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The Rich Got Richer: The Effects of the Financial Crisis on Household Well-Being, 2007-2009

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Abstract

The 2007-2009 financial crisis initially appeared to have destroyed a huge amount of wealth in the U.S. Housing prices dropped about 21% across the country and as much as 50% in some places and the stock market dropped by nearly 50% as well. This paper examines how the financial crisis differentially affected households at different parts of the income and wealth distributions. Our results show that all households lost about the same percentage of their wealth in that period. But because households in the top 10% of the wealth distribution owned many different kinds of assets, their wealth soon recovered. The bottom 80% of the wealth distribution had more of their wealth tied up in housing. We show that financial distress, indexed by foreclosures, being behind in mortgage payments, and changes in house prices were particularly concentrated in households in the bottom 80% of the wealth distribution. These households lost a large part of their wealth and have not yet recovered. Households that were most deeply affected were those who entered the housing market late and took out subprime loans. African-American and Latino households were particularly susceptible as they were bought houses late in the price bubble often with subprime loans.

Introduction

Income and wealth inequality have increased for the past 30 years in the U.S. economy (Atkinson, Picketty and Saenz, 2012), reaching levels not seen since the early part of the 20th century (Picketty, 2014). One component of growing inequality is due to an increase in accumulated debt (Hodson, Dwyer, & Nielson, 2014). While fiscally knowledgeable Americans make distinctions between "good" and "bad" debt (e.g., college or mortgage loans v. credit card debt), even "good" debt can lead to financial problems (Dwyer, Hudson, & McCloud, 2012; Dwyer, Hudson, & McCloud, 2013). This chapter investigates how homeowners fared during the Great Recession of 2007-2009 given variations in their mortgage loans. Given that the people in the bottom 80% of the wealth distribution hold the largest part of their wealth in home equity and the 2007-2009 recession was almost entirely a product of the collapse of the house price bubble, which homeowners were most vulnerable to financial distress?

Before the Great Recession, debt accumulation had reached a height, particularly around the middle-class (Fligstein and Goldstein, forthcoming). Some took on debt to pursue a college education (Dwyer, Hudson, & McCloud, 2012; Dwyer, Hudson, & McCloud, 2013), others took on debt to maintain or increase their lifestyle (Hodson, Dwyer, & Nielson, 2014) or to engage in the American Dream of homeownership (Fligstein and Goldstein, forthcoming). Prior studies have found that debt can increase emotional distress (Hodson, Dwyer, & Nielson, 2014) and even affect outcomes like college completion (Dwyer, Hudson, & McCloud, 2012; Dwyer, Hudson, & McCloud, 2013). But little research has explored how this debt accumulation affected the fiscal health of households in the wake of the Great Recession.

Excluding the effects of job loss, the Great Recession was particularly hard for homeowners as house prices fell almost 21% nationwide, and in some housing markets, almost

50% (Fligstein and Goldstein, 2010). The stock market also lost over 50% of its value, but by the end of 2009 had recovered substantially, leaving a loss at about 23% (see Figure 3). At first glance, one would think this decrease in asset values produced the largest decline for the wealthiest households. After all, they had the most to lose as they own the most expensive houses and are much more likely to have large investments in the stock market.

Surprisingly, the empirical literature has drawn a very different conclusion. The share of overall income going to the top 10% rose significantly after 2009 and the share of wealth going to the top 10% of rose significantly from 2007-2009. Results from the Survey of Consumer Finances and the Panel Study of Income Dynamics have shown that lower income and lower wealth families suffered greater losses in wealth as a percentage of their overall wealth (Wolff, 2012; Bricker, et. al., 2012; Grinstein-Weiss and Key, 2013; Bosworth, 2012; see the papers in Grusky, 2012) during the Great Recession. Unlike, the top 10% of the wealth distribution, they have not recovered that wealth. African American and Latino households were the most severely affected by the housing crash (Rugh and Massey, 2010; Wolff, 2012). On average, they lost almost half of their net worth (Bricker, et. al, 2012) and of course, they had much lower rates of home ownership and wealth to begin with.

The impact on lower income and lower wealth households is due in part to the refinancing boom from 2001 to 2004 whereby huge numbers of American households were able to get new conventional mortgages at much lower interest rates. Many of these households also took equity out of their homes to fund home improvements and living expenses (Fligstein and Goldstein, forthcoming; Davis, 2010). But beginning in 2004, a large number of the mortgages that could be refinanced had been refinanced, so financial institutions found new markets to serve (Fligstein & Goldstein, 2010).

The growth of the nonconventional market provided credit for households who had historically had less access to credit. This meant that less well-off households, middle class households living in expensive areas, and minority households were the most likely to buy their homes at or near the peak of the price bubble and with nonconventional and frequently subprime mortgages that typically had higher interest rates and thus, higher payments. African-American and Hispanic households have been documented to have been disproportionately amongst those who came late to the housing market and who were the most likely to have been given subprime mortgages (Niedt and Martin, 2013; Hyra, et. al. 2014; Kuebler and Rugh, 2013; Rugh and Massey, 2013). When the housing crash came, these households had less capital to begin with and found their houses worth less than their mortgages (a condition that is described as "being underwater").

Many of them fell behind in their house payments and they were the most frequent households to experience foreclosure (Mian and Sufi, 2009; Gerardi, et. al., 2008). This meant that many of them lost their homes, their equity, and much of their wealth (Wolff, 2012). This was particularly true for African American and Hispanic households (Wolff, 2012; Kuebler and Rugh, 2013). They never recovered because the main asset they had that might accumulate value, their house, was gone. Wealthier households were able to keep up their house payments, hold onto their houses, and as house values have gone up, they have seen their wealth restored. At the top of the wealth distribution, the top 10%, much wealth was also tied up in the stock market. When that market began to recover in the middle of 2009 and has continued to go up subsequently, their assets increased. Thus, the more well off saw their share of wealth rise and the less well off, many of whom had lost their houses, floundered.

This chapter documents fiscal (in)security by income and wealth, contributing to our understanding of the relationship between debt and financial distress. First, we review the literature on what we know about household income and wealth and its changes before and after the Great Recession. Then we provide more detail for how households in the bottom part of the income and wealth distributions came into the mortgage market from 2001-2007. This will allow us to hypothesize how the Great Recession differentially affected the wealth of various groups. Finally, we use the Survey of Consumer Finances Panel Study from 2007-2009 to examine what happened to the finances of households at various parts of the income distribution. We model who is likely to fall behind in their mortgage payments, owe more than their homes are worth, experience foreclosure, and hold subprime loans. Our findings are consistent with the story that poorer and minority households were late to the housing bubble party and were thus more susceptible to the effects of the housing bubble burst. But we also show that households in the middle of the wealth and income distributions also suffered losses because they too bought houses during the peak of the bubble and ended up with subprime mortgages. We end by discussing the implications of our results for thinking about wealth and debt going forward.

What do we know?

It is useful to review what we know about why wealth inequality has increased and what exactly happened during the financial crisis to skew wealth so much in such a short period of time. Obviously, the composition of assets by different parts of the wealth distribution and their varying susceptibility to downturns in the housing market must be a big part of the story. Using the Survey of Consumer Finances, Wolff shows that in 1998, 29% of all of the wealth in the

country was in personal residences with an additional 10% in other real estate (2012: Table 5) for a total of 39% of all wealth being in real estate. In 2007, right before the crash, 32.8% of all wealth was in residential real estate with another 11.3% in other real estate for a total of 44.1% of wealth. In 9 years, real estate increased its share of all wealth in the U.S. by 5.1%. In 2010, after the crash, residential real estate still accounted for 31.3% of wealth, other real estate 11.8%, for a total of 43.1%. Even after the crash, real estate continued to be the single largest source of wealth in the U.S.

In 2010, Wolff shows that real estate makes up only 9.4% of the wealth of the top 1% of the income distribution, 30.1% for the next 19% of the distribution, and 66.6% for the 20-80% of the wealth distribution (2012: Table 6). For the wealthiest 1% of Americans, 50.3% of their wealth is in their businesses and another 33.2% is in pensions and stocks. For the next 19%, 25.6% is in businesses and 35.4% is in pensions and stock. For the middle of the wealth distribution, the 20-80% percentile, only 8.9% is in businesses and 17.3% in pensions and the stocks. Because houses were the main source of wealth for most of the population, the dramatic drop in housing prices should have had a much more serious effect on total wealth of the middle and lower middle classes in America than the upper middle class (80-99%) and the 1%.

(Figure 1 about here)

But it is here that the story suggests that this was not the main mechanism by which wealth inequality worsened. Figure 1 presents data from the Case-Schiller index of house prices. It shows that housing prices began to increase on a year to year basis in 1996 and peaked in 2005. They dropped slowly at first and then more dramatically in 2007-2009. But, house prices have subsequently recovered and since 2009, and they have increased on a year to year basis. To get a sense of what happened, Figure 2 shows that median house prices peaked in 2005 when

they median prices for existing homes increased from $160,000 to almost $260,000 while new home prices increased from $140,000 to $230,000 from 2000, an increase of over 70% in five years.

(Figure 2 about here)

From 2005-2009, existing home prices dropped from almost $260,000 to $210,000 and prices for new homes decreased from $230,000 to $170,000, a decrease of around 25%. Since 2009, prices have increased. Existing homes now sell for a median price of $275,800, above their highest level during the bubble. New homes are selling for $201,700, not far from their peak. A similar story can be told about the other major source of assets for most Americans, shares in stocks or mutual funds that are either invested by individuals or through pension funds. Figure 3 shows the Dow Jones Industrial Average reached its peak in October of 2007, when it hit 14,164. It dropped over the next two years and it bottomed out at 6,547 in August 2009. By the end of 2009, the stock market had risen to 10,750 and by the end of 2010, 11,750. By 2015, it rose to over 17,000. The stock market dropped over 52% from 2007 until 2009. But it finished 2009 at only 23% down from its peak. By June of 2013, it had recovered all it had lost and climbed above its 2007 peak.

(Figure 3 about here)

This suggests that if people were able to hold onto their assets, they should have been able to weather the recession and by now have recovered much of their household wealth. Thus, the increase in wealth of the top 10% of the wealth distribution during the recession cannot be explained by the differential effects of the bursting of the bubble. Why did the bottom 90% of the wealth distribution not recover their shares of national wealth and indeed lost ground to the top

10% even as asset values began to recover? It is this puzzle that we seek to explore in the rest of the paper.

Much of the explanation lies in the fact that the greatest destruction of wealth for the bottom 90% of the wealth distribution was through foreclosures. Because so much of their wealth was tied up in housing, the loss of a house meant the loss of most of their wealth (Wolff, 2012). These households were never able to recover their previous wealth levels when house prices began to rise in 2009. This means that the top 10% did not so much as gain wealth as the bottom 90% saw their wealth destroyed.

(Figure 4 about here)

We can observe this process by considering what happened to home ownership rates during the Great Recession. The home ownership rate in 1995 was about 64% (U.S. Census Bureau, 2014). At the peak of the real estate bubble in 2005, it had risen to 69.1%. The unwinding of the housing bubble has pushed this back down to 64.8%. While some of this decrease can be accounted for by people cashing out and selling their homes and moving into apartments, most of it was related to foreclosures. Figure 4 shows the number of foreclosures per year from 2005 until 2012. We can see that over 13 million households were foreclosed in the 2007 to 2012 period. In the peak years of the foreclosures, 2009-2010, almost 3 million households were foreclosed in each year.[1]

The Banks and the Housing Bubble 1995-2009

[1] We note that the SCF data end in 2009 so we do underestimate the degree of foreclosures.

In order to make sense of who was the most susceptible to being at risk of getting a subprime mortgage, our argument draws on the literature in economic sociology that examines the role of financial institutions in creating and taking advantage of the house price increases to sell more mortgages. Between 1995 and 2003, financial institutions were either refinancing mortgages held by people who wanted a lower interest rate or offering mostly conventional mortgages. But in 2003, that market dried up. To keep their mortgage machines going, financial institutions needed to find a new market for their products. They decided to enter into the nonconventional mortgage market with a vengeance. This solution was pioneered by Countrywide Financial, the largest mortgage originator in the country (Fligstein and Goldstein, 2010). In order to find buyers for these mortgages, financial institutions had to systematically seek out communities that by definition had not shared in the housing boom up until that moment (Goetzmann, et. al., 2009; Demyanyk and Van Hemert, 2009)

This meant three things. First, people with less money, worse credit, and less of a chance to accumulate wealth were given the opportunity to borrow large sums of money. This allowed them to buy houses and this is a large part of what increased the rate of home ownership in the U.S.[2] Second, the households that were buying these homes were coming in at the tail end of the rapid price increases that we described in Figure 2. This meant that they were likely to have to go deep into debt to take on the mortgage. Finally, because many of these customers were deemed higher risk, the terms of these mortgages made them more expensive. When house prices began to turn down, the households who came last to the house price increase "party" were the most vulnerable to its ending. They saw their house values drop, frequently below what they owed on

[2] We note that many of the households who entered the market after 2003 had middle class incomes but could not afford to buy houses in high priced areas. Nonconventional mortgages allowed them to enter the housing market. This was especially true in California(Fligstein and Goldstein, 2010).

the mortgage. They were locked into relatively high interest rate products that they were unable to refinance. Predictably, people in this position found themselves falling behind in their house payments, and more likely to end up in foreclosure. The overall effect was to destroy whatever equity they had in their homes and thus, they ended up with less wealth. It is useful to elaborate on this argument in more detail.

The market for mortgages in the U.S. increased from $458 billion in 1990 to nearly $4 trillion at its peak in 2003. Most of these mortgages were packaged into mortgage backed securities (hereafter, MBS). Figure 5 presents data on total loan originations from 1990-2008. It also breaks down the loan types into various products. The American mortgage market was about $500 billion in 1990. During the 1990s, it went up to nearly $1 trillion in 1993, peaked in 1998 at around $1.5 trillion. In 2000, it stood at $1 trillion a year. The real surge in the mortgage market began in 2001, the year of the "dotcom" stock market crash. The Federal Reserve dropped interest rates dramatically and this set off a refinancing and house purchasing boom. From 2000-2004, residential originations the U.S. climbed from about $1 trillion to almost $4 trillion. About 70% of this rise was accounted for by people refinancing their conventional mortgages at lower interest rates (Fligstein and Goldstein, 2010).

(Figure 5 about here)

After 2003, the major banks' strategies pointed increasingly toward subprime and other non-conventional mortgage segments. Figure 5 highlights the remarkable degree and rapidity with which banks gravitated toward nonprime lending. It is useful to discuss the various kinds of mortgages in order to fully understand the implications of this transformation of the mortgage market. At the bottom of the graph are home loans originated by the Federal Housing

Administration (FHA) and the Veteran's Administration (VA). These were never a large part of the total originated loans although they did increase slightly after 2001. The largest parts of the market were conventional or "conforming" mortgages. These are fixed interest rate mortgages with 30 year terms for people who put down 20% for their house. The loans were mostly securitized into MBS (Fligstein and Goldstein, 2010). We can see that the bulk of the mortgage market from 1990 until 2003 consisted of these two categories of loans.

But beginning in 2003, we begin to see rapid compositional shift toward non-conventional loans. Jumbo loans are used to purchase real estate in expensive markets where households lack the 20% down payment and are charged extra interest for the loan. Home equity loans (hereafter HEL) refer to loans made against the value of the equity in a house. Alt-A and subprime mortgages (sometimes called "B/C" mortgages to denote their lower credit quality) were sold to people with impaired credit history, or people who lacked the ability to make a large down payment, or people who did not have verification of their income.[3] Alt-A is not strictly defined but is category that encompasses borrowers with credit scores to qualify for conventional mortgages but who lack some other qualification.

In 2004, for the first time, these four categories of loans exceeded the prime or conventional market. By 2006, fully 70% of all loans that were made were unconventional mortgages. There were two main reasons banks pursued these riskier nonconventional loans so

[3] The term subprime has a set of formal definitions. To qualify for a prime or conventional mortgage, a person needed 20% down payment and a credit score of 660 or above (the average score is 710 on a scale from 450-900). Mortgagees who did not have these qualifications were not eligible for prime or conventional mortgages. Here are some of the conditions that could qualify a mortgagee as subprime: two or more delinquencies in the last 12 months; one or more 60 day delinquencies in the last 24 months; judgment, foreclosure, or repossession in the prior 24 months; bankruptcy in the past 5 years; a credit score less than 660; and debt service to income ratio of 50% or greater (i.e. the monthly payment was more than 40% of the gross income of the household) (Fligstein and Goldstein 2010).

aggressively. The first is, as we have noted, that there were fewer and fewer loans left to make to the saturated conventional market. The second is that subprime origination and securitization turned out to be enormously profitable. According to a study by the consulting firm Mercer Oliver Wyman, nonconventional lending accounted for approximately half of originations in 2005, but over 85% of profits (National Mortgage News 2005). A good deal of research suggests that the cheap interest rates across the country and strong demand from investors who wanted to buy MBS encouraged banks to pump as much credit into housing markets as they could (Mian and Sufi, 2008; Herbert and Apgar, 2010; Fligstein and Goldstein, 2010). Financial institutions could borrow money at around 1-2% and loan it at 5-7%. They then turned around and created securities from mortgages where they earned fees for producing and selling these securities.

After 2003, banks focused their lending on people with less than stellar credit or who lived in areas with expensive housing (Rugh and Massey, 2013; Hyra, et. al., 2013; Niedt and Martin, 2013). They explicitly were looking for less served markets that were near markets where housing was scarce, population was growing, and prices were rising. MBS issuers could attain safer credit ratings for securities by including in them a larger proportion of these less "safe" mortgages from zip codes with high price appreciation since these areas were thought to be less prone to default. Subprime securitization helped inflate prices in already pricey markets. Eleven of the top thirteen subprime metropolitan statistical areas by this metric were located in the boom states of Arizona, California, Florida, and Nevada. Housing markets in these states effectively became linked through the common strategies banks adopted towards them. It is not surprising then that Arizona, Florida, Nevada, and parts of California turned out to be ground zero of the subprime lending boom, the housing price bubble, and the subsequent foreclosure crisis.

The cause of the meltdown was slowing house appreciation which led to rising mortgage defaults, which in turn led to far larger than expected losses on mortgage-backed securities (Mayer, Pence and Sherlund 2009; Demyanyk and Van Hemert, 2009). Subprime mortgages were at the epicenter of the rising defaults in 2007 because their basic design was predicated on house prices continuing to increase. One correlate of this shift was the increasing use of adjustable-rate mortgages (hereafter, ARMs) (Mayer, Pence and Sherlund 2009, p.31). ARMs became popular because lenders could sell more loans by charging less interest initially. Lenders were willing to bet that house prices would continue going up in the short-term, offsetting other credit risks and justifying a somewhat lower initial interest rate. Borrowers could then refinance using accumulated home equity before the mortgage reset to the higher adjustable rate. This incentive to refinance every two years is why approximately two-thirds of subprime originations from 2000-2006 were refinances rather than new purchases.

Once housing prices stopped appreciating, however, the design of subprime loans made them especially prone to default. Borrowers who had been promised they would be able to refinance in two years suddenly found it much more difficult to do so once the downturn spurred lenders to rapidly contract subprime credit availability. Instead of the lower payments that had been anticipated, borrowers instead faced a reset shock as their monthly payments ballooned to the higher adjustable rate (Demyanyk and Van Hemert 2009). Thus the fact that defaulting subprime loans sparked the financial crisis was due not only to the heightened risk profile of subprime borrowers, but the fact that subprime ARM loans even more than others were built on rising housing prices which could not last.

The final piece of this puzzle was the relatively high rates of these loans that went into minority communities. It is well known that the home ownership rates for African American and

Hispanic households have historically trailed White households even holding constant levels of income and education (Conley, 1995; Belsky, 2013; Flippen, 2001; Oliver and Shapiro, 1997; see the review in Pager and Shepard, 2008; Krivo and Kaufman, 2004). In looking for new customers, financial institutions began to realize that people who lived in highly segregated areas were less likely to own their homes and thus be good candidates for mortgages. Moreover, the housing price bubble in many urban areas had created such high house prices that these price increases began to affect lower income neighborhoods. Since those who lived in these neighborhoods tended to have less money to put down, it made them good candidates for nonconventional mortgages, including subprime mortgages. Financial institutions began to target these neighborhoods. As a result, African American and Hispanic households saw large increases in their rate of home ownership (Kuebler and Rugh, 2013). But, when house prices began to drop and subprime mortgages left many households owing more than their homes were worth, many African American and Hispanic households were lost their houses.

Hypotheses

It should by now be obvious as to how the changing nature of the mortgage market led to the destruction of wealth for the 20-80% of American households and had particularly large effects on African American and Hispanic households. As described above, the timeline of bank investments in subprime lending suggest an increase in nonconventional lending in communities that had previously been unable to buy homes after 2003. When prices began to fall, the people

most vulnerable to losing their homes were those who had bought their houses at the end of the house price boom and nonconventional mortgages predominated.

In order to demonstrate this argument empirically, we consider four dependent variables that index the vulnerability of those with less income and who were more likely to be minorities: whether or not a household was late on payments, whether or not a household found itself owing more on the home that it was worth, whether or not a household experienced a foreclosure, and whether or not a household had a subprime loan. These are all measures of households experiencing difficulties in holding onto their houses.

Hypothesis 1: We expect that households with less income and who are headed by an African American, or Latino who own a home are more likely to be late on their home payments, owe more than their home is worth, experience a foreclosure, and have a subprime loan.

Hypothesis 2: We expect that the effects of these variables will be mediated by whether or not the mortgages were subprime, were purchased during the peak of the housing price bubble (between 2001 and 2007), or reflected taking out home equity loans during the bubble. We expect that these factors will explain who is behind in their payments, who owe more than their house is worth, who experiences foreclosure, and who has a subprime loan.

Data and Methods

To evaluate these hypotheses, we use the Survey of Consumer Finance (hereafter, SCF) which is fielded by the U.S. Federal Reserve Bank every three years as a cross-sectional survey. The SCF provides detailed information on all aspects of household finances including details on mortgages and details on socioeconomic characteristics. The SCF collects details for up to three

mortgages (in addition to home-equity lines of credit) on a primary residence, with questions on all aspects of the mortgage terms. Because of the financial crisis, the Federal Reserve conducted a follow-up survey of the 2007 panel in 2009 to gather data on how the Great Recession differentially affect households. The 2009 re-interview focused on a smaller set of variables that were most useful for understanding the nature of the changes experienced by families during the financial crisis. To maximize comparability of data between the original and follow-up interviews, the 2009 questionnaire maintained the ordering and systematic framing of concepts in the 2007 questionnaire as much as possible. As a consequence of the panel questionnaire design, it is possible to construct parallel estimates for all of the most important aspects of wealth in both 2007 and 2009.

The SCF employs a dual-frame sample design, including a multi-stage area-probability sample. The list sample is selected from statistical records that are derived from individual income tax returns by the Statistics of Income (SOI) Division of the Internal Revenue Service. The list sample oversamples households that have high income in order to insure that there are data on the behavior of people in the top 10% of the wealth distribution. The 2009 wave was interviewed from July 1, 2009 until January 1, 2010. Almost 89 percent of the eligible 2007 SCF participants had been re-interviewed, and the panel response rate based on the eligible cases was at least 87 percent in every sample group (U.S. Federal Reserve, 2010.)

The SCF is the gold standard used to study household finances given the detail of information on financial holdings. The re-interview of the 2007 respondents affords researcher with an important opportunity to track the effects of the Great Recession at the household level. The downside is that the re-interview process started in mid-2009 at the bottom of both the stock and housing markets and completed in 2009 as both markets began to recover. It also was done

just as the wave of foreclosures began to peak. Thus, our study provides conservative findings that are likely to underestimate the effect of the financial crisis.

The descriptive statistics presented here are weighted with weights provided by the Federal Reserve to address two sampling issues. First, the weights account for nonresponse to the survey to adjust for any nonrandom patterns in the response rates (Kennickell, 2010). Second, using the weights allows for figures to be representative of the U.S. population. Weighting is particularly important for presenting a more accurate depiction of the broader trends in the U.S. because the survey oversamples the rich. All descriptive and regression analyses account for multiple imputation, as the Federal Reserve provides a multiply imputed dataset with five observations for every respondent in order to protect respondent confidentiality (Kennickell, 1997). For the regression analyses, we used Stata code provided by the Federal Reserve to re-estimate the coefficients and standard errors so as to not exaggerate the statistical findings.

The regression analysis is limited to respondents who owned homes in 2007. Renters and other non-homeowners do not hold the relevant assets for our analysis given our focus on the timing of homeownership and characteristics of mortgage loans. This reduces the sample from a total of 3,857 respondents to 2,758 for the regression analyses.

To explore why the Great Recession disproportionately affected less well-off households, we analyze four dependent variables: foreclosure, behind in mortgage payments, underwater, and subprime. The foreclosure measure is based on a question about experiencing foreclosure that was added to the 2009 panel survey. This measure is a binary variable, equal to 1 if the respondent or their spouse or partner experienced foreclosure against a property they owned and 0 if they had not.

The variable behind in mortgage payments was calculated based on survey questions about making late payment on land contract or mortgage loans. Based on responses to these questions, we constructed a behind in payments for responses to the 2007 survey question. This measure is also a binary variable, equal to 1 if the respondent was behind on mortgage payments and 0 if they were not.

To calculate whether respondents were ever underwater in the mortgage payments, we subtracted the respondent reported housing value from the current amount owed on mortgage. Mortgages flagged as underwater have a larger housing debt still owed than the value of the home at the time of the survey, as indicated by a value of 1. Those that are not underwater have a value of 0.

Finally, we calculated whether respondents had a subprime loan based on standard measures in the literature given the constraints of not having all mortgage loan information required to determine subprime lending. We identified the year in which each mortgage was issued and the 10 year treasury rate for each year, then calculated the difference between the interest rate and the 10 year treasury rate for each respondent with a mortgage. Mortgages that were three points higher than the treasury rate were identified as subprime, indicated by a value of 1. Those that were equal to or less than three points difference were not subprime and have a value of 0.

In the four logistic regression models discussed below, we control for two types of independent variables: socio-demographic and homeownership characteristics. The socio-demographic characteristics include respondent's age, race and ethnicity, educational attainment, net worth in 2007, total household income in 2007, and unemployed status in 2007. Age is included as a continuous variable as reported in 2007. Race and ethnicity were coded together in

four binary variables for white, non-Hispanic; black, non-Hispanic; Hispanic; and other race, non-Hispanic. For educational attainment, we coded for college educated or more in a binary variable. The net worth variable calculates the natural log of all assets less debt for each respondent based on the Federal Reserve's standard calculation.[4] Assets include finances invested in checking accounts, mutual funds, stocks, retirement funds, life insurance, vehicles, businesses, and real estate, while debt includes mortgage loans, credit card balances, and any other lines of credit. Net worth does not include any income variables, which are accounted for separately in total household income with wages or salaries and other household income.[5] Finally, unemployment is a binary variable based on the respondents' reports of employment in 2007.

Homeownership variables used as independent variables in the model include when the home was purchased and refinanced, and whether the mortgage is subprime. Both the home purchase and refinance variables include whether the home was purchased between 2001 and 2007, the peak of the housing price bubble. These variables are both binary and thus equal to 1 when the home was purchased or refinanced in that period and equal to 0 if it was not. In addition, we include a continuous variable indicating the years since a mortgage was issued for the respondents' home purchases to understand how distance from the housing price bubble affects the four dependent variables. Finally, we include whether the mortgage is subprime in all models expect the subprime model to understand the relationship between subprime loans and being behind in mortgage payments, underwater, and experiencing foreclosure.

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[4] See the code provided by the Federal Reserve at: http://www.federalreserve.gov/econresdata/scf/files/fedstables.macro.txt

[5] Other household income includes non-taxable investments, dividends, worker's compensation, child support, TANF, and food stamps.

The regression analyses use logistic regression for all binary dependent variables (foreclosed, behind in mortgage payments, underwater, subprime). The coefficients reported for these tables are odds ratios to ease interpretation.

Results

The first set of data tables provide some descriptive statistics that allow us to understand how inequality, homeownership, and the Great Recession produced different kinds of outcomes for different kinds of people. Table 1 presents data on home ownership for households in different positions in the income and wealth distributions in 2007. One can observe the strong relationship between income and wealth and home ownership. At the bottom of the income distribution 38.28% of households own their homes, while at the top nearly 100% do. In the SCF, even at the middle of the income distribution (51-75%), almost 91% of the households own their own homes. Wealth is even more strongly connected to home ownership. At the top of the wealth distribution (81-100%) almost 97% of the households own their own homes. Even in the 21-40% of the wealth distribution almost 82% of households own their own homes. As we reported earlier, for the 20-80% of the wealth distribution, home ownership makes up the largest share of their wealth.

(Table 1 about here)

Tables 2 presents means and medians on various variables of interest for the entire SCF while Table 3 presents the same statistics for respondents who own their home. We can see that the mean loss in net worth was higher for homeowners by comparing across the two tables with homeowners losing $190,464 compared to $140,411 for entire sample. The median loss for the

homeowners sample was $40,340 while the median loss for the total sample was $18,611. The difference between the mean and median values indicate that there are outliers in the data. Since the SCF oversamples very wealthy people, these outliers affect the means on these variables significantly, while the medians provide a more accurate sense of losses due to homeownership among respondents. For the home owning sample, drops in house value accounted for almost 50% of the total wealth loss for households at the median loss level. This is powerful data that shows that for most people, the main effect of the Great Recession on their overall wealth was the drop in housing prices. As one would expect, in comparing Tables 2 and 3, the home owning sample is slightly older than the whole sample and more white, more college educated, less likely to be unemployed in 2007 and have higher household incomes and net worth in 2007.

(Table 2 about here)

Among the home owner sample, average respondent had owned their house for 14 years (with the median 9). About 38% of the sample had purchased their houses between 2001-2007, and 60% had refinanced their houses during this period. Households that experienced foreclosure made up 4% of this sample, which matches other national data. Almost 23% had been behind in their payments, almost 10% were in the position that they owned more on their house than the mortgage (underwater), and a little over 10% had subprime mortgages. These statistics show that a small but significant portion of households were experiencing some form of distress because of the Great Recession.

(Table 3 about here)

Table 4 explores the relationship between where a household stands in the income distribution and characteristics of their home ownership. The findings show a distinct and surprising differences between the bottom 25% of the income distribution, the 26-75%, and the

76-100%. Those in the bottom 25% tended to have bought their house before 2001 and therefore were less frequent participants in the housing boom from 2001-2007. This meant that they were also less likely to owe more on their mortgage than their homes were worth. They were also less likely to refinance than other groups. But, they were more vulnerable in falling behind in their payments, being susceptible to foreclosures, and had the highest rate of subprime loans. Life in the bottom 25% of the income distribution shows risk aversion but also precariousness.

(Table 4 about here)

Those in the middle of the income distribution (26-75%) were more likely to have bought their house in 2001-2007 than those at the bottom. They were also the groups that most frequently refinanced their home during 2001-2007. Not surprisingly, these groups found themselves more likely to owe more on their mortgages than their homes were worth. They also experienced relatively high rates of foreclosure and having subprime loans. The evidence implies that middle income households were the most aggressive participants in the house boom both as buyers and as refinancers.[6] This left them the most susceptible to the house price downturn.

Finally, the upper middle class and top income earners (76-100%) refinanced their homes less frequently than the middle-class. They were also less likely to be behind in their mortgage payments, owe more on their mortgages than their homes were worth, experience foreclosure, and to have a subprime loan than the bottom and middle income groups. The overall conclusion one can draw is that the lowest income households were vulnerable to their low incomes and the housing price declines. But the middle class, by virtue of participating more in buying and refinancing during the 2001-2007 period experienced nearly as much economic distress and found themselves more likely to owe more on their mortgages than their houses

[6] Fligstein and Goldstein, forthcoming show that middle class households were the most likely to have a more relaxed attitude towards risk and debt and take on more debt during this period.

were worth. The upper middle class and top of the income distribution experienced the lowest levels of financial distress as a result of the housing bubble collapse.

(Table 5 about here)

Table 5 presents evidence on the same variables as Table 4 for homeowners but this time across the wealth distribution. The reader needs to remember that wealth is more significantly concentrated than income and while roughly correlated with income does not follow entirely the same patterns. In fact, the top 20% of the wealth distribution owns 84% of the wealth (Wolff, 2012). Thus, the patterns in Table 5 reflect the vulnerability of those in the lowest wealth groups to shocks to their finances. So, home owners in the bottom 40% of the wealth distribution tended to buy their home in 2001-2007, while those in the top 20% tended to have owned their homes much longer. If we put this together with the fact that middle income people were the most likely to purchase their homes in this period, we can see that these households were the ones taking the gamble that house prices would continue to rise in order to support their mortgages.

Refinancing homes was done at a very high rate for those in the bottom 20% of the wealth distribution (almost 91%) and the 21-40% compared to the top 20%. Again, for households in the middle of the income distribution who frequently refinanced to support their lifestyles, this made them vulnerable to a housing downturn. The lowest 20% of the wealth distribution had a very high rate of being behind in their house payments, finding themselves owing more on their homes than they were worth, and experiencing foreclosures. 46% of homeowners in the bottom 20% of the wealth distribution found themselves owing more than their homes were worth while only 3% in the top 20% were in that position. Not surprisingly, the rate of foreclosure for this group was 3 to 5 times as high as three top two income groups. Furthermore, the lowest wealth holders had the highest rates of subprime loans. These results

suggest that those who came late to the housing market (2001-2007) tended to have less wealth, tended to need to refinance more often to keep their homes, and were the most vulnerable to the downturn in house prices. In essence, those who tried achieve the American dream in the 2001-2007 house bubble, many of whom were in the middle of the income distribution, ended up owing more than their homes were worth and finding themselves the victims of foreclosures.

Table 6 further explores the distribution of being behind in mortgage payments, being underwater, experiencing foreclosure, and having a subprime loan with logistic regressions that control for individual and home purchasing characteristics to test hypotheses 1 and 2. Again, coefficients in Table 6 are presented as odds ratios. All of the independent variables are measured in 2007. The dependent variables refer to events that did or did not occur between 2007 and 2009.

Hypothesis 1 predicts that households with less income and those headed by Blacks or Hispanics will be more likely to be late on home payments, owe more than their home is worth, experience foreclosure and have a subprime loan, which is tested in Model 1. It is useful to consider all of the dependent variables in order to observe consistent parameters across models. The first column presents predictions for whether or not a household was behind in its payments. We find that households with a head who had a college degree or more and households with higher income were less likely to be behind in mortgage payments. Households with Black or Hispanic heads or an unemployed head were more likely to fall behind in their mortgage payments. There were no effects of wealth on falling behind in your mortgage payment.

Model 1 predicting whether a household is underwater shows that older households and households with more net worth were less likely to owe more than their house was worth. Black,

Hispanic, and other racial group households were more likely to be underwater than white households.

Foreclosure was less likely for households with more net worth. Households with a Black or Hispanic head of household or a household head who was unemployed were more like to have been foreclosed on in 2007-2009. Interestingly, as household income increases, there is a slightly higher likelihood of experiencing foreclosure. However, the magnitude of this finding is well below that of that for race and unemployment.

Finally, the findings for subprime loans are consistent with the prior literature. Subprime loans are less likely with higher wealth. In addition, Black and Hispanic respondents are more likely to have subprime loans.

(Table 6 about here)

These results offer some support for Hypothesis 1. The strongest support is for the idea that households with Black and Hispanic members were more likely to be behind in their payments, be underwater, experience foreclosure, and have subprime loans. In fact, having a Black or Hispanic head of household was associated with a higher likelihood for all four dependent variables. In contrast, results for class related measures varied by dependent variable. Increasing household income decreased the likelihood of being behind in mortgage payments, but increased the likelihood of experiencing foreclosure. Similarly, having an unemployed household head in 2007, a cause of financial distress, only increased the likelihood of being behind in mortgage payments and experiencing foreclosure. College educated heads of households, who should have higher incomes, were less likely to be behind in their house payments, but were no different from non-college educated respondents. This perhaps indexes the fact that they may have had better financial knowledge and avoided taking on too much debt.

Interestingly, the results for household wealth and income variables varied in their effects, likely reflecting that some respondents may be middle- or high-income and hold less wealth. Increasing wealth decreased the likelihood of being underwater, experiencing foreclosure, and have a subprime loan, which only coincided with results for income for foreclosure.

Hypothesis 2 argued that the reason we would expect Black and Hispanic households and households with lower income and wealth to experience more financial distress if they entered the housing market between 2001-2007, refinanced their mortgages, or got subprime loans. This meant they bought houses at their price peak and had bad mortgage terms. Model 2 tests this hypothesis across the four dependent variables. In general, what we observe is that the size of the coefficients for being Black or Hispanic decreases when we add the measures indexing when households entered the housing market and characteristics of their mortgages. But race and ethnicity continue to have large effects on the outcomes in all of the models.

In the full model for whether or not a household is behind in its payments, Blacks and Hispanics have a higher likelihood than whites of being behind in payments, as well as head of households that were unemployed. unemployed. Having a college education and more household income both have less likelihood of being behind on mortgage payments. Among the additional housing market variables, only whether or not a household got a subprime loan is associated with being behind on mortgage payments, increasing the likelihood.

In terms of being underwater, the strongest predictors are whether or not the household has a subprime loan and being Black or Hispanic, both of which increase the likelihood of being underwater. More wealth is associated with a lower likelihood of being underwater. Finally, the longer a household has had their mortgage, the less likely they are to be underwater. The full model for foreclosure shows that if the household head is Black, Hispanic, or unemployed, they

have a higher likelihood of experiencing foreclosure, even when controlling for mortgage conditions. Among the mortgage conditions, the older the mortgage, the less likely the house was to be foreclosed.

Finally, the model predicting having a subprime loan indicates that Blacks and Hispanics were more likely to have a subprime loan compared to whites. In contrast, households with more net worth and more income were less likely to have a subprime loan. Of the mortgage characteristic variables, having refinanced between 2001 and 2007 was the most important predictor, increasing the likelihood of having a subprime loan even more than racial or ethnic background.

These results provide strong evidence that having a subprime mortgage mattered for homeownership vulnerability. Furthermore, there is some evidence that when homeowners entered the market mattered for these vulnerability outcomes outside of having a subprime loan, which was more likely for mortgages between 2001 and 2007. In particular, length of time that a household held a mortgage and refinancing between 2001 and 2007 contributed to predictions for being underwater, experiencing foreclosure, and having a subprime loan. The main negative result in Model 2 continued to be race and ethnicity for most outcomes, but even after controlling for the type of mortgage and the timing of the mortgage. In fact, the race and ethnicity differences were the only consistent findings across all four dependent variables and all eight models.

Conclusions

We have explored the relationship between debt and fiscal distress among homeowners during the Great Recession. Our findings show that while the wealthy got wealthier, all other homeowners were vulnerable to having their wealth destroyed. This was for two reasons. First, the 20-80% of the wealth distribution held most of its wealth in housing. This meant that when housing went down, they were particularly vulnerable to losses. But, even more important was the fact that the middle class (26-75% of the wealth distribution) entered the housing market as prices soared between 2001 and 2007. They bought houses with large mortgages frequently using subprime loans. Having less wealth to begin with and working to build wealth as the housing market soared, these households were the most susceptible to the market downturn. They found themselves behind on their house payments, their houses worth less than their mortgages, and many of them were foreclosed on. Their "paper" wealth dropped as the values of their homes went down. Thus, the American dream of owning a home turned into a massive decrease in wealth for the middle class.

While the timing and type of mortgage were factors for all Americans, we have also found evidence that Black and Hispanic households were at greater risk. Black and Hispanic households came into the 2000s with much lower rates of home ownership. Some of this was the history of discrimination by real estate agents, institutions, and the resulting high levels of residential segregation. But, as financial institutions ran out of candidates for conventional mortgages in 2003, they turned to underserved communities. Here, they willingly sold subprime mortgages to people who had previously been unable to qualify for a mortgage. Financial institutions made enormous sums of money off of these mortgages which were attractive because the mortgagees paid higher fees and higher interest rates. When these mortgages were turned into MBS, they were easily sold to customers looking for higher yielding "safe" investments.

But, when house prices stopped going up, all households that came to the market late and who took out subprime mortgages found themselves losing value on their homes. Black and Hispanic households were particularly hard struck and they lost half of their wealth both because of foreclosures, but also house price declines. In this case, wealth inequality did not increase because the rich were capturing more of the wealth. But because for part of the middle and lower middle classes, the small amount of wealth they had acquired was destroyed.

There is much about this story to be fleshed out. It is not clear how what happened to different households with different socio-economic characteristics is related to place. Since much of the subprime crisis was in a few places, it would be useful to unpack how race and class interacted to produce the effects we observed. Unfortunately, the SCF does not provide data on place, thus other data sources will have to be explored to discover this connection. It is also the case that these processes worked differently for Hispanic and Black households, that it would be useful to unpack their differential patterns of residential segregation and histories of discrimination. Exploring how and why financial institutions targeted some populations for subprime loans and connecting it back to these other processes is something we know very little about. So, for example, many White households also got subprime loans even if they qualified for conventional mortgages. Connecting how different groups fared and connecting it to time and place will give us more insight into the wealth destruction that resulted from the meltdown of housing.

Finally, it would be useful to explore the joint effects of income and wealth on these outcomes. The descriptive statistics suggest that the middle of the income distribution was the most likely to participate in the housing price boom from 2001-2007. But these same statistics show that the participation was mostly for people with little wealth. This suggests that the

booming housing market came last to those who had middle of the distribution incomes but not much wealth. Financial institutions willingness to extend large nonconventional mortgages brought these households into home ownership. That we did not find effects for these variables implies that it is necessary to explore the join relationship between income and wealth to make sense of which households took the brunt of the downturn in wealth.

Bibliography

Atkinson, Anthony, Thomas Picketty, and Emmanuel Saez. 2014. "Top incomes in the long run of history." *Journal of Economic Literature* 49: 3-71.

Belsky, Eric S. 2013. *The Dream Lives On: The Future of Homeownership in America. Joint Center for Housing Studies.* Harvard University.

Bosworth, Barry. 2012. "Economic consequences of the Great Recession: Evidence from the Panel Study of Income Dynamics." Working Paper 2012-4. Center for Retirement Research at Boston College.

Bricker, Jesse, Brian Bucks, Arthur Kennickell, Traci Mach, and Kevin Moore. 2011. "Surveying the Aftermath of the Storm: Changes in family Finances from 2007 to 2009." Finance and Economics Discussion Series 2011-17. Washington, D.C.: U.S. Federal Reserve.

Bucks, Brian and Jesse Bricker. 2013. **"**Household Mobility over the Great Recession: Evidence from the U.S. 2007-09 Survey of Consumer Finances Panel." Finance and Economics Discussion Series 2013-53. Washington, D.C.: U.S. Federal Reserve.

Conley, Dalton. 1999. *Being Black, Living in the Red: Race, Wealth, and Social Policy in America*. Berkeley, Ca: University of California Press.

Davis, Gerald F. 2009. *Managed by the markets: How finance reshaped America*. New York: Oxford University Press.

Demyanyk, Yulia and Otto Van Hemert. 2009. "Understanding the subprime mortgage market." *Review of Financial Studies* 24 (6): 1848-1880.

Dwyer, Rachel E., Randy Hodson, and Laura McCloud. 2013. "Gender, debt, and dropping out of college." *Gender and Society* 27(1); 30-55.

Dwyer, Rachel E., Laura McCloud, and Randy Hodson. 2012. "Debt and graduation from American universities." *Social Forces* 90(4): 1133-1155.

Fligstein, Neil and Adam Goldstein. 2010. "The anatomy of the mortgage securitization crisis." Pp. 29-70 in M. Lounsbury and P. Hirsch (ed.) *Markets on Trial*. Bingley, U.K.: Emerald Press.

----------. Forthcoming. "The emergence of a finance culture in U.S. households, 1990-2007." *Socio-Economic Review,* forthcoming.

Flippen, Chenoa A. 2001. “Racial and ethnic inequality in homeownership and housing equity.” *Sociological Quarterly,* 42(2), 121:149.

Grinstein-Weiss, Michal, Clinton Key, Shenyong Guo, Yeong Yeo, Krista Holub. (2013). “Homeownership and wealth among low- and moderate-income households.” *Housing Policy Debate,* 23(2), 259-279.

Hodson, Randy, Rachel E. Dwyer, and Lisa A. Neilson. 2014. “Credit card blues: The middle class and the hidden costs of easy credit.” *The Sociological Quarterly* 55: 315-340.

Hyra, Derek, Gregory Squires, Robert Renner, and David Kirk. 2014. “Metropolitan segregation and the subprime lending crisis.” *Housing Policy Debate* 23:177-198.

Gerardi, Kristopher, Adam Shapiro, and Paul Willen. 2009. “Subprime outcomes: risky mortgages, homeownership experiences, and foreclosures. Working Paper 07-15. Boston, Ma.: Federal Reserve Bank of Boston.

Goetzmann, William, Liang Peng, Jacqueline Yen. 2009. “The subprime crisis and house price appreciation.” NBER Working Paper 15334. Cambridge, Ma.: National Bureau of Economic Research.

Grusky, David, Bruce Western, and Christopher Wimmer. 2011. *The Great Recession.* New York: Russell Sage.

Herbert, C. E., and W. C. Apgar. 2009. *Report to Congress on the Root Causes of the Foreclosure Crisis.* Department of Housing and Urban Development.

Kennickell, A. B. 1997. “Multiple imputation and disclosure protection: The case of the 1995 Survey of Consumer Finances.” In *Record Linkage Techniques-1997: Proceedings of an International Workshop and Exposition*. Washington, DC: National Academy Press.

Krivo, Lauren, and Robert Kaufman. “Housing and wealth inequality: racial ethnic differences in home equity in the United States.” *Demography* 41 (3): 585-605.

Kuebler, Meghan and Jacob S. Rugh. 2013. “New evidence on racial and ethnic disparities in homeownership in the United States from 2001 to 2010.” *Social Science Research*, 42(5),1357:1374.

Mayer, C., K. Pence, and S. M. Sherlund. 2009. “The rise in mortgage defaults.” *Journal of Economic Perspectives* 23, (1): 27-50.

Mian, A. R., and A. Sufi. 2008. “The consequences of mortgage credit expansion: Evidence from the 2007 mortgage default crisis.” NBER Working Paper 15283: Cambridge, Ma.: National Bureau of Economic Research.

National Mortgage News. 2005. “Taking it Seriously” March 21, 2005.

Niedt, Christopher and Isaac Martin. 2014. "Who are the foreclosed? A statistical portrait of America in crisis." *Housing Policy Debate* 23: 159-176.

Oliver, Melvin and Thomas Shapiro. 1997. *Black Wealth, White Wealth.* New York: Routledge.

Page, Devah and Hana Shepard. 2008. "The sociology of discrimination: racial discrimination in employment, housing, and consumer markets." *Annual Review of Sociology* 34: 181-209.

Picketty, Thomas. 2014. *Capital in the 21st Century.* Cambridge, Ma.: Harvard University Press.

Rugh, Jacob and Douglas Massey. 2010. "Racial segregation and the American foreclosure crisis." *American Sociological Review*, 75(5), 629:651.

Shiller, Robert J. 2007. "Understanding recent trends in house prices and home ownership." NBER Working Paper 17882, Cambridge, Ma.: National Bureau of Economic Research.

U.S. Bureau of the Census. 2014. "Residential vacancies and homeownership in the second quarter, 2014." Accessed on August 3, 2014 at http://www.census.gov/housing/hvs/files/currenthvspress.pdf.

U.S. Bureau of Economic Analysis. 2014. "Personal income and outlays, June 2014; revised estimates 1999 through May 2014." Accessed on August 3, 2014 at http://www.bea.gov/newsreleases/national/pi/pinewsrelease.htm.

U.S. Federal Reserve Bank. 2012. Codebook for the 2007-2009 Panel Study of the Survey of Consumer Finances. Accessed on Aug. 3, 2014 at http://www.federalreserve.gov/econresdata/scf/scf_2009pdocumentation.htm.

Wolff, Edward. 2012. "The asset price meltdown and the wealth of the middle class." NBER Working Paper 18559. Cambridge, Ma.: National Bureau of Economic Research.

Figure 1

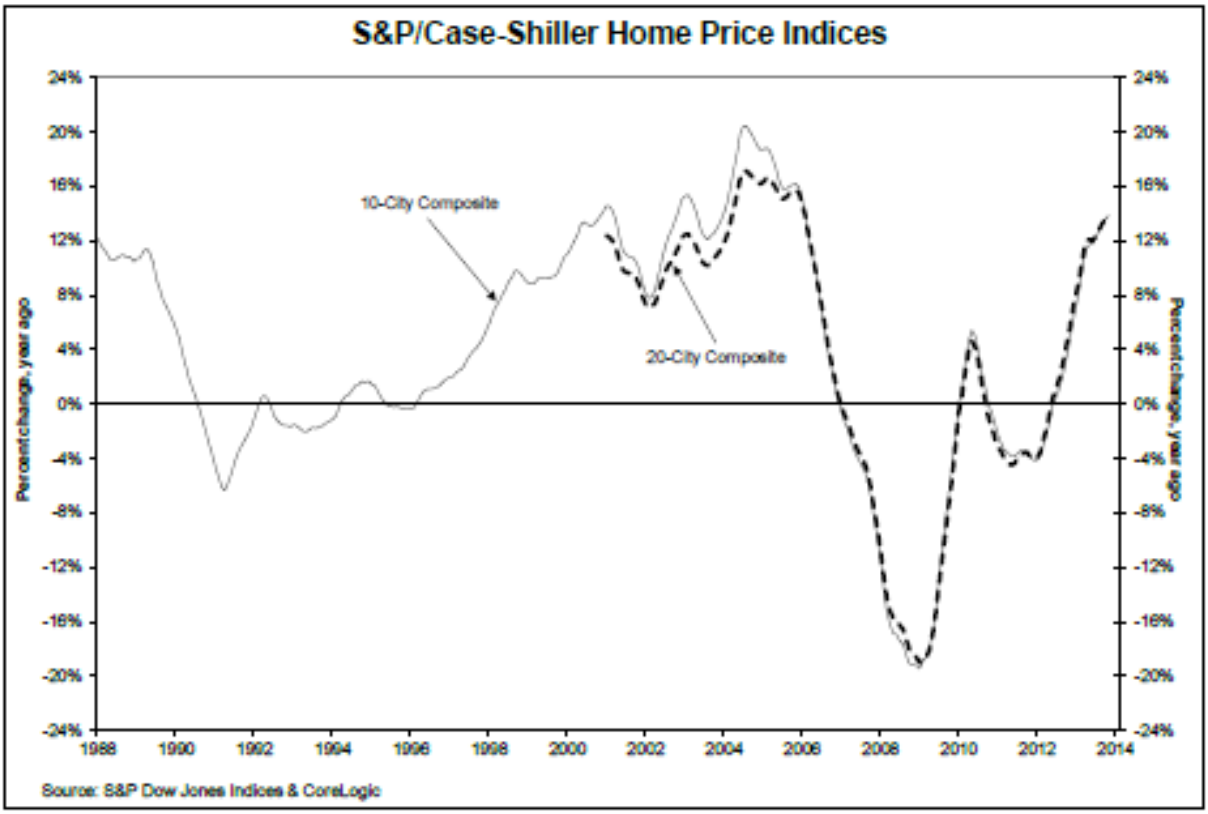

Figure 2: Median home prices 2000-2013

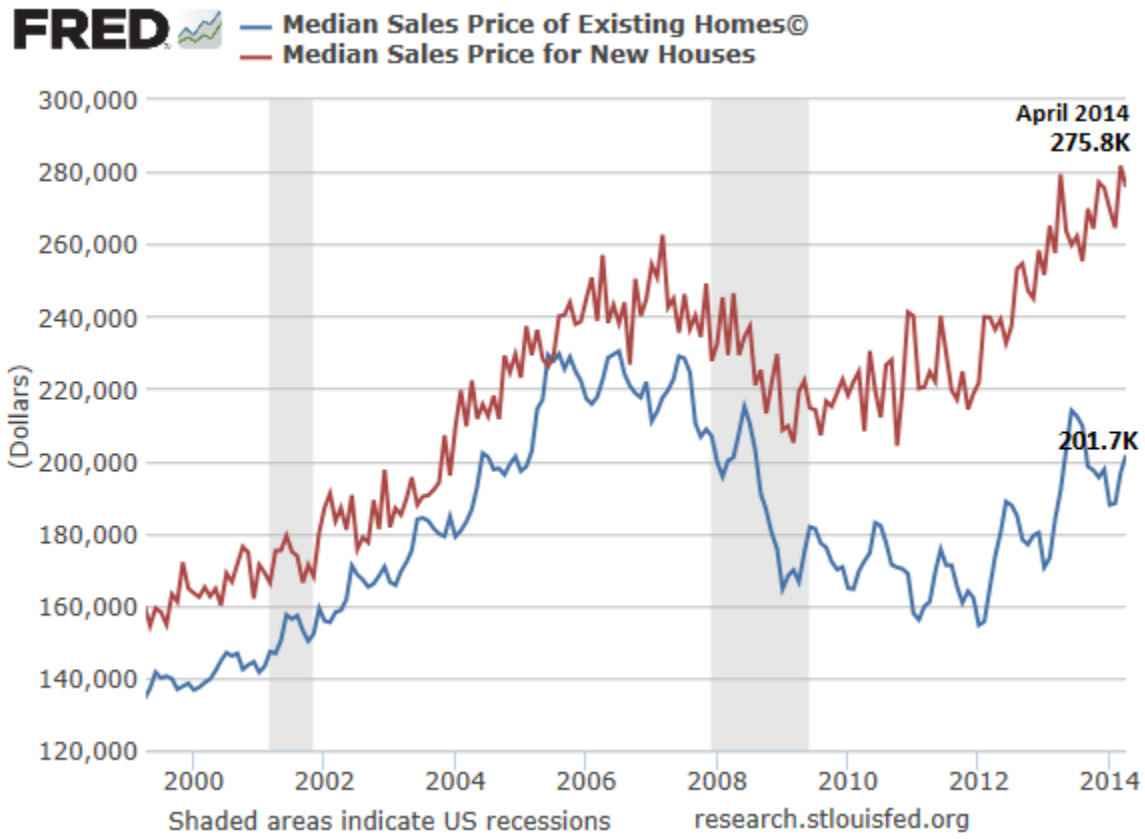
FRED
Median Sales Price of Existing Homes©
Median Sales Price for New Houses
300,000
280,000
260,000
240,000
220,000
200,000
180,000
160,000
140,000
120,000
(Dollars)
April 2014
275.8K
201.7K
2000
2002
2004
2006
2008
2010
2012
2014
Shaded areas indicate US recessions
research.stlouisfed.org

Figure 3: Dow Jones Average, 2000-2014

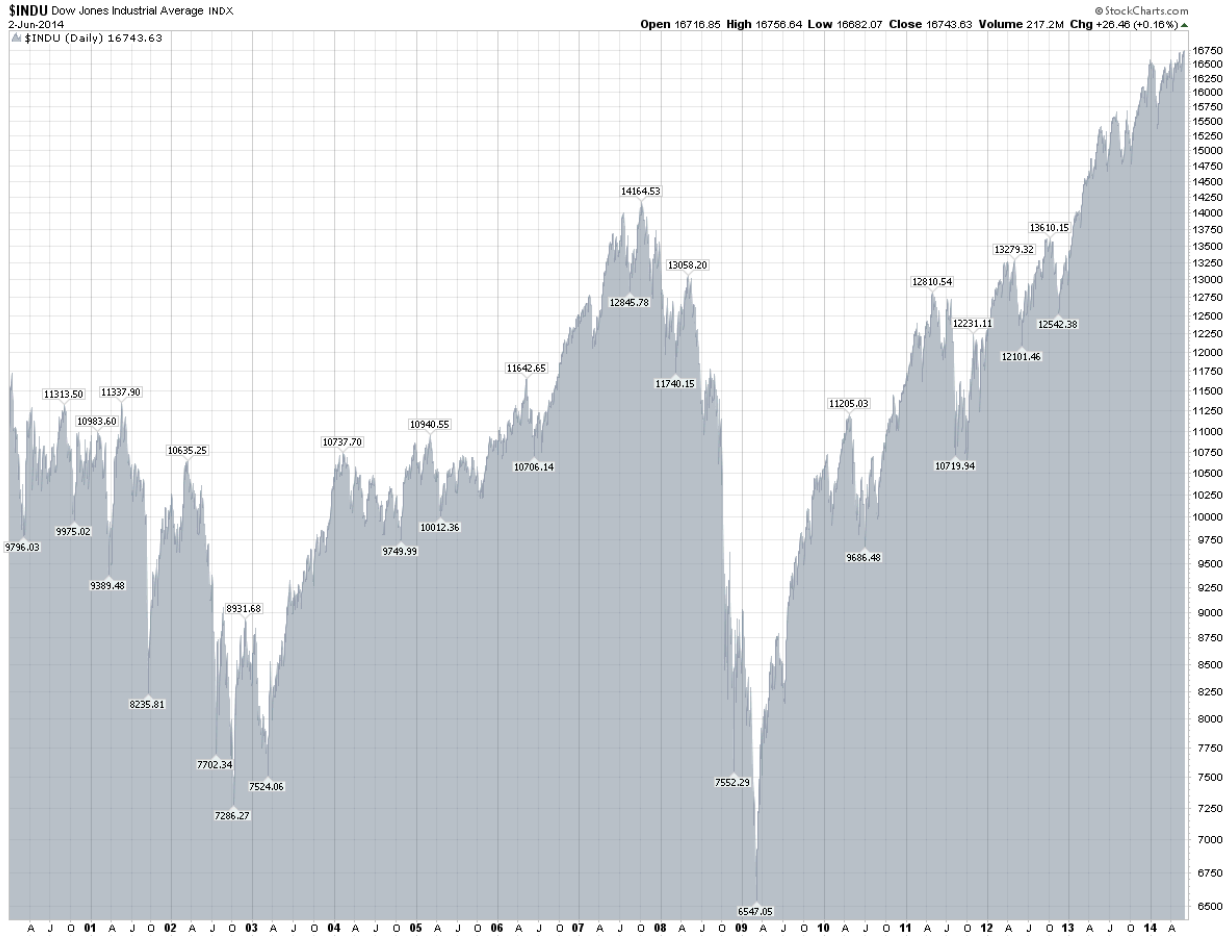

Figure 4:

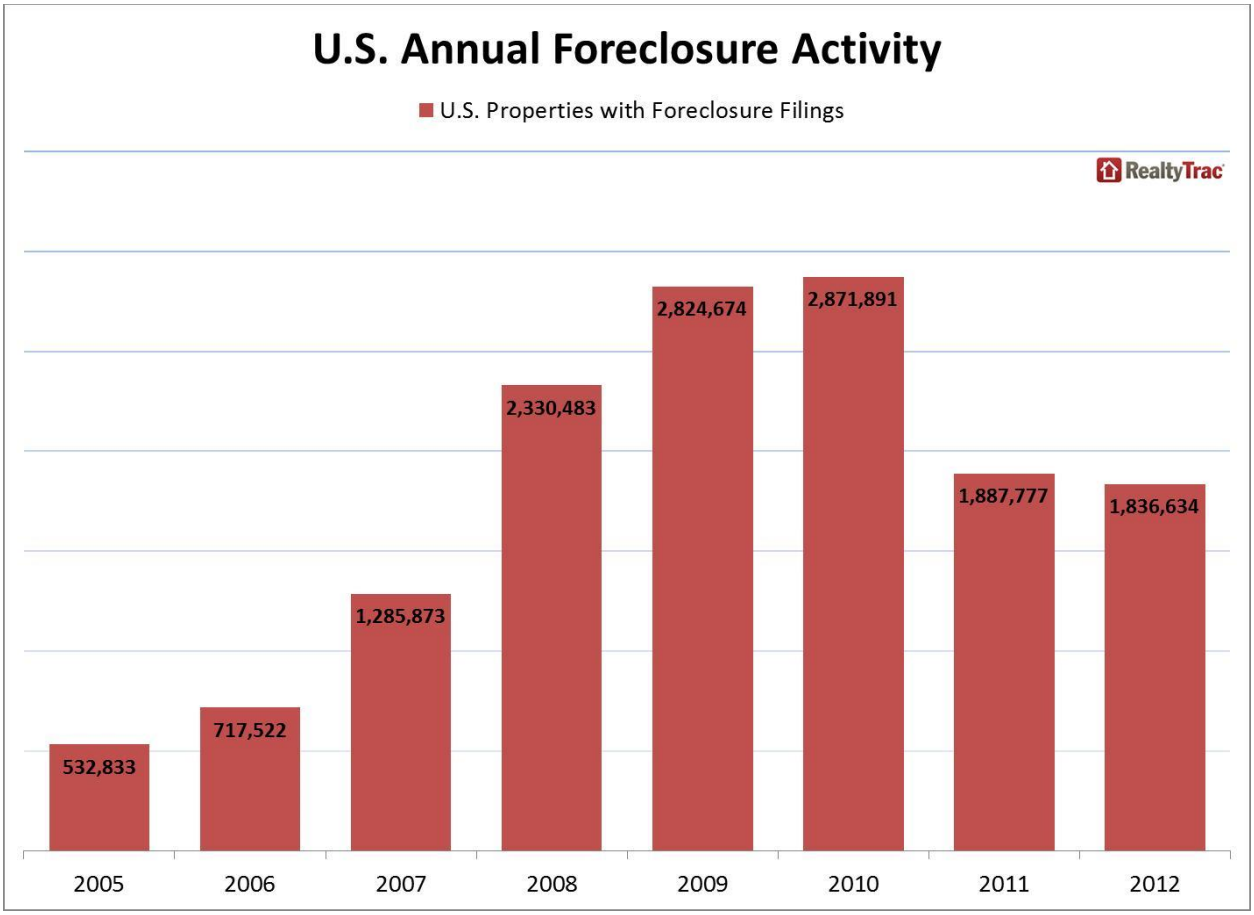
U.S. Annual Foreclosure Activity
U.S. Properties with Foreclosure Filings
RealtyTrac
532,833
717,522
1,285,873
2,330,483
2,824,674
2,871,891
1,887,777
1,836,634
2005
2006
2007
2008
2009
2010
2011
2012

Figure 5: Source: Fligstein and Goldstein (2010) and Inside Mortgage Finance (2009).

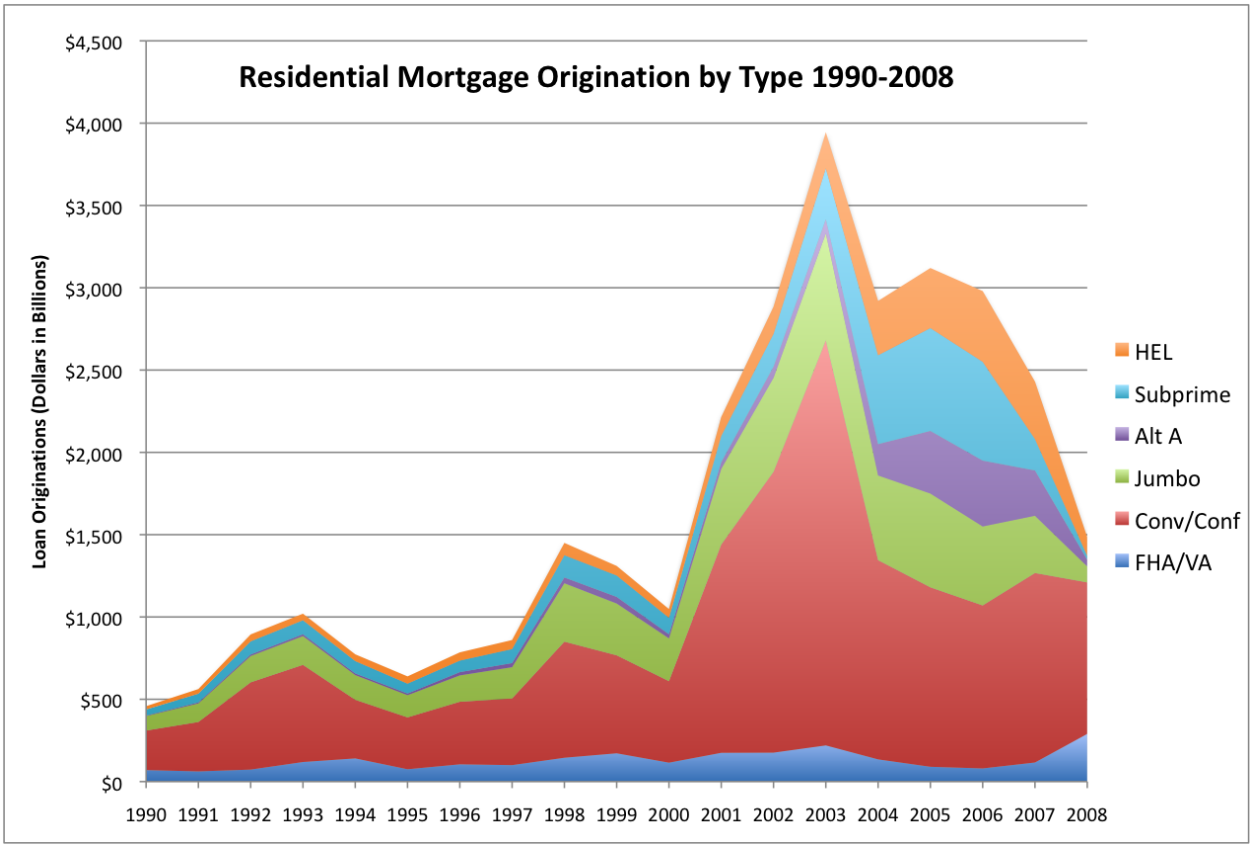

Table 1: Percent homeowners by income and wealth distribution

	Homeowners	Non-Homeowners
Income group		
0 to 10 percentile	38.28	61.72
11 to 25 percentile	52.60	47.40
26 to 50 percentile	69.86	30.14
51 to 75 percentile	90.98	9.02
76 to 90 percentile	94.05	5.95
91 to 97 percentile	93.50	6.50
98 to 100 percentile	100.00	0.00
Wealth group		
0 to 20 percentile	21.40	78.60
21 to 40 percentile	81.57	18.43
41 to 60 percentile	93.97	6.03
61 to 80 percentile	96.79	3.21
81 to 100 percentile	96.51	3.49

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.

Table 2: Means and medians for entire sample

	Mean	Median
Change in net worth	-140,411	-18,611
Change in home value	-44,399	-18,379
Change in stock value	-67,002	-766
House worth as a proportion of net worth	57.44	45.02
Stocks as a proportion of net worth	8.54	1.79
Age	49	48
Race		
White, non-Hispanic	70.70	
Black, non-Hispanic	13.07	
Hispanic	12.12	
Other race, non-Hispanic	4.11	
Less than college educated	32.86	
College educated or more	36.47	
Unemployed in 2007	2.93	
Total household income	86,172	48,193
Net worth in 2007	585,525	132,756
Years since mortgage in 2007	14	9
Home purchase between 2001 and 2007	24.85	
Refinanced between 2001 and 2007	40.31	
Ever experienced foreclosure	3.44	
Ever behind in mortgage payments	26.72	
Ever underwater in mortgage	6.88	
Subprime mortgage in 2007	6.55	

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.

Table 3: Mean and median values for homeowners used in regressions

	Mean	Median
Change in net worth	-190,464	-40,340
Change in home value	-62,315	-25,862
Change in stock value	-76,626	-1,034
House worth as a proportion of net worth	59.12	47.82
Stocks as a proportion of net worth	5.60	1.69
Age	53	52
Race		
White, non-Hispanic	77.80	
Black, non-Hispanic	9.61	
Hispanic	8.56	
Other race, non-Hispanic	4.02	
Less than college educated	26.21	
College educated or more	43.14	
Unemployed in 2007	1.94	
Total household income	111,924	65,226
Net worth in 2007	819,854	250,673
Years since mortgage in 2007	14	9
Home purchase between 2001 and 2007	38.33	
Refinanced between 2001 and 2007	60.44	
Ever experienced foreclosure	3.64	
Ever behind in mortgage payments	22.91	
Ever underwater in mortgage	9.72	
Subprime mortgage in 2007	10.16	

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.

Table 4: Home ownership characteristics by income distribution for various variables

Income group percentile	0 to 10	11 to 25	26 to 50	51 to 75	76 to 90	91 to 97	98 to 100
Bought home 2001-7	24.15	28.67	40.85	42.79	39.97	33.97	43.46
Bought home before 2001	75.85	71.33	59.15	57.21	60.03	66.03	56.54
Refinanced 2001-7	28.99	33.81	64.20	74.18	64.80	43.90	19.87
Before refinanced 2001	12.12	12.45	10.27	10.40	9.54	5.62	2.27
Never refinanced	58.89	53.74	25.53	15.42	25.65	50.47	77.86
Foreclosed	4.24	2.14	3.98	4.28	1.42	0.17	3.47
Not foreclosed	95.76	97.86	96.02	95.72	98.52	99.83	96.53
Behind in mortgage payments	52.22	52.58	38.03	25.97	7.33	5.74	26.49
Not behind in mortgage payments	47.78	47.42	61.97	74.03	92.67	94.26	73.51
Underwater	2.54	7.76	12.93	10.94	5.30	0.77	0.16
Not underwater	97.46	92.24	87.07	89.06	94.70	99.23	99.84
Subprime loan	24.90	16.62	16.26	12.60	5.24	0.52	0.00
Not subprime loan	75.10	83.38	83.74	87.40	94.76	99.48	100.00

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.

Table 5: Wealth distribution by various variables for homeowners in 2007

Wealth group percentile	0 to 20	21 to 40	41 to 60	61 to 80	81 to 100
Bought home 2001-7	69.31	43.65	35.31	26.34	28.75
Bought home before 2001	30.69	56.35	64.69	73.66	71.25
Refinanced 2001-7	90.73	67.02	57.91	52.16	43.69
Refinanced before 2001	5.04	12.37	12.45	9.11	5.28
Never refinanced	4.22	20.61	29.64	38.73	51.04
Foreclosed	10.22	5.04	2.49	1.13	3.02
Not foreclosed	89.78	94.96	97.51	98.85	96.98
Behind in mortgage payments	55.59	40.81	25.77	18.80	11.84
Not behind in mortgage payments	44.41	59.19	74.23	81.20	88.16
Ever underwater	46.00	14.02	5.15	2.41	2.89
Never underwater	54.00	85.98	94.85	97.59	97.11
Subprime loan	28.52	18.42	10.26	6.67	4.49
Not subprime loan	71.48	81.58	89.74	93.33	95.51

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.

Table 6: Analysis of determinants of dependent variables for homeowners in odds ratios

	Behind in Mortgage Payments				Underwater				Foreclosure				Subprime			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Age	0.99		0.99		0.96	***	0.99		0.99		1.03		0.99		1.00	
Black	3.03	***	2.67	***	2.43	**	1.99	*	4.23	**	3.81	**	2.25	***	2.51	***
Hispanic	2.33	***	2.08	***	2.42	***	2.20	**	4.41	***	4.12	***	2.10	**	2.06	**
Other race	0.92		0.93		2.32	**	1.73		2.09		1.71		0.79		0.75	
College educated	0.53	***	0.54	***	1.09		0.98		1.15		1.05		1.00		0.99	
Net worth in 2007 (ln)	0.94		0.92		0.65	***	0.76	**	0.73	*	0.90		0.82	**	0.83	**
Total household income in 2007 (ln)	0.68	***	0.64	***	1.19		1.04		1.44	*	1.16		0.81		0.75	*
Unemployed in 2007	3.22	*	3.58	**	0.50		0.84		5.53	**	6.59	**	0.40		0.48	
Home purchased between 2001 and 2007			1.11				1.57				0.66				0.92	
Refinanced between 2001 and 2007			1.23				2.58				0.59				10.98	***
Years since mortgage			1.00				0.93	**			0.84	**			0.98	
Subprime mortgage			2.46	***			2.53	***			1.63					
Constant	100.11	***	221.18	***	15.32	**	1.28		0.01	***	0.01	**	22.87	***	3.01	
Total observations	1,289		1,248		2,027		1,323		2,076		1,364		1,364		1,364	

Source: Survey of Consumer Finances, 2007-9 provided by the U.S. Federal Reserve Board.