of sustained economic growth in the nation's history. The widespread income growth was translated into a growing demand for housing. Second, the adjustment of capital gain taxes in 1997 has fueled the recent boom in housing prices of selected housing markets. Third, rapid increase in immigrant population has increased the demand for housing, particularly in gateway metropolitan areas. Fourth, many jurisdictions, especially in high growth areas, have adopted local growth control policy to regulate land use, which in turn have limited land supply particularly for the construction of multifamily housing (Pendall 1995; Levine 1999). Because of all these factors, declining household formation is at least partially responsible for the increases in homeownership during the 1990s.

Conclusions

Research finding shows that low rate of household formation artificially inflated Asians' homeownership rate. Decreasing household formation has attributed to rising homeownership in the 1990s. Depending on racial/ethnic groups, declining household formation has different effects on homeownership. For whites and blacks, declining household formation bumps up the homeownership rate, most likely through the elimination of renters from the housing market or the exclusion of would-be renters from joining market.

Therefore, rising ownership rates does not always equal to better homeownership opportunities.

Research findings suggest that the current homeownership measure, defined as the percent of households that are owners, is a deficient, if not flawed, indicator of housing opportunities. It is therefore vitally important to take the variable rates of household formation into consideration, when policymakers propose new housing policy and promote homeownership.

The preceding analysis has introduced a method that separately identifies household formation and homeownership attainment. The procedure is an improvement over the currently used per-household or per-capita based homeownership measures.

The findings reported here do not nullify the advantages of homeownership or, more broadly, of the concept of ownership society. However, they do expose hidden faults in the presumed advantages of a high homeownership rate. A rise in that indicator can reveal two contradictory trends—either the joys of success in the ownership society, or the distress of renters forced out of the market. The risk of failure that is implicit in the ownership society deserves to be recognized on equal terms with the joys of homeownership. Only in this way can the public make a more informed choice about policies giving even greater weight to the ownership society.

We discovered diverging trends between homeownership rates and household formation among Asians and Latinos. There has been a growing immigrant population and increasing ethnic diversity in the U.S. The concentration of immigrant population and declining affordability and rising cost of household formation have also made the accessibility of homeownership more illusive to measure. Per capita homeownership measure may be a useful compliment to the current household based homeownership measure. It is helpful in mitigating the apparent contradictions between declining household formation and rising homeownership. Because the household based homeownership measure is a deficient indicator, there is a need for more comprehensive evaluations and see whether the "ownership society" agenda has fulfilled its promises. In addition, further research should look at whether declining household formation is a long term trend and whether the relations between household formation and homeownership are different between decades.

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Table 1. Variable Summary Statistics (mean)

Variable Description	1990				2000			
	Full Sample	**Non-head**	**Renter head**	**Owner head**	**Full Sample**	**Non-head**	**Renter head**	**Owner head**
Race/ethnicity								
Non-Hispanic White	0.74	0.62	0.67	0.85	0.67	0.53	0.56	0.79
Black	0.11	0.16	0.13	0.06	0.11	0.16	0.14	0.07
Asian	0.04	0.05	0.05	0.03	0.05	0.06	0.07	0.04
Latino	0.11	0.16	0.15	0.06	0.15	0.22	0.20	0.08
Other	0.01	0.01	0.01	0.00	0.02	0.03	0.03	0.02
Immigrant status								
Native-born	0.87	0.85	0.81	0.90	0.87	0.84	0.80	0.92
Came in last 10 yrs.	0.06	0.10	0.10	0.02	0.07	0.11	0.12	0.02
Came in last 10-20 yrs.	0.04	0.04	0.05	0.03	0.02	0.02	0.04	0.01
Came in last 20-30 yrs.	0.02	0.01	0.02	0.02	0.01	0.01	0.02	0.01
Came in 30 yrs. Ago	0.02	0.01	0.02	0.03	0.03	0.02	0.03	0.04
Age group								
15-24	0.19	0.55	0.11	0.01	0.18	0.51	0.10	0.01
25-34	0.23	0.25	0.37	0.17	0.19	0.21	0.31	0.13
35-44	0.20	0.10	0.23	0.25	0.21	0.13	0.25	0.25
45-54	0.13	0.04	0.12	0.20	0.17	0.07	0.16	0.24
55-64	0.11	0.03	0.08	0.17	0.11	0.03	0.08	0.16
65-74	0.08	0.02	0.06	0.13	0.08	0.02	0.05	0.12
75+	0.04	0.02	0.04	0.05	0.05	0.02	0.04	0.07
Total personal income	35.56	12.69	29.40	52.14	39.69	14.11	31.85	58.85
Educational attaiment								
No high school diploma	0.27	0.42	0.25	0.18	0.25	0.43	0.24	0.14
High school dip. w/ college	0.50	0.48	0.52	0.50	0.50	0.47	0.51	0.52
College degree or better	0.23	0.10	0.23	0.31	0.25	0.10	0.25	0.35
Marital Status								
Currently Married	0.31	0.09	0.60	0.87	0.31	0.13	0.54	0.84
Never Married	0.11	0.78	0.24	0.05	0.13	0.73	0.28	0.07
Formerly Married	0.58	0.13	0.17	0.08	0.56	0.13	0.18	0.10
The 25th Percentile Housing Price (Log)	11.10	11.15	11.15	11.05	11.14	11.17	11.19	11.10
Median Rent(Log)	6.31	6.33	6.33	6.29	6.35	6.36	6.37	6.33
Number of Observations	2,620,790	787,891	543,372	1,289,527	3,164,300	972,667	631,465	1,560,168

Note: Income, housing price, and rent are adjusted to 1999 dollars using the CPI .

Table 2. Multinomial Logistic Regression Analysis of Household Formation and Tenure Preferences, 2000

Multinomial regression   Log likelihood = -1948101.1   -1484831.3   -1473685   -1141935.4

Obs.: 1965258   Pseudo R2   =   0.0343   0.2608   0.2664   0.432

Independent Variables	Renter head Coef.	Renter head Relative Risk Ratio	Owner head Coef.	Owner head Relative Risk Ratio	Renter head Coef.	Renter head Relative Risk Ratio	Owner head Coef.	Owner head Relative Risk Ratio	Renter head Coef.	Renter head Relative Risk Ratio	Owner head Coef.	Owner head Relative Risk Ratio	Renter head Coef.	Renter head Relative Risk Ratio	Owner head Coef.	Owner head Relative Risk Ratio
Race/ethnicity																
Black	-0.327 ***	0.721	-1.245 ***	0.288	-0.476 ***	0.621	-1.475 ***	0.229	-0.485 ***	0.616	-1.458 ***	0.233	-0.092 ***	0.912	-0.694 ***	0.500
Asian	-0.194 ***	0.824	-0.907 ***	0.404	-0.299 ***	0.741	-1.026 ***	0.358	-0.498 ***	0.608	-0.558 ***	0.573	-0.532 ***	0.587	-0.502 ***	0.605
Latino	-0.164 ***	0.849	-1.401 ***	0.246	-0.133 ***	0.875	-1.294 ***	0.274	-0.265 ***	0.767	-1.122 ***	0.326	-0.107 ***	0.898	-0.673 ***	0.510
Other	-0.057 ***	0.944	-0.948 ***	0.388	-0.046	0.955	-0.883 ***	0.413	-0.061	0.941	-0.855 ***	0.425	0.191 ***	1.210	-0.286 ***	0.751
Age groups																
15-24					-2.582 ***	0.076	-5.006 ***	0.007	-2.568 ***	0.077	-5.008 ***	0.007	-1.211 ***	0.298	-2.883 ***	0.056
25-34					-0.502 ***	0.606	-1.420 ***	0.242	-0.499 ***	0.607	-1.408 ***	0.245	-0.190 ***	0.827	-0.922 ***	0.398
45-54					0.187 ***	1.206	0.651 ***	1.917	0.189 ***	1.209	0.632 ***	1.881	0.109 ***	1.115	0.491 ***	1.635
55-64					0.229 ***	1.257	0.916 ***	2.499	0.241 ***	1.273	0.889 ***	2.432	0.325 ***	1.384	1.088 ***	2.968
65-74					0.200 ***	1.222	0.868 ***	2.382	0.217 ***	1.243	0.844 ***	2.326	0.482 ***	1.619	1.489 ***	4.433
75+					-0.259 ***	0.771	-0.021	0.979	-0.244 ***	0.783	-0.053 ***	0.948	0.235 ***	1.265	1.020 ***	2.774
Immigrant status																
Came in last 10 yrs.									0.248 ***	1.281	-1.305 ***	0.271	0.057 ***	1.059	-1.391 ***	0.249
Came in last 10-20 yrs.									0.353 ***	1.424	-0.034 *	0.967	0.123 ***	1.131	-0.199 ***	0.820
Came in last 20-30 yrs.									0.213 ***	1.238	0.227 ***	1.255	0.012	1.013	0.069 **	1.072
Came in 30 yrs. Ago									0.027	1.027	0.047 *	1.048	0.016	1.016	0.145 ***	1.156
Total personal income (in $1,000)													0.028 ***	1.029	0.048 ***	1.049
Educational attainment																
No high school diploma													-0.308 ***	0.735	-0.477 ***	0.621
College degree or better													0.313 ***	1.368	0.302 ***	1.352
Marital Status																
Never Married													-2.504 ***	0.082	-3.836 ***	0.022
Formerly Married													-1.825 ***	0.161	-3.131 ***	0.044
Residential Context																
The 25th Percentile Housing Price (Log)													-0.120 ***	0.887	-0.614 ***	0.541
Median Rent(Log)													-0.295 ***	0.745	-0.180 ***	0.835
Intercept	-0.387 ***		0.820 ***		0.548 ***		1.858 ***		0.529 ***		1.875 ***		4.218 ***		9.696 ***	

* p<0.05 **p<0.01 ***p<0.001 Two-tailed tests

Note: Non-head is the baseline.

The reference for age groups is "ages 35-44"; for race/ethnicity, the reference group is "white"; for year interact with race/ethnicity, the reference group is "35-44"; for year interact with race/ethnicity, the reference group is "white"; for immigrant status, the reference group is native-borns; for year interact with immigrant status, the reference group is native-borns; for educational attainment it is "High school dip. w/ college"; for marital status, it is "currently married."

Table 3. Multinomial Logistic Regression Analysis of Household Formation and Tenure Preferences, 1990-2000

Multinomial regression -4283473.3
Obs.: 4337005 Pseudo R2 = 0.0346
Log likelihood = -3343821.8 Pseudo R2 = 0.2463
Log likelihood = -3319446.4 Pseudo R2 = 0.2519
Log likelihood = -2663926.3 Pseudo R2 = 0.3994

Independent Variables	Renter head Coef.	Relative Risk Ratio	Owner head Coef.	Relative Risk Ratio	Renter head Coef.	Relative Risk Ratio	Owner head Coef.	Relative Risk Ratio	Renter head Coef.	Relative Risk Ratio	Owner head Coef.	Relative Risk Ratio	Renter head Coef.	Relative Risk Ratio	Owner head Coef.	Relative Risk Ratio
Year (1990 = 0; 2000 = 1)	-0.103 ***	0.902	0.032 ***	1.033	-0.327 ***	0.721	-0.286 ***	0.751	-0.324 ***	0.723	-0.289 ***	0.749	-0.164 ***	0.849	-0.041 ***	0.959
Race/ethnicity																
Black	-0.327 ***	0.721	-1.245 ***	0.288	-0.476 ***	0.621	-1.475 ***	0.229	-0.486 ***	0.615	-1.459 ***	0.233	-0.114 ***	0.893	-0.742 ***	0.476
Asian	-0.194 ***	0.824	-0.907 ***	0.404	-0.299 ***	0.741	-1.026 ***	0.358	-0.504 ***	0.604	-0.570 ***	0.566	-0.509 ***	0.601	-0.476 ***	0.621
Latino	-0.164 ***	0.849	-1.401 ***	0.246	-0.133 ***	0.875	-1.294 ***	0.274	-0.264 ***	0.768	-1.120 ***	0.326	-0.069 ***	0.934	-0.646 ***	0.524
Other	-0.057	0.944	-0.948 ***	0.388	-0.046	0.955	-0.883 ***	0.413	-0.069 *	0.934	-0.851	0.427	0.177 ***	1.194	-0.325 ***	0.722
Year interact with race/ethnicity																
Year*Black	0.127 ***	1.135	0.027 **	1.027	0.147 ***	1.159	0.091 ***	1.096	0.151 ***	1.163	0.086 ***	1.090	0.071 ***	1.073	-0.035 **	0.965
Year*Asian	0.213 ***	1.237	-0.004	0.996	0.234 ***	1.264	0.060 ***	1.062	0.302 ***	1.353	-0.178 *	0.837	0.134 ***	1.143	-0.428 ***	0.652
Year*Latino	0.077 ***	1.080	-0.009	0.991	0.096 ***	1.100	0.091 ***	1.096	0.124 ***	1.132	0.013 ***	1.014	0.037 ***	1.038	-0.097 ***	0.908
Year*Other	0.048	1.049	-0.093 **	0.911	0.094 *	1.099	-0.023	0.977	0.079 *	1.082	0.019 **	1.020	0.023	1.024	-0.050	0.951
Age groups																
15-24					-2.582 ***	0.076	-5.006 ***	0.007	-2.573 ***	0.076	-5.007 ***	0.007	-1.319 ***	0.267	-3.003 ***	0.050
25-34					-0.502 ***	0.606	-1.420 ***	0.242	-0.499 ***	0.607	-1.411 ***	0.244	-0.205 ***	0.814	-0.954 ***	0.385
45-54					0.187 ***	1.206	0.651 ***	1.917	0.189 ***	1.208	0.631 ***	1.879	0.114 ***	1.120	0.504 ***	1.656
55-64					0.229 ***	1.257	0.916 ***	2.499	0.240 ***	1.271	0.885 ***	2.424	0.312 ***	1.366	1.051 ***	2.860
65-74					0.200 ***	1.222	0.868 ***	2.382	0.219 ***	1.245	0.842 ***	2.321	0.468 ***	1.597	1.405 ***	4.074
75+					-0.259 ***	0.771	-0.021	0.979	-0.252 ***	0.777	-0.065 ***	0.937	0.195 ***	1.215	0.903 ***	2.468
Year interact with age																
Year*15-24					0.182 ***	1.199	0.324 ***	1.382	0.181 ***	1.199	0.337 ***	1.401	0.060 ***	1.062	0.216 ***	1.241
Year*25-34					0.185 ***	1.203	0.228 ***	1.256	0.173 ***	1.189	0.243 ***	1.275	0.077 ***	1.080	0.107 ***	1.113
Year*45-54					-0.042 **	0.959	-0.137 ***	0.872	-0.027 *	0.974	-0.130	0.878	-0.019	0.982	-0.103 ***	0.902
Year*55-64					-0.013	0.987	-0.085 ***	0.919	0.006	1.006	-0.064 ***	0.938	-0.087 ***	0.916	-0.219 ***	0.803
Year*65-74					-0.077 ***	0.926	-0.039 *	0.962	-0.070 ***	0.932	-0.023 ***	0.977	-0.211 ***	0.810	-0.262 ***	0.770
Year*75+					-0.074 ***	0.929	0.131 ***	1.140	-0.064 ***	0.938	0.145 ***	1.156	-0.344 ***	0.709	-0.323 ***	0.724
Immigrant status																
Came in last 10 yrs.									0.245 ***	1.278	-1.301 ***	0.272	0.133 ***	1.142	-1.322 ***	0.267
Came in last 10-20 yrs.									0.355 ***	1.426	-0.032 *	0.969	0.196 ***	1.216	-0.113 ***	0.893
Came in last 20-30 yrs.									0.231 ***	1.260	0.243 ***	1.275	0.065 **	1.067	0.146 ***	1.157
Came in 30 yrs. Ago									0.032	1.033	0.062 *	1.064	0.032	1.033	0.187 ***	1.206
Year interact with Immigrant status																
Year*Came in last 10 yrs.									0.048 ***	1.050	0.220 ***	1.246	0.010	1.010	0.025	1.025
Year*Came in last 10-20 yrs.									-0.079 ***	0.924	0.196 ***	1.216	0.027	1.027	0.256 ***	1.292
Year*Came in last 20-30 yrs.									0.079 **	1.083	-0.184 ***	0.832	0.193 ***	1.213	-0.070 *	0.933
Year*Came in 30 yrs. Ago									-0.079 **	0.924	-0.009	0.991	-0.147 ***	0.863	-0.190 ***	0.827
Total personal income (in $1,000)													0.023 ***	1.024	0.038 ***	1.038
Educational attainment																
No high school diploma													-0.327 ***	0.721	-0.594 ***	0.552
College degree or better													0.312 ***	1.366	0.332 ***	1.393
Marital Status																
Never Married													-2.050 ***	0.129	-3.422 ***	0.033
Formerly Married													-1.440 ***	0.237	-2.740 ***	0.065
Residential Context																
The 25th Percentile Housing Price (Log)													-0.071 ***	0.931	-0.496 ***	0.609
Median Rent(Log)													-0.309 ***	0.734	-0.497 ***	0.608
Intercept	-0.387 ***	0.679	0.820 ***	2.271	0.548 ***		1.858 ***	6.414	0.529 ***		1.876 ***		3.568 ***		10.439 ***	

* p<0.05 **p<0.01 ***p<0.001 Two-tailed tests
Note: Non-head is the baseline.

The reference group is "1990" for year; for age groups, the reference is "ages 35-44"; for race/ethnicity, the reference group is "white"; for year interact with race/ethnicity, the reference group is "35-44"; for year interact with race/ethnicity, the reference group is "white"; for immigrant status, the reference group is native-borns; for year interact with immigrant status, the reference group is native-borns; for educational attainment it is "High school dip. w/ college"; for marital status, it is "currently married."

Figure 1. Homeownership rates and headship rates by racial/ethnic and age groups, 2000

White   Black   Asian   Latino

Homeownership Rates

Headship Rates

Headship Rates

Homeownership Rates

Homeownership Rates

Headship Rates

Homeownership Rates
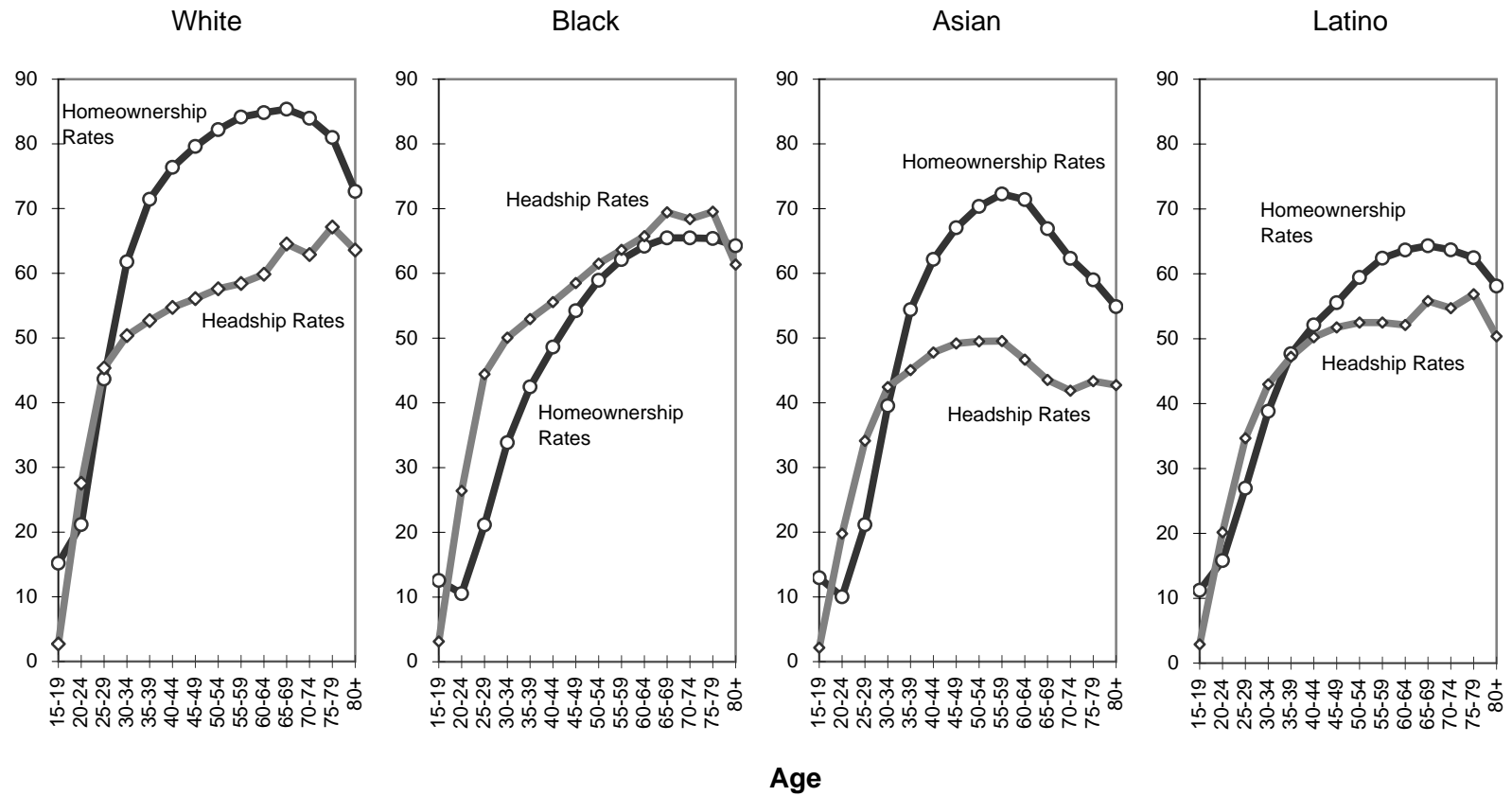
Headship Rates

Age

Figure 2. Changes in Latinos' homeownership rates and headship rates by age groups, 1990-2000

Rising homeownership rates
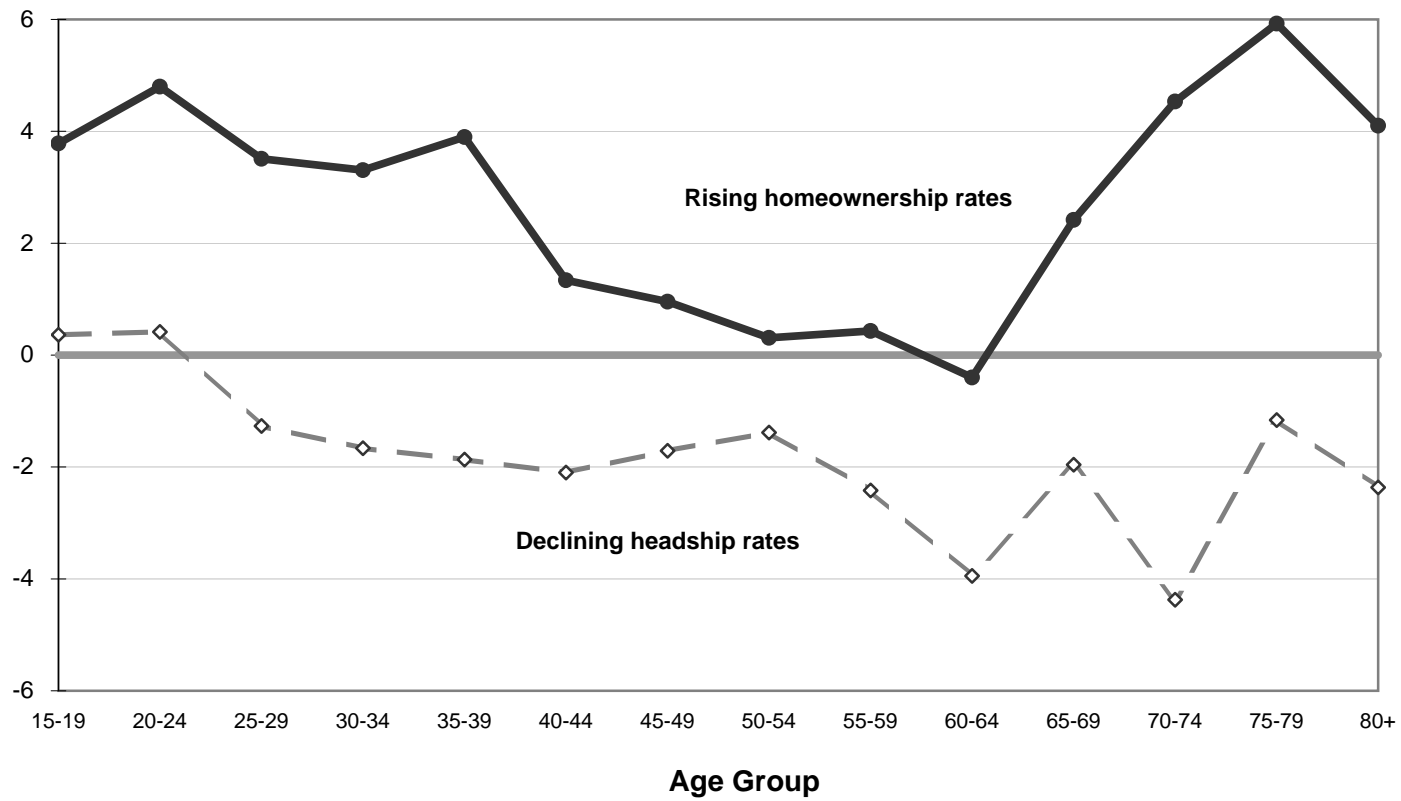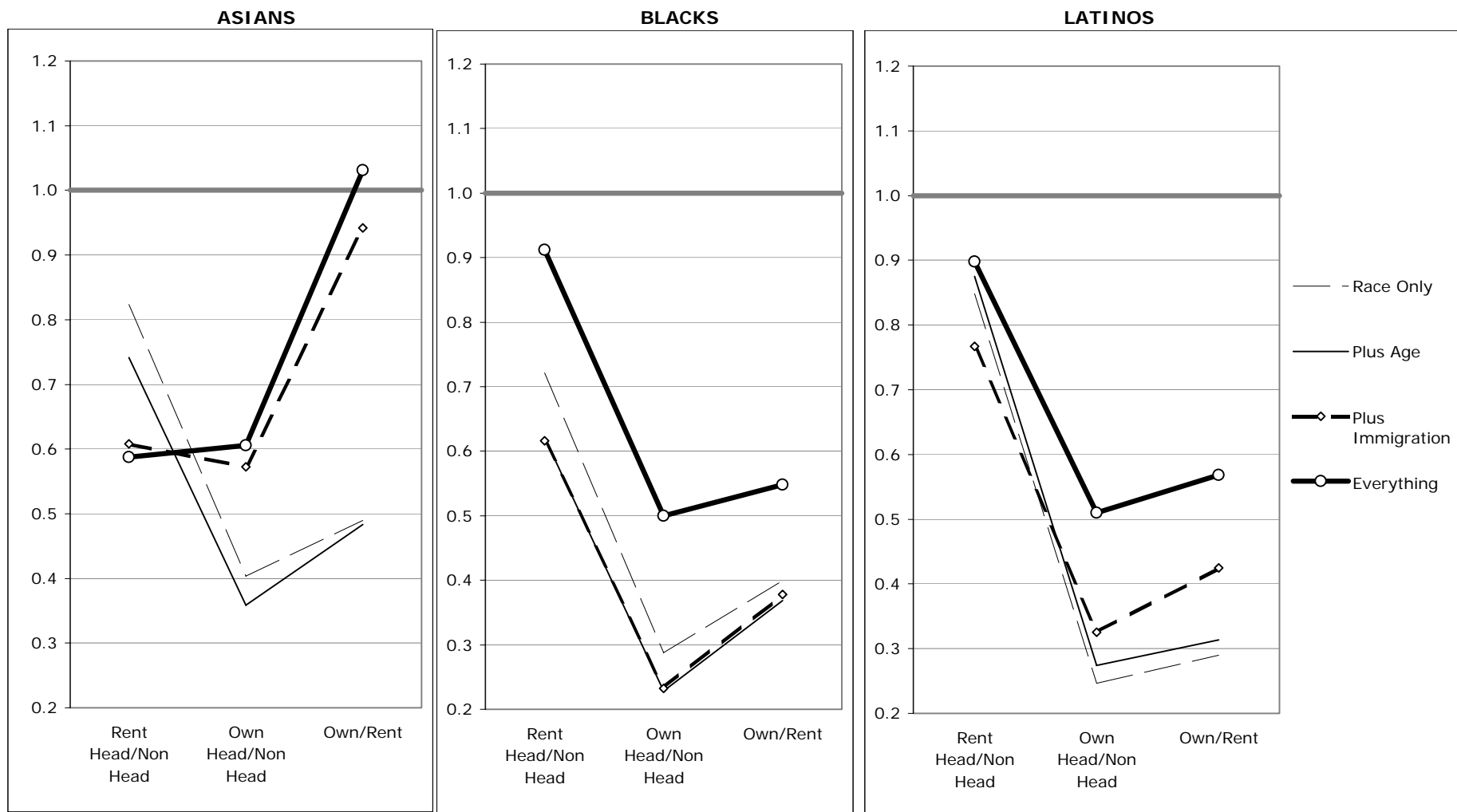
Declining headship rates
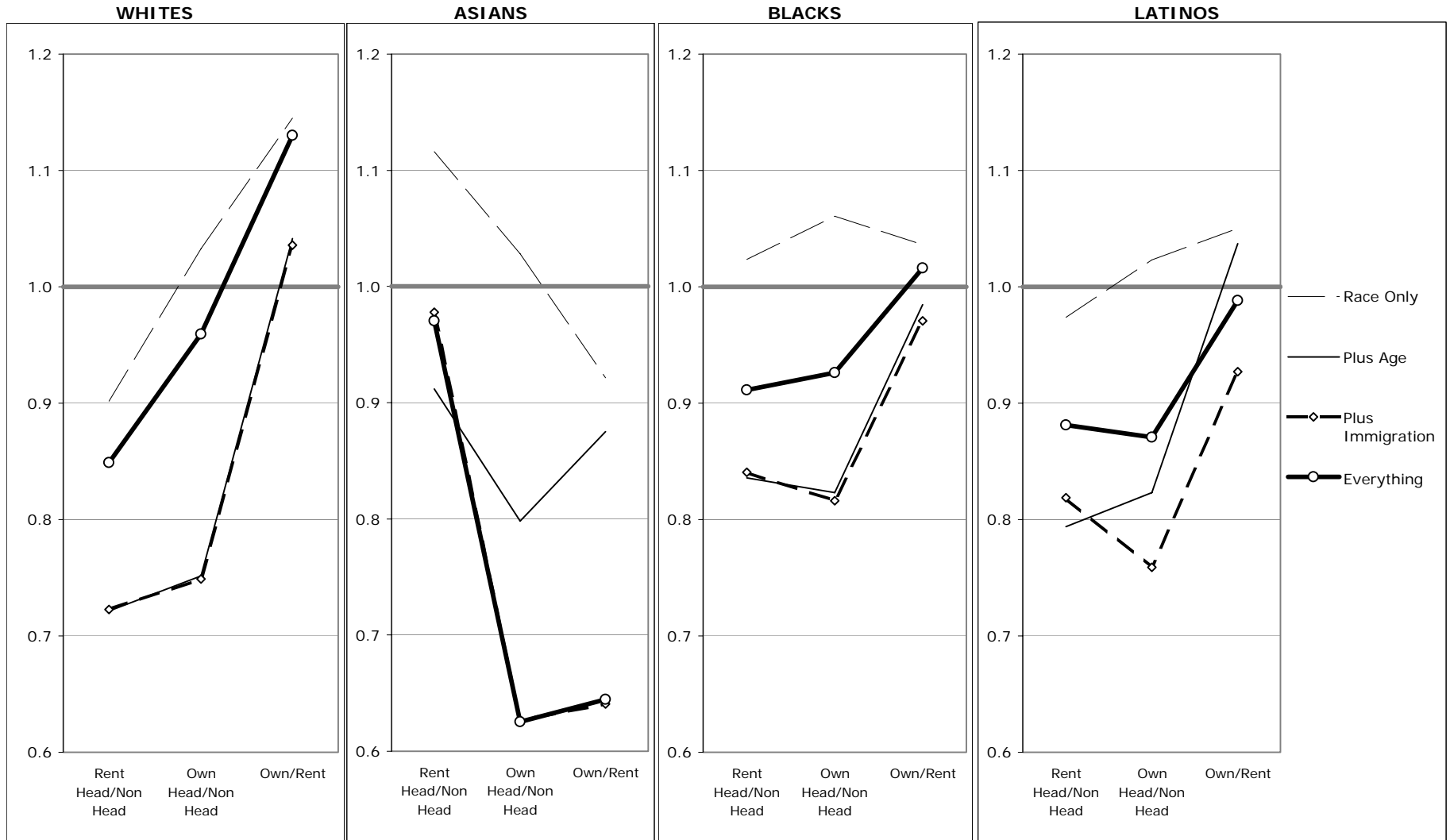
Age Group

Figure 3. Relative risk ratios of household formation and homeownership by race/ethnicity in four regressions, 1990

Note: The reference group is Non-Hispanic White.

Figure 4. Relative risk ratios of changing household formation and changing homeownership by race/ethnicity in four regressions, 1990-2000

Note: The reference group is 1990.

Appendix 1. The Top 100 Most Populous Metrpolitan Areas

Metropolitan Area

Albany--Schenectady--Troy, NY MSA	Lexington, KY MSA
Albuquerque, NM MSA	Little Rock--North Little Rock, AR MSA
Allentown--Bethlehem--Easton, PA MSA	Los Angeles--Riverside--Orange County, CA CMSA
Atlanta, GA MSA	Louisville, KY--IN MSA
Augusta--Aiken, GA--SC MSA	Madison, WI MSA
Austin--San Marcos, TX MSA	McAllen--Edinburg--Mission, TX MSA
Bakersfield, CA MSA	Melbourne--Titusville--Palm Bay, FL MSA
Baton Rouge, LA MSA	Memphis, TN--AR--MS MSA
Birmingham, AL MSA	Miami--Fort Lauderdale, FL CMSA
Boise City, ID MSA	Milwaukee--Racine, WI CMSA
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	Minneapolis--St. Paul, MN--WI MSA
Buffalo--Niagara Falls, NY MSA	Mobile, AL MSA
Canton--Massillon, OH MSA	Modesto, CA MSA
Charleston--North Charleston, SC MSA	Nashville, TN MSA
Charlotte--Gastonia--Rock Hill, NC--SC MSA	New Orleans, LA MSA
Chattanooga, TN--GA MSA	New York--Northern New Jersey--Long Island, NY--NJ--CT--PA CMSA
Chicago--Gary--Kenosha, IL--IN--WI CMSA	Norfolk--Virginia Beach--Newport News, VA--NC MSA
Cincinnati--Hamilton, OH--KY--IN CMSA	Oklahoma City, OK MSA
Cleveland--Akron, OH CMSA	Omaha, NE--IA MSA
Colorado Springs, CO MSA	Orlando, FL MSA
Columbia, SC MSA	Pensacola, FL MSA
Columbus, OH MSA	Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA
Dallas--Fort Worth, TX CMSA	Phoenix--Mesa, AZ MSA
Daytona Beach, FL MSA	Pittsburgh, PA MSA
Dayton--Springfield, OH MSA	Portland--Salem, OR--WA CMSA
Denver--Boulder--Greeley, CO CMSA	Providence--Fall River--Warwick, RI--MA MSA
Des Moines, IA MSA	Raleigh--Durham--Chapel Hill, NC MSA
Detroit--Ann Arbor--Flint, MI CMSA	Richmond--Petersburg, VA MSA
El Paso, TX MSA	Rochester, NY MSA
Fort Myers--Cape Coral, FL MSA	Sacramento--Yolo, CA CMSA
Fort Wayne, IN MSA	Salt Lake City--Ogden, UT MSA
Fresno, CA MSA	San Antonio, TX MSA
Grand Rapids--Muskegon--Holland, MI MSA	San Diego, CA MSA
Greensboro--Winston-Salem--High Point, NC MSA	San Francisco--Oakland--San Jose, CA CMSA
Greenville--Spartanburg--Anderson, SC MSA	Sarasota--Bradenton, FL MSA
Harrisburg--Lebanon--Carlisle, PA MSA	Scranton--Wilkes-Barre--Hazleton, PA MSA
Hartford, CT MSA	Seattle--Tacoma--Bremerton, WA CMSA
Honolulu, HI MSA	Spokane, WA MSA
Houston--Galveston--Brazoria, TX CMSA	Springfield, MA MSA
Indianapolis, IN MSA	St. Louis, MO--IL MSA
Jackson, MS MSA	Stockton--Lodi, CA MSA
Jacksonville, FL MSA	Syracuse, NY MSA
Johnson City--Kingsport--Bristol, TN--VA MSA	Tampa--St. Petersburg--Clearwater, FL MSA
Kalamazoo--Battle Creek, MI MSA	Toledo, OH MSA
Kansas City, MO--KS MSA	Tucson, AZ MSA
Knoxville, TN MSA	Tulsa, OK MSA
Lakeland--Winter Haven, FL MSA	Washington--Baltimore, DC--MD--VA--WV CMSA
Lancaster, PA MSA	West Palm Beach--Boca Raton, FL MSA
Lansing--East Lansing, MI MSA	Wichita, KS MSA
Las Vegas, NV--AZ MSA	Youngstown--Warren, OH MSA