Understanding the Unequal Post-Great Recession Wealth Recovery for American Families

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Abstract

The wealth of US families had not returned to its prerecession level by 2013, six years after the onset of the Great Recession. This article provides a comprehensive analysis of this slow and uneven episode of wealth recovery, using family-level data from the Survey of Consumer Finances 1989–2013. Both descriptive results and regressions controlling for life cycle wealth accumulation show that families of color and less-educated families are falling behind in wealth recovery because their wealth portfolios are concentrated in housing, which has recovered very slowly. The decomposition results suggest that homeownership plays a significant role in explaining wealth disparity by race, ethnicity, and education at the mean and bottom of the wealth distribution. Understanding the uneven wealth recovery has important implications for redesigning asset-related policies and narrowing wealth gaps.

Key words: Family Wealth, Great Recession, Wealth Disparity

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1. Introduction

The Great Recession, which occurred between 2007 and 2009, has resulted in a significant decline in US family wealth and has greatly weakened families' economic security. Numerous families had difficulty meeting their mortgage payments, and many lost their homes. Some families lost financial assets in the stock market, whereas others were forced to make early withdrawals from their retirement savings to weather losses from unemployment. Significantly, the effects of the Great Recession have not been evenly distributed. Studies using various datasets in the United States have shown that families of color, younger families, and less-educated families are disproportionately affected by the Great Recession (Bricker et al. 2012; Choi 2013; McKernan et al. 2014; Shapiro, Meschede, and Osoro 2013; Taylor et al. 2011; Wolff 2012). Recent studies suggest that US families still have not fully recovered from wealth losses six years after the onset of the Great Recession and that wealth inequality has increased as well (Bricker et al. 2014; Dunn and Olsen 2014; Pffeffer, Danziger, and Schoeni 2013).

This paper provides a comprehensive examination of the postrecession wealth recovery process. We pay particular attention to the uneven wealth recovery profiles across different American families and try to unravel the underlying causes. Specifically, we look at three questions: (1) Which families have returned to their prerecession wealth level by 2013? (2) What roles have the housing, labor, and financial markets played in the postrecession wealth recovery process? (3) What are the most important factors causing the uneven recovery of family wealth across different socioeconomic groups?

Developing a thorough understanding of wealth recovery overall and across different socioeconomic groups has important policy implications. Many economists believe that the timing of economic recovery is likely to be determined by the strength of consumer spending. The dramatic loss in assets or large increase in debt burden can reduce household

consumption, which, in turn, slows both the economy's recovery and job creation. The subsequent need to rebuild lost wealth is therefore crucial for economic recovery. In addition, the different levels of rebound of family wealth across different socioeconomic groups contribute to our knowledge of rising wealth inequality. Younger families and families of color were not on a good wealth-building path prior to the Great Recession and lost even more than older cohorts and whites during the recession (McKernan et al. 2014). Policies ranging from the social safety net to tax policies aim to reduce wealth inequality.

It is important to first understand how the disparity has changed years after the recession. Most of the existing studies on wealth dynamics during and after the Great Recession are simple before-and-after comparisons of average family wealth (e.g., Bricker et al. 2014; Dunn and Olsen 2014), and the majority of studies on wealth disparity focus on racial disparity. This paper goes beyond the previous studies by examining wealth recovery within the context of life cycle wealth accumulation using more than two decades of household level survey data, and we consider wealth recovery for different types of households, separating them by race and ethnicity, education, and age. In addition, we look into the causes of the uneven recovery by studying the roles played by the housing, financial, and labor markets. Finally, we use a detailed decomposition analysis to attribute wealth differences at the mean and selected percentiles by race, ethnicity, and education to differences in macroeconomic conditions and asset ownership.

Our results, based on the Survey of Consumer Finances 1989–2013, show that postrecession wealth recovery has been slow and uneven for families of different demographic backgrounds. Black, Hispanic, and less-educated families are falling behind in wealth accumulation, partly because their prerecession wealth was concentrated in housing, a market that has recovered slowly. The detailed decomposition suggests that differences in the homeownership rate account for at least 30% of the mean wealth gap by race, ethnicity, or

education. The extent to which observables explain wealth disparity varies considerably across the wealth distribution. Differences in homeownership and whether having a quasi-liquid retirement account explain a large portion of the racial or educational wealth disparity at the lower end of the wealth distribution, whereas differences in stock ownership rate explain a large portion of the wealth distribution at the upper end of the wealth distribution. Observed differences in labor market conditions measured by employment rate explain 8% of racial disparity and 6% of educational or ethnic disparity at the 90th percentile of the wealth distribution.

The paper is organized as follows. Section 2 provides an overview of findings in the existing literature. Data and measures are described in section 3, and the empirical approach is presented in section 4. Section 5 presents the empirical results, and section 6 concludes the paper.

2. Background

Different descriptive analyses using family-level data sources in the United States have shown a slow recovery of family wealth following the Great Recession. By early 2013, the wealth of American families had not returned to its prerecession level.[2] Between 2010 and 2013, the Survey of Consumer Finances shows a 2% fall in median net worth and a slight increase in average net worth from $534,500 to $534,600. Homeownership and business ownership each drop by 2% (Bricker et al. 2014). Using Consumer Finance Monthly, a national random telephone survey of over 25,000 US households since 2005, Dunn and Olsen (2014) find that younger age groups and those who are below the 25th percentile in net worth distribution have lost more in percentage terms but also recovered more than older and richer

2. Note that aggregate data from the Federal Reserve Board's financial accounts report show US family net worth has returned to the prerecession level. Nevertheless, the aggregate data include the wealth of nonprofit organizations and do not account for the population growth and changes in the price level (Dunn and Olsen 2014).

families. However, financial assets have recovered more than nonfinancial assets. Using Health and Retirement Survey data from 2006 to 2012, Gustman, Steinmeier, and Tabatabai (2014) find that wealth in 2012 remains 3.6% below its 2006 value among the Early Boomer cohort (age 51 to 56 in 2004). The Panel Study of Income Dynamics (PSID) shows that average net worth changes from $423,592 in 2007 to $411,178 in 2009 and to $308,276 in 2013 (Pfeffer, Danziger, and Schoeni 2013). Also using data from the PSID, Burd-Sharps and Rasch (2015) find that although white families have rebounded from the Great Recession, black families are still struggling to make up lost ground and that the racial wealth gap has increased.

Nevertheless, the extant literature is dominated by studies describing the changes in mean or median net worth before and after the recession, and few studies use a regression framework. Using the PSID, Pfeffer, Danziger, and Schoeni (2013) examine the likelihood of wealth loss and percentage of wealth loss between 2007 and 2011 among families who have positive net worth in 2007. Holding constant prerecession (2003–2007) wealth, income quintiles, and other socioeconomic characteristics, they find that white and Asian families have lost 13.8% less than families headed by African Americans or other races. They also find smaller losses for older families, although the differences between age groups are smaller than the racial differences. Families headed by persons who are 55–64 years old have lost 4% less wealth than those under 35. Shapiro, Meschede, and Osoro (2013) use a multivariate framework to examine wealth changes over the 25-year period from 1984 to 2009. Following roughly 1,700 working-age adults, the authors find that the racial wealth gap has nearly tripled between 1984 and 2009. The Oaxaca decomposition shows that the number of years of homeownership accounts for 27% of the increasing white–black wealth gap. In addition, average family income accounts for 20% of the wealth gap, and unemployment accounts for 9%. Further, some studies also attempt to explore the counterfactual of what

wealth would have been in absence of the Great Recession. Burd-Sharps and Rasch (2015) forecast wealth using the median wealth growth rate from 1999 to 2001 and apply it to median wealth from 2003 to 2011 for both black and white families to see what both groups' wealth would have been without the recession.

Another type of related literature uses the decomposition method to quantify what factors explain wealth disparity between groups. Most of these studies focus on wealth disparity between white and black families (Barsky et al. 2002; Menchik and Jianakoplos 1997; Shapiro, Meschede and Osoro 2013).[3] Menchik and Jianakoplos (1997) use the Oaxaca-Blinder (OB) method and find that inheritances account for 10–20% of the average wealth gap between black and white families. Barsky et al. (2002) propose a nonparametric alternative to the OB decomposition method that reweights wealth distribution using weights that equalize distributions of the explanatory variable. They find that two-thirds of the mean difference in wealth between black and white families is attributed to differences in earnings. Using data from the Survey of Consumer Finances for the period of 1989 to 2012, Thompson and Suarez (2015) examine both the black–white wealth gap and the Hispanic–white gap. They apply the OB decomposition as well as a nonparametric decomposition developed by DiNardo, Fortin, and Lemieux (1996) on a comprehensive set of observed factors and show that the wealth gap between white and black families is due to asset holdings while the gap between white and Hispanic families is mostly due to debt holdings. The decomposition analysis in our paper examines wealth disparity by education, race, and ethnicity. In addition, we use a detailed decomposition to quantify the roles of financial and labor markets as well as employment conditions in explaining wealth disparity, which have not been examined previously.

3. For an overview of literature on black–white wealth inequality in the United States using the decomposition approach, see Scholz and Levine (2004).

3. Data

3.1. Family-level wealth data

The main data source for our study is the Federal Reserve Board's Survey of Consumer Finances (SCF) from 1989 to 2013 (1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, and 2013).[4] The SCF is a national representative cross-sectional survey and provides a detailed account of assets and liabilities at the household level. The data oversamples relatively wealthy families based on Internal Revenue Service tax records, and weights are used to compensate for unequal probabilities of selection in the sample design, unit nonresponse, and imputation for missing data. The 2013 survey interviews 6,026 families.

The SCF has several advantages over alternative household data in the United States (e.g., the Panel Study of Income Dynamics or the Health and Retirement Study).[5] First, the SCF provides the most detailed measurement of family wealth and is considered the gold standard in wealth data. The SCF asks hundreds of questions on wealth, many more than other surveys. As the valuation of assets or debts can be complex, more detailed questions generally produce more reliable estimates. SCF statistics also match the Federal Reserve Flow of Funds quite well. Second, the SCF oversamples wealthy families to represent the full wealth distribution. Family wealth has a more skewed distribution than income or earnings. Although estimates of total wealth from the PSID are comparable to those from the SCF, with

4. We start with the 1989 data because 1989 is the year when the SCF starts using a consistent methodology to measure wealth components (e.g., retirement wealth).

5. There are few national surveys that contain detailed information on family wealth. The PSID collected information on total wealth and some major wealth components in 1984, 1989, 1994, and 1999. Since 1999, the PSID collects information on a biennial basis. It oversamples low-income families. The Health and Retirement Study surveys individuals over age 50. The Survey of Income and Program Participation contains a relatively shorter panel (e.g., four years) and also oversamples low-income families.

exceptions for the top 3% of households, studies have shown that there are significant discrepancies between the two when looking at wealth components or socioeconomic groups (Juster, Smith, and Stafford 1999; Pfeffer, Danziger, and Schoeni 2013; Pfeffer, Schoeni, and Andreski 2013). Although the panel feature in PSID is a clear advantage, our paper focuses on differential wealth recovery across different socioeconomic groups and for different components, which makes reliable estimates of wealth at all levels essential.

Our analysis mainly focuses on total wealth (net worth), which is measured as total assets minus total liabilities/debts.[6] In addition, we examine the following major wealth components: home equity (primary residence), other real estate equity, retirement assets,[7] nonretirement financial assets, business equity, and vehicle equity. All dollar amounts are adjusted to 2013 dollars.[8] Beyond wealth, the SCF collects information on various social and economic characteristics, including age, race and ethnicity, family composition, and education.

Our primary sample includes all families with a head between the ages of 20 and 64 in each survey year.[9] We examine both dollar change and relative change in family wealth. Because 10.4% of the sample has negative or zero net worth, we measure relative wealth

6. Expected future Social Security, Medicare benefits, and defined benefit pensions are not included in the SCF calculation of total wealth. Excluding these is likely to understate the wealth of older people more than younger people. Our analysis sample excludes families with a respondent above 65 years old, making Social Security and pension less problematic for this sample. Wolff (2015) provides a comprehensive discussion of changes in pension wealth in the 2000s.

7. Retirement assets refer to quasi-liquid retirement accounts such as individual retirement accounts, Keoghs, account-type pensions on current job, future pensions, and current received account-type pensions.

8. Prices are adjusted by the Consumer Price Index based on “current methods” for all urban consumers.

9. Because one of our research purposes is to examine the role of labor market on wealth recovery, we exclude families headed by individuals older than 65 years old, as few of them participate in the labor market.

using the inverse hyperbolic sine transformation (IHS), which defines zero and negative values and has a similar interpretation to log measure. IHS has been used in several wealth studies (Gale and Pence 2006, Pence 2006, Thompson and Suarez 2015). As a robustness check, we find that results using the log of net worth plus $5,000 or some other dollar amounts are qualitatively similar to results using IHS.

In the descriptive analysis we examine both average wealth and median wealth. Although many studies focus on median wealth because wealth has a skewed distribution, we focus on average wealth for two reasons. First, median wealth only represents a typical person, whereas average wealth captures the entire group's wealth. Second, we are interested in changes in major wealth components, and some components have a median of zero (e.g., business equity), which make mean statistics more informative.

3.2. Aggregate data on macroeconomic conditions

To examine the roles of the housing, labor, and financial markets play on family wealth recovery, we use additional data sources to capture the changes in macroeconomic conditions. The first source is the March Current Population Survey. We construct the employment-to-population ratio and unemployment rate, and then we merge them with the SCF by survey year, race and ethnicity (white, black, Hispanic, and other), age group (20–28, 29–37, 38–46, 47–55, 56–64), and education group (High school/GED or below, some college, and above). The employment-to-population ratio is defined as "at work/has job" over the full population, excluding "not in universe" and the armed forces. The unemployment rate is defined as "not at work last week" over the population in the labor force.

The second aggregate data source is Federal Housing Finance Agency Quarterly House Price Index (HPI).[10] Because the SCF survey interviews are largely conducted between the months of May and December in each survey year (Bricker et al. 2014), we use the HPI in the third quarter and merge it with the survey data.

The financial market is captured by the Standard & Poor's 500 Index (S&P 500). It is an American stock market index based on the market capitalizations of 500 large companies that have common stock listed on the New York Stock Exchange or NASDAQ.[11] The above indexes and measures are all standardized into numbers with a mean of 0 and standard deviation of 1.

4. Empirical Approach

Our first regression model measures the wealth changes between 2007 and 2013, controlling for socioeconomic characteristics as well as life cycle wealth trajectory:

$$y_{it} = \alpha_0 + \alpha_1 D_t + \alpha_2 X_{it} + \alpha_3 C_{\mathrm{j}} + \varepsilon_{it}, \tag{1}$$

where the dependent variable y_{it} is either wealth or the IHS of wealth for family *i* in year *t*. D_t includes all year dummies with 2007 omitted. The key explanatory variable D_{2013} measures wealth changes between 2007 and 2013, and D_{2010} captures wealth loss during the Great Recession between 2007 and 2010. X_{it} represents the demographics of the household head: age, age squared, race and ethnicity (black non-Hispanic, Hispanic, or other race non-Hispanic; the category of white non-Hispanic has been omitted), family composition

10. We use the national-level index based on all transactions (estimated using sales prices and appraisal data) and not seasonally adjusted. We choose FHFA HPI because other index such as Case-Shiller are not available in early survey years.

11. There is a more detailed measure of financial market change in the SCF data that varies across households: the Wilshire index at the actual date of the interview. However, this information is only available after 2001. We want to use data since 1989 because it gives us a more complete picture of life cycle wealth change.

(single with child, single without child, married with child, with omitted category of married without child), and education (less than high school, high school only, some college, with omitted group of college degree and above). C_{j} represents nine-year birth cohort dummies: born 1985–93, born 1976–84, born 1967–75, born 1958–66, born 1949–57, and born 1940–48; the cohort of those born before 1940 has been omitted. We use weighted least squares for all regression models. Standard errors are clustered by survey year *t* and nine-year birth cohort *j*.[12] In addition to the regression on the full sample, we also conduct subgroup analysis by race and ethnicity, education, and age.

The second regression model measures how the housing, labor, and financial markets affect family wealth:

$$y_{it} = \alpha_0 + \alpha_1 I_t + \alpha_2 D_t + \alpha_3 X_{it} + \alpha_4 C_{\mathrm{j}} + \varepsilon_{it}, \tag{2}$$

where I_t is a vector of macroeconomic measures: employment-to-population ratio last year, S&P last year, HPI last year, all of which are standardized to a mean of 0 and a standard deviation of 1.[13] Other independent variables are the same as in equation (1). Note that the HPI and S&P 500 only vary over time but are invariant across families within a year; thus, only *T-3* year dummies can be included in this model (versus *T-1* year dummies in equation [1]). After dropping three-year dummies, D_{2013} and D_{2010} no longer measure the impact of the Great Recession as in equation (1); thus, we replace year dummies with a third polynomial in year *t* to approximate the time trend.

To quantify how much of the wealth disparity between groups is explained by the group differences in asset ownership or macroeconomic conditions, we first use the standard

12. Missing values are imputed five times in the SCF data. We use the STATA command Micombine to correct for standard errors from multiple imputation, as recommended in the SCF data codebook: http://www.federalreserve.gov/econresdata/scf/files/codebk2013.txt.

13. Our main analysis uses employment-to-population ratio rather than unemployment rate because the denominator of the former is not affected by the changes in the number of discouraged workers, those who are discouraged by the deteriorating labor market and decide to drop out of the labor force.

OB decomposition method (Blinder 1973; Oaxaca 1973), and then use an influence function regression decomposition method developed by Firpo, Fortin, and Lemieux (2009).

The OB method is widely used for detailed decomposition. Using the white–black wealth gap as an example, the difference in average wealth between whites and blacks can be divided into a component that is explained by group differences in observed characteristics and a component that is unexplained by these observed differences, which is sometimes attributed to discrimination. With the regression model in equation (2), the difference in mean wealth can be decomposed using the following formulas:

$$\bar{W}_w - \bar{W}_b = (\bar{X}_w - \bar{X}_b)\hat{\beta}_w + \bar{X}_b\left(\hat{\beta}_w - \hat{\beta}_b\right) \tag{3}$$

or

$$\bar{W}_w - \bar{W}_b = (\bar{X}_w - \bar{X}_b)\hat{\beta}_b + \bar{X}_w(\hat{\beta}_w - \hat{\beta}_b), \tag{4}$$

where $\bar{W}_w$ is the average of net worth (IHS) among white families and $\bar{W}_b$ is the average of net worth (IHS) among black families, $\hat{\beta}_w$ and $\hat{\beta}_b$ are vectors of estimated coefficients from separate regressions on the sample of white families and black families, and $\bar{X}_w$ and $\bar{X}_b$ are vectors of mean observed characteristics. We are primarily interested in the measures of macroeconomic conditions: HPI, S&P 500, employment-to-population ratio, and household asset ownerships: whether owning a home, whether directly owning stocks, and whether having quasi-liquid retirement accounts, as values of quasi-liquid retirement accounts are also affected by stock market fluctuation. Decomposition using either equation (3) or (4) could yield different results. OB decomposition results depend on the choice of reference group (e.g., white or black), which is referred to as an index number problem (Oaxaca 1973). Studies use either one or the other or a weighted sum of both. Reimers (1983) suggests using the average (i.e., a weight of 0.5). Neumark (1988) advocates for using the coefficients from a pooled regression of both groups, whereas Cotton (1988) proposes to weight the

coefficients by the relative size of each group. We present results using different reference groups in table 8 which will be discussed later.

Although the OB method is widely used for detailed decomposition, it has several limitations. First, OB decomposition results could be sensitive to the choice of reference group. This is related to the lack of common support between the distributions of the two groups being compared. For example, using coefficients on blacks to estimate the wealth of whites involves extrapolating from the sample, which may lead to unreliable results (Altonji and Doraszelski 2005; Barskey et al. 2002). Second, the OB method assumes a linear relationship between explanatory and outcome variables, which may result in inconsistent estimates of the composition effect when the conditional mean is a nonlinear function. Barsky et al. (2002) find that the wealth function is not linear in income or relative to some other explanatory variables. In addition, the OB method can only decompose at the mean, whereas several recently developed methods allow for decomposition for other distributional statistics (e.g., DiNardo and Lemieux 1997; Firpo, Fortin, and Lemieux 2009).

We employ the re-centered influence function (RIF) regression approach developed by Firpo, Fortin, and Lemieux (2009) to decompose wealth disparity by race, ethnicity, and education at the 10th, 50th, and 90th percentiles of the wealth distribution. The key concept is the influence function, which represents the influence of an observation on a distributional measure such as a quantile. The RIF adds the influence function back to the statistic of interest. Once the RIF regressions are estimated, the estimated coefficients can be used to perform the detailed decomposition in the same way as in the standard OB decomposition.

In the case of quantiles, $\mathrm{RIF}(y; Q_\tau)$ can be calculated as follows:

$$\mathrm{RIF}(y; Q_\tau) = Q_\tau + \frac{\tau - I\{y \leq Q_\tau\}}{f_Y(Q_\tau)} \tag{5}$$

where $I\{y \leq Q_\tau\}$ is an indicator function, $f_Y(.)$ is the density of the marginal distribution of Y, and Q_τ is τ-quantile of the unconditional distribution of Y.

5. Results

5.1. Who lost and who recovered? prerecession and postrecession difference

Although the Great Recession ended in June 2009, household-level data based on the National Bureau of Economic Research (NBER) calculation of business cycle expansions and contractions show that family wealth has not returned to prerecession levels by 2013.[14] We start with a description of changes in net worth and its components between 1989 and 2013 among all families headed by persons 20–64 years of age (table 1). The average net worth drops by 17.1% between 2007 and 2010, from $546,302 in 2007 to $453,065 in 2010, and declines by another 4.9% in 2013.[15] The wealth level in 2013 is even lower than in 2001 ($462,340). The largest percentage drops of average wealth between 2007 and 2013 come from home equity (36.2%), other real estate equity (32.9%), and business equity (22.5%).

Large disparities across socioeconomic groups are found in prerecession wealth levels as well as postrecession loss and recovery (table 2). Families of color are falling behind in wealth accumulation even prior to the recession. The average net worth of black non-Hispanics and Hispanics accounts for less than one-third of the average net worth for white non-Hispanic families in 2007. Although all racial and ethnic groups suffer severe wealth loss during the Great Recession, black non-Hispanics and Hispanics have lost three to

14. The NBER calculation of business cycle expansions and contractions can be found at http://www.nber.org/cycles.html.

15. Our results differ from Bricker et al. (2014), who use SCF data. Their percent change in mean net worth is zero between 2010 and 2013 (their Table 2). Their sample includes all families, but we focus on families who have a head between 20 and 64 years of age. We get the same results as theirs if we use the full SCF sample. Dunn and Olsen (2014) finds a 33% increase in mean net worth between 2010 and the first half of 2013, using the Consumer Finance Monthly (their Table 1).

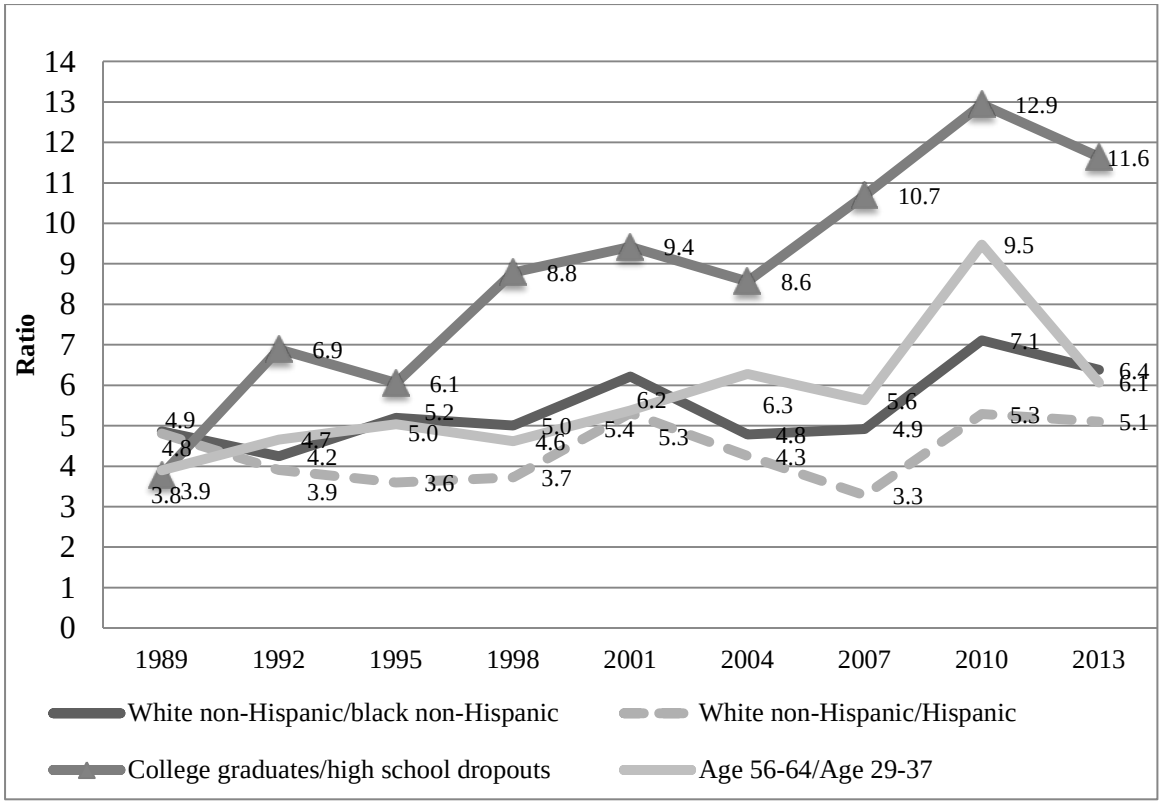
four times more in relative terms than white non-Hispanics between 2007 and 2010. Working-age white non-Hispanic families have lost 17.1% of their net worth on average between 2007 and 2013, compared with 36.1% for black non-Hispanics and 46.6%for Hispanics.

All educational groups experience over 20% wealth decline on average between 2007 and 2013; however, less-educated families have lost slightly more than the others. College graduates have lost 23.5% of their wealth, whereas high school dropouts lost 29.7%, and high school graduates have lost 32.5%.

Although younger families lose more relative wealth than older families during the Great Recession, they rebound sooner between 2010 and 2013. Among families headed by individuals 29–37 years of age, their average wealth increases by 24.8% during the aforementioned period. In contrast, older families headed by individuals 56–64 years old lose only 10.4% by 2010, but instead of a rebound, their wealth declines by 20.1% through 2013.

5.2. Wealth disparity over the past 25 years

Looking at a longer time horizon, we find that wealth disparity between different race and ethnic groups, education groups, or age groups have all increased over the past 25 years. Figure 1 plots the ratio of mean net worth between the following groups: white non-Hispanics and black non-Hispanics, white non-Hispanics and Hispanics, college graduates and those without a high school diploma, and individuals aged 56–64 and individuals aged 29–37.



Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Figure 1: Ratio of Mean Net Worth between Groups, 1989-2013

The white–black ratio remains relatively stable at about 5, but it increases to 6.2 in the 2001 recession and rises sharply to 7.1 during the Great Recession. The wealth gap between whites and Hispanics is relatively narrower, but the ratio rises from 3.3 to 5.3 in 2010 and remains at 5.1 in 2013. Families of color were already falling behind prior to the recession, and policymakers are trying to find ways to narrow the racial wealth gap. The widening racial wealth gap after each economic downturn is a pressing matter because we are headed in the opposite direction.[16]

The educational wealth disparity between college graduates and those without a high school degree has increased sharply over the past two decades from a mean ratio of 3.8 in

16. The widening racial disparities in financial situations are also found in other countries during the Great Recession. For example, Gathergood (2011) finds that racial minority families were more likely to face credit constraints between 2006 and 2009.

1989 to 12.9 in 2010 and 11.6 in 2013.[17] Wealth disparity between the old (individuals aged 56–64) and the young (individuals aged 29–37) has also increased over time. However, unlike the racial wealth gap or the educational wealth gap, younger generations are able to catch up and narrow the wealth gap soon after the Great Recession ends. The quick rebound of younger families is also found in other studies (Dunn and Olsen 2014).

5.3. Wealth recovery in the context of life cycle wealth accumulation

Families tend to follow a life cycle pattern of wealth accumulation: wealth in general grows faster when families are young and continues to increase until retirement, after which families start to spend down their wealth. Wealth changes over a life cycle complicate the actual wealth losses or gains in the recession. For example, if a family with a head who is 30 years old loses half of their wealth during the Great Recession, the actual loss would be much larger because that family's wealth would have grown in the absence of the Great Recession. We do find in descriptive analysis that younger generations are able to recover faster than older generations after the recession, which could be partly because younger families are on the upward trajectory of wealth accumulation. Therefore, we use the regression model described in equation (1) to control for life cycle wealth accumulation by including age effect, year effect, and cohort effect.

After controlling for life cycle wealth accumulation, we find a smaller dollar decline in net worth ($108,327 loss) between 2007 and 2013 compared with descriptive results of an $115,293 loss (table 3a vs. table 1). Looking at different wealth components, the largest dollar declines between 2007 and 2013 come from home equity and other real estate equity. The R-squares in dollar wealth regression are small (ranging from 0.004 to 0.115). In Table 3b we present regression results on the IHS of wealth to measure the relative changes in

17. Studies suggest that education has a positive causal effect on asset holdings (e.g., Hryshko, Luengo-Prado, and Sorensen 2012), which could be one explanation of wealth disparity by education.

wealth, which has a larger R-square, indicating a better fit of the model using relative wealth measure. Consistent with descriptive results, Table 3b shows that home equity experienced the largest relative loss between 2007 and 2013, with a coefficient of -1.897, followed by other real estate equity, with a coefficient of -0.654.

Across different demographic groups, the largest relative losses between 2007 and 2013 are mostly suffered by black non-Hispanics, high school graduates, and individuals between 29 and 37 years of age (Table 4a–c). Regression results controlling for age, year, and cohort also suggest a different wealth disparity pattern from descriptive results. Regarding racial and ethnic disparity, black non-Hispanics have lost much more than whites in relative terms between 2007 and 2013, with an estimated coefficient of -1.686. The impact of the recession on Hispanics is not significant because of a smaller sample size.[18] Looking at educational disparity, families headed by college graduates start to rebound in wealth after 2010, whereas families headed by high school graduates continue to suffer wealth loss even after the end of the Great Recession.

Although the descriptive table shows a plausible faster recovery for younger generations, this is no longer true when taking into consideration that they should be on an upward wealth accumulation trajectory in the absence of the recession. Table 2 suggests that families whose heads are aged between 38 and 46 have a 30.4% increase in net worth between 2010 and 2013. After controlling for how their wealth would have grown in a normal life cycle pattern, Table 4c show that these families experience continuing wealth loss after 2010, rather than a rebound.

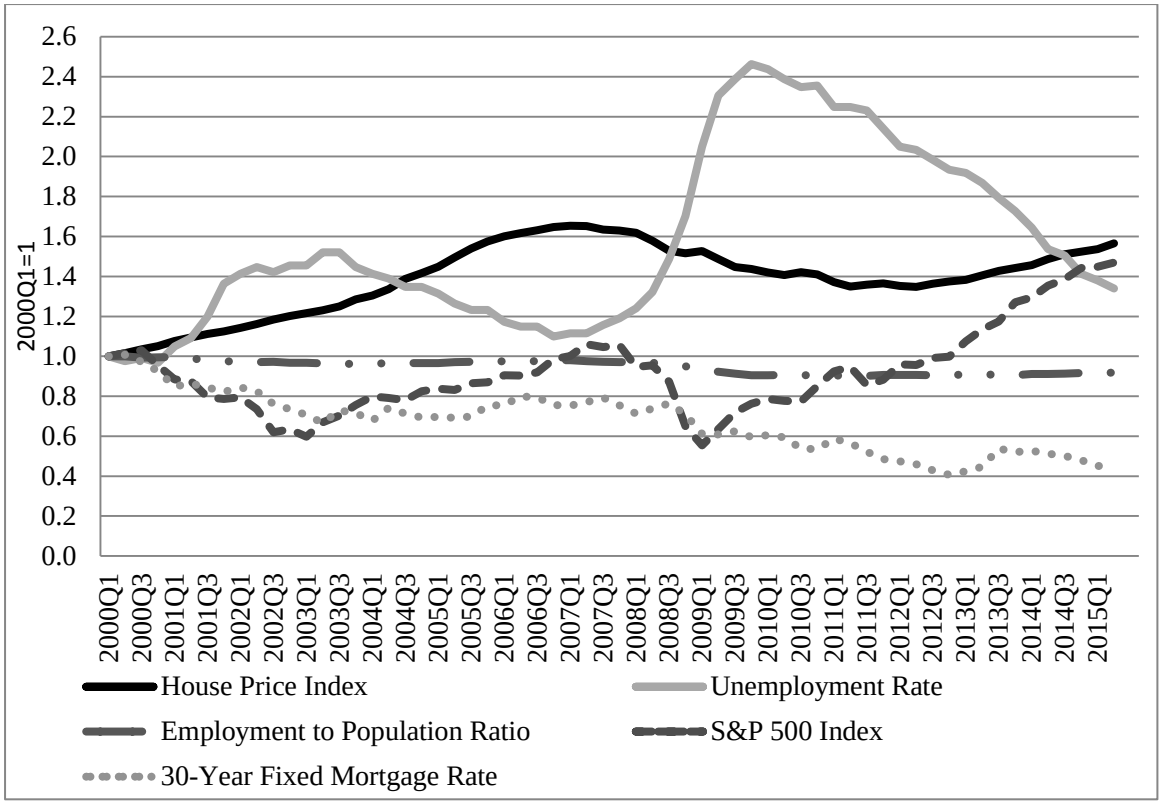
5.4. What drives an uneven recovery?

18. We do not present results for other race non-Hispanics, because the sample size is insufficient and the estimates are inaccurate.

Both descriptive and regression results controlling for life cycle wealth accumulation show a larger wealth loss during the Great Recession and slower recovery afterward among black non-Hispanic and Hispanic families compared with white non-Hispanic families, which leads to a rising racial/ethnic wealth disparity after the recession. The wealth gap between high school dropouts and college graduates has also increased. What drives these patterns? In this section and the following section, we explore the potential reasons for uneven recovery and rising wealth disparity by race/ethnicity or by education.

Changes in macroeconomic conditions suggest a faster recovery in the financial market and a slower recovery in the housing market (figure 2). The financial market, as measured by the S&P 500, shows a continuous increase since Q1 2009. In contrast, the housing market has not shown any obvious sign of recovery until Q4 2012.[19] The unemployment rate starts to rise in Q3 2007. It almost doubles between 2007 and 2009 and gradually falls after 2010. The unemployment rates for black non-Hispanics and Hispanics are much higher than for white non-Hispanics (not shown). The conventional, conforming 30-year fixed mortgage rate from Freddie Mac Primary Mortgage Market Survey is historically low during the period 2007–13. Lower mortgage rates could affect the debt holdings of American families as well as their decisions regarding purchasing a home.

19. Although housing price varies across different cities, public SCF data do not contain geographic information such as city, state, or metropolitan area. We can only use the national-level HPI to capture the time variation in housing market conditions.



Note: All series are benchmarked at 2000 Q1=1. The House Price Index comes from Federal Housing Finance Agency. The unemployment rate and employment-to-population ratio are constructed from March Current Population Survey. The 30-year fixed mortgage rate comes from Freddie Mac Primary Mortgage Market Survey.

Figure 2: Changes in Macroeconomic Conditions in the U.S., 2000-2015

Differences in wealth composition across socioeconomic groups prior to the Great Recession along with a slow recovery in the housing market versus a faster recovery in the financial market are likely to explain the uneven recovery in family wealth across groups. Studies have found that wealthy families typically put their money in stocks and other financial holdings, whereas less wealthy families invest more heavily in their homes (Fry and Taylor 2013). Table 5 presents the proportion of net worth in housing equity, financial assets, and all other wealth in 2007 and 2013 across different groups. Prior to the recession, the family wealth of blacks, Hispanics, and high school dropouts are concentrated in housing equity, with more than half of these groups' total wealth invested in the housing market.[20]

20. This is based on an average over all families within each group. If we take into account that these

These groups are more vulnerable to housing crises and less able to rebound after such crises due to a slow recovery in housing market. However, white non-Hispanics and college graduates tend to have more diversified wealth portfolios. They have less than one-third of the total housing wealth, and over 40% of their wealth is in financial assets. As a result, they benefit from a quick rebound in the financial market.

The homeownership rate declined significantly after the Great Recession for families of color and those who are less educated. Between 2007 and 2013, the homeownership rate for working-age white non-Hispanics only declines from 72.1% to 68.1%, whereas it declines from 45.6% to 38.8% for black non-Hispanics and from 48.8% to 42.1% for Hispanics. By 2013, less than two-fifths of families headed by high school dropouts own a home. Homeownership is considered to be a primary saving mechanism for many low- and middle-income families and is often seen as a stepping stone to the middle class. The fact that families of color and families headed by less-educated people are missing out on such a traditional wealth-building opportunity could cause a future rise in wealth disparity.

5.5. How do the labor, housing, and financial markets affect wealth accumulation?

An examination of how different markets affect wealth accumulation helps us understand the source of uneven wealth recovery. Table 6 presents results of six model specifications in each column.[21] Column 1 controls for the HPI, S&P 500, and employment-to-population ratio. In column 1, only the employment-to-population ratio affects wealth accumulation significantly. We further control for asset ownership in columns 2 and 3 and add the interaction between price and asset ownership in columns 4 and 5. Column 2 suggests that macroeconomic conditions on the labor and housing markets affect

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disadvantaged groups are also less likely to own a home, the concentration of housing equity is even severe when we only look at homeowners.

21. Because the HPI and S&P 500 only vary over time, the model cannot include all year dummies; thus, we use year trends in cubic to control for time variation.

wealth accumulation significantly. The t-tests suggest that the effect from the housing market is significantly larger than the effect from the labor market at the 5% level. In addition, t-test from column 3 suggests that owning a home plays a larger role in wealth accumulation than owning stocks or retirement accounts. This is expected because, for most families, the value of home equity is usually larger than the value of stocks.

Stock market price fluctuations affect values of stock holdings and quasi-liquid retirement financial assets such as a 401k. In column 3 we add whether a household has retirement assets, and we include the interaction between the S&P 500 and retirement asset ownership in column 5. In column 6 we add an indicator of whether the head or spouse is employed and the interaction with the employment rate. Household-level employment is negatively correlated with household wealth, which could be explained by the fact that older people tend to have more wealth than younger people but are also less likely to work. We use specification in column 3 as the main model for detailed decomposition analysis because the interaction terms are mostly insignificant by race/ethnicity or by education, and the interpretation of the decomposition is more straightforward.

Table 7 presents how different markets affect the wealth accumulation of different socioeconomic groups. Homeownership has a larger effect on wealth accumulation for families of color than white non-Hispanics. Similarly, the effect of homeownership on wealth accumulation increases when families are less educated, whereas the effect of stock ownership is larger for families with at least some college education.

We examine the results' robustness by using different measures of the markets, such as indexes of current year, last year, and two years ago. For the labor market, we also use the unemployment rate instead of the employment-to-population ratio. The results are quite similar using indexes of different years or different measures of labor market conditions.

5.6. What contributes to the rising wealth disparity—decomposition analysis?

Our analysis suggests a rising wealth gap between white non-Hispanic families and families of color and between families whose head is a college graduate and families whose head does not have a high school degree. The previous sections provide some evidence on how the housing, labor, and financial markets affect wealth disparity. In this section we quantify how each market and asset ownerships contribute to the rising wealth disparity using the decomposition method described in Section 4.

Table 8 displays the detailed decomposition of the wealth disparity between groups due to group mean difference for each of the six variables that capture macroeconomic conditions and asset ownerships. We calculate the decomposition using each group as a reference group (for example, using coefficient from either regression on whites or regression on blacks), and we find that the results are qualitatively similar.

The OB decomposition analysis suggests that differences in asset ownership play an important role in explaining the large racial/ethnic wealth gap. Differences in homeownership rate accounts for more than one-third of the white–black wealth gap and over 40% of the white–Hispanic wealth gap.[22] Difference in stock ownership contributes to about 5% of the white–black wealth gap and more than 8% of the white–Hispanic wealth gap. The difference in whether holding quasi-liquid retirement accounts explains 20.1% of the white–black wealth gap using black as a reference group and 20.8% of the white–Hispanic wealth gap using Hispanic as a reference group. We find that the HPI and S&P 500 do not adequately explain the racial/ethnic wealth disparity. This might be attributed to the fact that housing prices and stock prices in our data do not vary across households within a year; thus, the difference is mainly caused by the difference in estimated coefficients rather than the

22. Shapiro, Meschede, and Osoro (2013) find the number of years of homeownership accounts for 27% of the increasing white–black wealth gap.

difference in means. The employment-to-population ratio accounts for 3.9% of the white–Hispanic wealth gap using Hispanic as reference group.

Both homeownership and holding a quasi-liquid retirement account explain more than 30% of the observed mean difference in wealth disparity between households headed by college graduates and those headed by persons without high school degrees. This suggests that less-educated families lack the two most important automatic savings channels: homes and retirement savings. This difference drives wealth disparity by education. Stock ownership also accounts for 8.4% of the educational wealth gap when high school dropouts are used as the reference group.

Although we focus on the detailed decomposition, we also look at an aggregate decomposition to compare our results with other studies (e.g., Thompson and Suarez 2015). In our analysis, the differences in observables account for 78.2% of the difference in IHS wealth between black and white and 79.4% of the differences between Hispanic and white using black and Hispanic as reference group, respectively. Also using the OB method, Thompson and Suarez (2015) find that composition effect explains 80% of the black–white wealth gap and 106% of Hispanic–white wealth gap after controlling for income and homeownership (table 11, model 3). They also use the nonparametric reweighting method developed by DiNardo, Fortin, and Lemieux (1996) and suggest that, at the mean, 80% of the black–white wealth gap and 112% of the Hispanic–white wealth gap can be explained by observables. Our studies differ in survey year used, sample cuts on age, and control variables used.

Table 9 presents our detailed decomposition using Firpo, Fortin, and Lemieux's (2009) RIF regression method at the 10th, 50th, and 90th percentiles of wealth distribution. The extent to which asset ownerships and macroeconomic conditions explain racial or educational wealth disparity varies considerably across the wealth distribution. We find that

homeownership and holding a quasi-liquid retirement account plays a more important role at the lower end of the wealth distribution by explaining the observed wealth disparity by race, ethnicity, and education. Homeownership alone explains two-thirds of the white–black and white–Hispanic wealth gaps and 45.6% of the educational wealth gap at the 10th percentile of wealth distribution. On the contrary, owning stocks becomes more important at the upper end of the wealth distribution. Observed differences in labor market conditions measured by the employment rate explain 8.2% of the racial disparity and 5.7% of the educational or ethnic disparity at the 90th percentile of wealth distribution. Consistent with Thompson and Suarez's (2015) non-parametric decomposition results, we also find that the portion of wealth gap explained by race and ethnicity is greater at the bottom of the wealth distribution.

6. Conclusion

Using the Survey of Consumer Finances, we find that average net worth among families headed by individuals who are 20 to 64 years old has lost 17.1% by 2010 and experienced a further decline of 4.9% by 2013. The largest loss comes from home equity. Wealth recovery is mixed with a slower recovery in the housing market and a faster rebound in the financial market.

This paper brings empirical rigor to an area of research primarily based on descriptive statistics. We find conclusively that families of color as well as less-educated and younger families were disproportionately affected by the Great Recession. Specifically, families of color and families headed by high school dropouts are falling behind in rebuilding lost wealth. The increasing racial wealth gap and the gap between college graduates and high school dropouts are partly due to a concentration of prerecession wealth in housing among families of color and less-educated families, and the housing market has been slow to recover. The decomposition analysis suggests the important role of homeownership plays in explaining the increase in the racial or educational wealth gap over the past 25 years. Younger generations

have lost more during the recession, but they are able to recover sooner due to a strong labor market performance. Results also show the importance of controlling for life cycle wealth accumulation when examining wealth changes over time.

Black non-Hispanic families and Hispanic families are not on the same compound wealth growth path as white non-Hispanics. They are less likely to own homes or to have retirement accounts; thus, they miss out traditionally powerful wealth-building opportunities. Prior to the Great Recession, less than half of black non-Hispanic and Hispanic families own homes, whereas almost three-quarters of white families do. Even when they do own homes, black non-Hispanic families buy them at least eight years later, delaying wealth accumulation (Shapiro, Meschede, and Osoro 2013).

Understanding the uneven wealth recovery has important implications for redesigning future asset, tax, and social policies. Some of the current tax benefits, such as the mortgage interest deduction, primarily benefit high-income families, leaving families of color further behind. Many low-wage workers do not have an employer-sponsored retirement savings plan, thus missing out on an automatic savings vehicle for retirement. The limited access to credit also constrains minority families' ability to finance a down payment for their first homes or start their own businesses. There is still plenty of room to create more equal asset opportunities and close the wealth gap for future generations.

References

Altonji, J.G. and Doraszelski. 2005. "The Role of Permanent Income and Demographics in Black/White Differences in Wealth." *Journal of Human Resources*. 40(1): 1-30.

Barsky, R., J. Bound, K. K. Charles, J. P. Lupton. 2002. "Accounting for the black-white wealth gap: A nonparametric approach." *Journal of the American Statistical Association*, 97: 663-673

Blinder, A. S. 1973. "Wage Discrimination: Reduced Form and Structural Estimates." *The Journal of Human Resources* 8: 436–455.

Bricker, J., A. B. Kennickell, K. B. Moore, and J. Sabelhaus. 2012. "Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 98(2).

Bricker, J., L. J. Dettling, A. Henriques, J. W. Hsu, K. B. Moore, J. Sabelhaus, J. Thompson, and R. A. Windle. 2014. "Changes in U.S. Family Finances from 2010 to 2013: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 100 (4).

Burd-Sharps, S. and R. Rasch. June 2015. "Impact of the US Housing Crisis on the Racial Wealth Gap across Generations." New York: Social Science Research Council.

Choi, L. 2013. "Household Net Worth and Asset Ownership among the Economically Vulnerable." Community Development research brief, Federal Reserve Bank of San Francisco.

Cotton, J. 1988. "On the Decomposition of Wage Differentials." *The Review of Economics and Statistics* 70: 236–243.

DiNardo, J., N. Fortin, and T. Lemieux. 1996. "Labor Market Institutions and the Distribution of Wages, 1973-1993: A Semi-Parametric Approach" *Econometrica*, 64, 1001-1044.

DiNardo, J. and T. Lemieux. 1997. "Diverging Male Inequality in the United States and Canada, 1981-1988: Do Institutions Explain the Difference?" *Industrial and Labor Relations Review* 50: 629–651.

Dunn, L. and R. Olsen. 2014. "US Family Real Net Worth through the Great Recession and Beyond: Have We Recovered?" *Economic Letters* 122: 272-75.

Firpo, S., N. M. Fortin, and T. Lemieux. 2009. "Unconditional Quantile Regressions." *Econometrica* 77(3): 953-973.

Fortin, M. Nicole, Lemieux, Thomas, Firpo, Sergio, 2011. "Decomposition Methods in Economics." In: Ashenfelter, Orley, Card, David (Eds.). Handbook of Labor Economics Vol 4: 1-102.

Fry, R. and P. Taylor. 2013. "An Uneven Recovery, 2009-2011." Pew Research Center policy report.

Gale G. W. and K. M. Pence. 2006. "Are Successive Generations Getting Wealthier, and If so, Why? Evidence from the 1990s." *Brookings Papers on Economic Activity* 2006(1): 155-213.

Gathergood, J. 2011. "Racial Disparities in Credit Constraints in the Great Recession: Evidence from the UK." *The B.E. Journal of Economic Analysis and Policy* 11(1).

Gustman, A. L., T. L. Steinmeier, and N. Tabatabai. 2014. "The Great Recession, Decline, and Rebound in Household Wealth for the Near-Retirement Population." *The Journal of Retirement* 2(2): 27-44.

Hryshko, D., M. Luengo-Prado, and B. E. Sorensen. 2012. "The Effect of Education on Equity Holdings." *The BE Journal of Economic Analysis & Policy 12*(1).

Juster, F. T., Smith, J. P., and Stafford, F. 1999. "The Measurement and Structure of Household Wealth," *Labour Economics* 6(2): 253-275.

McKernan, S. M., C. Ratcliffe, E. Steuerle, and S. Zhang. 2014. "Disparities in Wealth Accumulation and Loss from the Great Recession and Beyond." *The American Economic Review* 104(5): 240-244.

Menchik, P. L. and N. A. Jianakoplos. 1997. "Black-White Wealth Inequality: Is Inheritance the Reason?" *Economic Inquiry* 35: 428–42

Neumark, D. 1988. "Employers' Discriminatory Behavior and the Estimation of Wage Discrimination." *The Journal of Human Resources* 23: 279–295.

Oaxaca, R. 1973. "Male-Female Wage Differentials in Urban Labor Markets." *International Economic Review* 14: 693-709.

Pence, K. M. 2006. "The Role of Wealth Transformations: An Application to Estimating the Effect of Tax Incentives on Saving." *The B.E. Journals in Economic Analysis and Policy: Contributions to Economic Analysis and Policy* 5(2):1-24.

Pfeffer, F. T., S. Danziger, and R. F. Schoeni. 2013. "Wealth Disparities Before and After the Great Recession." *The ANNALS of the American Academy of Political and Social Science* 650(1): 98-123.

Pfeffer, F. T., R. F. Schoeni, and P. Andreski. 2013. "A Comparison of Wealth Estimates Based on the 2007 Panel Study of Income Dynamics and the 2007 Survey of Consumer Finances," PSID Technical Paper.

Reimers, C. W. 1983. "Labor Market Discrimination Against Hispanic and Black Men." *The Review of Economics and Statistics* 65: 570–579.

Scholz, J. K. and K. Levine. 2004. "U.S. Black-White Wealth Inequality", in *Social Inequality* edited by K. Neckerman, Russell Sage Foundation, New York: New York, 895-929.

Shapiro, T., T. Meschede and S. Osoro. 2013. "The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide." Institute on Assets and Social Policy, Brandeis University, Waltham, MA.

Taylor, P., R. Kochhar, R. Fry, G. Velasco and S. Motel. 2011. “Wealth Gaps Rise to Record Highs between Whites, Blacks and Hispanics.” Washington, DC: Pew Research Center.

Thompson, J. P. and G. A. Suarez. 2015. “Exploring the Racial Wealth Gap Using the Survey of Consumer Finances.” Washington: Board of Governors of the Federal Reserve System.

Wolff, E. N. 2012. “The Asset Price Meltdown and the Wealth of the Middle Class.” National Bureau of Economic Research Working Paper 18559.

Wolff, E. N. 2015. “US Pensions in the 2000s: The Lost Decade?” *Review of Income and Wealth*, 61(4): 599-629.

Table 1: Changes in Net Worth and Its Components, Age 20-64

	Net Worth	Home Equity	Other Real Estate Equity	Retirement Financial Asset	Non-retirement Financial Asset	Business Equity	Vehicle Equity	Other
Mean Values (2013 dollars)								
1989	303,725	82,656	44,851	27,999	70,004	68,761	10,334	-879
1992	273,876	66,376	36,198	31,703	65,478	66,529	10,860	-3,268
1995	284,295	61,702	27,702	41,760	75,122	68,025	13,307	-3,323
1998	366,381	69,426	33,724	55,823	114,965	85,847	13,240	-6,644
2001	462,340	91,447	38,819	72,407	147,135	101,651	15,283	-4,402
2004	503,441	119,477	57,065	75,800	127,504	113,846	15,700	-5,949
2007	546,302	127,862	59,685	85,919	128,402	137,182	15,750	-8,497
2010	453,065	89,729	47,362	86,643	118,642	105,331	16,066	-10,709
2013	431,009	81,554	40,039	84,408	114,108	106,248	14,599	-9,946
Median Values (2013 dollars)								
1989	72,158	27,114	0	0	7,411	0	5,423	-542
1992	64,373	21,122	0	0	6,857	0	6,662	-877
1995	73,390	20,340	0	228	6,527	0	8,652	-1,214
1998	78,023	22,586	0	1,430	8,863	0	7,862	-1,001
2001	90,494	28,497	0	2,626	9,849	0	9,455	-657
2004	92,732	34,528	0	2,096	7,041	0	9,002	-987
2007	105,094	39,298	0	3,368	6,973	0	9,768	-1,235
2010	57,872	11,789	0	1,715	4,501	0	10,288	-1,093
2013	51,400	8,000	0	1,000	4,500	0	9,600	-970
% Change in Mean Values								
2007-2010	-17.1%	-29.8%	-20.6%	0.8%	-7.6%	-23.2%	2.0%	26.0%
2010-2013	-4.9%	-9.1%	-15.5%	-2.6%	-3.8%	0.9%	-9.1%	-7.1%
2007-2013	-21.1%	-36.2%	-32.9%	-1.8%	-11.1%	-22.5%	-7.3%	17.0%
% Change in Median Values								
2007-2010	-44.9%	-70.0%	0	-49.1%	-35.4%	0	5.3%	-11.5%
2010-2013	-11.2%	-32.1%	0	-41.7%	0.0%	0	-6.7%	-11.3%
2007-2013	-51.1%	-79.6%	0	-70.3%	-35.5%	0	-1.7%	-21.5%

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Notes: Data are weighted using SCF weights. The "Other" category is computed as net worth minus home equity, other real estate equity, retirement and non-retirement financial asset, business equity, and vehicle equity.

Table 2: Changes in Mean Net Worth by Socioeconomic Groups 2007-2013, Age 20-64

	2007	2010	2013	% Change 2007-10	% Change 2010-13	% Change 2007-13
Mean Net Worth (2013 dollars)						
By Race and Ethnicity						
White, non-Hispanic	679,210	591,996	562,744	-12.8%	-4.9%	-17.1%
Black, non-Hispanic	137,990	83,247	88,226	-39.7%	6.0%	-36.1%
Hispanic	206,805	111,942	110,390	-45.9%	-1.4%	-46.6%
Other	532,147	515,038	540,239	-3.2%	4.9%	1.5%
By Education						
Less than high school	97,601	68,172	68,580	-30.2%	0.6%	-29.7%
High school only	235,550	185,351	158,897	-21.3%	-14.3%	-32.5%
Some college	325,082	214,735	241,820	-33.9%	12.6%	-25.6%
College degree and above	1,043,859	882,343	798,438	-15.5%	-9.5%	-23.5%
By Age						
Age 20-28	80,011	39,891	45,281	-50.1%	13.5%	-43.4%
Age 29-37	195,447	104,019	129,862	-46.8%	24.8%	-33.6%
Age 38-46	413,635	312,715	407,669	-24.4%	30.4%	-1.4%
Age 47-55	810,330	653,852	589,603	-19.3%	-9.8%	-27.2%
Age 56-64	1,100,066	985,300	787,506	-10.4%	-20.1%	-28.4%

Source: Survey of Consumer Finances 2007, 2010 and 2013.

Notes: Data are weighted using SCF weights.

Table 3a: Estimated Wealth Recovery After the Great Recession, Dollar Change

	Net Worth	Home Equity	Other Real Estate Equity	Retirement Savings	Non-retirement Financial Asset	Business Equity	Vehicle Equity	All Other
Year=2013	-108,327**	-46,681***	-25,211***	4,544	-12,336	-26,521	-1,047*	-1,075
	[44,914]	[9,251]	[6,456]	[6,004]	[11,823]	[19,372]	[612]	[1,170]
Year=2010	-88,279**	-37,989***	-14,680**	4,004	-8,143	-29,684*	420	-2,207**
	[35,792]	[8,851]	[5,698]	[6,560]	[6,948]	[17,082]	[416]	[962]
Year=2004	-49,561	-8,730	-559	-13,299**	-3,539	-25,876	34	2,408***
	[40,979]	[10,295]	[5,914]	[5,929]	[8,937]	[15,720]	[636]	[772]
Year=2001	-79,007*	-34,413***	-15,054***	-16,136**	19,341	-36,324**	-371	3,949***
	[40,272]	[8,317]	[5,362]	[6,561]	[16,099]	[16,559]	[625]	[960]
Year=1998	-178,493***	-57,438***	-17,858***	-34,165***	-14,220	-54,026***	-2,399***	1,614
	[41,951]	[9,490]	[6,156]	[7,151]	[10,668]	[17,979]	[595]	[1,340]
Year=1995	-245,685***	-62,484***	-20,644***	-46,716***	-50,547***	-68,209***	-2,051***	4,966***
	[45,229]	[9,118]	[6,889]	[9,015]	[13,694]	[18,064]	[551]	[1,455]
Year=1992	-275,569***	-61,208***	-12,676	-60,092***	-67,376***	-74,581***	-4,596***	4,959***
	[55,033]	[10,194]	[8,365]	[12,185]	[17,396]	[20,279]	[818]	[1,713]
Year=1989	-214,080***	-40,301***	1,087	-58,483***	-53,865***	-65,138**	-4,614***	7,234***
	[60,258]	[10,820]	[11,624]	[12,901]	[19,620]	[24,702]	[881]	[2,104]
Observations	32,542	32,542	32,542	32,542	32,542	32,542	32,542	32,542
R-squared	0.031	0.115	0.011	0.101	0.015	0.004	0.039	0.001

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. Dependent variable is net worth in 2013 dollars. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, less than high school, high school only, some college, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1.

Table 3b: Estimated Wealth Recovery After the Great Recession, Relative Change

	Net Worth	Home Equity	Other Real Estate Equity	Retirement Savings	Non-retirement Financial Asset	Business Equity	Vehicle Equity
Year=2013	-1.191***	-1.897***	-0.654***	-0.335**	-0.422***	-0.203*	0.005
	[0.175]	[0.272]	[0.098]	[0.156]	[0.086]	[0.118]	[0.142]
Year=2010	-1.149***	-1.724***	-0.451***	-0.305**	-0.365***	-0.111	0.239**
	[0.188]	[0.262]	[0.110]	[0.117]	[0.064]	[0.086]	[0.096]
Year=2004	0.099	-0.009	-0.011	-0.339**	0.061	-0.065	-0.283**
	[0.193]	[0.226]	[0.082]	[0.150]	[0.073]	[0.069]	[0.126]
Year=2001	0.048	-0.343	-0.191**	-0.068	0.426***	-0.025	-0.403**
	[0.206]	[0.216]	[0.087]	[0.167]	[0.064]	[0.093]	[0.159]
Year=1998	-0.486*	-0.877***	-0.020	-0.532**	0.289**	-0.108	-0.924***
	[0.251]	[0.227]	[0.137]	[0.199]	[0.111]	[0.104]	[0.141]
Year=1995	-0.280	-0.901***	0.026	-0.936***	-0.091	-0.179	-0.394*
	[0.270]	[0.232]	[0.137]	[0.220]	[0.108]	[0.127]	[0.198]
Year=1992	-0.541*	-1.035***	0.264	-1.663***	-0.178*	-0.001	-0.649***
	[0.297]	[0.273]	[0.185]	[0.223]	[0.096]	[0.138]	[0.201]
Year=1989	-0.483	-0.810***	0.529**	-1.759***	0.025	0.011	-1.341***
	[0.358]	[0.291]	[0.220]	[0.261]	[0.118]	[0.198]	[0.248]
Observations	32,542	32,542	32,542	32,542	32,542	32,542	32,542
R-squared	0.172	0.249	0.091	0.256	0.335	0.055	0.136

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.
Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth and its components. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, less than high school, high school only, some college, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1.

Table 4a: Estimated Relative Wealth Change by Race and Ethnicity

	White non-Hispanic	Black non-Hispanic	Hispanic
Year=2013	-1.043***	-1.686***	-1.043
	[0.241]	[0.389]	[0.648]
Year=2010	-1.263***	-0.697*	-0.705
	[0.239]	[0.351]	[0.431]
Year=2004	0.116	0.494	0.141
	[0.191]	[0.638]	[0.493]
Year=2001	0.222	0.493	-0.395
	[0.225]	[0.518]	[0.543]
Year=1998	-0.370	0.369	-1.313*
	[0.286]	[0.569]	[0.758]
Year=1995	0.039	-0.484	-0.766
	[0.305]	[0.781]	[0.831]
Year=1992	-0.196	-0.352	-2.398**
	[0.312]	[0.915]	[0.938]
Year=1989	0.233	-1.355	-3.006***
	[0.354]	[1.163]	[0.940]
Observations	24,682	3,716	2,697
R-squared	0.158	0.127	0.107

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth. Other control variables include age, age squared, single with child, single without child, married with child, less than high school, high school only, some college, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 4b: Estimated Relative Wealth Change by Education

	Less than High School	High School Only	Some College	College Degree and Above
Year=2013	-0.873*	-1.405***	-0.778	-1.252***
	[0.442]	[0.255]	[0.614]	[0.359]
Year=2010	-0.441	-1.118***	-1.149*	-1.290***
	[0.414]	[0.227]	[0.674]	[0.264]
Year=2004	0.367	0.423	-0.026	-0.207
	[0.426]	[0.271]	[0.523]	[0.228]
Year=2001	-0.110	0.099	-0.098	0.048
	[0.453]	[0.309]	[0.606]	[0.214]
Year=1998	0.258	-0.170	-0.900	-0.797**
	[0.471]	[0.376]	[0.632]	[0.394]
Year=1995	-0.119	-0.151	-0.945	-0.054
	[0.533]	[0.483]	[0.650]	[0.451]
Year=1992	-0.075	-0.687	-0.486	-0.554
	[0.593]	[0.571]	[0.751]	[0.381]
Year=1989	0.349	-0.769	-1.119	-0.069
	[0.570]	[0.666]	[0.767]	[0.475]
Observations	3,175	8,543	5,595	15,228
R-squared	0.149	0.136	0.154	0.191

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 4c: Estimated Relative Wealth Change by Age

	Age 20-28	Age 29-37	Age 38-46	Age 47-55	Age 56-64
Year=2013	-0.167	-1.803***	-1.451***	-1.630***	-1.265***
	[0.189]	[0.203]	[0.087]	[0.047]	[0.149]
Year=2010	0.456***	-2.399***	-1.214***	-1.120***	-1.119***
	[0.085]	[0.110]	[0.302]	[0.068]	[0.173]
Year=2004	0.572***	0.212	0.510***	-0.079*	-0.119
	[0.154]	[0.264]	[0.065]	[0.044]	[0.185]
Year=2001	0.516*	0.075	0.594**	-0.099	0.103
	[0.282]	[0.180]	[0.240]	[0.095]	[0.075]
Year=1998	-0.200	-0.680***	0.404***	-0.498***	0.094
	[0.152]	[0.040]	[0.061]	[0.038]	[0.055]
Year=1995	1.178**	-0.102	0.240**	-0.167	-0.186***
	[0.511]	[0.141]	[0.097]	[0.124]	[0.060]
Year=1992	0.295	-0.245**	0.394***	-0.371**	-0.318***
	[0.333]	[0.099]	[0.092]	[0.137]	[0.099]
Year=1989	1.204***	-0.735***	0.063	0.385***	-0.036
	[0.150]	[0.103]	[0.064]	[0.041]	[0.059]
Observations	3,605	5,947	7,846	8,290	6,853
R-squared	0.053	0.080	0.140	0.144	0.162

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.
Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, less than high school, high school only, some college. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Wealth Composition by Socioeconomic Group, 2007 and 2013

	2007				2013			
	Homeownership Rate	Wealth Composition			Homeownership Rate	Wealth Composition		
		Housing Equity	Financial Asset	Other		Housing Equity	Financial Asset	Other
By race and ethnicity								
White, non-Hispanic	72.1%	32.2%	40.6%	27.2%	68.1%	27.0%	47.7%	25.4%
Black, non-Hispanic	45.6%	52.0%	37.6%	10.4%	38.8%	35.6%	42.0%	22.4%
Hispanic	48.8%	56.9%	21.3%	21.7%	42.1%	40.9%	25.6%	33.5%
Other	63.9%	41.1%	30.8%	28.2%	57.8%	34.7%	36.8%	28.5%
By education								
Less than High School	44.9%	63.8%	17.6%	18.6%	39.5%	63.1%	18.2%	18.7%
High school only	64.5%	45.1%	28.4%	26.4%	57.1%	36.0%	38.2%	25.8%
Some college	58.9%	40.6%	30.4%	29.0%	51.1%	32.3%	42.2%	25.5%
College degree and above	75.6%	30.5%	43.2%	26.3%	70.4%	25.8%	48.3%	25.9%
By age								
Age 20-28	21.7%	23.9%	20.2%	56.0%	23.3%	36.7%	58.5%	4.8%
Age 29-37	61.9%	43.7%	32.2%	24.1%	51.4%	32.0%	45.0%	23.0%
Age 38-46	67.1%	37.9%	36.0%	26.2%	63.1%	26.5%	38.5%	35.0%
Age 47-55	78.6%	34.3%	38.7%	27.0%	70.2%	26.8%	45.9%	27.3%
Age 56-64	82.3%	31.3%	43.9%	24.8%	74.9%	29.3%	49.6%	21.0%

Source: Survey of Consumer Finances 2007 and 2013.

Notes: (1) Sample includes households headed by 20-64 years old. (2) Data are weighted using SCF weights. (3) Homeownership rate is calculated as the percent of households owning home in each socioeconomic group. (4) Wealth composition is calculated as the ratio of mean wealth component (e.g., housing equity) over mean net worth. Housing equity includes home equity and other real estate equity. Financial asset include retirement savings and non-retirement financial asset. Other includes net worth minus housing equity and financial asset.

Table 6: How Housing, Financial, and Labor Market Affect Wealth Accumulation?

	(1)	(2)	(3)	(4)	(5)	(6)
Housing Price Index Last Year	0.416***	0.494***	0.484***	0.553***	0.578***	0.583***
	[0.179]	[0.137]	[0.143]	[0.190]	[0.196]	[0.196]
S&P 500 Index Last Year	0.032	0.088	0.045	0.092	0.049	0.139
	[0.148]	[0.133]	[0.131]	[0.133]	[0.130]	[0.185]
Employment Rate Last Year	0.310***	0.249***	0.213*	0.206	0.180	0.185
	[0.136]	[0.123]	[0.122]	[0.123]	[0.136]	[0.137]
Whether Own Home		5.024***	4.601***	5.022***	4.599***	4.587***
		[0.153]	[0.156]	[0.154]	[0.157]	[0.158]
Whether Own Stocks		1.699***	1.307***	1.700***	1.306***	1.311***
		[0.119]	[0.114]	[0.111]	[0.106]	[0.106]
Whether Has Retirement Account			2.103***		2.106***	2.049***
			[0.100]		[0.100]	[0.107]
HPI*Whether Own Home				-0.079	-0.126	-0.124
				[0.146]	[0.143]	[0.143]
S&P*Whether Own Stocks				0.235***	0.247***	0.253***
				[0.091]	[0.085]	[0.085]
S&P*Wtr Has Retirement Account					-0.020	-0.029
					[0.112]	[0.111]
Whether Head or Wife Employed						0.458***
						[0.167]
Emp Rate*Wtr Hd/Wf Employed						-0.176
						[0.171]
Observations	30,563	30,563	30,563	30,563	30,563	30,563
R-squared	0.156	0.269	0.288	0.269	0.288	0.289

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013. Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, less than high school, high school only, some college, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 7: How Housing, Financial, and Labor Market Affect Wealth Accumulation Across Groups?

	White	Black	Hispanic	No High School	High School	Some College	College+	Age 20-28	Age 29-37	Age 38-46	Age 47-55	Age 56-64
Housing Price Index Last Year	0.482***	0.190	0.534	-0.009	0.206	0.694*	0.699***	0.786*	0.938**	0.256	0.283**	0.322**
	[0.174]	[0.372]	[0.556]	[0.428]	[0.227]	[0.411]	[0.192]	[0.409]	[0.396]	[0.209]	[0.114]	[0.133]
S&P 500 Index Last Year	0.365**	-0.351	0.052	0.065	0.036	0.452	0.301*	-0.576	0.288	0.206	0.155	0.302**
	[0.143]	[0.270]	[0.395]	[0.211]	[0.177]	[0.345]	[0.175]	[0.536]	[0.421]	[0.259]	[0.110]	[0.110]
Employment Rate Last Year	0.014	-0.143	0.446	-0.535	0.243	-0.301	-0.068	0.232	0.696	1.366	0.043	0.264
	[0.136]	[0.514]	[0.752]	[0.355]	[0.270]	[0.346]	[0.198]	[3.060]	[1.242]	[1.220]	[0.427]	[0.194]
Whether Own Home	4.439***	5.206***	4.993***	5.626***	4.549***	4.678***	4.274***	5.276***	4.488***	4.248***	4.762***	4.797***
	[0.149]	[0.374]	[0.383]	[0.308]	[0.198]	[0.325]	[0.231]	[0.640]	[0.341]	[0.308]	[0.202]	[0.207]
Whether Own Stocks	1.324***	1.209***	1.474***	1.107***	0.850***	1.392***	1.390***	2.254***	1.528***	1.196***	1.144***	1.072***
	[0.099]	[0.444]	[0.418]	[0.298]	[0.145]	[0.219]	[0.132]	[0.326]	[0.310]	[0.146]	[0.146]	[0.129]
Wtr Has Retirement Account	2.001***	3.168***	1.806***	2.019***	2.019***	2.038***	2.290***	2.218***	2.445***	1.967***	2.054***	1.841***
	[0.118]	[0.318]	[0.330]	[0.228]	[0.143]	[0.190]	[0.201]	[0.411]	[0.200]	[0.163]	[0.194]	[0.170]
Observations	23,412	3,375	2,420	2,930	7,860	5,013	14,760	1,627	5,947	7,846	8,290	6,853
R-squared	0.272	0.273	0.231	0.323	0.272	0.256	0.281	0.169	0.195	0.272	0.317	0.350

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. Dependent variable is inverse hyperbolic sine of net worth. Other control variables include age, age squared, dummies of whether black Non-Hispanic, Hispanic, other race non-Hispanic, single with child, single without child, married with child, less than high school, high school only, some college, born 1985-93, born 1976-84, born 1967-75, born 1958-66, born 1949-57, and born 1940-48. Full results are available upon request. Weighted Least Squares coefficients with robust standard errors clustered at cohort-year level in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Oaxaca-Blinder Detailed Decomposition of Wealth Disparity by Race, Ethnicity, and Education

	White/Black		White/Hispanic		College or Above / Less than High School	
	Black as referenece group	White as reference group	Hispanic as referenece group	White as reference group	Less than high school as reference group	College or above as reference group
Mean Wealth Difference b/w Group	3.58	3.58	2.76	2.76	3.38	3.38
% Observables Explained	78.2%	66.0%	79.4%	100.3%	74.9%	80.8%
% of Wealth Difference Due to Observed Group Mean Difference in						
Housing Price Index Last Year	-0.4%	-1.0%	-3.3%	-3.0%	-0.1%	4.5%
S&P 500 Index Last Year	0.6%	-0.6%	-0.3%	-1.8%	0.4%	2.0%
Employment Rate Last Year	-1.4%	0.1%	3.9%	0.1%	-11.3%	-1.4%
Whether Own Home	40.7%	34.7%	47.0%	41.8%	42.1%	31.9%
Whether Own Stocks	5.1%	5.6%	9.2%	8.3%	8.4%	10.6%
Whether Has Retirement Account	20.1%	12.7%	20.8%	23.1%	30.7%	34.9%

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. This table presents the Oaxaca-Blinder decomposition for mean wealth gap by race, ethnicity and education. Wealth is measured as the inverse hyperbolic sine of net worth.

Table 9: Detailed Decomposition of Wealth Disparity using Firpo, Fortin, and Lemieux Recentered Influence Function Regression Method, by Race, Ethnicity, and Education

	White/Black			White/Hispanic			College or Above/Less than High School		
	10th	50th	90th	10th	50th	90th	10th	50th	90th
Observed Wealth Difference	18.75	1.97	1.33	17.58	1.90	1.23	15.38	2.56	1.89
% Observables Explained	109.9%	60.5%	60.8%	140.2%	73.7%	76.6%	104.1%	42.8%	37.5%
% of Wealth Difference Due to Observed Group Difference in									
Housing Price Index Last Year	-1.6%	-0.3%	0.3%	-4.1%	-0.8%	0.8%	7.4%	1.0%	-1.0%
S&P 500 Index Last Year	-1.1%	-0.5%	0.0%	-2.6%	-1.2%	0.0%	1.6%	2.4%	-0.9%
Employment Rate Last Year	-2.4%	1.4%	8.2%	-1.7%	1.0%	6.0%	-4.1%	2.9%	5.7%
Whether Own Home	66.6%	23.3%	5.2%	66.0%	22.5%	5.2%	45.6%	12.1%	3.1%
Whether Own Stocks	4.9%	6.2%	17.7%	6.0%	7.3%	21.9%	7.3%	9.5%	21.1%
Whether Has Retirement Account	22.3%	10.7%	5.7%	33.4%	15.6%	8.6%	48.3%	16.8%	8.4%

Source: Survey of Consumer Finances 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Note: Sample includes households headed by 20-64 years old. We apply the recentered influence function regression method as in Firpo, Fortin, and Lemieux (2009) to decompose wealth disparity at the 10th, 50th, and 90th percentile. Wealth is measured as the inverse hyperbolic sine of net worth.