HAVE HOMEOWNERSHIP RATES TRANSITIONED SINCE THE FINANCIAL CRISIS? EVIDENCE FROM THE SURVEY OF CONSUMER FINANCES DATA.

by

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ABSTRACT

KEVIN A. AMRELLE. Have homeownership rates transitioned since the financial crisis? Evidence from the Survey of Consumer Finances data. (Under the direction of DR. THOMAS MAYOCK)

Since 1989, significant mortgage finance innovation and federal policies with the intent of increasing homeownership participation particularly amongst minorities were implemented until the 2007 recession. This paper uses the Survey of Consumer Finances to analyze the lasting effectiveness of the mortgage finance innovations and federal policies on owner-occupancy rates leading up to and after the financial recession in 2007 until 2013. The results indicate that policy and macroeconomic factors offer temporary shifts in homeownership participation while household attribute changes have long lasting impact. Trends in the savings patterns of renters work as an effective measure for transitioning into homeownership. Shift-share analysis reinforces the idea that the model coefficients effectively capture household sentiment and macroeconomic conditions. Homeownership participation, especially amongst minorities, improved in 2013 relative to 1989 but the homeownership gap between minorities and white households has grown.

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CHAPTER 1: INTRODUCTION

Since the late 1960's, significant legislation, starting with the Community Reinvestment Act, has been passed to increase homeownership amongst Americans. These policies, however, were designed to target homeownership gaps between racial groups and income classes. There are countless research papers written over the past few decades which show the direct benefits of homeownership for families and their concurrent communities. President Bill Clinton began the implementation of some of the first policies in the early 1990's to broaden homeownership participation with a focus on minorities. In 1993, President Clinton sought to reform the Community Reinvestment Act to encourage banks to lend to a wider breadth of borrowers and "deal with the problems of the inner city and distressed rural communities" Clinton (1993).

Following President Clinton, President Bush emphasized homeownership in a 2002 conference and then again on December 16th, 2003 with the "American Dream Downpayment Act," where he made this statement:

> "Our Government is supporting homeownership because it is good for America; it is good for our families; it is good for our economy. One of the biggest hurdles to homeownership is getting money for a downpayment. This administration has recognized that, and so today I'm honored to be here to sign a law that will help many low-income buyers to overcome that hurdle and to achieve an important part of the American Dream." Bush (2003)

This act is meaningful because this policy influenced homeownership rate growth between 2003 and 2007 leading to the recession.

President Obama frequently mentioned homeownership during his speeches to highlight its importance in American culture:

> "Today I've come to Phoenix to talk about the second component, which is the most tangible cornerstone that lies at the heart of the American Dream, at the heart of middle-class life -- and that's the chance to own your own home. (Applause.) The chance to own your own home.
>
> We've got a lot of young people here who are thinking about college, they're going to get a higher education, they're going to find a job, they're going to find somebody they love, they're going to want to own a home. And the reason they will is because a home is the ultimate evidence that here in America, hard work pays off, that responsibility is rewarded." Obama (2013)

Here we can see how The President features the importance of homeownership as a cornerstone of American culture.

This research paper uses data from the Survey of Consumer Finances (SCF) for the period of 1983 through 2013. The SCF is a tri-annual report created by the Federal Reserve Board. This paper will focus on the 10 reports from 1989 to 2013.

The primary objectives of this paper are to analyze changes in the racial and income housing gaps as well as shifts in the availability of credit after the 2007 financial crisis.

CHAPTER 2: RESEARCH AND METHODS

2.1. LITERATURE REVIEW

Gabriel and Rosenthal (2005) analyze trends and racial gaps in homeownership. This study built the premise for this research paper. The primary research question for this paper is to see "the extent to which changes in the distribution of population socioeconomic attributes account for recent patterns in homeownership, and to compare those effects to the influence of changes in the macroeconomic environment and lending conditions" (GR, 2005, p. 104). It effectuates an in-depth analysis on homeownership trends in the 1980s and 1990s. This study uses data from the Survey of Consumer Finances (SCF). The SCF originated in 1983 and has been produced every three years since providing GR with data until 2001. GR (2005) explains how they work with the implicate values and weights from the SCF as well as any issues they believe are present. For their homeownership rate model, they use a probit model because it is a type of regression analysis that permits one to have a dependent variable with only two values. In this case, the homeownership variable has a value of 1 if survey respondents own their home and 0 if the household rents. I am using GR's (2005) previous research as my benchmark; therefore, I replicate their results with a primary focus on the period of 2007 to 2013. I believe this replication and extension of GR's work will provide valuable insight on the transitions to homeownership since the financial crisis. At the end of this paper, GR mention that for future research on this topic one should evaluate the

performance of the American Dream Downpayment Act, as well as the implications of mortgage finance innovation and the general economic climate on homeownership rates.

A decade later, Gabriel and Rosenthal (2015) investigate the boom and bust homeownership cycles during 2000 to 2010. They use a shift-share analysis to address their research question but this time they use Census long-form/ACS data. GR first analyze the Public Use Microdata Sample (PUMS) a subset of the American Community Surveys (ACS). Then they pulled three reports from the ACS. These surveys are cross-sections of the American population for each sample year and none of the families reappear over time in later reports. GR (2015) produces 68 age-stratified regressions for their observations by age 21-89 for their three ACS datasets 2000, 2005 and 2009. After producing the age-stratified regression, GR estimates the homeownership rate using ordinary least squares.

There is little to no evidence that lenders relaxed their underwriting standards during the years 2000-2005 due to legislation to promote more opportunity for wealth generation for low income Americans and minorities. Homeownership rate growth was the primary objective of the American Dream Downpayment Act, which was the name of President Bush's Act in 2003. Following three decades of policy efforts to expand American homeownership the homeownership rate has barely changed. Homeownership rates started at 64% in 1985 and were increased by government intervention through the policies previously mentioned to a peak of 69% at the height of the recession only to retract back to 65% in 2013 according to GR (2015). This study shows that the homeownership environment in the 2000's leading up to the financial crisis was impacted by both government policy and macroeconomic factors.

Haurin and Rosenthal (2007) examine headship, which is defined as a household who claims to have an identified head of household in the census. They examine headship to explain some of the observed changes in homeownership between 1970 and 2000. The data used for this study was the Integrated Public Use Microdata Series (IPUM) which is a individual-level database. HR attempt to measure person-specific variables such as the headship rate mentioned above. The primary reason HR (2007) selected IPUM was the large 5% sample size. From this data, they estimate a probit model by headship status for each age group from 21-64 because they wanted to focus on working age adults.

From this study, HR come to an important conclusion. Their initial thoughts were that headship would potentially explain observed homeownership shifts. The lower the headship rate is, the lower the homeownership rates would subsequently be since households without an identified head of household were less likely to own a home. Their results show that they could explain homeownership differences, specifically between age groups and race. They conclude that the most profound pattern was with individuals between the ages of 20-25 because they were less likely to have a traditional nuclear family in 2000 compared to 1970, and this results in this group purchasing homes much later in their life cycle if at all. Regarding race, they found that among whites the headship rate was lower than African Americans while being higher than Hispanics. This was insightful because when they control for headship behavior they find that the white-Hispanic homeownership rate gaps are less severe than initially believed. For African Americans, however, the homeownership rate gaps were significantly worse.

It is important to discuss when it is opportune to purchase a home. In certain markets conditions, it is actually optimal to rent. For some households homeownership is considered an investment. Henderson and Ioannide (1983) mention that homeownership is an inefficient investment, since it reduces diversity within an investment portfolio by monopolizing a household's resources. When a household transitions from rentership to homeownership status they place a considerable amount of equity into the home. Henderson and Ioannide claim that this is inefficient because the household will not optimally utilize all of the space in their home, and due to cultural norms households generally do not rent out the excess space. Therefore, according to HI (1983) owning a home is not a good investment due to the intrinsic risk and the lack of optimal utilization of the property.

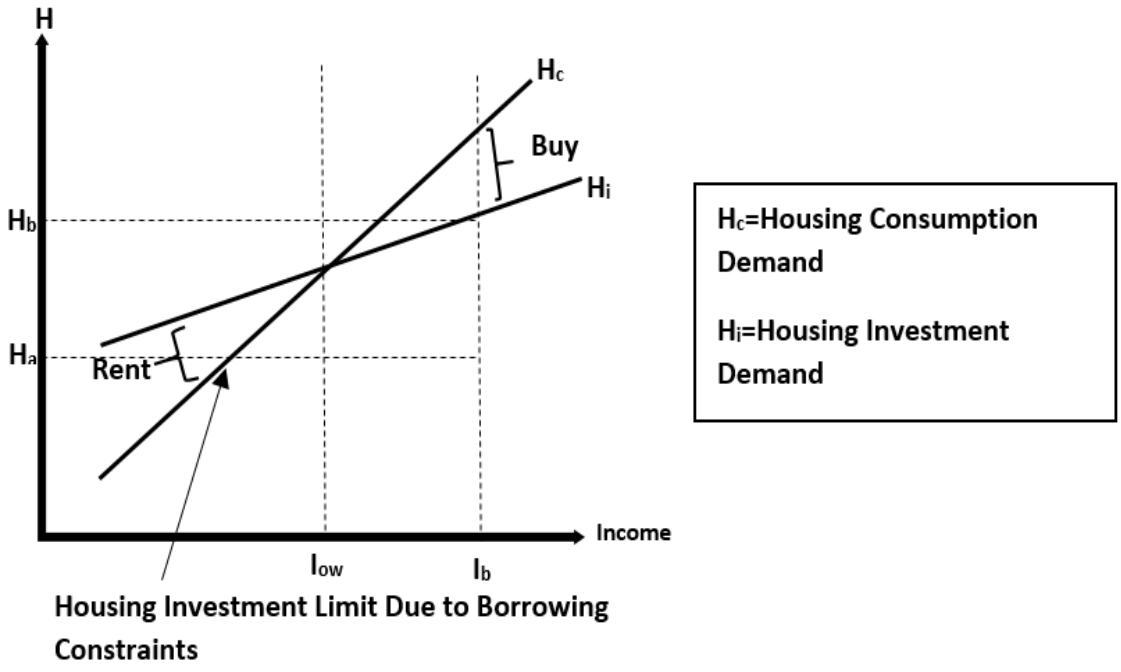

Figure 1: Housing Consumption and Investment Demand

Figure 1 adapted from GR (2015) illustrates the optimal time to purchase a home as well as when it is a bad investment as stated by HI (1983). Where the two lines H_c and

H_i intersect on I_{own} is the ideal time to consider the purchase of a home because at any point to the right of the intersection the housing consumption demand is greater than the required investment demand for the home. At any point to the left it is more favorable to rent a home rather than to purchase because the investment demand for housing is greater than the need for housing consumption.

Another important aspect to consider is the costs related to homeownership. Laidler (1969), Aaron (1970), and Rosen (1979) break down the costs for the household such as the interest rate on the mortgage, closing costs, depreciation, capital gain or loss, maintenance, and property tax. It is important to look at the costs for renting in certain areas relative to home prices and their respective ownership costs, as explained by Rosenthal (1979,1985), because families are more inclined to purchase a home when these expenses decrease in relative amount. Similarly, Dawkins (2005) explains the homeownership and location patterns of African Americans. He concludes that African Americans are inclined to live in urban environments, but they hold less income and wealth than the white subgroup. This is important because HOA fees and homeownership costs are significantly more expensive in urban environments. Both subgroups are more likely to transition to homeownership status in the suburbs when compared to urban environments. This discrepancy in preferences influences African American homeownership status.

Dawkins (2005) explains the reasons for homeownership preferences between whites and African Americans as well as their preferred residential location. Dawkins uses the Panel Study of Income Dynamics (PSID) for the years of 1978-1997. He chose this dataset because he wants to look at the individual-level characteristics of persons

who were the children and grandchildren of the surveyed families in 1977. Next, he tracks the time when the children moved away from their family until the time they purchase their own home. Dawkins excludes any races from the survey that were not white or African American and uses a maximum likelihood estimation for the duration analysis.

Dawkins concludes that white and black residents were more likely to rent if they lived in the city and were more likely to purchase a home if they resided in a suburb. The original constraints for African Americans were potential housing market discrimination and mortgage market discrimination. Dawkins notes that for African Americans preference for homeownership leads to lower levels of income and wealth which result in longer rent tenure durations further increasing the size of the homeownership gap. The solutions Dawkins provides for this gap is for the government to implement policy to further reduce racial gaps in family income, expand access to affordable homeownership, and experiment with the integration of African Americans within predominately white neighborhoods to further aid in narrowing the wealth gap.

Boehm and Schlottmann (2003) address the timing of home purchases for African Americans, Hispanics, and white households as well as the differences in post-homeownership behavior between these three race groups. Boehm and Schlottmann state that homeownership preferences are dependent on the relative home prices in an area as well as the family's life-cycle stage because this is correlated with household wealth and income. For this paper, they used the PSID for the time span of 1984-1994 in three 5 year intervals to better understand the timing of homeownership attainment and housing preferences, such as suburb versus urban location. Boehm and Schlottmann (2003) use

the Heckman Continuous Time Model (CTM) which is a multi-state model across time periods. In this model time periods are defined by each transition from rentership to homeownership status or vice versa. The reason they chose the CTM is because it offers much greater flexibility than the standard duration model and logit model. They conclude from this study that although policy-makers promote homeownership as a way to improve intergenerational mobility by acting as a tool for accumulating wealth, it may actually be much less beneficial for lower income individuals and minorities than initially believed. It is common for white households to move into a higher quality second or third home following their first home purchase, but the same is not true among minorities and lower income households. This issue is not addressed in other papers such as in Turner and Luea (2009), which neglects to emphasize that homeownership attainment for lower income families is a high-risk investment and that these individuals often revert back into the rentership status.

Turner and Luea examine the wealth accumulation attributed to homeownership within different social classes. To do this they used the PSID data which was also used in the Boehm and Schlottmann (2003) paper. They use three data sets from 1994-2001 with a focus on household heads younger than 65 years old. First, they used a random effects model wealth accumulation and then they used a probit model controlling for the total wealth at a given point in time. TL reveal that each homeownership year provides an average total net wealth increase of $13,700 for the entire sample population. This comes down to being between $6,000 to $9,000 for lower-middle income families and $15,000 for high-income American households. They conclude that homeownership does aid in wealth accumulation which is more in line with the government policy agendas. This is

noteworthy because it conflicts with some of the findings in BS (2003). At the end of TL's paper, they mention that they were unsure how lower-middle income families would fare after the housing bubble.

Grinstein-Weiss, Key and Carrillo (2014) look at what happened to these families after the housing bubble. In this study, they create two groups and use the SCF for only the year 2007. The first group is comprised of renters and the second of homeowners. From this they tried to find the differences in net worth and homeowner's balance sheets. The two groups were separated by race and net worth quartiles. The conclusion from this study was that homeowners from all net wealth quartiles were impacted by the financial recession with the average homeowner experiencing a loss of 10% between 2007 and 2009. Lower wealth families experienced a greater loss of wealth than did the higher wealth groups but ultimately the homeowners fared significantly better than the renters after the financial recession.

The renter group lost an average of 25% of their net worth, which means that homeownership helps insulate the net worth of households while there is significantly more exposure to loss by renters. Among the three racial groups in this study, there was an interesting finding in the middle of the wealth distribution. During the economic downturn, Hispanics and blacks were most severely impacted. Whites had a home equity drop of 15% while Hispanics and blacks lost an average of 31.5%. The reasons for this are not completely known. From this study, we can recognize that homeowners of all three racial groups fare significantly better during the financial crisis than those who rent. Land has a natural floor value and homeownership often times leads to wealth accumulation which cushions households from complete losses in equity during times of

financial turmoil. The natural floor value of homes is generally lower in predominantly minority homeowner locations as mentioned in this study which caused African Americans to be hurt disproportionately. This study did not highlight how white renters fared relative to African American homeowners.

2.2 MULTIPLE IMPUTATION

Imputation is used when there are missing values within a given dataset. The process of imputation was used within the Survey of Consumer Finances for this reason. Imputation provides substituted values called implicates for the missing data points by replacing it with estimates created using other information within the dataset. This is done because having missing values within a dataset can cause problems, such as bias and more complicated analysis.

There are several forms of imputation that are practiced but the one within this data set is called multiple imputation. Rubin (1987) develops a method for dealing with the problems caused by traditional imputation such as increased noise. Multiple imputation does this in the SCF by creating five imputed versions of the data and then averaging the implicates as shown in Rubin (1987) with the average weights. This is very beneficial because this method considers any uncertainty within the imputed values which may cause false conclusions due to the single specific values provided.

2.3 DATA

The data used for this study is the Survey of Consumer Finances (SCF) which is administered by the Federal Reserve Board. The SCF is a triennial statistical cross-sectional survey of U.S. household demographic characteristics. These surveys include

variables such as a household's balance sheet, debts, and homeownership status. Each survey has between 4,500 to 6,500 families which voluntarily provide their financial information. From the typical 4,500 respondents, two thirds are representative of the U.S. population while the remaining one third represents hand selected wealthy families from tax records because the top 1% holds one third of the total U.S. wealth. The survey is a joint effort between the Department of Treasury and the Federal Reserve Board, and it is primarily used for decision making in the areas of tax, consumer protection, and monetary policy. The data is principally collected and assembled between May and December of the survey years by the National Opinion Research Center (NORC) at the University of Chicago. For my study, I use the SCF data for the period of 1989 through 2013 and look for transitions in credit eligibility and homeownership as well as shifts in demographics.

There are five implicates for each household but for the non-weighted sample, which was used for the probit models, I used unweighted data with the assumption that the covariates are exogenous as done in GR (2005). For the summary results, I use the weights provided in the dataset for the five implicates of each household and averaged them as done in Bricker et. al (2014).

The groups within my study are the same ones identified in GR (2005). The selected household characteristics, such as socioeconomics, race, education, and marital status, that are used to estimate the econometric model are explained in further detail in Table 3.

For the "not credit constrained variable creation," there are two credit related categorical variables: turned down for credit and discouraged to get credit. These variables are used in tandem to create the not credit constrained variable. The not credit constrained variable is a household that is both able to get their desired level of credit while also not being discouraged from meeting with lenders. Such households were given a "1" value for the "not credit constrained" variable. If households did not fit into the aforementioned group they were given a value of "0". GR (2005) mention that the ambiguity surrounding the classification of the credit constrained variable is not important because application of the coefficients from the not constrained variable will be applied when deducing the credit barriers by race. GR (2005) mention:

> homeowners that report having difficulty in obtaining their preferred level of credit are coded as possibly constrained even though they have already attained owner-occupancy. This is because without binding credit limits, some of these families might actually have delayed homeownership with the intent of purchasing a more expensive home in the future. Such a strategy could be
>
> preferred if it eliminates costly moves into and out of smaller less attractive "starter" homes.

In my study of 1989 through 2013, I track homeownership rates and study changes in homeownership with focus on African Americans, Hispanic, and white households as well as evolving credit constraints. The homeownership rate was at 63.9% in 1989 and it increased by 5.1 percentage points in 2004 when it peaked and then started

to decline after the financial crisis to 65.1% in 2013. This represents a 1.2 percentage point increase during this 24-year period, as shown in Figure 2.

Table 1
Homeownership Rates

	1989	1992	1995	1998	2001	2004	2007	2010	2013
HOMEOWNERSHIP RATE	0.639	0.639	0.647	0.662	0.676	0.690	0.686	0.672	0.651
WHITE HOUSEHOLDS	0.705	0.703	0.706	0.718	0.740	0.757	0.748	0.747	0.731
BLACK HOUSEHOLDS	0.424	0.434	0.427	0.463	0.475	0.501	0.486	0.477	0.440
HISPANIC HOUSEHOLDS	0.419	0.399	0.429	0.442	0.443	0.477	0.492	0.472	0.439

*These estimates came from different years of the Survey of Consumer Finances as well as the weights provided in order to be representative of the United States using an averaging technique. All Income values were converted to 2013 dollars and all incomes in excess of $1,000,000 were excluded.

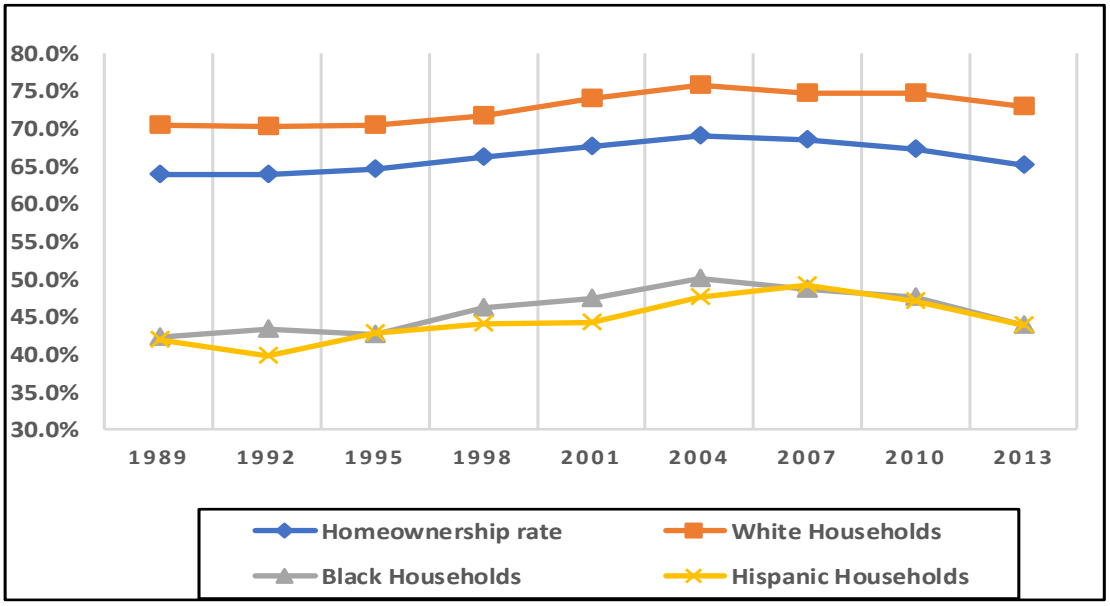

Figure 2 Aggregate homeownership rates by race: 1989 to 2013

Despite the observed decreases in homeownership since the recession these three racial groups have all improved homeownership attainment since 1989. White households are 2.6 percentage points more likely to own homes in 2013 and Black and Hispanic households are 1.59 and 1.99 percentage points more likely to buy homes

respectively. President Bush had a goal of 5.5 million more minority homeowners by 2010 and it seems that this was exceeded even after the decline following the financial crisis.

As previously mentioned there have been substantial increases in available credit programs in the early 2000's which cater to minorities and lower income households. Policies that help safeguard these groups from discriminatory lending practices have also been enacted during the years preceding the recession as mentioned earlier.

Table 2

Not Credit Constrained Rates

	1989	1992	1995	1998	2001	2004	2007	2010	2013
NOT CREDIT CONSTRAINED RATE	0.761	0.723	0.742	0.734	0.753	0.749	0.754	0.726	0.737
WHITE HOUSEHOLDS	0.809	0.765	0.785	0.766	0.791	0.789	0.792	0.764	0.785
BLACK HOUSEHOLDS	0.615	0.553	0.566	0.562	0.613	0.590	0.591	0.586	0.580
HISPANIC HOUSEHOLDS	0.624	0.561	0.604	0.664	0.647	0.666	0.659	0.627	0.634

*These estimates came from different years of the Survey of Consumer Finances as well as the weights provided in order to be representative of the United States using an averaging technique. All Income values were converted to 2013 dollars and all incomes in excess of $1,000,000 were excluded.

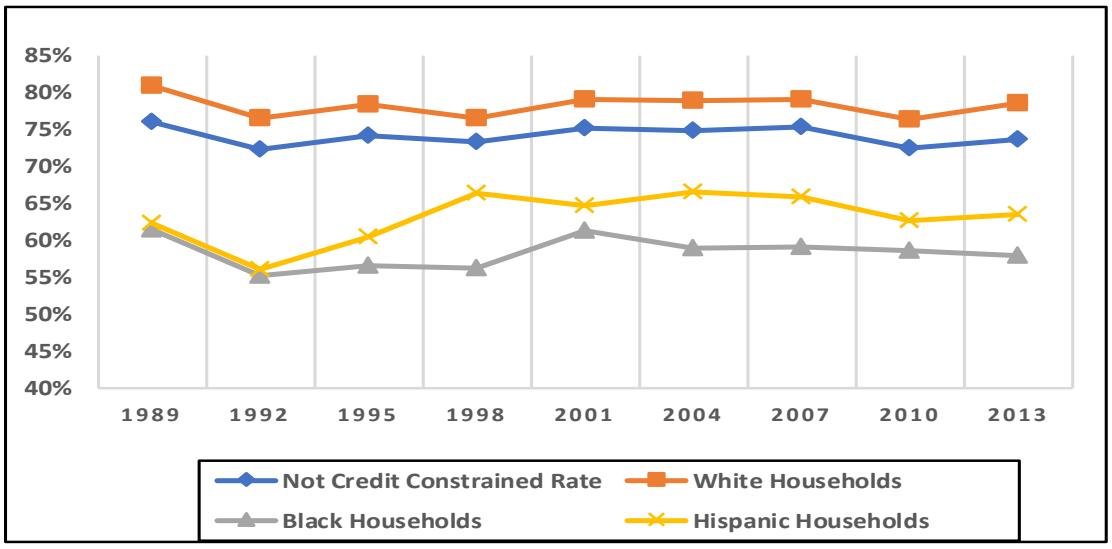

Figure 3 Aggregate not credit constrained rates by race: 1989 to 2013

To get a better grasp of the transitions of credit constraints view Table 2 which captures the triennial changes from 1989 through 2013.

In Figure 3, the overall decrease in availability of credit was 2 percentage points and it impacted African Americans disproportionately at a decline of nearly 4 percentage points. Despite numerous policies to help expand eligibility for credit it has in fact narrowed amongst all three major racial groups. White households were impacted at the same rate as the aggregate decrease in credit eligibility. Figure 3 shows how the white not credit constrained group consistently follows the aggregate not credit constrained line through most periods. Hispanics are the one identified group who improved. Later, in this paper, I will highlight the methods implemented in the creation of the credit constrained variable.

In Figures 2 and 3, I must note that Hispanics have converged with African Americans in homeownership rates. Hispanics surpassed both white households and African American households in their non-credit constrained growth rate becoming 5.4% more likely than African Americans to obtain credit. This is especially significant because it aligns with GR's (2015) results of sizable growth in homeownership among the Hispanic population.

In Tables 3 and 4 you will find the summary statistics, the initial variables used in the creation of the indicator variables, and the value definitions.

TABLE 3: EXTRACTED SCF VARIABLES

VARIABLE	**Type**	**Description**
HOMEOWNERSHIP RATE	Indicator	1 = Owns home, 0 = Otherwise
SEX	Categorical	1 = Male, 2 = Female, 0 = Otherwise
TURNED DOWN FOR CREDIT	Categorical	1 = Yes, Turned Down, 3 = Yes, Not as much credit. 5 = No, 0= Otherwise
OBTAIN DESIRED CREDIT LATER	Categorical	1 = Yes, 3 = Did not reapply, 5 = No, 0 = Otherwise
DISCOURAGE TO GET CREDIT	Categorical	1 = Yes, 5 = No
COLLEGE	Categorical	1 = No high school diploma, 2 = High school diploma or GED, 3 = Some College, 4 = College Degree
MARRIED	Categorical	1 = Married, 2 = Living with partner, 3 = Seperated, 4 = Divorced, 5 = Widowed, 6 = Never Married, 0 = Otherwise
AGE	Continuous	Units: years
HOUSEHOLD SIZE	Continuous	Units: number of people who live in household
RACE	Categorical	1 = White non-Hispanic, 2 = Black/African American, 3 = Hispanic, 4 = Asian, 0 = Other
HEALTH OF HOUSEHOLD HEAD	Categorical	1 = Excellent, 2= Good, 3 = Fair, 4 = Poor, 0 = Inap.
HEALTH OF SPOUSE	Categorical	1 = Excellent, 2= Good, 3 = Fair, 4 = Poor, 0 = Inap.
HOUSEHOLD INCOME	Continuous	Units: dollars(thousands)/ year
HEAD WORKS FULL-TIME/PART-TIME	Categorical	1 = Full-time, 2 = Part-time, 0 = Inap.
SPOUSE WORKS FULL-TIME/PART-TIME	Categorical	1 = Full-time, 2 = Part-time, 0 = Inap.
JOBS HELD FOR >= 1 YEAR	Continuous	Units: Number of jobs held for more than 1 year

These are the original variables pulled from the full data set with the exception of the homeownership rate binary variable which was from the processed survey samples.

TABLE 4: SUMMARY STATISTICS 1989-2013 WEIGHTED

VARIABLE	Type	Mean	Std. Dev.	Min	Max
HOMEOWNERSHIP RATE	Indicator	0.66	0.47	0	1
PERCENT NOT CREDIT CONSTRAINED	Indicator	0.75	0.43	0	1
LESS THAN COLLEGE	Indicator	0.48	0.50	0	1
SOME COLLEGE	Indicator	0.18	0.39	0	1
COLLEGE DEGREE	Indicator	0.34	0.47	0	1
MARRIED	Indicator	0.52	0.50	0	1
SINGLE MALE	Indicator	0.21	0.41	0	1
DIVORCED	Indicator	0.13	0.34	0	1
AGE X DUMMY FOR UNDER 35	Continuous	6.23	11.81	0	34
AGE X DUMMY FOR BETWEEN 35 AND 55	Continuous	18.15	22.30	0	55
AGE X DUMMY FOR OVER 55	Continuous	22.91	32.95	0	95
HOUSEHOLD SIZE	Continuous	2.59	1.47	1	22
AFRICAN AMERICAN	Indicator	0.13	0.34	0	1
HISPANIC	Indicator	0.09	0.28	0	1
OTHER RACE (INCLUDING ASIAN)	Indicator	0.04	0.20	0	1
HEAD IN BAD HEALTH	Indicator	0.06	0.24	0	1
SPOUSE IN BAD HEALTH	Indicator	0.02	0.15	0	1
HOUSEHOLD EARNED INCOME ($2013)*	Continuous	53.62	74.34	1	997.75
HOUSEHOLD EARNED INCOME, SQUARED ($2013)*	Continuous	8401	37353	1	995,503
HEAD WORKS FULL-TIME	Indicator	0.61	0.49	0	1
SPOUSE WORKS FULL-TIME	Indicator	0.27	0.44	0	1
SPOUSE WORKS PART-TIME	Indicator	0.08	0.28	0	1
JOBS LASTING MORE THAN 1 YEAR	Continuous	2.24	2.85	0	54

*Dollar values are in thousands. Sample variable means are taken from regressions models. These values are weighted to be representative of the US population. Dollar values were all converted into 2013 dollars. Incomes greater than $1,000,000 were excluded.

2.4 MODEL

There will be three models used to follow GR (2005). The first model will be a simple Probit model run individually for each dataset from 1989 through 2013. The data used to estimate the probit models will also be unweighted and the binary dependent variable will be the homeownership variable. In the second part of the paper, there will be a shift-share analysis that will simulate how homeownership rates would have been different in 2013 if the financial crisis did not occur and what the primary drivers of the homeownership rate were both before and after the recession.

This study in large part will be devoted to evaluating homeownership among African American, Hispanic, and white households. To effectively do this, there will be three steps. The first is to identify household characteristics such as marital status, income, age, and education. The second part will use the not credit constrained variable as done in GR (2005), Jappelli (1990), and Rosenthal (2002). This variable is important because it highlights a sample which is able to obtain their preferred level of credit.

The coefficients from the not credit constrained group with regards to homeownership will be compared relative to those in the full sample. The purpose of this comparison is to see how credit barriers affect homeownership amongst minority groups. This distinction reveals what African American and Hispanic decisions would be regarding homeownership attainment if this credit barrier did not exist. In GR (2005) they concluded that there were “demographic and economic attributes of the population” (p. 105) which “contributed to the increase in homeownership” (p. 110) during the 1990’s.

In GR (2005) the racial homeownership gap had decreased from 28.1% for African Americans in 1989 to 26.5% in 2001 and for Hispanics it increased from 28.1% in 1989 to 29.7% in 2001. At the height of the recession in 2007 the gap became the narrowest overall at 26.1% for African Americans and 25.6% for Hispanics. After the financial crisis in 2013 the gap increased again to 29% for both African Americans and Hispanics, which is worse than what it had been in 1989. These statistics are shown in Figure 5a and 5b in a later section and explained in more detail on page 30.

Using the SCF data, from 1989 through 2013, I estimated individual probit models for each triannual report. For the models, the dependent variable was homeownership status and the independent variables were the household characteristics listed in Table 3. Following this, each individual report was run for marginal effects. In Table 4, with the weighted sample summary statistics the values show how household characteristics impact the propensity for homeownership in percentage points. The variables were chosen because in the prior study by GR (2005) and were shown as significant in affecting homeownership. The t-ratios from the original probit model coefficients are in parentheses in Table 5 and 6.

Probit models provide regression output for binary dependent variables, which is why this is the model of choice for this paper. Table 6 uses a specialized Heckman Probit model. Heckman Probit models are used when we need a two-stage probit model that allows for structural group effects. In the case of this paper it was to run a probit on all households and to then create a structural group for households without credit constraints and view the coefficient differences for this group. This is useful for highlighting key determinants such as homeownership propensity in the case of this paper while providing

a method for comparison of the two groups, one which is credit constrained and the other which is not. Controlling for selection into the credit constrained population is important because failing to recognize this correlation will cause bias for the parameter estimates.

CHAPTER 3: RESULTS

3.1 AGGREGATE HOMEOWNERSHIP RATES

The individual probit models are estimated for each survey year. The results from these models are shown in Table 5 on page 24. The coefficients from the probit model capture the propensity to own a home based off this extensive list of household characteristics. For example, a household has a higher propensity to own a home if the household head has either some college or a college degree, and this is true for all of the selected survey years. The primary purpose of this step was to get the coefficients for the race specific variables in order to start looking into the causes for the racial gaps in homeownership.

Next, I run the fixed coefficient simulation for 2007 (Figure 4a) and 2013 (Figure 4b). I hold fixed the coefficients from each of these two years individually and apply them to all of the other years with the exception of 1989 due to weighting mechanic issues. This allows me to simulate how homeownership rates would have been following 2007 if the coefficients had remained fixed. The 2007 coefficients capture how market conditions and other macroeconomic factors were in the time leading to the recession allowing me to predict how homeownership rates would have been had the recession not occurred. For 2013, this exercise captures how the coefficients would have altered homeownership rates in prior years if these coefficients explaining post-recessionary macroeconomic factors were applied.

For the final part of this simulation, I hold fixed the data for 2007 and 2013 in Figures 4a and 4b while using the coefficients from the other selected survey years. This second simulation captures the changes in household attributes over time and how they impact homeownership rates.

Analyzing Figure 4a reveals results that conflict slightly with Figure 4b. Homeownership rates in Figure 4a reveal that homeownership rates were largely impacted by macroeconomic factors and finance innovation from 1998 through 2001. In 2004 homeownership rates were impacted less by macroeconomic factors and more by household attributes. The results in Figure 4b show that homeownership rates were impacted most significantly by household attributes, with the exception of 2001. In 2001, it was influenced marginally more by macroeconomic factors.

These results from Figure 4a support the notion that financial innovation and macroeconomic factors impacted homeownership rate growth in the time leading up to the recession. Following the recession in 2010 and 2013, Figure 4b shows that in an adverse macroeconomic climate homeownership rates are largely lead by household attributes.

Table 5: Homeownership propensity estimated over all households without controlling for borrowing constraints (partial derivatives are reported)

	1989	1992	1995	1998
Some college	0.0128	0.0481	0.0247	0.0405
	(0.55)	(2.50)	(1.43)	(2.31)
College degree	0.0590	0.0599	0.0598	0.0687
	(2.99)	(3.67)	(3.92)	(4.54)
Married	0.1445	0.2042	0.1860	0.2514
	(2.70)	(8.33)	(8.03)	(11.07)
Single male	-0.0579	-0.0225	0.0079	0.0160
	(-2.15)	(-1.04)	(0.41)	(0.88)
Divorced	0.0734	0.0215	0.0137	0.0664
	(3.13)	(0.96)	(0.66)	(3.54)
Age x Dummy for under 35	-0.0026	0.0054	0.0063	0.0029
	(-1.57)	(2.89)	(3.50)	(1.67)
Age x Dummy for between 35 and 55	0.0036	0.0091	0.0088	0.0072
	(3.22)	(7.63)	(7.83)	(6.72)
Age x Dummy for over 55	0.0040	0.0089	0.0090	0.0073
	(5.06)	(11.42)	(12.14)	(10.27)
Household size	0.0018	0.0169	0.0214	0.0184
	(0.29)	(2.84)	(3.78)	(3.35)
African American	-0.1559	-0.1087	-0.1214	-0.1589
	(-5.60)	(-4.36)	(-5.07)	(-6.80)
Hispanic	-0.1691	-0.1694	-0.1701	-0.1726
	(-4.71)	(-5.35)	(-5.04)	(-6.04)
Other race (including Asian)	-0.0784	-0.0481	-0.0745	-0.1715
	(-1.82)	(-1.42)	(-2.16)	(-4.63)
Head in bad health	-0.0207	-0.0485	-0.1045	-0.1146
	(-0.62)	(-1.53)	(-3.35)	(-3.50)
Spouse in bad health	-0.0757	-0.0798	-0.0850	-0.1485
	(-1.34)	(-1.55)	(-1.74)	(-3.07)
Household earned income ($2013)*	0.0013	0.0012	0.0015	0.0017
	(5.32)	(6.05)	(7.96)	(8.62)
Household earned income, squared ($2013)*	-9.05E-07	-8.31E-07	-1.47E-06	-1.44E-06
	(-2.16)	(-2.25)	(-5.16)	(-4.61)
Head works full-time	-0.0430	0.1062	0.1039	0.0400
	(-1.73)	(4.84)	(4.91)	(2.00)
Spouse works full-time	-0.0079	0.0061	0.0359	0.0238
	(-0.31)	(0.30)	(1.94)	(1.31)
Spouse works part-time	0.0474	0.0221	0.0085	0.0399
	(1.46)	(0.82)	(0.34)	(1.47)
Jobs Lasting more then 1 Year	-0.0044	-0.0152	-0.0128	-0.0083
	(-1.20)	(-4.66)	(-4.27)	(-3.72)
Constant	0.0780	-1.8519	-1.9107	-1.7432
	(1.00)	(-8.52)	(-8.90)	(0.21)
Number of obs	3070	3843	4217	4203
Log likelihood	-1341.2	-1664.3	-1763.5	-1713.5

Table 5 (*Continued*)

	2001	2004	2007	2010	2013
Some college	0.0114	0.0420	0.0316	0.0357	0.0010
	(0.65)	(2.51)	(1.80)	(2.57)	(0.06)
College degree	0.0636	0.1003	0.0799	0.0952	0.0851
	(4.19)	(6.76)	(5.33)	(7.89)	(6.62)
Married	0.1761	0.1956	0.2165	0.1627	0.1568
	(7.94)	(8.94)	(9.59)	(9.29)	(8.57)
Single male	0.0283	0.0371	0.0096	-0.0241	-0.0199
	(1.59)	(2.21)	(0.53)	(-1.64)	(-1.29)
Divorced	0.0485	0.0344	0.0221	0.0099	0.0101
	(2.56)	(1.90)	(1.19)	(0.65)	(0.63)
Age x Dummy for under 35	0.0060	0.0115	0.0063	0.0077	0.0070
	(3.44)	(6.90)	(3.72)	(5.57)	(4.74)
Age x Dummy for between 35 and 55	0.0089	0.0117	0.0084	0.0095	0.0088
	(8.25)	(11.43)	(8.09)	(11.24)	(9.84)
Age x Dummy for over 55	0.0084	0.0110	0.0084	0.0096	0.0097
	(11.41)	(15.75)	(11.74)	(16.49)	(15.80)
Household size	0.0277	0.0212	0.0157	0.0179	0.0168
	(5.14)	(4.03)	(2.93)	(4.33)	(3.83)
African American	-0.1792	-0.1702	-0.1780	-0.1643	-0.1515
	(-8.03)	(-8.08)	(-7.71)	(-9.96)	(-8.77)
Hispanic	-0.1505	-0.1069	-0.1343	-0.1618	-0.1544
	(-5.59)	(-4.47)	(-5.32)	(-8.89)	(-7.93)
Other race (including Asian)	-0.1355	-0.1647	-0.1366	-0.1737	-0.1184
	(-3.33)	(-4.86)	(-4.16)	(-6.98)	(-4.67)
Head in bad health	-0.1219	-0.0689	-0.0708	-0.0605	-0.0695
	(-4.04)	(-2.49)	(-2.32)	(-2.69)	(-2.87)
Spouse in bad health	-0.0328	-0.0935	-0.0477	-0.1142	-0.0278
	(-0.76)	(-2.17)	(-1.10)	(-3.25)	(-0.72)
Household earned income ($2013)*	0.0011	0.0011	0.0016	0.0014	0.0014
	(7.19)	(6.41)	(8.82)	(9.17)	(8.46)
Household earned income, squared ($2013)*	-9.76E-07	-9.71E-07	-1.60E-06	-1.45E-06	-1.24E-06
	(-4.39)	(-4.06)	(-6.60)	(-6.81)	(-4.89)
Head works full-time	0.0441	0.1008	0.0844	0.1053	0.1059
	(2.08)	(5.15)	(3.99)	(6.51)	(6.36)
Spouse works full-time	0.0501	0.0385	0.0158	0.0418	0.0444
	(2.83)	(2.19)	(0.87)	(2.88)	(2.90)
Spouse works part-time	0.0915	0.0575	0.0100	0.0275	-0.0016
	(3.63)	(2.35)	(0.37)	(1.34)	(-0.08)
Jobs Lasting more then 1 Year	-0.0075	-0.0108	-0.0067	-0.0108	-0.0071
	(-2.70)	(-4.30)	(-2.50)	(-4.55)	(-2.95)
Constant	-1.9474	-2.6402	-1.9546	-2.1254	-2.0946
	(-8.93)	(-12.08)	(-8.78)	(-12.36)	(-11.48)
Number of obs	4268	4384	4296	6384	5913
Log likelihood	-1834.5	-1766.4	-1684.0	-2829.3	-2615.5

*Dollar values are in thousands. Coefficients are taken from a Heckman probit model with marginal effects. The values in parenthesis are the t-ratios for the untransformed model coefficients. Dollar values were all converted into 2013 dollars. Incomes greater than $1,000,000 were excluded.

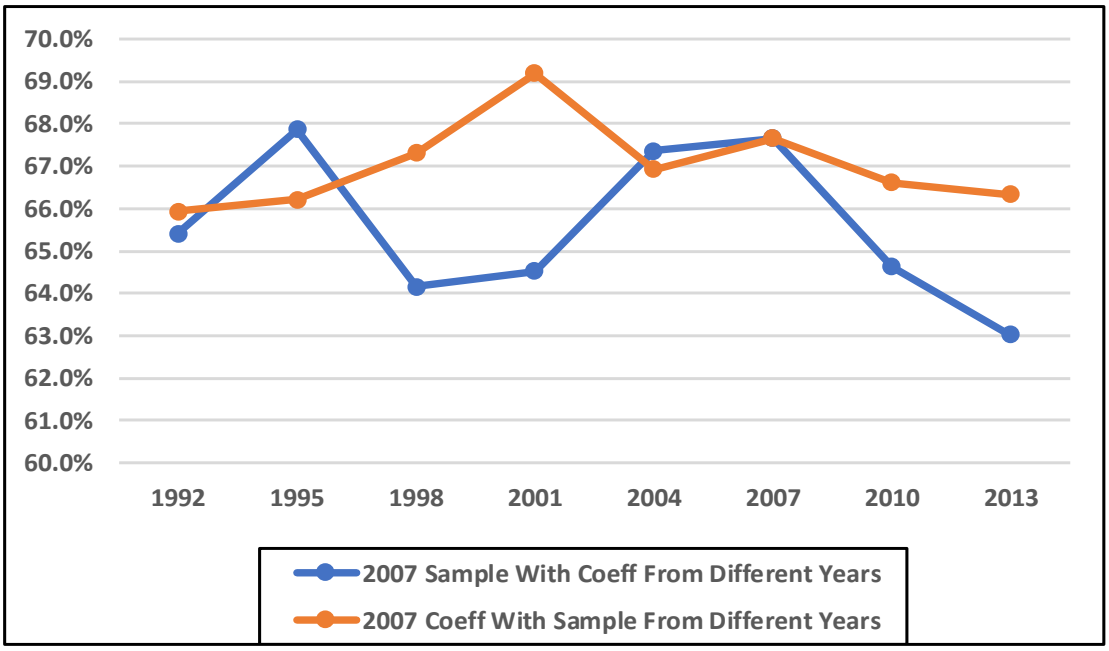

Figure 4(a). Simulated Homeownership Rates: 2007

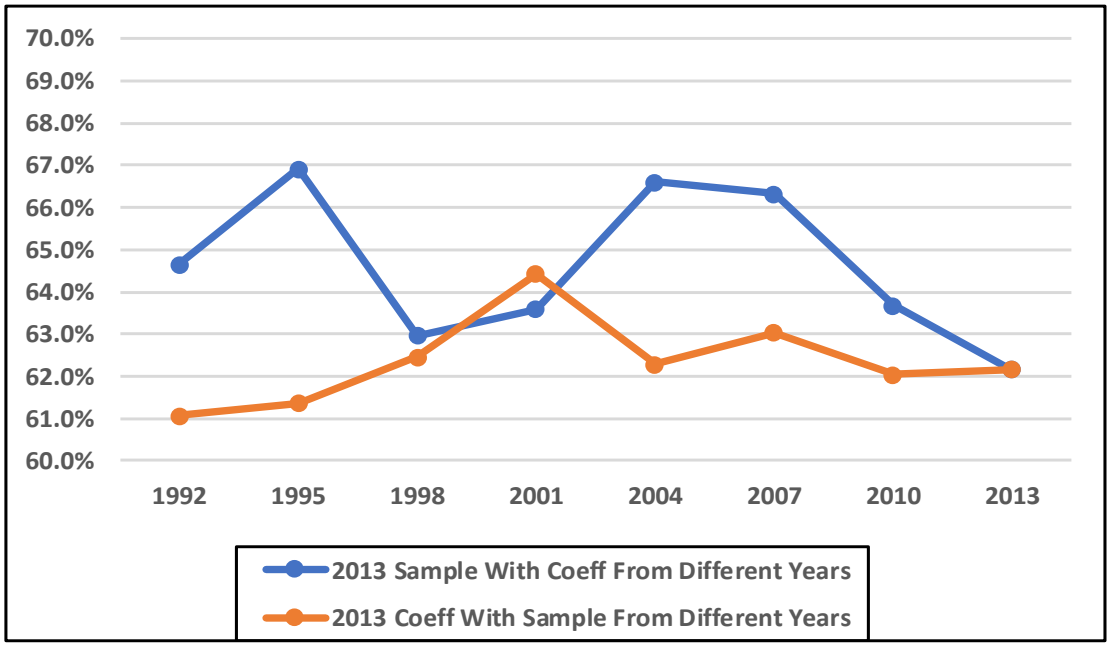

Figure 4(b). Simulated Homeownership Rates: 2013

3.2 RACIAL GAPS IN HOMEOWNERSHIP

After estimating the coefficients for African Americans and Hispanics above in Table 5, the next step is to capture how much of the gap is caused by the "not credit constrained variable". The "not credit constrained" variable is assembled through three separate variables provided in the Survey of Consumer Finances. In order for a household to be classified as not credit constrained, they must have been able to acquire their desired level of credit while not being discouraged from applying. Once this was established, families were separated into two groups. The first is NotCreditConstrained=1, which represents households who were not constrained, and the alternative is NotCreditConstrained=0, in which households were possibly credit constrained. This variable is important for estimating what the propensity for homeownership truly is regarding the not credit constrained households. It is also helpful to capture the different rates depending on racial group to see how or if lenders are treating African Americans or Hispanics unfairly.

Following the steps taken by GR (2005), there are two groups in this study. The first is a variable for households which are not credit constrained, and the second is whether households have preferences to actually own rather than rent.

$$I_{NotCreditConstrained}=xc+u_1 \quad (1)$$

and

$$I_{PO}=xb+u_2 \quad (2)$$

For these equations, the x is a vector that contains the variables in Tables 5 and 6 and the c and b denote their respective coefficients. The error terms are u1 and u2. Both

equations are for subgroups which are not credit constrained. GR (2005) provides the log likelihood function for the models.

$$L = \sum\{(1 - NotCC) \cdot \log[F(-xc)] + NotCC \cdot POwn \cdot \log[G(xb, xc, \sigma NotCC,POwn)] + NotCC \cdot (1 - POwn) \cdot \log\_G(-xb,xc,-\sigma NotCC,POwn)\} \quad (3)$$

F= standard unit and bivariate distribution function

G= standard unit and bivariate distribution function

This equation is maximized to provide the estimates for equations (1) and (2) as mentioned by GR (2005). Another benefit is that it ensures that the estimate of b is unbiased because it controls for any unobserved household characteristics, which may have biased the not credit constrained and homeownership preference variables.

Tables 5 and 6 help capture the picture of the racial gaps in homeownership as well as the household characteristics which impact homeownership the most significantly. Next, I plot in Figure 5a the white to minority homeownership rate gap to better display any transitions which may have occurred since the recession. Next, in figure 5b, I plot the estimates from Tables 5 and 6 and then plot the difference between the race variable estimates to take into account any credit barriers that still may exist.

Table 6: Homeownership propensity estimated over Not Credit Constrained Households Controlling for Sample Selection (partial derivatives are reported

	1989	1992	1995	1998
Some college	-0.0026	0.0444	0.0462	0.0302
	(0.10)	2.22	2.51	1.53
College degree	0.0488	0.0497	0.0502	0.0579
	2.26	2.95	3.15	3.48
Married	0.1186	0.1824	0.1646	0.2163
	2.01	6.95	6.37	7.91
Single male	-0.0727	-0.0153	0.0305	0.0121
	(2.49)	(0.67)	1.54	0.61
Divorced	0.0210	0.0528	0.0208	0.0721
	0.75	2.36	0.96	3.66
Age x Dummy for under 35	-0.0033	0.0000	0.0014	-0.0006
	(1.79)	0.00	0.74	(0.31)
Age x Dummy for between 35 and 55	0.0036	0.0043	0.0044	0.0034
	2.99	3.21	3.44	2.69
Age x Dummy for over 55	0.0043	0.0048	0.0056	0.0039
	5.01	5.25	6.15	4.25
Household size	-0.0164	0.0250	0.0266	0.0227
	(2.11)	3.88	4.04	3.46
African American	-0.2170	-0.0884	-0.0878	-0.1006
	(7.47)	(2.90)	(2.75)	(3.12)
Hispanic	-0.2014	-0.1761	-0.1551	-0.1558
	(5.38)	(4.69)	(3.45)	(4.51)
Other race (including Asian)	-0.0929	-0.0675	-0.0509	-0.1702
	(2.07)	(1.90)	(1.33)	(3.93)
Head in bad health	-0.0101	-0.0526	-0.1172	-0.0689
	(0.28)	(1.62)	(3.30)	(1.96)
Spouse in bad health	-0.0686	-0.0752	-0.0968	-0.1244
	(1.18)	(1.38)	(1.75)	(2.15)
Household earned income ($2013)*	0.0014	0.0011	0.0012	0.0013
	5.60	5.03	5.91	6.26
Household earned income, squared ($2013)*	-1.22E-06	-8.16E-07	-1.13E-06	-1.17E-06
	(3.51)	(2.15)	(3.65)	(3.68)
Head works full-time	-0.0417	0.0868	0.0797	0.0456
	(1.54)	3.60	3.24	2.00
Spouse works full-time	-0.0411	0.0074	0.0356	0.0176
	(1.56)	0.33	1.78	0.87
Spouse works part-time	-0.0068	0.0037	0.0049	0.0569
	(0.19)	0.13	0.18	1.92
Jobs Lasting more then 1 Year	-0.0093	-0.0116	-0.0049	-0.0081
	(2.53)	(3.28)	(1.41)	(2.70)
Constant	1.6491	-0.1447	-0.1723	-0.3034
	16.00	(0.70)	(0.84)	(1.54)
Rho	0.8966	-0.6878	-0.6149	-0.6280
	2.78	(3.93)	(3.48)	(3.22)
Uncensored obs(not credit constrained)	2,610	3,048	3,304	3,233
Censored obs (possibly credit constrained)	460	795	913	970
Log pseudolikelihood	-2248.8	-2936.4	-3076.8	-3116.5

Table 6 (Continued)

	2001	2004	2007	2010	2013
Some college	0.0126	0.0508	0.0336	0.0270	0.0145
	0.67	2.76	1.78	1.80	0.83
College degree	0.0459	0.0557	0.0529	0.0563	0.0623
	2.92	3.44	3.30	4.36	3.67
Married	0.1572	0.1421	0.1662	0.1262	0.1606
	6.47	5.84	6.81	6.52	6.79
Single male	0.0299	0.0194	-0.0101	-0.0230	-0.0281
	1.62	1.06	(0.53)	(1.49)	(1.58)
Divorced	0.0599	0.0301	0.0334	0.0300	0.0409
	3.12	1.58	1.77	1.96	2.30
Age x Dummy for under 35	0.0011	0.0073	0.0023	0.0031	0.0046
	0.60	3.94	1.25	2.07	2.57
Age x Dummy for between 35 and 55	0.0040	0.0082	0.0040	0.0054	0.0068
	3.24	6.75	3.38	5.59	5.42
Age x Dummy for over 55	0.0041	0.0077	0.0045	0.0056	0.0076
	4.52	8.52	5.23	7.95	7.16
Household size	0.0271	0.0287	0.0235	0.0253	0.0191
	4.51	4.77	3.97	5.45	3.54
African American	-0.1532	-0.1134	-0.1401	-0.1208	-0.1170
	(5.02)	(4.04)	(4.66)	(5.68)	(3.86)
Hispanic	-0.1179	-0.1296	-0.1597	-0.1661	-0.1338
	(3.69)	(4.37)	(5.16)	(7.17)	(4.85)
Other race (including Asian)	-0.0862	-0.1467	-0.1611	-0.1871	-0.1274
	(1.84)	(3.74)	(4.38)	(6.50)	(4.13)
Head in bad health	-0.1228	-0.0573	-0.0459	-0.0826	-0.0665
	(3.45)	(1.90)	(1.39)	(3.29)	(2.27)
Spouse in bad health	0.0178	-0.0759	0.0087	-0.0822	-0.0554
	0.41	(1.56)	0.19	(2.05)	(1.22)
Household earned income ($2013)*	0.0007	0.0006	0.0011	0.0010	0.0010
	4.38	3.71	6.25	6.28	5.24
Household earned income, squared ($2013)*	-6.16E-07	-5.45E-07	-1.18E-06	-1.09E-06	-9.21E-07
	(2.76)	(2.28)	(4.83)	(5.00)	(3.29)
Head works full-time	0.0140	0.1145	0.0612	0.0650	0.0912
	0.63	5.27	2.63	3.59	4.16
Spouse works full-time	0.0511	0.0387	0.0335	0.0502	0.0380
	2.76	2.09	1.77	3.30	2.19
Spouse works part-time	0.0803	0.0498	0.0234	0.0398	0.0036
	3.08	1.97	0.85	1.86	0.14
Jobs Lasting more then 1 Year	-0.0006	-0.0059	-0.0029	-0.0047	-0.0032
	(0.20)	(2.10)	(0.99)	(1.82)	(1.00)
Constant	-0.5166	-0.4218	-0.9660	-0.4705	-0.2695
	(2.47)	(2.08)	(4.46)	(3.00)	(1.57)
Rho	-0.6456	-0.6039	-0.6422	-0.7195	-0.4080
	(3.52)	(3.78)	(3.98)	(5.67)	(1.57)
Uncensored obs(not credit constrained)	3,355	3,418	3,435	4,700	4,442
Censored obs (possibly credit constrained)	913	966	861	1,684	1,471
Log pseudolikelihood	-3133.6	-3069.8	-2914.5	-5181.9	-4793.6

*Dollar values are in thousands. Coefficients are taken from a Heckman probit model with marginal effects. The values in parenthesis are the t-ratios for the untransformed model coefficients. Dollar values were all converted into 2013 dollars. Incomes greater than $1,000,000 were excluded.

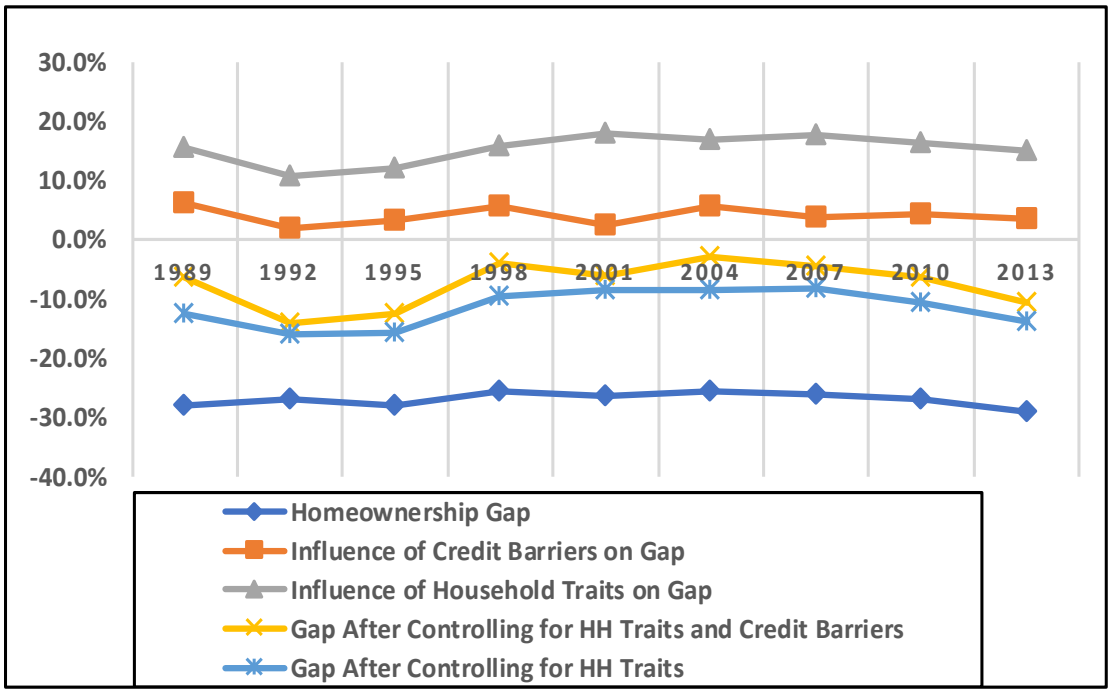

Figure 5(a). Decomposing Racial Gaps in Homeownership: African American Relative to White

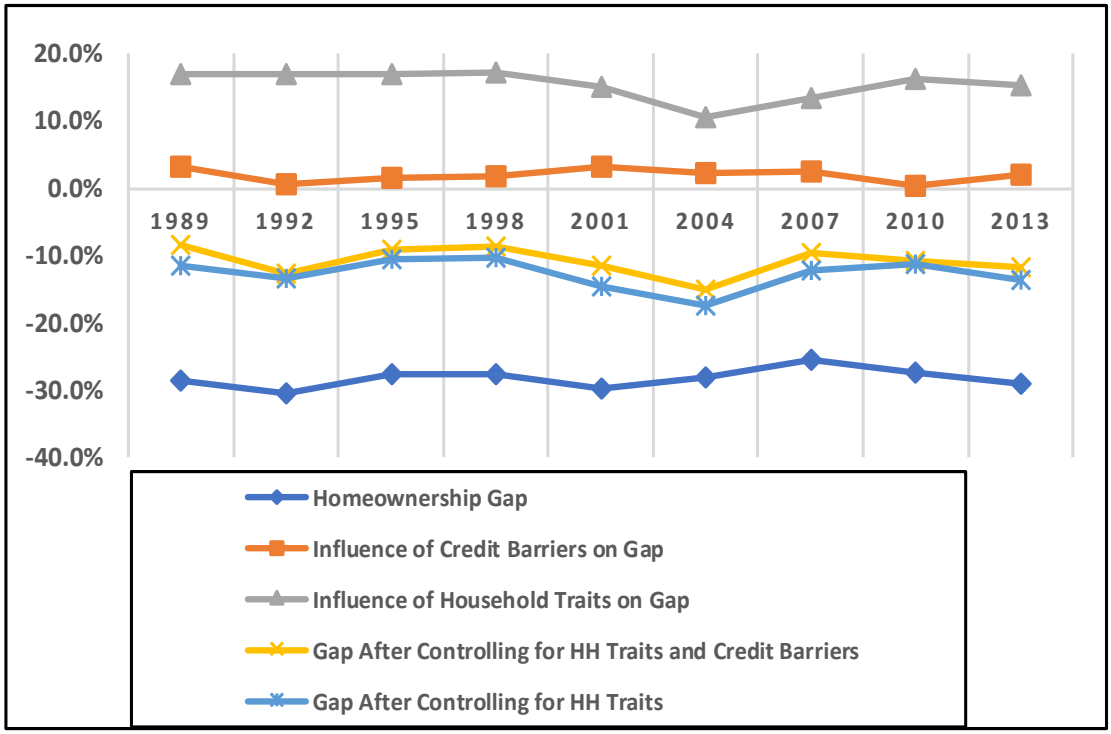

Figure 5(b). Decomposing Racial Gaps in Homeownership: Hispanic Relative to White

Figures 5a and 5b highlight the patterns for the survey years 1989 through 2013. In 1989 credit barriers were responsible for 6.1% of the gap in homeownership rates between white and African Americans and 3.5% in 2013. For Hispanics, credit barriers were responsible for 3.2% in 1989 and decreased to 2.1% in 2013. The coefficients from the Heckman probit model for the group without credit constraints in Table 6 reflects the propensity for homeownership when credit barriers are absent. The difference between the race coefficients from the not credit constrained group in Table 6 relative to the race specific coefficients from the original probit model in Table 5 reveal the impact of credit constraints on homeownership propensity for African American, Hispanic, and white households. The primary reason for the gap was found to be the household specific attributes through the difference measures.

The homeownership traits contributed to 15.6% and 15.2% of the homeownership gap for African Americans in 1989 and 2013 respectively. For Hispanics, homeownership traits contributed to 16.9% and 15.4% for 1989 and 2013 respectively. These percentages are the race specific coefficients from within Table 5. To see how much of the gap between African American, Hispanic, and white households was not explained by the credit barriers or homeownership attributes, I looked at the estimated homeownership gap after controlling for the credit barrier and homeownership attributes.

The unexplained portion of the gap, for African Americans, came out to be 6.4% in 1989 and 10.5% following the financial recession in 2013, although it did narrow to 4.5% in 2007. For Hispanics, the unexplained portion was only 8.4% in 1989 and it increased to 11.6% in 2013. The gap increases after controlling for household traits and credit barriers for both minority groups following the financial crisis.

The reduction in homeownership racial gap prior to the financial recession is in part due to the preference for saving variable. This variable was created using the reason for saving variable in the SCF. This survey variable only reports the most important reason for the household's interest in saving.

In 1989, African American renters had a savings rate of 4.6% and Hispanics were saving at a rate of 6.4% with white households saving at a rate of 13.8%. African American and Hispanic households' savings percentages were greater relative to white households in 2004; the percentages were close to the same for all three racial groups in 2007 leading up to the financial recession. In 2007, this savings rate decreased for African Americans to 12.1%, for Hispanics it decreased to 12.2%, and white households had a decreased saving rate of 12.4%. Savings rates deceased after the financial recession in 2013 for African Americans to 6.2% and Hispanics to 7.9% while white households saved at a 7.6%. This is important to note because it aids in capturing renters' ability to save for a down-payment within these distinct racial groups while also offering clues about their optimism for the housing market, economy, and their own financial wellbeing because they are in a position to save.

Based on these findings, it is important to highlight that household characteristics, such as college degree attainment or marital status, are a driving force in the increase in homeownership attainment amongst African Americans and Hispanics. These intrinsic characteristics are extremely difficult to change using policy. The unexplained gap for homeownership between African Americans, Hispanics, and white households fluctuated significantly during 1989 and 2013. The results show significant improvement from 1989 through 2007, but these improvements were short-lived with most of the growth being

negated by the recession. The 2013 homeownership rates reveal minimal improvement in closing the homeownership gap amongst these racial groups. There has been slight improvement among these three groups since 1989. The policies implemented for removing racial barriers in lending have helped but policies for the future should take a more holistic approach and target change within the household's variables.

Table 7
Racial gaps in saving towards homeownership

	1989	1992	1995	1998	2001	2004	2007	2010	2013
ALL OWNERS	0.049	0.040	0.051	0.044	0.043	0.050	0.042	0.032	0.031
WHITE RENTERS	0.138	0.087	0.132	0.085	0.125	0.135	0.124	0.081	0.076
AFRICAN AMERICAN RENTERS	0.046	0.071	0.097	0.141	0.113	0.136	0.121	0.099	0.062
HISPANIC RENTERS	0.064	0.150	0.087	0.187	0.117	0.187	0.122	0.076	0.079

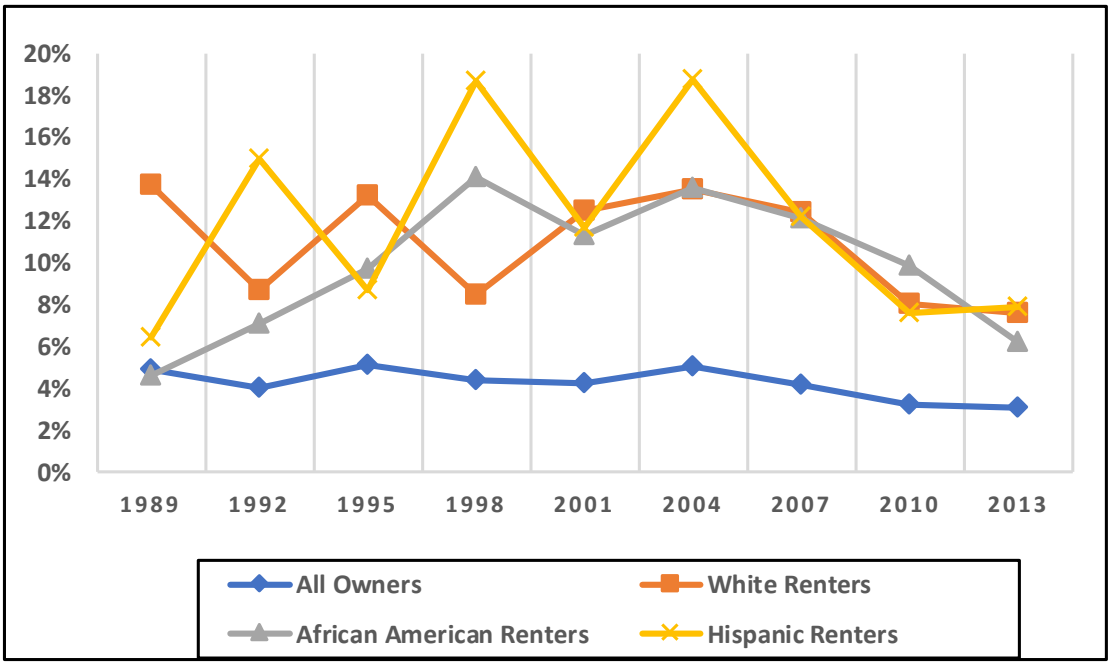

Figure 6. Racial gaps in saving towards homeownership

3.3 AGE GAP IN HOMEOWNERSHIP

One of the important transitions to research within the Survey of Consumer Finances is the impact of the financial recession on homeownership by age group. In Figure 7, the transitions in homeownership by age are shown. Homeowners of all ages are inclined to delay purchases if they are in poor financial health and require more time to save. This can be due to more stringent requirements imposed by lenders or less disposable income for the individual age groups. Homeownership rates by age groups have been very consistent since 1992 after the initial decline preceding it in 1989. At the height of the financial recession homeownership rates had increased 3.8 percentage points for the age group under 35 years in age, there was a 3.1 percentage points increase in the age group between 35 and 55 years old, and a 3 percentage points increase in the age group over 55 years old. We can observe a decline 5.1% in 2013 for the less than 35 age group which is also 1.3% less than it was in 1992. For the group between 35 and 55 there was a 6.6% decline in homeownership between 2007 and 2013. For the oldest group of individuals older than 55 there was a decline of 2% since 2007 however there was a 1.1% improvement since 1992.

Table 8
Saving to buy a home by Age

	1989	1992	1995	1998	2001	2004	2007	2010	2013
HOMEOWNERSHIP RATE	0.639	0.639	0.647	0.662	0.676	0.690	0.686	0.672	0.651
UNDER 35	0.481	0.368	0.379	0.389	0.398	0.416	0.406	0.375	0.355
BETWEEN 35 AND 55	0.852	0.689	0.697	0.704	0.722	0.731	0.719	0.702	0.656
OVER 55	0.913	0.787	0.784	0.802	0.807	0.815	0.817	0.806	0.797

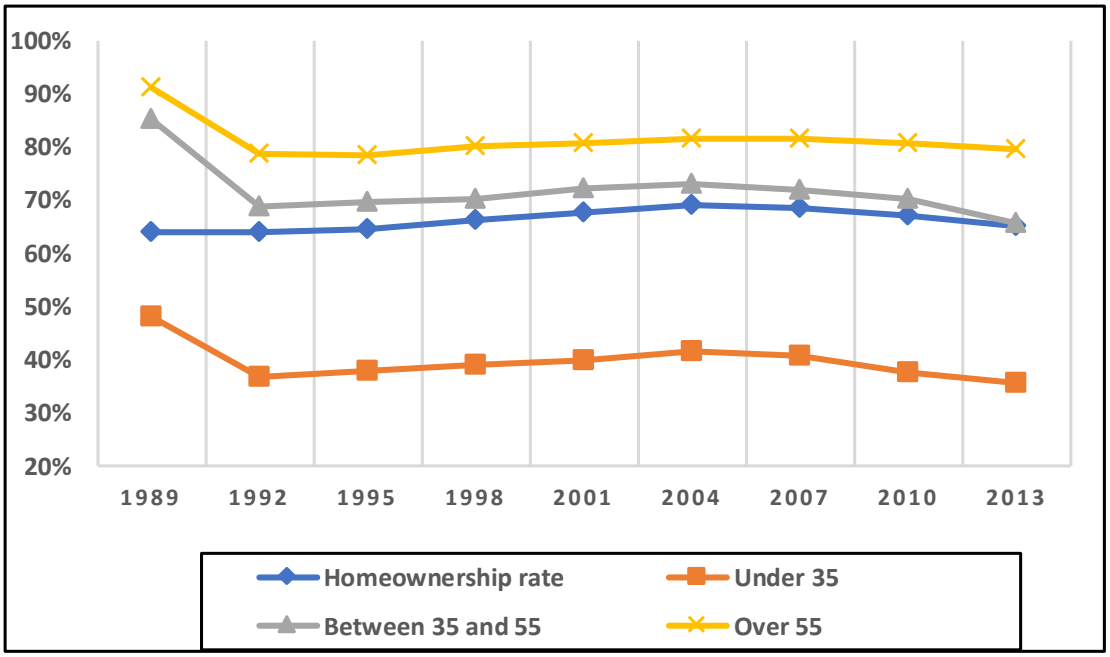

Figure 7. Age Gap in Homeownership

3.4 CONCLUSION

Homeownership rates increased from 63.9% in 1989 to 69.0% in 2004. This is a 5.1 percentage point increase and it remained steady until the financial crisis in 2007 which caused homeownership rates to decrease to 65.1% in 2013. Parallel to this the homeownership gap between African Americans, Hispanics, and white households has persisted with minimal improvement between 1989 and 2013. The homeownership gap between these groups was the smallest in 2007 with a 26.1% difference between white households and African Americans and a 25.6% difference between Hispanics and white households. Both minority groups are 29.1% less likely than white households to own homes as of 2013. African Americans are 1.6% more likely to own a home than in 1989; however, the gap between African Americans and white households has grown by 1%. Similarly, Hispanics are 2% more likely to own a home than in 1989; but, the gap between Hispanics and white households has grown by 0.6%.

The results for the three not credit constrained groups showed that households are overall less inclined to own a home in 2013 when compared to 1989. African American households are 3.5% less likely to purchase a home while white households are 2.4% less inclined. Hispanic households however, are 1% more likely to own a home.

During the time span of 1989 to 2013, there were many macroeconomic events which occurred, such as the housing boom, declining interest rates, demographic shifts within the population, as well as evolving preferences for homeownership and savings. Macroeconomic events helped fuel the increase in homeownership leading up to 2007, but were not the primary reasons for this change. Alongside these events, many federal

policies were implemented with the intention of increasing homeownership through innovation in finance as well addressing systemic issues, such as discriminatory lending practices towards unfavorable areas and minorities. Through highlighting the impact of the macroeconomic factors and government policies, the potential cause of the increase in homeownership leading up to the financial crisis is revealed. The results suggest that the primary driver of homeownership rates, in ascent or decline, are the household variables researched throughout this paper. These characteristics cannot be easily altered through federal policy or the external macroeconomic environment.

It will be interesting to see in future research if the homeownership rate will continue to decline or increase again in a post-recession environment. Further research could explore the homeowner variables and find a way to alter these race-specific differences through federal policy in order to finally start narrowing the homeownership gap.

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