Housing Market Inequality and Homeownership Dynamics, 1970-2009 *

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Introduction

Americans have long viewed homeownership as a symbol of the "American Dream," and a defining feature of socioeconomic success (Ronald 2008). Meanwhile, the broad array of social and economic advantages associated with homeownership has made it a prime issue of public and scholarly interest. The proportion of American households that own their homes has risen steadily for decades, surpassing two in three households by 2010 (U.S. Census Bureau 2010). However, stark racial and ethnic disparities in homeownership rates also persist. Over three-quarters of white households owned their homes in 2010, while fewer than half of black and Latino households did.

Numerous studies explore the dynamics between local housing markets, usually at the metropolitan level, and homeownership at the household level. This literature has contributed to a better understanding of how broader structural forces influence observed homeownership rates and racial and ethnic gap in those rates. However, most of these studies have made inferences based on comparisons between local markets at a single point in time. There has been less attention given to the effects of market inequality within local housing markets, and much less to the effects of changes in within-market inequality over time.

This paper explicitly examines the dynamic relationship between housing market inequalities, both between and within metropolitan areas, in homeownership at the household level over time. Specifically, my research question asks, "How has growing inequality in the distribution of home values between and within local housing markets affected housing transitions at the household level?" The study uses data from the 1% samples of the decennial census from 1970 to 2000 and the 2009 American Community Survey (ACS) to examine these trends over the last four decades for white, black, and Latino households in 119 metropolitan areas. Results indicate that increasing inequality in house prices between and within local markets reduces households' probabilities of homeownership. However, black and especially Latino households are disproportionately affected by rising inequality, contributing to increasing racial and ethnic homeownership gaps.

Data and Methods

Decennial Census and American Community Survey

This study analyzes the 1% samples from the 1970 through 2000 decennial censuses, and the 2009 wave of the ACS, all accessed through the Integrated Public Use Micro-data Series at the University of Minnesota (Ruggles et al. 2010). These data present several clear advantages for the addressing the research question at hand. First and foremost, their large sample sizes allow for aggregation to the metropolitan level, which allows for estimation of salient housing market characteristics. Second, the surveys collect key information relevant to this study that other large, repeated cross-sectional surveys do not, such as home values, lengths of residency, and age of housing. Third, the large samples and harmonization over time facilitate evaluation of the research question for whites, blacks, and Latinos for the entire period.

The examination of individual and contextual characteristics requires a multi-level data structure. The primary unit of analysis is the household. I restrict the sample to residents of major metropolitan areas to facilitate evaluation and comparison of the effects of local housing market conditions. Households are then nested within metropolitan areas, and within years. For confidentiality purposes, the public-use census data may only identify metropolitan areas of residence if they have a population over 50,000. As metropolitan populations grow over time, more areas are identifiable in later census years.[1] However, I limit the sample to include only those MSAs identifiable in 1970. This restriction negates the possibility of newly identifiable areas biasing estimation of the time trend in metro-level characteristics.[2] The list of included MSAs and analytic sample sizes is presented in Appendix I.

The dependent variable in all parts of the analyses is a dichotomous indicator for whether the household owns its residence, *Own*. Households are coded as owning their homes regardless of mortgage status.

I draw on the extant literature for theoretically relevant household-level controls. As discussed, demand for homeownership is influenced by demographic characteristics. The age of the household head is included in years, *Age*, and centered by subtracting the mean age of all heads in the sample. The squared value, Age^2, is included to allow for the non-linear relationship with homeownership. The analyses code household composition through a series of variables.

[1] There are also some complications due to shifting MSA boundaries over time. Many of the metropolitan areas in the 1990 and onward Censuses (including the ACS) are only partially identified, resulting in mild to moderate underestimates of their populations. The correlation between the geographic distribution of racial, ethnic, and socioeconomic characteristics and the Census boundaries may also introduce some systematic bias into the estimation of MSA characteristics for these areas. However, it is unclear in what direction the bias might be.
[2] Results are substantively consistent when including all identifiable MSAs.

Single Man and *Single Woman* are dummy variables representing the headship of the household, relative to married-couple-headed households. Household size is measured with two count variables: the number of adults (aged 18 and older) in the household, *Adults HH*, and the number of children, *Children HH*. A dummy variable indicates the presence of any children 5 years-old or younger, *Children 5*. Finally, nativity is indicated with a dichotomous variable for being born outside the United States, *Foreign Born*.

Household socioeconomic status is measured using income, education, and employment status. Household income, *HH Income*, is sum of all household members' income from all sources. I also adjust for inflation by converting the income variable to 1999 dollars using the Consumer Price Index. The analyses use the logged value, *Log(HH Income)*, to adjust for the right-skewed distribution. The education of the household head is indicated with three dichotomous variables for less than a high school diploma/G.E.D., *Less HS*, some post-secondary education including technical/associate's degrees, *Some College*, and a bachelor's degree or higher, *Bachelor's +*. A high school diploma/G.E.D. is the reference category. Employment status is measured with an indicator for being currently unemployed, *Unemployed*, or out of the labor force, *No Labor*, both in reference to being currently employed.

The metropolitan-level variables are calculated by aggregating household-level information within each area and year, using the total sample and sample weights to insure the estimates are appropriately representative. The analyses control for the size of the MSA using the logged population value, *Log(Population)*. The racial/ethnic composition of the MSA is measured using the percentage of the population that is black or Latino, *% Black* and *% Latino*. *Employment Rate* is a control for the percent of adults in the labor force between ages 18 and 65 who are employed. The *% Homeowner* variables provide proxies for each racial/ethnic group's general accessibility and normativity of homeownership. I roughly account for new housing construction with *% New Housing*, a measure of the percentage of households whose residences, including houses, apartments, and other, were built within the last ten years.

Two key variables measure housing market inequality, both of which are estimated using owner-occupied households' self-reported house values.[3] The first is the median house value in

[3] Though some may be concerned about the validity and reliability of self-reported house values, past empirical work has demonstrated that the distribution of self-reported house values is highly correlated with National Association of Realtors sales price data and several hedonic price indices (Malpezzi 1996). As an additional sensitivity analysis, I calculated the median house prices within each metro area and year using only owner-occupied

the metropolitan area, which is logged to account for the skewed distribution, *Log(Med. House Price)*. Again, I use the Consumer Price Index to convert house values to 1999 dollars. The second variable is the coefficient of variation of house prices, *C.V. House Price*, and measures the within-metro-area dispersion of house prices.[4]

Finally, I account for the households' heterogeneous timing of housing transitions by restricting the analytic sample to households that have moved into their residences in the past five years. This restriction ensures that households in the sample experienced their most recent housing transition in market conditions relatively close to those observed in the sample year. These households' homeownership status should be most sensitive to market characteristics, and facilitate the most accurate estimates of their effects. This restriction retains over half of the otherwise eligible households. However, the general pattern of results does not change when analyzing the total sample.

Analytic Technique

The analyses estimate the conditional effects of household and metro-level characteristics on the probability of homeownership using linear probability models. Linear probability models are advantageous because they allow easy interpretation of the coefficient estimates, and straightforward comparisons between models.[5] The coefficients have been multiplied by 100 so that they represent the percent difference in the probability of homeownership associated with a unit change in the independent variable.

The model specification used by the first set of models is given by,

$$Own_{ijt} = a + \sum_k b_k x_{ik} + \sum_g b_g w_{jg} + b_t T_t + e_{ijt}$$

$$Own_{ijt} = a + \sum_k b_k x_{ik} + \sum_g b_g w_{jg} + b(House\,\mathrm{Pr}ice_j) + b_t T_t + e_{ij},$$

where Own_{ijt} is the probability of homeownership for household i, in metro area j, and year t. The intercept term is a, x_{ik} is the set of k covariates for household i, and w_{jg} is the set of g

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households who moved into their homes in the past five years. Presumably, these households report more accurate house values because they purchased their homes more recently. The median house prices calculated under this restriction correlate very highly with those calculated with the total sample ($r > 0.98$).

[4] The coefficient of variation is calculated by dividing the standard deviation of house prices by the mean house price within each metro area and year. Thus, the scale of the coefficient of variation is comparable across all metro areas/years.

[5] Given a dichotomous outcome variable, logit and probit regressions are often preferred. Results presented here are substantively similar to those obtained with logistic regression. However, comparisons of coefficient estimates between such models are problematic in the presence of heteroskedacity (Allison 1999). Also, estimates from logistic regression using fixed effects are somewhat sensitive to the fixed-effects specification (Wooldridge 2002).

covariates for metro area *j*. The variable T_t is a dichotomous indicator for each sample year *t*, which I will refer to subsequently as year fixed effects, and e_{ijt} is the error term.[6] *House Price* is one or both of the housing market inequality variables, *Log(Med. House Price)* and *C.V. House Price*. Each set of models first includes *Log(Med. House Price)*, then *C.V. House Price*, then both variables to compare the conditional effects of the two market inequality measures.

The metro-level effects in these models are primarily determined by variation between metro areas. Thus, the results from this set of regressions should be roughly comparable to those from previous single-year studies of the relationship between homeownership and housing markets. The coefficients should be interpreted as the difference in the probability of homeownership between households in metro areas that differ by one unit in the value of the metro-level variables.

The second set of models adds metropolitan fixed effects to the model specification given above. As a result, the metro-level effects in these models are determined by variation within metropolitan areas over time. The specification for this model is given by,

$$Own_{ijt} = a + \sum_k b_k x_{ik} + \sum_g b_g w_{jg} + b_t T_t + b_j M_j + e_{ijt},$$

where M_j is a dichotomous indicator for metro area *j*. The coefficients for this set of models should be interpreted as the increase or decrease in the probability of homeownership for a unit change in the metro-level variables within an area over time. Again, *House Price* is *Log(Med. House Price)*, then *C.V. House Price*, then both variables.

To assess the potential for differential effects of the housing market inequality variables for households of each racial/ethnic group, I estimate all models first for the pooled sample, and then for each group separately.

Results

Descriptive Trends

Table 1 presents the means and standard deviations of the metropolitan-level characteristics for each decade. The means and standard deviations of the individual-level variables are presented in Appendix II. Employment rates have fluctuated, while the average

[6] The clustering of observations within MSAs complicates the estimation of the metro-level regression coefficients because it violates the independence-of-errors assumption. As a result, standard OLS will underestimate the standard errors for these coefficients. I address this problem by applying the Huber-White correction, which adjusts the standard error estimates for the grouping of observations.

population has risen over time. The minority composition of the metro areas also increased, particularly for Latinos. The racial disparities in both the levels of and trends in homeownership are also apparent in this table. The average white homeownership rate in the sample of metro areas is substantially higher than either the average black or Latino ownership rates. The average white ownership rate increased over 5% between 1970 and 2009. Meanwhile, the average black and Latino homeownership rates fell by almost 3% and 6% respectively. The racial gaps in the local homeownership rates widened considerably due to both increasing white homeownership and decreasing minority homeownership.

<< Table 1 about here >>

The two housing market inequality variables exhibit very clear trends. First, the median home value across the sample of metro areas nearly doubled between 1970 and 2009, and the standard deviation across areas nearly quadrupled. While home prices have risen considerably, the spread of home prices between local markets has risen even more dramatically. Second, the coefficient of variation within markets has also nearly doubled over the last four decades. In terms of prevalence, the median house price increased in over xx% of the MSAs between 1970 and 2009. Over xx% of the MSAs experienced a net increase in the coefficient of variation of house prices. Clearly, inequality both between and within local housing markets has grown at a striking rate.

Before moving onto the results from the multivariate analyses, it is instructive to consider the bivariate relationships between housing market inequality and homeownership for two reasons. First, these analyses document the observed trends in the data before parceling out the conditional effects of the other variables. Second, they allow for an illustration of the distinct effects produced by comparisons between and within markets over time.

The two panels of figure 1 depict the relationship between the logged local median house prices and the local homeownership rates of the analytic sample (referring to the sample of white, black, and Latino households who moved in the last 5 years). The graph in the right panel plots the observed ownership rates against the local median home values for all MSA-years. Despite autocorrelation within metro areas, this trend is primarily driven by the differences between rather than within metro areas because the number of areas far exceeds the number of time points. The slight negative slope to the trend line suggests there is a lower probability of

homeownership in MSAs with higher median home values. Overall, there appears to be only a weak relationship, however.

<< Figure 1 about here >>

The left panel plots the observed ownership rates of the analytic sample against the within-metro deviations of median house values from the between-year mean. This is comparable to the inclusion of metro fixed effects in a regression framework. The trend here is driven by the comparisons within rather than between metro areas. Contrary to the trend in the right panel, increases in median home values within MSAs are positively associated with the probability of homeownership. This trend suggests rising homeownership rates among recent movers are positively associated with rising house prices, but the directionality is unclear. Rising house prices could indicate an increasingly speculative housing market, spurring increased home buying. However, increased demand for owner-occupied housing could also drive higher house prices.

Figure 2 presents similar figures for the relationship between the observed ownership rates of the analytic sample and the coefficient of variation within housing markets. [more here]

<< Figure 2 >>

Regression Results

Table 2 presents the regression coefficients for the metropolitan-level variables from both sets of models estimated on the pooled analytic sample. Results for the individual-level variables are consistent across all models, so these results are presented in Appendix III. The left panel shows the results from the models without metro fixed effects, and the right panel with the fixed effects. The coefficient estimates presented here are the weighted average of the conditional effects of the metro variables on white, black, and Latino households, where the weight is each racial/ethnic group's proportion of the sample.

<< Table 2 >>

Though the local employment rate has no effect on the probability of homeownership when comparing across metro areas (models 1 through 3), increases in the employment rate within metro areas have a positive relationship (models 4 though 6). Similarly, the logged population of the metro area has no significant effects in the first models, but positive effects in the second. This suggests there is little difference in the probability of homeownership between areas of different sizes, but there is a higher probability of homeownership in growing areas.

The minority composition of the metropolis seems to have little effect on the probability of homeownership except for the % black in models 4 through 6. Households have higher probabilities of homeownership in areas with growing black populations. Not surprisingly, the supply of new housing also has a positive relationship both between and within metro areas.

The local homeownership rate for whites is consistently associated with higher probabilities of homeownership in all models. Meanwhile, growth in black homeownership (models 4 through 6), rather than its level (models 1 through 3), also exhibits a weak positive relationship. Latino homeownership rates have significant effects only when the logged median house price is excluded.

In model 1, the logged median house price has a significant, negative relationship with the average probability of homeownership. Households in metro areas with a 10% higher median house price have approximately 0.233 percent lower probabilities of homeownership, holding all else constant. The coefficient of variation in local house prices has a non-significant positive effect in model 2. Both variables significant and negative in model 3. When including the coefficient of variation, the effect of logged median house prices is more negative. Meanwhile, the coefficient of variation has a large, significant negative effect only when logged median house prices are included in the model. Overall, these results indicate that households in metro areas with higher, and more dispersed house prices have lower probabilities of homeownership.

The pattern of results for the logged median housing prices is similar when examining the effects of changes within areas over time in models 4 and 6. Increases in logged median prices have a significant negative effect on the probability of homeownership in both models, and the effect is larger when the coefficient of variation is also included in the model. The pattern of results for the coefficient of variation in house prices is more substantially different in models 5 and 6 than in models 2 and 3. Increases in the spread of house prices within metro areas are significantly, negatively associated with the probability of homeownership in both models. Like model 3, the effect of the coefficient of variation is larger in model 6 with logged median house values included. However, the effect sizes are much larger for changes within MSAs than differences between them (-5.04 versus 1.86 in models 5 and 2, and -7.09 versus -4.74 in models 6 and 3).

Tables 3 through 5 present results from re-estimating the same models for white, black, and Latino households separately. There are several variations in the patterns of results between racial and ethnic groups. Oddly, white households in metro areas with higher employments have slightly lower probabilities of homeownership in models 1 and 2. However, increases in the employment rate within MSAs are associated with higher probabilities of homeownership. This pattern does not hold among black and Latino households. There is no significant relationship between the local employment rate and the probability of homeownership when looking across metro areas, but increases in the employment rate are positively associated with homeownership within areas in models 4 and 6. Interestingly, the employment rate is only significant for black and Latino households when also including the logged median housing values in the fixed effects models.

<< Tables 3, 4, and 5 about here >>

Similar to findings from past research (Flippen 2010), the relationship between the supply of new housing and the probability of homeownership is stronger for white than for black or Latino households. White households have higher probabilities of homeownership in areas with greater supplies of new housing, and in areas experiencing growth in new housing. Meanwhile, the only significant effect of new housing for black households is a small *negative* effect of increases in new housing in model 5, which is the only fixed effects model that does not include the logged median house prices. Finally, Latino households have significantly higher probabilities of homeownership in MSAs with greater proportions of new housing, but there is no relationship to increases in the proportion of new housing within MSAs.

The effects of logged MSA population have similar patterns for all racial/ethnic groups in terms of statistical significance and direction. Households have statistically significantly higher homeownership probabilities in larger metro areas in models 1 and 3, but the relationship is stronger for Latino households than white or black ones. Population growth within MSAs also has a significant, positive relationship with homeownership probabilities for black and Latino households in models 4 through 6, and for white households in models 4 and 5. However, the coefficient magnitudes are relatively small for white households, and larger for black and Latino households.

The minority composition of the local population also has heterogeneous effects on households in the three racial/ethnic groups. Comparing between areas, the percent of the

population that is black has no relationship to homeownership probabilities for any racial/ethnic group (models 1 through 3). Interestingly however, growth in the percentage of the black population is positively associated with homeownership probabilities for all groups (models 4 through 6). The percentage of the Latino population is negatively associated with homeownership probabilities for white households, both between and within MSAs, in all models. There is no relationship for black households. Unexpectedly, Latino households in metro areas with higher Latino populations have *lower* probabilities of homeownership in models 1 and 3. There is no significant effect of increases in the Latino population, however (models 4 through 6).

The local white homeownership rate exhibits a positive relationship with homeownership probabilities for all groups, both between and within MSAs, except for model 5 for Latino households. Homeownership probabilities for white households have no significant relationship to local minority homeownership rates. Black and Latino households are each influenced by their own racial/ethnic groups local homeownership rates, not surprisingly. However, there are some indications of negative effects of Latino ownership rates for black households, and vice versa.

The housing market inequality variables have similar patterns of statistical significance and direction across all three racial/ethnic groups (except for the coefficient of variation for black households in model 3). However, the magnitude of the effects varies widely. When comparing between metro areas, households in areas with higher median house prices have lower probabilities of homeownership (models 1 and 3). The relationship is stronger for black than white households, and strongest for Latino households.

The coefficient of variation is significantly negative for white and Latino households only when also including the logged median house values in model 3. The size of the effect is similar for white and black households in model 3 (-4.38 and -4.04 respectively), but is not statistically significant for blacks. The coefficient is substantially larger for Latino households (-7.14), indicating that the dispersion of house prices is most detrimental to Latino homeownership probabilities when comparing across MSAs.

When comparing within MSAs over time, increases in the logged median house prices are significantly negatively related to homeownership probabilities for white, black, and Latino households (models 4 and 6). However, the effect of increasing median house prices is two to

three times larger for black and Latino than white households. Each 10% increase in an MSA's median house price decreases a white household's probability of homeownership by 0.08 to 0.19 percent, and black and Latino households' probabilities by 0.28 to 0.4 percent.

The effects of the coefficient of variation when comparing within metro areas exhibit more heterogeneity between racial and ethnic groups. There is a fairly substantial negative effect for all groups, and the effect is largest when the logged median house prices are included in the model (model 6). The relationship is slightly larger for black than white households, but about twice as large for Latino households than white ones. Each 10 percent increase in the spread of house prices within a metropolitan area decreases the probability of homeownership 0.48 to 0.62 percent for white households, 0.5 to 0.74 percent for black households, and 0.94 to 1.13 percent for Latino households. These results provide evidence that recent dramatic increases in housing market inequality, both between and within areas, disproportionately impacted black and especially Latino households' probabilities of homeownership relative to white households. This also suggests that the rising housing market inequality contributes significantly to racial/ethnic gaps in homeownership.

ble 1: Means and Standard Deviations of Metropolitan-Level Variables, 1970-2009.

riable	1970		1980		1990		2000		2009	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Moved in Last 5 Yrs.	51.84	8.08	52.03	7.75	50.04	7.10	50.81	6.68	61.83	6.10
ıployment Rate	96.16	1.39	94.02	1.90	94.23	1.84	95.22	1.52	94.05	2.54
New Housing	27.24	9.61	26.70	9.34	19.72	8.58	16.29	7.24	12.88	5.97
pulation										
pulation	1,018,765.55	1,768,122.04	1,143,219.33	1,775,517.87	1,280,431.82	1,941,696.74	1,720,237.94	2,362,320.77	1,538,607.37	2,185,013.93
g(Population)	13.32	0.85	13.48	0.84	13.59	0.87	13.92	0.83	13.74	0.94
cial/Ehtnic Composition										
Black	10.32	9.16	10.96	9.32	11.61	9.67	14.12	11.50	12.74	10.09
Latino	4.65	8.91	6.34	10.64	7.96	12.39	12.65	15.04	14.08	15.55
meownership Rate										
ıite Own Rate	66.87	6.80	68.55	5.84	68.12	5.67	70.13	5.51	72.35	5.34
ıck Own Rate	42.96	11.82	44.27	11.45	39.69	9.89	42.53	8.67	39.16	9.68
tino Own Rate	52.59	24.01	48.82	14.94	43.41	15.17	42.60	13.29	46.56	11.50
use Prices										
ɛdian House Price	79,306.93	19,272.67	115,665.51	38,080.40	117,515.28	66,515.21	126,976.74	62,277.98	154,237.82	78,912.81
g(Med. House Price)	11.25	0.23	11.62	0.28	11.56	0.45	11.68	0.36	11.85	0.43
V. House Price	0.52	0.09	0.56	0.08	0.67	0.12	0.78	0.13	0.99	0.19

te: All metropolitan-Level variables are calculated by aggregating individual-level data, with appropriate sample weights.

Table 2: Regression Results for Metropolitan-Level Variables on the Pooled Analytic Sample

	Without Metro Fixed Effects			With Metro Fixed Effects		
Variable						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Employment Rate	-0.0967	-0.149	-0.0870	0.255***	0.155***	0.272***
	(-1.375)	(-1.788)	(-1.210)	(6.593)	(4.189)	(7.016)
% New Housing	0.170***	0.177***	0.171***	0.158***	0.116***	0.124***
	(8.952)	(9.531)	(9.317)	(12.29)	(8.863)	(9.440)
Log(Population)	0.274	-0.0560	0.360	1.755***	1.527***	1.270***
	(1.395)	(-0.352)	(1.806)	(6.738)	(5.814)	(4.813)
% Black	-0.0302	-0.0123	-0.0224	0.393***	0.372***	0.339***
	(-1.497)	(-0.494)	(-1.052)	(14.00)	(13.19)	(11.94)
% Latino	-0.0163	-0.0179	-0.00572	-0.0191	-0.0243	0.0252
	(-0.873)	(-0.895)	(-0.277)	(-1.360)	(-1.778)	(1.734)
White Own Rate	0.784***	0.834***	0.782***	0.785***	0.737***	0.771***
	(24.82)	(24.42)	(24.82)	(36.48)	(34.63)	(35.78)
Black Own Rate	0.0288	0.0193	0.0394	0.0270**	0.0391***	0.0498***
	(1.238)	(0.766)	(1.850)	(2.626)	(3.753)	(4.758)
Latino Own Rate	0.0186	0.0241*	0.0200	0.00751	0.0117*	0.00437
	(1.694)	(2.177)	(1.820)	(1.344)	(2.116)	(0.780)
Log(Med. House Price)	-2.332***		-3.286***	-1.887***		-3.039***
	(-4.049)		(-4.898)	(-6.830)		(-10.37)
C.V. House Price		0.186	-4.736*		-5.038***	-7.085***
		(0.106)	(-2.240)		(-8.956)	(-11.88)
Observations	1299991	1299991	1299991	1299991	1299991	1299991
R-squared	0.268	0.268	0.268	0.269	0.269	0.269

Robust t-statistics in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Table 3: Regression Results for Metropolitan-Level Variables for White Households

	Without Metro Fixed Effects			With Metro Fixed Effects		
Variable						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Employment Rate	-0.183*	-0.220*	-0.168	0.177***	0.126**	0.200***
	(-2.195)	(-2.355)	(-1.967)	(3.959)	(2.950)	(4.478)
% New Housing	0.198***	0.203***	0.199***	0.187***	0.154***	0.158***
	(9.885)	(10.37)	(10.20)	(12.71)	(10.20)	(10.47)
Log(Population)	0.467*	0.266	0.544*	0.841**	0.625*	0.501
	(2.050)	(1.351)	(2.346)	(2.804)	(2.072)	(1.654)
% Black	-0.0443	-0.0317	-0.0366	0.400***	0.375***	0.356***
	(-1.811)	(-1.119)	(-1.398)	(11.79)	(10.99)	(10.39)
% Latino	-0.0608***	-0.0637***	-0.0491**	-0.0863***	-0.0812***	-0.0477**
	(-3.933)	(-4.047)	(-2.882)	(-5.084)	(-4.936)	(-2.725)
White Own Rate	0.869***	0.902***	0.871***	0.926***	0.899***	0.921***
	(26.49)	(25.53)	(27.26)	(37.53)	(36.89)	(37.32)
Black Own Rate	-0.00912	-0.0125	-0.000785	-0.0164	-0.00482	0.00124
	(-0.389)	(-0.519)	(-0.0356)	(-1.472)	(-0.427)	(0.110)
Latino Own Rate	-0.00155	0.00256	-0.000428	-0.00462	-0.00319	-0.00708
	(-0.128)	(0.211)	(-0.0355)	(-0.758)	(-0.526)	(-1.161)
Log(Med. House Price)	-1.457*		-2.377**	-0.808*		-1.904***
	(-2.104)		(-3.243)	(-2.542)		(-5.589)
C.V. House Price		-0.759	-4.380*		-4.764***	-6.170***
		(-0.390)	(-2.064)		(-7.343)	(-8.877)
Observations	972457	972457	972457	972457	972457	972457
R-squared	0.255	0.255	0.255	0.256	0.256	0.256

Robust t-statistics in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Table 4: Regression Results for Metropolitan-Level Variables for Black Households

	Without Metro Fixed Effects			With Metro Fixed Effects		
Variable						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Employment Rate	-0.184	-0.271	-0.177	0.210*	0.0504	0.227*
	(-1.313)	(-1.780)	(-1.284)	(2.019)	(0.514)	(2.176)
% New Housing	0.0362	0.0456	0.0367	-0.0156	-0.0730*	-0.0438
	(1.053)	(1.356)	(1.102)	(-0.419)	(-1.969)	(-1.159)
Log(Population)	0.500*	0.193	0.553*	4.590***	4.400***	4.028***
	(2.424)	(1.076)	(2.523)	(6.727)	(6.368)	(5.797)
% Black	0.0147	0.0218	0.0197	0.281***	0.274***	0.244***
	(0.779)	(1.006)	(1.000)	(4.433)	(4.292)	(3.818)
% Latino	-0.0384	-0.0423	-0.0264	-0.0471	-0.0625	0.00488
	(-1.577)	(-1.616)	(-1.061)	(-1.231)	(-1.683)	(0.122)
White Own Rate	0.231***	0.265***	0.226***	0.216***	0.149*	0.182**
	(4.136)	(4.480)	(4.028)	(3.620)	(2.498)	(3.026)
Black Own Rate	0.529***	0.522***	0.540***	0.616***	0.620***	0.648***
	(15.12)	(14.36)	(16.05)	(17.05)	(17.02)	(17.59)
Latino Own Rate	-0.0459*	-0.0431*	-0.0451**	-0.0175	-0.00926	-0.0226
	(-2.594)	(-2.428)	(-2.640)	(-1.154)	(-0.621)	(-1.490)
Log(Med. House Price)	-2.084***		-2.955***	-2.918***		-4.007***
	(-4.428)		(-3.642)	(-3.779)		(-4.930)
C.V. House Price		0.448	-4.038		-5.003**	-7.352***
		(0.268)	(-1.579)		(-3.247)	(-4.532)
Observations	173017	173017	173017	173017	173017	173017
R-squared	0.208	0.208	0.208	0.210	0.210	0.210

Robust t-statistics in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Table 5: Regression Results for Metropolitan-Level Variables for Latino Households

	Without Metro Fixed Effects			With Metro Fixed Effects		
Variable						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Employment Rate	-0.0291	0.00945	-0.0742	0.436***	0.200	0.280*
	(-0.237)	(0.0705)	(-0.599)	(3.436)	(1.563)	(2.157)
% New Housing	0.136***	0.192***	0.142***	0.0557	0.00316	0.0113
	(4.098)	(5.734)	(4.582)	(1.376)	(0.0771)	(0.276)
Log(Population)	0.925***	0.411	1.065***	4.272***	3.806***	2.771**
	(5.091)	(1.975)	(5.080)	(4.370)	(3.859)	(2.733)
% Black	-0.0161	0.0733	0.00360	0.564***	0.472***	0.367***
	(-0.358)	(1.193)	(0.0714)	(5.385)	(4.393)	(3.329)
% Latino	-0.0638***	-0.0312	-0.0584**	-0.00106	0.00482	0.0404
	(-4.492)	(-1.977)	(-3.085)	(-0.0251)	(0.115)	(0.946)
White Own Rate	0.330***	0.439***	0.285***	0.255**	0.137	0.183*
	(6.567)	(7.559)	(5.986)	(3.287)	(1.771)	(2.332)
Black Own Rate	-0.106	-0.160*	-0.0697	-0.122**	-0.0881*	-0.0622
	(-1.699)	(-2.209)	(-1.250)	(-2.786)	(-1.968)	(-1.376)
Latino Own Rate	0.544***	0.557***	0.545***	0.680***	0.699***	0.656***
	(16.27)	(14.26)	(16.89)	(18.03)	(19.18)	(17.34)
Log(Med. House Price)	-3.661***		-4.863***	-2.842**		-4.027***
	(-6.283)		(-6.331)	(-3.161)		(-4.358)
C.V. House Price		-0.759	-7.136**		-9.446***	-11.25***
		(-0.351)	(-3.121)		(-5.029)	(-5.826)
Observations	154517	154517	154517	154517	154517	154517
R-squared	0.216	0.215	0.216	0.217	0.217	0.217

Robust t-statistics in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Figure 1: Observed Trends in Homeownership among the Analytic Sample and Local Median House Prices.

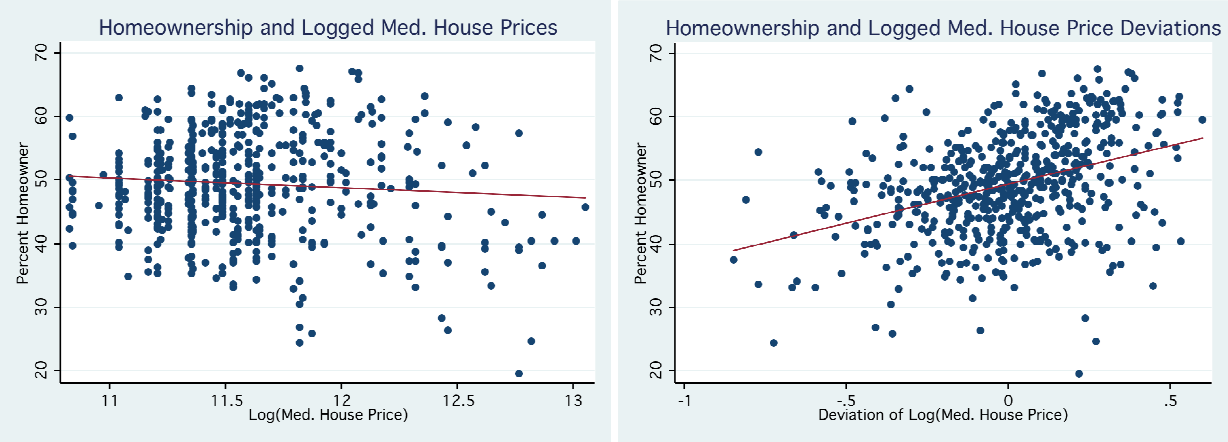
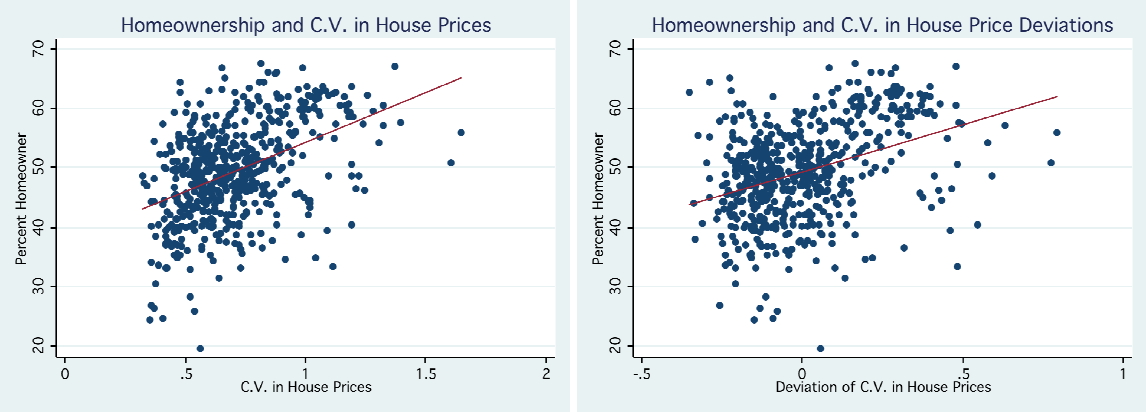


Figure 2: Observed Trends in Homeownership among the Analytic Sample and Local Coefficients of Variation in House Prices.



Appendix I

List and Sample Sizes of Metro Areas

Appendix II: Means and Standard Deviations for Individual-Level Variables

	Total		White		Black		Latino	
Variables	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	41.41	15.41	42.03	15.88	40.37	14.22	38.72	13.21
Single Male Head	0.20	0.40	0.19	0.40	0.21	0.40	0.20	0.40
Single Female Head	0.29	0.45	0.26	0.44	0.47	0.50	0.27	0.44
Married Couple Head	0.52	0.50	0.55	0.50	0.32	0.47	0.54	0.50
Adults in HH	1.85	0.79	1.82	0.70	1.73	0.85	2.21	1.11
Children in HH	0.87	1.23	0.76	1.13	1.11	1.42	1.33	1.43
Children under 5	0.25	0.43	0.22	0.42	0.28	0.45	0.37	0.48
Foreign Born	0.13	0.33	0.07	0.25	0.09	0.28	0.53	0.50
Less than H.S.	0.20	0.40	0.15	0.35	0.28	0.45	0.42	0.49
H.S./G.E.D.	0.25	0.43	0.24	0.43	0.28	0.45	0.22	0.42
Some College	0.23	0.42	0.23	0.42	0.24	0.43	0.18	0.39
Bachelor's +	0.29	0.45	0.33	0.47	0.15	0.36	0.14	0.34
Total H.H. Income	53,694.45	52,367.73	58,897.78	55,555.91	35,400.27	34,666.97	41,421.92	40,067.69
Log(H.H. Income)	10.39	1.53	10.55	1.38	9.81	1.92	10.09	1.69
Unemployed	0.04	0.20	0.03	0.18	0.07	0.25	0.06	0.23
Not in Labor Force	0.19	0.39	0.18	0.39	0.25	0.43	0.21	0.40
Homeowner	47.87	49.95	53.47	49.88	28.16	44.98	34.68	47.59
White	0.75							
Black	0.13							
Latino	0.12							