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ABSTRACT

Asset prices plunged between 2007 and 2010 but then rebounded from 2010 to 2016. The most telling finding is that median wealth plummeted by 44 percent over years 2007 to 2010. The inequality of net worth, after almost two decades of little movement, went up sharply from 2007 to 2010, and relative indebtedness for the middle class expanded. The sharp fall in median net worth and the rise in overall wealth inequality over these years are largely traceable to the high leverage of middle class families and the high share of homes in their portfolio. Mean and median wealth rebounded from 2010 to 2016, by 17 and 28 percent, respectively. While mean wealth surpassed its previous peak in 2007, median wealth was still down by 34 percent. More than 100 percent of the recovery in both was due to a high return on wealth but this factor was offset by negative savings. Relative indebtedness continued to fall for the middle class from 2010 to 2016, and wealth inequality increased somewhat. The racial and ethnic disparity in wealth holdings widened considerably between 2007 and 2016, and the wealth of households under age 45 declined in relative terms.

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1. Introduction

Relying on calculations from the Survey of Consumer Finances (SCF) from the Federal Reserve Board of Washington, as well as two other surveys, this paper documents trends in mean and median household net worth and net worth inequality over the 53 years from 1962 to 2016. Particular attention is devoted to how the middle class fared in terms of wealth developments over years 2007 to 2010, during one of the sharpest declines in stock and real estate prices, and over years 2010 to 2016 as asset prices recovered. The debt of the middle class exploded from 1983 to 2007, already creating a fragile middle class. The main question is whether their position deteriorated over the "Great Recession" and recovered after that.[1] I also investigate what has happened to the inequality of household wealth over these years, particularly from 2007 to 2016.[2]

The period covered is from 1962 to 2016. Asset prices plunged between 2007 and 2010 but then rebounded from 2010 to 2016. The most telling finding is that median wealth plummeted by 44 percent over years 2007 to 2010, almost double the drop in housing prices, and by 2010 was at its lowest level since 1969. Rather remarkably, there was virtually no change in median (and mean) wealth from 2010 to 2013 according to the SCF data despite the rebound in asset prices. However, from 2013 to 2016, median wealth did rebound, though by only 18.7 percent. Median wealth in 2016 was still 34 percent down from its peak in 2007. The inequality of net worth, as measured by the Gini coefficient, after almost two decades of little movement, was up sharply from 2007 to 2010. It then increased moderately from 2010 to 2013 and again from 2013 to 2016, though the wealth share of the top one percent shot up by 2.9 percentage points. Middle class debt, with the exception of student loans, contracted sharply from 2007 to 2013 but then rose slightly from 2013 to 2016.

The rest of the paper is organized as follows. The next section, Section 2 provides historical background. Section 3 discusses the measurement of household wealth and describes the data sources used for this study. Section 4 presents time trends for median and average wealth holdings and Section 5 on the inequality of household wealth. Section 6 looks at changes in the portfolio composition of household wealth over years 1983 to 2016 (the period for which consistent data exists) and rates of return on household wealth over the same period. It also looks at developments in ownership rates for selected assets. Particular attention is paid to changes in relative indebtedness.

Are the rich really different from the rest of the population? Section 6.1 looks at the pattern of wealth holdings of the rich in comparison to the middle class. The rather staggering debt level of the middle class in 2016, as we shall see below, raises the question of whether this is a recent phenomenon or whether it has been going on for some time. Section 6.2 focuses on changes in the debt of the middle class over this time period. Section 6.3 presents another way of portraying differences between middle class households and the rich in terms of the share of total assets of different types held by each group. Differences in portfolio composition, particularly leverage (indebtedness) between wealth classes translates into large disparities in rates of return on household wealth over time, as documented in Section 7.

Section 8 investigates changes in wealth holdings by race and ethnicity; and Section 9 reports on changes in the age-wealth profile. Section 10 investigates the issue of whether there has been growing ownership of stock in this country. Section 11 looks into whether there has been deterioration in pension

[1] Though the "official" recession ended in June, 2009, according to the NBER definition, I refer to the period 2007 to 2013 as the "Great Recession," since median income and wealth showed no recovery over these years.

[2] This paper updates Chapters 3, 3, and 5 of Wolff (2017) to the year 2016.

accumulations in defined contribution (DC) pension plans over time. AA summary of results and concluding remarks are provided in Section 12.

2. Historical background

The last two decades have witnessed some remarkable events. Perhaps, most notable was the housing value cycle which first led to an explosion in home prices and then a collapse, affecting net worth and helping to precipitate the Great Recession, followed by a strong recovery. The median house price remained virtually the same in 2001 as in 1989 in real terms.[3] However, the home ownership rate shot up from 62.8 to 67.7 percent. Then, 2001 saw a recession (albeit a short one). Despite this, house prices suddenly took off and over the years 2001 to 2007 housing prices gained 19 percent.[4] The home ownership rate continued to expand, though at a somewhat slower rate, from 67.7 to 68.6 percent.

Then, the recession and associated financial crisis hit. The recession officially began in December, 2007, and "officially" ended in June, 2009.[5] Over this period, real GDP fell by 4.3 percent and then from the second quarter of 2009 to the second quarter of 2013 it gained 9.2 percent. After that it grew by another 6.8 percent through the third quarter of 2016.[6] The unemployment rate shot up from 4.4 percent in May of 2007 to a peak of 10.0 percent in October of 2009 but by October of 2016 it was down to 4.9 percent. [7]

One consequence was that asset prices plummeted. From 2007 to 2010, the median home price (in constant dollars) nose-dived by 24 percent, and the share of households owning their own home fell off, from 68.6 to 67.2 percent.[8] This was followed by a partial recovery, with median house prices rising 7.8 percent through September 2013, though still far below its 2007 value.[9] However, the homeownership rate continued to contract, falling to 65.1 percent. In contrast, median home prices in real terms jumped by 18.4 percent from 2013 to 2016, though the homeownership rate continued to fall to

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[3] The source for years 1989 to 2007 is Table 935 of the *2009 Statistical Abstract*, US Bureau of the Census, available at http://www.census.gov/compendia/statab/. For years after 2007, the source is: National Association of Realtors, "Median Sales Price of Existing Single-Family Homes for Metropolitan Areas," available at: http://www.realtor.org/sites/default/files/reports/2012/embargoes/2012-q1-metro-home-prices-49bc10b1efdc1b8cc3eb66dbcdad55f7/metro-home-prices-q1-single-family-2012-05-09.pdf [both accessed October 17, 2014].The figures are based on median prices of existing houses for metropolitan areas only. All figures are in constant (2016) dollars unless otherwise indicated.

[4] The Case-Schiller 20-City Composite Home Price NSA Index showed a rather different trend. It advanced by 35.0 percent from January, 2001, to January, 2004, and then by 33.5 percent from January, 2004, to January, 2007 (the source is: https://fred.stlouisfed.org/series/SPCS20RSA [accessed November 6, 2017]). It is not clear why the trends are so different between the two sources. However, the Case-Shiller index is based on data from the largest 20 metropolitan areas, whereas the National Association of Realtors index is much broader based, covering some 160 metropolitan areas. For my purposes here, the latter is a more reliable indicator of national housing price movements.

[5] The source is: http://www.nber.org/cycles/cyclesmain.html [accessed April 20, 2014]. As noted above, I use the term "Great Recession" to refer to the period from 2007 through 2013.

[6] The source for the GDP figures is http://www.bea.gov/iTable/index_nipa.cfm [accessed December 1, 2016].

[7] The source is the U.S. Bureau of Labor Statistics at: http://data.bls.gov/timeseries/LNS14000000 [accessed December 1, 2016].

[8] The Case-Shiller index shows a 27.9 percent drop from January 2007 to January 2010.

[9] The Case-Shiller index indicates a 0.9 percent gain from January 2010 to January 2013

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63.7 percent.[10]

The housing price bubble in the years leading up to 2007 was fueled in large part by a generous expansion of credit available for home purchases and re-financing. This took a number of forms. First, many home owners re-financed their primary mortgage. However, because of the rise in housing prices, these home owners increased the outstanding mortgage principal and thereby extracted equity from their homes. Second, many home owners took out second mortgages and home equity loans or increased the outstanding balances on these instruments. Third, among new home owners, credit requirements were softened, and so-called "no-doc" loans were issued requiring none or little in the way of income documentation. Many of these loans, in turn, were so-called "sub-prime" mortgages, characterized by excessively high interest rates and "balloon payments" at the expiration of the loan (that is, a non-zero amount due when the term of the loan was up). All told, average mortgage debt per household expanded by 59 percent in real terms between 2001 and 2007 and outstanding mortgage loans as a share of house value rose from 0.334 to 0.349, despite the 19 percent gain in real housing prices (see Section 6 below).

In contrast to the housing market, the stock market boomed during the 1990s. On the basis of the Standard & Poor (S&P) 500 index, stock prices surged 159 percent in constant dollars between 1989 and 2001.[11] Stock ownership spread and by 2001 over half of U.S. households owned stock either directly or indirectly (see Section 6 below). However, the stock market peaked in 2000 and was down by 11 percent from 2000 to 2004. From 2004 to 2007, the stock market rebounded, with the S&P 500 rising 19 percent. From 2001 to 2007, stock prices were up 6 percent. However, the stock ownership rate fell to 49 percent. Then came the Great Recession. Stock prices crashed from 2007 to 2009 and then partially recovered in 2010 for a net decline of 26 percent. The stock ownership rate also once again declined, to 47 percent. The stock market continued to rise after 2010 and by 2013 was up 39 percent over 2010 and above its previous high in 2007. However, the stock ownership rate continued to drop, to 46 percent. Once again, the stock market continued to boom from 2013 to 2016, up by 27.9 percent in real terms[12], but in this case the stock ownership rate rebounded to 49.3 percent.

Real wages, after stagnating for many years, finally grew in the late 1990s. According to BLS figures, real mean hourly earnings gained 8.3 percent between 1995 and 2001.[13] From 1989 to 2001, real wages rose by 4.9 percent (in total), and median household income in constant dollars grew by 6.0 percent (see Table 1). Employment also surged over these years, growing by 16.7 percent.[14] The (civilian) unemployment rate remained relatively low over these years, at 5.3 percent in 1989, 4.7 percent

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[10] The Case-Shiller index shows a 24.6 percent surge from January 2013 to January 2016.

[11] The source for stock prices is Table B-96 of the *Economic Report of the President, 2013*, available at http://www.gpoaccess.gov/eop/tables13.html, with updates to 2013 from: http://us.spindices.com/indices/equity/sp-composite-1500 [both accessed October 17, 2014].

[12] This figure is based on the change in the S&P 500 index from early March, 2013, to early March 2016. Different three-year periods show somewhat different time trends.

[13] These figures are based on the Bureau of Labor Statistics (BLS) hourly wage series. The source is Table B-15 of the *Economic Report of the President, 2014*,available at http://www.gpo.gov/fdsys/pkg/ERP-2014/pdf/ERP-2014-table15.pdf [accessed October 17, 2014]. The BLS wage figures are converted to constant dollars on the basis of the Consumer Price Index (CPI-U).

[14] The figure is for civilian employment. The source is Table B-14 of the *Economic Report of the President, 2014*, available at http://www.gpo.gov/fdsys/pkg/ERP-2014/pdf/ERP-2014-table14.pdf [accessed October 17, 2014].

in 2001, with a low point of 4.0 percent in 2000, and averaging 5.5 percent over these years.[15]

Real wages then rose very slowly from 2001 to 2004, with the BLS mean hourly earnings up by only 1.5 percent, and median household income dropped by 1.6 percent. From 2004 to 2007, real wages rose by only 1.0 percent. Median income showed some growth over this period, rising by 3.2 percent. From 2001 to 2007 it gained 1.6 percent. Employment also grew more slowly over these years, gaining 6.7 percent. The unemployment rate remained low again, at 4.7 percent in 2001 and 4.6 percent in 2007 and an average value of 5.2 percent over the period.

Real wages, on the other hand, picked up from 2007 to 2010, increasing by 3.6 percent. In contrast, median household income declined by 6.7 percent (see Table 1). Moreover, employment contracted over these years, by 4.8 percent, and the unemployment rate surged from 4.6 percent in 2007 to 10.5 percent in 2010. From 2010 to 2013 employment grew by 4.7 percent, and the unemployment rate came down to 7.4 percent in 2013, though real wages fell slightly, by 1.3 percent. As noted above, the unemployment rate was down to 4.9 percent by October of 2016. Total employment grew by 5.9 percent from 2013 to 2016[16] while BLS real hourly wages were up by 1.4 percent in total.[17]

What have all these major macro and asset price trends wrought in terms of the distribution of household wealth, particularly over the Great Recession? How have these changes impacted different demographic groups, particularly as defined by race, ethnicity, and age? This is the subject of the remainder of this paper.

3. Data sources and methods

The primary data sources used for this study are the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF. Each survey consists of a core representative sample combined with a high-income supplement. In 1983, for example, the supplement was drawn from the Internal Revenue Service's Statistics of Income data file. An income cut-off of $100,000 of adjusted gross income was used as the criterion for inclusion in the supplemental sample. Individuals were randomly selected for the sample within pre-designated income strata.

In later years, the first sample was selected from a standard multi-stage area-probability design. This part of the sample was intended to provide good coverage of asset characteristics such as home ownership that are broadly distributed. The second sample, the high income supplement, was selected as a so-called “list sample” from statistical records (the Individual Tax File) derived from tax data by the Statistics of Income (SOI) Division of the Internal Revenue Service. In this case, the IRS provided the names and addresses of a sample of very high income families. This second sample was designed to disproportionately select families that were likely to be relatively wealthy (see, for example, Kennickell, 2001, for a more extended discussion of the design of the list sample in the 2001 SCF). Typically, about two thirds of the cases came from the representative sample and one third from the high-income supplement.

[15] The source is Table B-12 of the *Economic Report of the President, 2014*, available at http://www.gpo.gov/fdsys/pkg/ERP-2014/pdf/ERP-2014-table12.pdf [accessed October 17, 2014].

[16] The source is: https://data.bls.gov/timeseries/CES0000000001.

[17] The source is: https://www.bls.gov/opub/ted/2017/real-average-hourly-earnings-unchanged-from-january-2016-to-january-2017.htm.

The principal wealth concept used here is marketable wealth (or net worth), which is defined as the current value of all marketable or fungible assets less the current value of debts. Net worth is thus the difference in value between total assets and total liabilities. Total assets are defined as the sum of: (1) the gross value of owner-occupied housing; (2) other real estate owned; (3) cash and demand deposits; (4) time and savings deposits, certificates of deposit, and money market accounts; (5) government bonds, corporate bonds, foreign bonds, and other financial securities; (6) the cash surrender value of life insurance plans; (7) the value of defined contribution (DC) pension plans, including IRAs, Keogh, and 401(k) plans; (8) corporate stock and mutual funds; (9) net equity in unincorporated businesses; and (10) equity in trust funds. Total liabilities are the sum of: (1) mortgage debt, (2) consumer debt, including auto loans, and (3) other debt such as educational loans.

This measure reflects wealth as a store of value and therefore a source of potential consumption. I believe that this is the concept that best reflects the level of well-being associated with a family's holdings. Thus, only assets that can be readily converted to cash (that is, "fungible" ones) are included. Though the SCF includes information on the value of vehicles owned by the household, I exclude this from my standard definition of household wealth, since their resale value typically far understates the value of their consumption services to the household. The value of other consumer durables such as televisions, furniture, household appliances, and the like are not included in the SCF.[18] Another justification for their exclusion is that this treatment is consistent with the national accounts, where purchase of vehicles and other consumer durables is counted as expenditures, not savings.[19]

Also excluded here is the value of future Social Security benefits the family may receive upon retirement (usually referred to as "Social Security wealth"), as well as the value of retirement benefits from defined benefit pension plans ("DB pension wealth"). Even though these funds are a source of future income to families, they are not in their direct control and cannot be marketed.

I also use a more restricted concept of wealth, which I call “financial resources” or FR. This is defined as net worth minus net equity in owner-occupied housing (the primary residence only). FR is a more liquid concept than marketable wealth, since one's home is difficult to convert into cash in the short term. Moreover, primary homes also serve a consumption purpose besides acting as a store of value. FR represents what a household can draw down without lowering its standard of living, and thus excludes homes (and vehicles).[20]

Two other data sources are used here. The first of these is the 1962 Survey of Financial Characteristics of Consumers (SFCC). This survey was also conducted by the Federal Reserve Board of Washington and was a precursor to the SCF (see, Projector and Weiss, 1966). This was also a stratified sample which over-sampled high income households. Though the sample design and questionnaire are different from the SCF, the methodology is sufficiently similar to allow comparisons with the SCF data

[18] On the other hand, the value of antiques, jewelry, art objects and other “valuables” are included in the SCF in the category “other assets.”

[19] Another rationale is that if vehicles are included in the household portfolio, their “rate of return” would be substantially negative since they depreciate very rapidly over time (see Section 7 for calculations of the overall rate of return on the household portfolio).

[20] However, FR does include “valuables” like artwork, since this can be sold without significantly lowering a family’s standard of living, as well as business assets which may be illiquid in the short term. As a result, FR is not a 100 percent pure concept since it includes some illiquid assets as well.

(see Appendix 1 of Wolff, 2017, for details on the adjustments). The second is the 1969 MESP database, a synthetic dataset constructed from income tax returns and information provided in the 1970 Census of Population. A statistical matching technique was employed to assign income tax returns for 1969 to households in the 1970 Census. Property income flows (such as dividends) in the tax data were then capitalized into corresponding asset values (such as stocks) to obtain estimates of household wealth (see Wolff, 2017, Appendix 2 for details).[21]

Estimates of the size distribution of household wealth are sensitive to the sampling frame used in survey data. The reason is that because of the extreme skewness of the distribution of household wealth, the inclusion of a high-income supplement in the sample provides much more reliable estimates than a representative sample. The SFCC and the SCF each has an explicit high-income supplement. The MESP dataset has an implicit high-income supplement since it is based in large part on income data from the IRS tax file, which is *not top-coded* like the Current Population Survey and most other publicly available survey data. Moreover, the accounting framework, the choice of observational unit, and patterns of response error, because of portfolio variation with wealth class, also affect wealth estimates.

4. Median wealth plummets over the Great Recession

Table 1 documents a robust growth in wealth from 1983 to 2007, even back to 1962 (also see Figure 1). Median wealth increased at an annual rate of 1.63 percent from 1962 to 1983, then slower at 1.13 percent from 1983 to 1989, a little faster at 1.22 percent from 1989 to 2001, and then much faster at 2.91 percent from 2001 to 2007.[22] Then between 2007 and 2010, median wealth plunged by a staggering 44 percent! Indeed, median wealth was actually lower in 2010 than in 1969 (in real terms). The primary reasons, as we shall in Section 7, were the collapse in the housing market and the high leverage of middle class families. There was virtually no change from 2010 to 2013 according to the SCF data. However, median wealth rebounded somewhat from 2013 to 2016, climbing by 19 percent, though it was still 34 percent below its peak in 2007 (and even below its value in 1983!).[23]

[Table 1 and Figure 1 about here]

As shown in the third row of Panel A, the percentage of households with zero or negative net worth, after falling from 18.2 percent in 1962 to 15.5 percent in 1983, increased to 17.9 percent in 1989 and 18.6 percent in 2007. This was followed by a sharp rise to 21.8 percent in 2010, at which level it remained in 2013. Interestingly, there was only a very small drop off in 2016 (to 21.2 percent). Similar

[21] It should be noted that the 1962 SFCC, the 1969 MESP data file, and the 1983 and 1989 SCF data files were aligned to national balance sheet totals in order to provide consistency in the household wealth estimates, since they each use somewhat different sampling frames and methodologies. (The methodology for the 1983 SCF differs to some extent from that for the 1989 SCF, while the same methodology is used for SCF files for 1989 and onward). The 1992 SCF, the 1995 SCF, and the 1998 SCF also required some minor adjustments because they both showed serious discrepancies with the national balance sheet figures. My baseline estimates also exclude vehicles. Moreover, my calculations are based on the "public use" samples provided by the Federal Reserve Board, which are to some degree different from the internal files maintained by the Federal Reserve Board. As a result, my figures on mean and median net worth, as well as on wealth inequality, will in general be at a slight variance from the "standard" estimates provided by the Federal Reserve Board which include the value of vehicles in their statistics (see, for example, Bricker et. al., 2017).

[22] Unless otherwise indicated, all dollar figures are in 2013 dollars.

[23] The percentage decline in median net worth from 2007 to 2010 was lower when vehicles are included in the measure of wealth – "only" 39 percent. The reason is that automobiles comprise a substantial share of the assets of the middle class. However, median net worth with vehicles remained virtually unchanged from 2010 to 2013. From 2013 to 2016, it rose by 16 percent in constant dollars.

time trends are in evidence for the share of household with net worth less than $5,000 and less than $10,000 (both in 1995 dollars), though in both cases there was a slight increase from 2010 to 2013 but a more pronounced decline from 2013 to 2016. In all three cases, the figures were four to five percentage points above the corresponding 2007 levels.

Mean net worth also grew vigorously from 1962 to 1983, at an annual rate of 1.82 percent, a little higher than that of median wealth. Its growth accelerated to 2.27 percent per year over years 1983 to 1989, about double the growth rate of median wealth. Over years 1989 to 2001, the growth rate of mean wealth was 3.02 percent per year, even higher than in the preceding periods. Its annual growth rate then reached 3.10 percent between years 2001 and 2007, largely due to the rapid (19 percent) increase in housing prices. Mean wealth in 2007 was almost double its value in 1983 and about three quarters larger than in 1989. Another point of note is that mean wealth grew more about twice as fast as the median between 1983 and 2007, indicating widening inequality of wealth over these years.

The Great Recession also saw an absolute decline in mean household wealth. However, whereas median wealth plunged by 44 percent between 2007 and 2010, mean wealth fell by (only) 16 percent.[24] The main cause was both falling housing and stock prices (see Section 7). However, here, too, the relatively faster growth in mean wealth than median wealth (that is, the latter's more moderate decline) was coincident with rising wealth inequality. There was again virtually no change in mean wealth from 2010 to 2013 according to the SCF. However, aggregate data from the Financial Accounts of the United States (FA) indicated a 27 percent jump in mean household net worth over these years. Years 2013 to 2016 did finally see a full recovery in mean wealth, with it rising by 27 percent to $667,600, 7.6 percent above its previous 2007 peak.

Median financial resources (FR), after expanding at a relatively slow pace of 0.55 percent per year from 1962 to 1983, grew 2.76 percent per year from 1983 to 1989 and 3.57 percent per year from 1989 to 2001, in both cases faster than median net worth (also see Figure 2). However, from 2001 to 2007, median FR fell at an annual rate of 2.41 percent, mainly due to a sluggish stock market and rising non-mortgage debt. All in all, median FR increased by 57 percent from 1983 to 2007, about 10 percentage points more than median net worth.

[Figure 2 about here]

Then, when the financial crisis hit, median FR nose-dived by 49 percent from 2007 to 2010, even more than median net worth, to only $13,500 – is lowest level over the 53-year period! The main reason was across-the-board reductions in asset prices, as well as rising relative indebtedness. This was followed by a slight gain of 2.7 percent between 2010 and 2013 and a 6.0 percent advance from 2013 to 2016. However, despite this median FR was still 45 percent down from its 2007 level.

After holding relatively steady between 1962 and 1983, the fraction of households with zero or negative financial resources expanded from 25.7 percent in 1983 to 27.4 percent in 2007. Thus, the sharp decline in median FR from 2001 to 2007 reflected, in part, the growing non-mortgage debt of the bottom half of the distribution. However, in 2010 the share was up again to 29.4 percent, as asset prices declined. There was a modest reduction in the share from 2010 to 2013, to 28.7 percent. However, by 2016 the fraction rebounded to 30.4 percent.

Mean FR, after expanding at annual pace of 1.38 percent from 1962 to 1983, grew at 2.74 percent per year from 1983 to 1989 and then 3.44 percent from 1989 to 2001, in both cases faster than the gains in net worth. The annual pace then slowed down in the 2001-2007 period to 2.29 percent. Over

[24] The decline in mean net worth was also 16 percent when vehicles are included in net worth.

the entire 1983-2007 period mean FR increased by 104 percent, slightly more than mean net worth. Increases were almost identical for median and mean FR from 1983 to 2001 but because of the sharp fall-off in median FR from 2001 to 2007 mean FR grew at about double the pace of median FR from 1983 to 2007. The bull market in stocks was largely responsible for the sharp growth in financial resources between 1989 and 2001, while the slow rise in stock prices coupled with rising indebtedness caused the slow growth in average FR from 2001 to 2007.

Once again there was a sharp fall-off of 12 percent in mean FR from 2007 to 2010, but this percentage decline was substantially smaller than that of median FR and less than that of mean net worth. The difference was due to the fact that average net home equity fell by an enormous 28 percent. From 2010 to 2013, there was a slight gain of 2.4 percent in mean FR and then a huge increase of 30 percent from 2013 to 2016. Its value in 2016 was 17 percent above its previous peak in 2007.

Median household income (based on Current Population Survey data) advanced at a fairly solid pace from 1962 to 1983, at 0.61 percent per year (also see Figure 3). Then, after gaining 2.03 percent per annum between 1983 and 1989, its annual growth dipped to only 0.48 percent from 1989 to 2001 and then to 0.26 percent from 2001 to 2007, for a net change of 22 percent (overall) from 1983 to 2007. However, from 2007 to 2010, it fell off in absolute terms by 6.7 percent. Though this is not an insignificant amount, the reduction was not nearly as great as that in median wealth (or median FR). From 2010 to 2013, median income slipped by another 1.3 percent, though it did turn around in 2016 showing a 6.9 percent gain compared to 2013. All in all median income was still slightly below its high point in 2007.

[Figure 3 about here]

Mean income, after advancing at an annual rate of 0.93 percent from 1962 to 1983, gained 2.66 percent per year from 1983 to 1989, 1.21 percent per year from 1989 to 2001, and then -0.14 percent per year from 2001 to 2007, for a total change of 35 percent from 1983 to 2007. Between 1983 and 2007, mean income grew less than mean net worth (and FR), and median income grew at a much slower pace than median wealth. However, mean income also dropped in real terms from 2007 to 2010, by 5.2 percent, slightly less than that of median income, but gained 0.9 percent from 2010 to 2013. From 2013 to 2016 it was up to $83,100, 2.6 percent above its previous peak in 2007.

In sum, while household income virtually stagnated for the average American household from 1989 to 2007, median net worth and especially median financial resources grew strongly. In the early and mid 2000s, in particular, mean and median income changed very little while mean and median net worth advanced robustly, as did mean FR, though median FR declined. The Great Recession, on the other hand, saw a massive destruction of median net worth (and median FR) but much more modest declines in mean wealth, mean FR, and both median and mean income. Mean net worth, mean FR, and mean income did recover by 2016 but median net worth and median FR were still well below their 2007 values, and median income slightly below.

5. Wealth inequality jumps over the Great Recession

Net worth is highly concentrated, with the richest 1 percent (as ranked by wealth) owning 39.6 percent of total household wealth in 2016 and the top 20 percent owning 89.9 percent (see Table 2 and Figure 4). The figures in Table 2 also show that wealth inequality, after rising from 1962 to 1969, returned to its 1962 level in 1983 (also see Figure 5).[25] Then, after increasing again from 1983 to 1989,

[25] This is not to say that there was no major change in wealth inequality over these years. Indeed, on the basis of estate tax data, Wolff (2002) documents a sharp reduction in wealth inequality from about 1969 to 1976 and then a sharp rise from 1976 to 1983. .

it remained virtually unchanged from 1989 to 2007, at least according to the Gini coefficient. The share of wealth held by the top one percent rose by 1.4 percentage points from 1983 to 1989 and the Gini coefficient increased from 0.799 to 0.828.

[Table 2, Figure 4, and Figure 5 about here].

Between 1989 and 2007, the share of the top percentile actually declined a bit, from 35.2 to 34.6 percent, though this was more than compensated for by an increase in the share of the next four percentiles. As a result, the share of the top five percent increased from 58.0 percent in 1989 to 61.8 percent in 2007, and the share of the top quintile rose from 83.0 to 85.0 percent. The share of the fourth and middle quintiles each declined by about a percentage point from 1989 to 2007, while that of the bottom 20 percent increased by 0.2 percentage point. Overall, the Gini coefficient saw a very small rise, from 0.828 in 1989 to 0.834 in 2007.

The years 2007 to 2010 saw a sharp elevation in wealth inequality, with the Gini coefficient rising from 0.834 to 0.866. Interestingly, the share of the top percentile showed a smaller relative gain -- less than a one percentage point gain.[26] Most of the rise in wealth share took place in the remainder of the top quintile, and overall the share of wealth held by the top quintile climbed by 3.6 percentage points. The shares of the other quintiles, correspondingly, dropped, with the share of the second quintile falling by 0.4 percentage points and that of the bottom quintile by 0.7 percentage points.

From 2010 to 2013 there was a small rise in the Gini coefficient, from 0.866 to 0.871. The share of the top one percent did increase by 1.6 percentage points but there was virtually no change in the share of the top quintile. In constant dollar terms, the net worth of the top one percent grew by 5.9 percent over those years but that of the next 19 percent was down by 1.8 percent. The wealth of the fourth quintile also lost 1.7 percent, that of the middle quintile fell 0.7 percent, and that of the bottom forty percent declined 5.7 percent. Then, from 2013 to 2016 the Gini coefficient showed another small gain, to 0.877. However, the share of the top one percent experienced a huge increase, from 36.7 to 39.6 percent. The share of the next 19 percent went down, so that the wealth share of the top 20 percent advanced only 1.0 percentage points and that of the bottom 80 percent decreased by 1.0 percentage point.

Financial resources, FR, was even more concentrated than net worth, with the richest one percent (as ranked by FR) owning 46 percent of total FR in 2016, compared to 40 percent for net worth, and the top 20 percent owning 95 percent, compared to 90 percent for net worth (also see Figure 4). The inequality of FR showed a different time trend than net worth – mainly because of differences in timing between the housing market and the stock market cycles (also see Figure 5). The share of the top percentile climbed from 39.5 percent in 1962 to 42.9 percent in 1983 and the Gini coefficient showed a marked increase from 0.838 to 0.893, while the inequality of net worth was about the same in the two years. The share of the top one percent then gained 1.2 percentage points and the Gini coefficient increased from 0.893 to 0.920 between 1983 and 1989 – trends, in this case, mirroring those of net worth.

However, in the ensuing twelve years, from 1989 to 2001, the share of the richest one percent plummeted by 4.4 percentage points, the share of the top five percent fell by 2.0 percentage points, and that of the top quintile by 1.6 percentage points. The share of the fourth quintile increased by 0.4 percentage points, the share of the middle quintile was also up by 0.4 percentage points, that of the second held its own, and that of the bottom quintile rose. As a result, the Gini coefficient fell from 0.920

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[26] The main culprit here in explaining the rather meager increase in the share of the top one percent was unincorporated business equity, whose mean value among the top percentile fell by 26 percent in real terms from 2007 to 2010, compared to a 16 percent overall decline in their mean net worth.

in 1989 to 0.888 in 2001 and was actually slightly lower in 2001 than in 1983.

However, the trend reversed between 2001 and 2007, with the share of the top percentile rising by 3.0 percentage points, that of the top quintile up by 1.7 percentage points, and the shares of the third and four quintiles and the bottom 40 percent all falling. As a result, the Gini coefficient rose from 0.888 in 2001 to 0.908 in 2007, still higher than in 1983 but lower than its previous peak value of 1989. The run-up in inequality in the early and mid-2000s was partly a reflection of the increase in the share of households with zero or negative financial resources.

From 2007 to 2010, the share of total FR held by the top one percent actually declined a bit but the shares of the remaining groups in the top quintile expanded, so that the share of the top quintile rose from 93.0 to 94.8 percent. The shares of the lower four quintiles declined, so that the overall Gini coefficient rose from 0.908 in 2007 to 0.921 in 2010, close to its previous high point in 1989. From 2010 to 2013, there was essentially no change in overall FR inequality as measured by the Gini coefficient, though the share of the top one percent increased by 1.5 percentage points. From 2013 to 2016 the share of the top one percent shot up from 42.8 to 45.9 percent, though the Gini coefficient showed a more moderate rise, of 0.007.

The top 1 percent of families (as ranked by income on the basis of the SCF data) earned 24 percent of total household income in 2015 and the top 20 percent accounted for 64 percent -- large figures but lower than the corresponding wealth shares (also see Figure 4).[27] The time trend for income inequality also contrasted with those for net worth and financial resources inequality (also see Figure 5). Income inequality showed a sharp rise from 1961 to 1982, with the Gini coefficient expanding from 0.428 to 0.480 and the share of the top one percent up from 8.4 to 12.8 percent. Income inequality increased sharply again between 1982 and 1988, with the Gini coefficient rising from 0.480 to 0.521 and the share of the top one percent from 12.8 to 16.6 percent.

Inequality again surged from 1988 to 2000, with the share of the top percentile rising by 3.4 percentage points, the share of the top quintile up by 3.0 percentage points, the shares of the other quintiles falling again, and the Gini index advancing from 0.521 to 0.562. All in all, the years from 1989 to 2001 saw almost the same degree of increase in income inequality as the 1983-1989 period.[28] Inequality once again rose from 2001 to 2007, though the pace slackened. The Gini coefficient increased from 0.562 to 0.574, the share of the top one percent was up by 1.3 percentage points, the share of the top quintile was up by 1.7 percentage points, and the shares of the other quintiles fell. All in all, the period from 2001 to 2007 witnessed a moderate increase in income inequality, a small rise in wealth inequality, and a significant jump in FR inequality.

Perhaps, somewhat surprisingly, the years 2007 to 2010 witnessed a rather sharp contraction in

[27] It should be noted that the income in each survey year (say 2016) is for the preceding year (2015 in this case).

[28] The SCF data show a much higher level of income inequality than the CPS data. In the year 2000, for example, the CPS data show a share of the top *five* percent of 22.1 percent and a Gini coefficient of 0.462. The difference is primarily due to three factors. First, the SCF oversamples the rich (as noted above), while the CPS is a representative sample. Second, the CPS data are top-coded (that is, there is an open-ended interval at the top, typically at $75,000 or $100,000), whereas the SCF data are not. Third, the income concepts differ between the two samples. In particular, the SCF income definition includes realized capital gains whereas the CPS definition does not. However, the CPS data also show a large increase of inequality between 1989 and 2000, with the share of the top five percent rising from 18.9 to 22.1 percent and the Gini coefficient from 0.431 to 0.462.

income inequality. The Gini coefficient fell from 0.574 to 0.549 and the share of the top one percent dropped sharply from 21.3 to 17.2 percent. Property income and realized capital gains (which are included in the SCF definition of income), as well as corporate bonuses and the value of stock options, plummeted over these years, a process which explains the steep decline in the share of the top percentile. Real wages, as noted above, actually rose over these years, though the unemployment rate also increased. As a result, the income of the middle class was down but not nearly as much in percentage terms as that of the high income groups. In contrast, transfer income such as unemployment insurance rose, so that the bottom also did better in relative terms than the top. As a result, overall income inequality fell over the years 2006 to 2009.[29]

The second half of the Great Recession saw a reversal in this trend, with income inequality once again increasing sharply. The Gini coefficient increased by 0.025 points to 0.574, the same level as in 2007. The share of the top percentile rose to 19.8 percent, somewhat below its 2007 level, while the share of the top quintile was up to 61.8 percent, slightly above its level in 2007. The same set of factors, though in reverse, help explain this turnaround in income inequality. Property income, realized capital gains, and associated income rose sharply over these years as the stock market recovered, accounting for the sharp rise in the share of the top percentile. The unemployment rate fell over these years but real wages were down, according to the BLS figures. As a result, the income of the middle class rose but not nearly as much in percentage terms as that of the high income groups. Transfer income such as unemployment insurance fell, as the extensions of benefits enacted in the early days of the recession ended.

Income inequality surged once again from 2012 to 2015, with the Gini coefficient rising from 0.574 to 0.598, the share of the top one percent from 19.8 to 23.5 percent, and that of the top quintile from 61.8 to 64.0 percent. Once again, a substantial rise in property income, realized capital gains, and associated income as the stock market continued to boom helped account for rising inequality.

All in all, income inequality increased much more than either net worth or FR inequality over years 1983 to 2016. On the basis of the Gini coefficient, net worth inequality was up by 9.8 percent, FR inequality was up by 4.1 percent, while income inequality rose by 24.5 percent.

5.1 The upper strata

Despite the relative stability in overall wealth inequality during the 1990s, there was a near explosion in the number of very rich households (see Table 3). The number of millionaires (standardized to 1995 dollars) almost doubled between 1989 and 2001, the number of "penta-millionaires" ($5,000,000 or more) increased three and a half times, and the number of "deca-millionaires" ($10,000,000 or more) grew more than five-fold. Much of the growth occurred between 1995 and 2001 and was directly related to the surge in stock prices. The number of the very rich continued to increase between 2001 and 2007 at about the same pace, with the number of millionaires growing by 23 percent, the number of penta-millionaires by 37 percent, and the number of deca-millionaires by 37 percent as well.

[Table 3 about here].

However, despite the increase in the share of the top one percent of wealth holders, the

[29] The CPS data, in contrast, shows little change in household income inequality, with the Gini coefficient falling slightly from 0.470 in 2006 to 0.468 in 2009.The source is: http://www.census.gov/hhes/www/income/data/historical/household/2010/H04_2010.xls. However, the work of Emmanuel Saez and Thomas Piketty, based on IRS tax data, revealed a sizeable decline in income inequality from 2007 to 2010. In particular, incomes at the 99.99th, 99.9th, and 99th percentile dropped sharply over these years. The source is the World Top Incomes Database, available at http://topincomes.parisschoolofeconomics.eu/ [accessed Oct. 24, 2014].

millionaire count slowed markedly from 2007 to 2010, rising by only 9 percent. Moreover, there was an absolute decline in the number of penta-millionaires and deca-millionaires, falling by 27 and 24 percent, respectively. These numbers reflect the steep decline in asset prices over these years, particularly for stocks and business equity. From 2010 to 2013, despite the recovery in asset prices, the number of millionaires actually fell, by 10 percent. This decline was likely due to the slow recovery in house prices. On the other hand, the number of penta-millionaires and deca-millionaires rose sharply, by 22 and 15 percent, respectively, reflecting the recovery in stock and business prices. The ranks of all three groups exploded from 2013 to 2016 due to the boom in house and stock prices. The number of millionaires rose by 28 percent, that of penta-millionaires by 41 percent, and that of deca-millionaires by 56 percent.

5.2 The share of overall wealth gains, 1983 to 2016

Table 4 shows percentage changes in mean wealth and income by quantile between 1983 and 2016. The results are even more striking. Over this period, the largest gains in relative terms were made by the wealthiest households. The top 0.1 percent saw their average wealth (in 2016 dollars) rise by over 57 million dollars or by 133 percent, that of the top 0.5 percent by over 24 million or 151 percent, and that of the top one percent by over 15 million dollars or by 150 percent. The remaining part of the top quintile experienced increases from 81 to 159 percent and the fourth quintile by 39 percent, while the middle quintile showed no change and the average wealth of the poorest 40 percent fell by $15,800. By 2016, the average wealth of the bottom 40 percent was -$8,900.

[Table 4 about here]

Another way of viewing this phenomenon is afforded by calculating the proportion of the total increase in real household wealth between 1983 and 2016 accruing to different wealth groups. This is computed by dividing the increase in total wealth of each percentile group by the total increase in household wealth, while holding constant the number of households in that group. If a group's wealth share remains constant over time, then the percentage of the total wealth growth received by that group will equal its share of total wealth. If a group's share of total wealth increases (decreases) over time, then it will receive a percentage of the total wealth gain greater (less) than its share in either year. However, it should be noted that in these calculations, the households found in each group (say the top quintile) may be different in the two years.

The results indicate that the richest one percent received 45 percent of the total gain in marketable wealth over the period from 1983 to 2016. This proportion was greater than the share of wealth held by the top one percent in any of the intervening 30 years. Indeed, the top 0.1 percent garnered 16.3 percent of the total gains and the top 0.5 percent made off with 34.4 percent. The next 4 percent (P95 to P99) received 31 percent of the total gain and the next 15 percent 21 percent, so that the top quintile collectively accounted for almost 100 percent of the total growth in wealth, while the bottom 80 percent accounted for virtually none.

The pattern of results is similar for financial resources. Average FR of the richest one percent as ranked by FR climbed 123 percent, that of the next richest four percent rose by 191 percent, and that of the next richest 15 percent increased between 116 and 140 percent. Altogether, mean FR of the top quintile gained 167 percent. The fourth quintile showed a positive gain while the third quintile enjoyed a small increase of 7.9 percent and the bottom 40 suffered an absolute decline. Of the total growth in non-home wealth between 1983 and 2016, 48 percent accrued to the top one percent and almost 100 percent to the top quintile, while the bottom 80 percent collectively accounted for almost none again.

A similar calculation using the SCF income data reveals that the greatest percentage gains in real income over the period from 1982 to 2015 were made by households in the top one percent of the income distribution, who saw their incomes grow by 158 percent. Mean income increased by 72 percent for the next 4 percent, 41 percent for the next highest 5 percent and by 23 percent for the next highest ten

percent. The fourth quintile of the income distribution experienced only an 11 percent growth in income, while the middle quintile and the bottom 40 percent had gains of 4 percent. Of the total growth in real income between 1982 and 2015, almost half accrued to the top one percent and 92 percent to the top quintile. These figures were very close to those for net worth and FR.

6. Household debt expands and then recedes

In 2016, owner-occupied housing was the most important household asset in the average portfolio breakdown for all households shown in Table 5, accounting for 25 percent of total assets (also see Figure 6). However, net home equity -- the value of the house minus any outstanding mortgage -- amounted to only 17 percent of total assets. Real estate, other than owner-occupied housing, comprised 10 percent, and business equity another 20 percent.

[Table 5 and Figure 6 about here]

Demand deposits, time deposits, money market funds, CDs, and the cash surrender value of life insurance (collectively, "liquid assets") made up 6.7 percent and pension accounts 15.6 percent. Bonds and other financial securities amounted to 1.3 percent; corporate stock, including mutual funds, to 16.1 percent; and trust fund equity to 3.4 percent. Debt as a proportion of gross assets was 12.5 percent, and the debt to net worth ratio was 0.14.

There were some notable changes in the composition of household wealth over years 1983 to 2016. First, the share of housing wealth in total assets, after fluctuating between 28 and 30 percent from 1983 to 2001, jumped to 34 percent in 2004 but then declined to 29 percent in 2013 and 25 percent in 2016. Two factors explain this movement. The first is the homeownership rate, which rose from 63.4 percent in 1983 to 69.1 percent in 2004 and then fell off to 63.7 percent in 2016. The second is the median house price for existing one-family homes, which rose by 18 percent between 2001 and 2004 and then plunged by 17 percent from 2004 to 2013, though it did recover by 18 percent from 2013 to 2016.[30]

A second and related trend is that net home equity, after falling almost continuously from 23.8 percent of total assets in 1983 to 18.2 percent in 1998, picked up to 21.8 percent in 2004 but then fell again to 16.5 percent in 2016. The difference between the two series (gross versus net housing values) is attributable to the changing magnitude of mortgage debt on homeowner's property, which increased from 20.9 percent in 1983 to 34.8 percent in 2004, rose further to 39.3 percent in 2013, but then fell off to 34.4 percent in 2016. Moreover, mortgage debt on principal residence climbed from 9.4 of total assets in 2001 to 12.7 percent in 2010 before receding to 8.6 percent in 2016. The increase in net home equity as a proportion of assets between 2001 and 2004 reflected the strong gains in real estate values over these years; its sharp decline from 2007 to 2013 reflected the steep fall in housing prices over those years; and the pick-up from 2013 to 2016 was due to strong gains in housing prices.

Third, overall relative indebtedness first increased, with the debt to net worth ratio climbing from 15.1 percent in 1983 to 20.6 percent in 2010, and then fell off to 17.9 percent in 2013 and then to 14.3 percent in 2016. Likewise, the debt-income ratio surged almost continuously over time from 68 percent in 1983 to 127 percent in 2010 but then dropped off sharply to 95 percent in 2016. If mortgage debt on principal residence is excluded, then the ratio of other debt to total assets actually fell off over time from 6.8 percent in 1983 to 3.9 percent in 2016.

The large rise in *relative* indebtedness among all households between 2007 and 2010 could be

[30] It may seem surprising that the share of housing in gross assets declined very little between 2007 and 2010, given the steep drop in housing prices, but the prices of other assets also fell over this period, particularly those of stocks and business equity.

due to a rise in the absolute level of debt and/or a fall-off in net worth and income. As shown in Table 1, both mean net worth and mean income fell over the three years. There was also a slight contraction of debt in constant dollars, with mortgage debt declining by 5.0 percent, other debt by 2.6 percent, and total debt by 4.4 percent (see Table 9 below). Thus, the steep rise in the debt to net worth and the debt to income ratios over the three years was entirely due to the reduction in wealth and income. In contrast, from 2010 to 2013, relative indebtedness declined. In this case, both net worth and incomes were relatively unchanged, so that the proximate cause was a sizeable reduction in household debt. In fact, average mortgage debt (in constant dollars) dropped by 13 percent, the average value of other debt by 11 percent, and average household debt by 13 percent.[31] The further decline in these ratios in 2016, however, reflected sizeable gains in both mean wealth and mean income. Though average mortgage debt diminished by 4.8 percent, the average value of other debt jumped by 20 percent, and average household debt rose by 1.7 percent.

A fourth change is that pension accounts rose from 1.5 to 16.5 percent of total assets from 1983 to 2013 though the ratio did fall off slightly to 15.6 percent in 2016. This increase largely offset the decline in the share of liquid assets in total assets, from 17.4 percent in 1983 to 6.7 percent on 2016, so that it is reasonable to infer that to a large extent households substituted tax-deferred pension accounts for taxable savings deposits.

Fifth, stocks and mutual funds rose from 9 to 16 percent of gross assets over these years. Its year to year trend mainly reflected fluctuations in the stock market. If we include the value of stocks indirectly owned through mutual funds, trusts, IRAs, 401(k) plans, and other retirement accounts, then the value of total stocks owned as a share of total assets more than doubled from 11.3 percent in 1983 to 24.5 percent in 2001, and then tumbled to 17.5 percent in 2010 before rising to 22.4 percent in 2016. The rise during the 1990s reflected the bull market in corporate equities as well as increased stock ownership, while the decline in the 2000s was a result of the sluggish stock market as well as a drop in stock ownership (see Table 17b below). The increase from 2010 to 2016 reflected the recovery of the stock market.

6.1 Portfolio composition by wealth class

The tabulation in Table 5 provides a picture of the average holdings of all families in the economy, but there are marked class differences in how middle-class families and the rich invest their wealth. As shown in Table 6, the richest one percent of households (as ranked by wealth) invested 80 percent of their savings in investment real estate, businesses, corporate stock, and financial securities in 2016 (also see Figure 7). Corporate stocks, either directly owned by the households or indirectly owned through mutual funds, trust accounts, or pension accounts, comprised 26 percent by themselves. Housing accounted for only 7.6 percent of their wealth (and net home equity 6.4 percent), liquid assets for 4.6 percent, and pension accounts for another 6.0 percent. Their debt- net worth ratio was only 2.4 percent, their debt- income ratio was 35 percent, and the ratio of mortgage debt to house value was 15.4 percent.

[Table 6 and Figure 7 about here]

Among the next richest 19 percent of U.S. households, housing comprised 26 percent of their total assets (and net home equity 19 percent), liquid assets 7.7 percent, and pension assets another 22.4 percent. Investment assets -- real estate, business equity, stocks, and bonds – made up 41 percent and 25 percent was in the form of stocks directly or indirectly owned. Debt amounted to 10.1 percent of their net worth and 89 percent of their income, and the ratio of mortgage debt to house value was 26.5 percent.

[31] Aggregate household balance sheet data from the Financial Accounts of the United States (FA) show a similar reduction in the ratio of outstanding debt to gross assets among all households, from 23 to 18 percent. The source is: http://www.federalreserve.gov/releases/Z1/Current/data.htm. The data are drawn from the Table B.101, Balance Sheet of Households and Nonprofit Organizations.

In contrast, over three-fifths of the assets of the middle three wealth quintiles of households was invested in their own home in 2016. However, home equity amounted to only a third of total assets, a reflection of their large mortgage debt. Another quarter went into monetary savings of one form or another and pension accounts. Together housing, liquid assets, and pension assets accounted for 87 percent of the total assets of the middle class. The remainder was about evenly split among non-home real estate, business equity, and various financial securities and corporate stock. Stocks directly or indirectly owned amounted to only 9.7 percent of their total assets. The ratio of debt to net worth was 59 percent, substantially higher than for the richest 20 percent, and their ratio of debt to income was 120 percent, also much higher than that of the top quintile. Finally, their mortgage debt amounted to 46 percent of the value of their principal residences.

Almost all households among the top 20 percent of wealth holders owned their own home, in comparison to 67 percent of households in the middle three quintiles. Three-quarters of households in the top percentile owned some other form of real estate, compared to 47 percent of those in the next 19 percent of the distribution and only 12 percent of households in the middle 60 percent. Over 90 percent of the top group had a pension account, compared to 84 percent of the next 19 percent and 49 percent of the middle. A stunning two thirds of the top group reported owning their own business. The comparable figures were 29 percent among the next 19 percent and only 7.8 percent of the middle class.

Among the top group, 89 percent held corporate stock, mutual funds, financial securities or a trust fund, in comparison to 62percent of the next 19 percent and only 15.3 percent of the middle group. Ninety-four percent of the top percentile reported owning stock either directly or indirectly, compared to 86 percent of the next 19 percent and 45 percent of the middle. If we exclude small holdings of stock, then the ownership rates dropped off sharply among the middle three quintiles, from 45 percent to 34 percent for stocks worth $5,000 or more and to 28 percent for stocks worth $10,000 or more.

Table 7 compares the wealth composition of the three wealth classes in 1983 and 2016. There was remarkable stability in the composition of wealth by wealth class over these years. The most notable exception is a substitution of pension assets for liquid assets -- a transition that occurred for all three wealth classes but that was particularly marked for percentiles 80-99 and for the middle three quintiles. The debt to net worth ratio actually fell by over half for the top one percent from 1983 and 2016, as did the debt-income ratio. The debt to net worth ratio decreased slightly for the next 19 percent, while the debt-income ratio rose from 73 to 89 percent. For the middle three wealth quintiles, the debt to net worth ratio as well as the debt-income ratio almost doubled over this period.

[Table 7 about here]

More details are provided in Table 8 for the middle three wealth quintiles. Perhaps, the most striking development was the homeownership rate, which after rising almost continuously over time from 72 percent in 1983 to 78 percent in 2004, plunged by 11 percentage points to 67 percent in 2016.[32] This

[32] The trend from 2007 to 2013 is partly a statistical artifact because the homeownership rate among the bottom wealth quintile actually increased from 16.3 percent in 2007 to 26.5 percent in 2013. However, it did revert to 17.2 percent in 2016. These results imply that many middle wealth households slipped into the bottom 20 percent over years 2007 to 2013 because of plummeting housing prices, while non-homeowners moved up from the bottom quintile into one of the middle three wealth quintiles (these households were not affected by the collapse in home prices). All in all, the homeownership rate among the bottom 80 percent of the wealth distribution did decrease by 4.1 percentage points, from 61.8 percent in 2007 to 57.6 percent in 2013and then to 56.0 percent in 2016. Perhaps a more telling statistic is that the homeownership rate among the middle *income* quintile dropped by 5.7 percentage points from 68.9 percent in 2007 to 63.2 percent in 2013, though it did rebound slightly to 64.1 percent in 2016.

trend was more pronounced than that among all households, among whom the homeownership rate dropped from 69.1 percent in 2004 to 63.7 percent in 2016. A similar trend is evident for the share of home values in the value of total assets, which remained virtually unchanged from 1983 to 2001 but then rose sharply in 2004. This increase was largely a result of rising house prices and secondarily a consequence of the continued gain in the homeownership rate. The share then declined from 2004 through 2016 as the homeownership rate plummeted.

[Table 8 about here]

It might seem surprising that despite the steep drop in home prices from 2007 to 2010, housing as a share of total assets actually fell only slightly. The reason is that the other components of wealth fell even more than housing. While mean housing fell by 31 percent in real terms, the mean value of other real estate was down by 39 percent and that of stocks and mutual funds by 47 percent. Likewise, despite the modest recovery in housing prices from 2010 to 2013, the share of housing in total assets dropped by 2.3 percentage points. The mean value of housing fell by 7.3 percent. Of this, the decline in the homeownership rate accounted for only 19 percent of the overall decline, while the main culprit was the decline in the mean values of houses among households in the middle three wealth quintiles, which explained 81 percent.[33] From 2013 to 2016 homes as a proportion of total assets declined a bit more (0.6 percentage points), even though the mean value of homes increased by 7.7 percent in real terms. The explanation is that the value of other assets like businesses, pension assets, financial securities, and particularly corporate stock holdings advanced even more.

The share of pension accounts in total assets rose by 15.4 percentage points from 1983 to 2016, while that of liquid assets declined by 12.9 percentage points. This trend was more or less continuous over time. This set of changes paralleled that of all households. In contrast, the share of middle class households holding a pension account, after surging by 41.2 percentage points, from 12.2 percent in 1983 to 53.4 percent in 2007, contracted to 48.9 percent in 2016. From 2007 to 2010 the mean value of pension accounts fell quite sharply, by 25 percent, though this was less than that of average overall assets, so that the share of pension accounts in total assets rose. From 2010 to 2013, in contrast, mean pension accounts were up by 12 percent, despite the slight decline in the ownership rate, so that the share of pension accounts in total assets strengthened considerably (by 2.2 percentage points). Over years 2013 to 2016 average pension values were up by 11.6 percent and the share holding pensions rose by 4.5 percentage points, leading to another rise in pensions as a proportion of gross assets over these years.

The share of all stocks in total assets mushroomed from 2.4 percent in 1983 to 12.6 percent in 2001 and then fell off to 8.1 percent in 2010 as stock prices stagnated and then collapsed and middle class households divested themselves of stock holdings. The proportion then rebounded to 9.5 percent in 2013 as the stock market recovered and then to 9.7 percent in 2016 as the stock market further strengthened. The stock ownership rate among the middle class also shot up quickly from 17 percent in 1983 to 51 percent in 2001, when it peaked. It then declined steeply to 41 percent in 2013 but recovered to 45 percent in 2016. In similar fashion, the share of middle class households owning either corporate stock, financial securities, mutual funds or a personal trust rose from 22 percent in 1983 to 28 percent in 2001 and then plunged almost by half to 14 percent in 2013. There was a slight recovery in 2016. Much of the decline took place between 2007 and 2010, as middle class households got scared off by the stock market collapse of those years.

6.2 The evolution of middle class debt

The rather staggering debt level of the middle class in 2016 raises the question of whether this is a recent phenomenon or whether it has been going on for some time. The debt to income ratio peaked in 2007 and then contracted substantially in 2010 and receded a bit more in 2013 and 2016, while the debt

[33] The mean value of this group is not the same as the *median value of existing homes* among all households.

to net worth ratio peaked in 2010 and then fell off sharply in 2013 and again in 2016.

There was a sharp rise in the debt to net worth ratio of the middle class from 37 percent in 1983 to 61 percent in 2007. There was a particularly steep uptick between 2001 and 2004, a reflection mainly of rising mortgage debt. The debt to income ratio skyrocketed from 1983 to 2007, more than doubling. Once, again, much of the increase happened between 2001 and 2004. In constant dollar terms, the mean debt of the middle class shot up by a factor of 2.6 between 1983 and 2007, mortgage debt by a factor of 3.2, and other debt by a factor of 1.5. The rise in the debt to net worth ratio and the debt-income ratio was much more pronounced than for all households. In 1983, for example, the debt to income ratio was about the same for the middle class as for all households but by 2007 the ratio was much larger for the former.

After the Great Recession hit, the debt to net worth ratio continued to rise, reaching 72 percent in 2010 but there was actually a retrenchment in the debt to income ratio, falling to 134 percent in 2010. The reason is that from 2007 to 2010, the mean debt of the middle class actually contracted by 25 percent in constant dollars (see Table 9). Average mortgage debt declined by 23 percent, as families paid down their outstanding balances, while the mean value of other debt plummeted by 32 percent, as families paid off credit card balances and other forms of consumer debt. If we separate out educational loans, which actually remained flat over these years, we find that non-educational debt plunged by 37 percent. Among all households, in contrast, mortgage debt in constant dollars fell by only 5 percent, non-educational debt was down by 10 percent but students loans climbed by 44 percent. The significant rise in the debt to net worth ratio of the middle class between 2007 and 2010 was due to the steeper drop off in net worth than in debt, while the decline in the debt-income ratio of this group was exclusively due to the sharp contraction of overall debt.

[Table 9 about here]

Both the debt to net worth and the debt-income ratios fell from 2010 to 2013 for the middle class. The proximate cause was a decline in overall mean debt, which fell by 8.2 percent in real terms over these years. This, in turn, was due to a decline in average mortgage debt, which dropped by 10.4 percent. The average balance on other debt actually increased slightly, by 1.6 percent. In this case, student loans were up by 12 percent whereas non-educational debt fell by one percent. Average overall debt fell even more among all households, by 13 percent, with mortgage debt down by 13 percent and non-educational debt down by 17 percent, whereas student loans increased by 10 percent. There was a further decline in relative indebtedness from 2013 to 2016, particularly relative to net worth. In this case, average mortgage debt held steady while the average value of all other debt mushroomed by 17 percent. Student loans were up by 36 percent and non-student debt by 12 percent. Overall average debt rose by 3.3 percent. The decline in relative indebtedness was entirely due to the sharp increase in mean income and wealth.

As for all households, net home equity as a percentage of total assets for the middle class fell rather continuously from 1983 to 2016. Mortgage debt as a proportion of house value rose through 2010 and then fell off a bit by 2016, though still far above its 1983 level. The decline in the former between 2007 and 2010 was relatively small despite the steep decrease in home prices, a reflection of the sharp reduction in mortgage debt. There was virtually no change from 2010 to 2013, followed by a rebound over the next three years due to rising home prices. On the other hand, the rise in the ratio of mortgage debt to house values was relatively large over years 2007 to 2010 because of the fall-off in home prices. This ratio actually contracted somewhat from 2010 to 2013 as outstanding mortgage debt fell and then declined steeply over the next three years due to rising home prices.

6.3 Concentration of assets by asset type

Another way to portray differences between middle class households and the rich is to compute the share of total assets of different types held by each group (see Table 10 and Figure 8 and Figure 9). In 2016 the richest one percent of households held more than half of all outstanding stock, financial

securities, trust equity, and business equity, and 40 percent of non-home real estate. The top 10 percent of families as a group accounted for about 85 to 90 percent of stock shares, bonds, trusts, and business equity, and over 80 percent of non-home real estate. Moreover, despite the fact that almost half of all households owned stock shares either directly or indirectly through mutual funds, trusts, or various pension accounts, the richest 10 percent of households controlled 84 percent of the total value of these stocks, though less than its 93 percent share of directly owned stocks and mutual funds.

[Table 10 and Figure 8 and Figure 9 about here]

In contrast, housing, deposits, life insurance, and pension accounts were more evenly distributed among households. The bottom 90 percent of households accounted for 59 percent of the value of owner-occupied housing, 35 percent of deposits, 36 percent of life insurance cash value, and 35 percent of the value of pension accounts. Debt was the most evenly distributed component of household wealth, with the bottom 90 percent of households responsible for 72 percent of total indebtedness.

The concentration of investment-type asset showed a notable uptick between 2013 and 2016. First, the share of total stocks and mutual funds held by the richest 10 percent of households declined from 90 to 85 percent from 1983 to 2004 but then rose back to 91 percent in 2013 and then to 93 percent in 2016, while their share of stocks directly or indirectly owned fell from 90 percent in 1983 to 77 percent in 2001 but rose to 81 percent in 2013 and then to 84 percent in 2016. Second, the proportion of non-home real estate held by this group, after remaining more or less stable from 1983 to 2013, jumped up to 82 percent in 2016. Third, total pension accounts held by the group fell from 68 percent in 1983 to 51 percent in 1989, reflecting the growing use of IRAs by middle income families, and then rebounded to 65 percent in 2016 from the expansion of 401(k) plans and their adoption by high income earners. In contrast, the group's share of total debt declined from 32 to 28 percent between 1983 and 2016.

7. The role of leverage in explaining time trends in median wealth and wealth inequality

7.1 Rates of return

Table 11 shows average annual *real* rates of return for both gross assets and net worth over the period from 1983 to 2013 (also see Figure 10). Results are based on the average portfolio composition over the period and assume that all wealth groups receive the same rate of return, on average, by asset type. In particular, it is assumed that there are no systematic differences in returns on, for example, stocks by wealth class.

[Table 11 and Figure 10 about here]

What is the evidence supporting this assumption? First, one rather dated study, Blume et. al. (1974, p. 26), looked at the relation of dividend yield to household income in 1969. The study found that dividend yield, rather interestingly, varied inversely with income but the range was very small (2.51 percent to 2.78 percent). Second, a paper by Feldstein and Yitzhaki (1982) found that high income investors received a higher rate of return on their investments than low income ones. However, the study, based on income tax returns, relied exclusively on capital gains realized on corporate stock and the differences were not great.

Third, Johnson, Raub, and Newcomb (2013) used micro estate tax data of 2007 decedents matched to 2006 income tax returns to analyze rates of return by wealth class. If anything, they found slightly decreasing rates of returns for some asset classes by wealth level. Fourth, much more recently Saez and Zucman (2016) provided three pieces of evidence supporting this assumption. They encountered the same issue in their capitalization technique since they also assumed a uniform rate of return across income classes. They also used matched estate-income returns like Johnson, Raub, and Newcomb (2013) and analyzed three datasets. The first piece of evidence was based on publicly available SOI tabulations of matched estate-income returns for 2008. Saez and Zucman (SZ) found that within-asset-class returns were fairly constant across wealth groups. Although rates of returns varied across individuals, they were similar across wealth groups.

The second source of evidence was the internal SOI matched estate and income tax files over years 1996–2011 period. SZ matched the estate tax returns of non-married individuals dying in this period to their prior-year income tax returns. They found that the interest rate on bonds and deposits did not vary much with wealth level. In 1997, for example, the interest rate was 3.9 percent on aggregate, and between 4.1 and 4.3 percent for all groups of estate tax payers ranging from $0.5–1 million to more than $20 million. The third source was a publicly available sample of estates filed in 1977. SZ once again found that rates of return within asset class were very similar across wealth groups. Individuals in the top 0.1 percent and top 0.01 percent had an average dividend yield of 4.7 percent, about the same as the average dividend yield of 5.1 percent among all decedents. The preponderance of the evidence does suggest that there is little systematic variation of rates of return by wealth or income level.

With this in mind, it is first of interest to look at the results for all households (see Appendix Table 1 for data sources). The overall average annual rate of return on gross assets rose from 2.33 percent in the 1983-1989 period to 3.33 percent in the 1989-2001 period and then fell slightly to 3.10 percent in the 2001-2007 period before plummeting to -6.38 percent over the Great Recession. This was followed by a substantial recovery to 4.83 percent over years 2010 to 2013 and again to 5.42 percent from 2013 to 2016.

As shown in Appendix Table 1, the largest declines in asset prices over the years 2007 to 2010 occurred for residential real estate and the category businesses and non-home real estate. The value of financial assets, including stocks, bonds, and other financial securities, registered an annual rate of return of “only” -3.72 percent because interest rates on corporate and foreign bonds continued to remain strong over these years. The value of pension accounts had a -0.34 percent annual rate of return, reflecting the mixture of bonds and stocks held in pension accounts (see Table 17c below). From 2010 to 2013, all asset classes with the exception of liquid assets made a robust recovery. This was led by financial assets which recorded a 12.5 percent annual return and businesses and non-home real estate with a 7.4 percent annual rate of return. Between 2013 and 2016, the return on residential real estate recovered even more, to 6.84 percent per year, while that on the combined category of other real estate and businesses was down a bit and that on liquid assets unchanged. The annual return on financial assets fell off to 8.58 percent from 12.45 percent and that on pension accounts fell from 8.26 to 6.54 percent.

The average annual rate of return on net worth among all households also increased from 3.32 percent in the first period to 4.35 percent in the second , declined somewhat to 4.04 percent in the third and then fell off sharply to -7.28 percent in the 2007-2010 period. Once again, there was a strong recovery to 6.20 percent in the 2010-2013 period and again to 6.46 percent in 2013-2016. It is first of note that the annual returns on net worth were uniformly higher – by about one percentage point – than those of gross assets over the first three periods and the last two periods, when asset prices were rising. However, in the 2007-2010 period, the opposite was the case, with the annual return on net worth about one percentage point lower than that on gross assets. These results illustrate the effect of leverage, raising the return when asset prices rise and lowering the return when asset prices fall. Over the full 1983-2016 period, the annual return on net worth was 0.85 percentage points higher than that on gross assets.

There were striking differences in rates of return by wealth class. The highest returns on gross assets were registered by the top one percent of wealth holders, followed by the next 19 percent and then by the middle three wealth quintiles. The one exception was the 2007-2010 period when the next 19 percent was first (the least negative), followed by the top one percent and then the middle three quintiles. The differences were quite substantial. Over the full 1983-2016 period, the average annual return on gross assets for the top one percent was 0.57 percentage points greater than that of the next 19 percent and 1.44 percentage points greater than that of the middle quintiles. The differences reflected the greater

share of high yield investment assets like stocks in the portfolios of the rich and the greater share of housing in the portfolio of the middle class (see Tables 6 and 7). Indeed, in the 2010-2013 period, there was a huge cleavage in returns between the top and middle groups of 2.63 percentage points, reflecting the much higher gains on stocks and investment assets than on housing in those years.

This pattern is almost exactly reversed when we look at returns on net worth. In this case, in the first three and last two periods, when asset prices rose, the highest returns were recorded by the middle three wealth quintiles but in the 2007-2010 period, when asset prices were declining, the middle group registered the lowest (that is, most negative) rate of return. The exception was the first period when the top one percent had a slightly higher return than the middle class. The reason was the substantial spread in returns on gross assets between the top one percent and the middle group – 1.72 percentage points.

Differences in returns between the top and middle group were quite substantial in some years. In the 2001-2007 period, the average return on net worth was 5.58 percent for the latter and 3.92 percent for the former – a difference of 1.67 percentage points. The spread was less over years 2010 to 2013, only 0.46 percentage points, but much higher in 2013-2016, 3.26 percentage points. The smaller difference in 2010-2013 was due to the much higher returns on the gross assets of the top percentile than of the middle group but the larger difference in 2013-2016 reflected the small differential in returns on gross assets between these two groups of only 0.39 percentage points (due, in turn, to the rapid appreciation of home prices in these years). On the other hand, over years 2007 to 2010, when asset prices declined, the return on net worth was -6.52 percent for the top one percent and -10.55 percent for the middle three quintiles – a differential of 4.04 percentage points in favor of the top one percent.

The spread in rates of return on net worth between the top one percent and the middle three quintiles reflects the much higher leverage of the middle class. In 2016, for example, the debt to net worth ratio of the middle three quintiles was 0.589 while that of the top one percent was 0.024. The debt to net worth ratio of the next 19 percent was also relatively low, at 0.101.

The huge negative return on net worth of the middle three quintiles was largely responsible for the precipitous drop in median net worth between 2007 and 2010, as we shall see in the next section. This factor, in turn, was due to the steep drop in housing prices and the very high leverage of this group. Likewise, the very high return on net worth of the middle group over the 2001-2007 period played the predominant role in explaining the robust advance of median net worth, despite the sluggish growth in median income. This in turn, was a result of high leverage coupled with the boom in housing prices. These two factors also help account for the very high return enjoyed by the middle quintiles over the 2013-2016 period and the consequent rapid increase in median wealth. However, somewhat puzzling is the fact that the rate of return on net worth of the middle group was very high over years 2010 to 2013 – in fact, the second highest of any period – and yet median wealth stagnated over these years.

The substantial differential in returns on net worth between the middle and top groups (four percentage points lower) is one factor which explains why wealth inequality rose sharply between 2007 and 2010 despite the decline in income inequality. Likewise this differential over the 2001-2007 period (a spread of 1.67 percentage points in favor of the middle quintiles) is a factor which helps account for the stasis in wealth inequality over these years despite the increase in income inequality. The higher rate of return of the middle than the top group over years 2010 to 2013 and also years 2013 to 2016 also helps account for the relative constancy in wealth inequality despite the rise in income inequality.

7.2 Decomposition Analysis

To understand trends in both wealth levels and wealth inequality, it is helpful to undertake a decomposition analysis. I begin with the basic wealth relationship as established in Wolff (1999):

(1) $\Delta W_{ct} \equiv W_{ct} - W_{c,t-1} = r_{ct}W_{ct-1} + s_{ct}Y_{ct} + G_{ct}$.

where W_{ct} = net worth (in constant dollars) for age (or birth) cohort c at time t, r = real rate of return on wealth, Y = household income (in constant dollars), s = savings rate out of household income Y, and G = net inheritances and gifts (in constant dollars).[34]

On the basis of equation (1), the change in wealth over a period can be decomposed into capital revaluation (existing wealth multiplied by the rate of return), savings, and net intergenerational transfers. The analysis will be conducted for five periods: 1983-1989, 1989-2001, 2001-2007, 2007-2010, and 2010-2016.[35] The decomposition of mean wealth will also tell us the relative importance of capital gains and savings in explaining changes in wealth over time.

The same decomposition can be used for the wealth of the top one percent and median wealth.[36] For the inequality analysis, I will consider changes over time in the *ratio* of mean wealth of the top one percent to the median. I can then also determine what portion of the change in this difference is due to capital gains and what portion is due to savings.

There are several important methodological issues regarding the implementation of this model that should be addressed before the actual results are shown.

7.2.1 Decomposing changes in average wealth

Let us first consider changes in *aggregate* household wealth from time t to t+1. W_t is the total wealth held by households living in the U.S. at time t and W_{t+1} is the total wealth held by households living in the U.S. at time t+1. If this were a closed economy, then generally speaking the only sources of change, ΔW_t, would be from savings and capital appreciation. However, there may be some "leakages" and additions for a few reasons. First, a household could make a charitable contribution, which would subtract from current household wealth. Second, someone could die in this time interval and pay estate taxes or leave a charitable bequest. Third, there may also be outflows if an American resident emigrates from the U.S. and takes wealth out of the U.S. over this interval. Fourth, there may be additions to the stock of household wealth if immigrants bring new wealth in. However, if these effects are small, then changes in aggregate wealth are due generally to only savings and capital gains on wealth.[37]

[34] As shown in Wolff (2017, Chapter 5), net wealth transfers are generally quite small, so that I ignore them in this paper.

[35] I combine the 2010-2013 and 2013-2016 periods into a single 2010-2016 since according to the SCF data was virtually no change in median and mean wealth from 2010 to 2013.

[36] I use the rate of return of the middle three wealth quintiles as a proxy for the rate of return on median wealth. Note that the mean wealth of three middle wealth quintiles is not necessarily equal to median wealth. In 2007, for example, median wealth (in 2013$) was $115,100 while the latter was equal to $155,200. The reason that the latter was higher was that the middle three wealth quintiles incorporated the wealth of the fourth quintile, which was generally considerably higher than that of the middle quintile. However, the two series trended very closely over time in terms of percentage change.

[37] Zucman (2013) presented convincing evidence that substantial wealth was transferred from domestic accounts to foreign ones over time ("offshoring"). In principle, offshoring should not present a problem for the SCF data since the SCF asks questions to domestic respondents about asset holdings in foreign accounts. This problem appears more germane to aggregate data like the Financial Accounts of the United States since these accounts are based on only domestically held assets.

It is true, of course, that the *identity* of the households will, in general, change over time. The two main sources are deaths and the formation of new households from marriage, children moving out of the home, and the like. However, given the stock of household wealth at time t (and ignoring international transfers and charitable giving), the only two sources of wealth change remain capital appreciation and savings. Changes in *mean* wealth over time will also be affected by changes in the household count, which may come about from deaths, the formation of new households, emigration, and immigration.

The comparison becomes more complicated when we consider changes in wealth of particular sub-groups of the population. In this case, households in one group at time t may move to another group at time t+1. This problem is particularly germane to wealth classes. In the case of wealth classes, the same issues of attrition and new entrants may apply as in the case of all households for computing the overall mean. In addition, households may shift their wealth class over time. For example, the households in the top one percent say in 1983 may not be the same as those in the top one percent in 1989. There is a regression to the mean over time, and some households in the top one percent in 1983 may have slipped to the next 19 percent, say.

Let us call the measured change in the mean wealth of the top one percent between time t and t+1 $\Delta \bar{W}$ and $\Delta \bar{W}^*$ the actual change in the mean wealth of the households in the top one percent in year t if we followed exactly the *same households* over time. Then, $\Delta \bar{W}^* \leq \Delta \bar{W}$, since some of the original households in the top one percent in year t may have slipped to a lower wealth class in year t+1. Indeed , $\Delta \bar{W}^* = \Delta \bar{W}$ only in the special case when the original top one percent households in year t remain in the top one percent in year t+1. Thus, if we call ROR the change in the mean wealth of the top one percent emanating only from capital appreciation on initial wealth, then ROR / $\Delta \bar{W}$ only is a *lower bound* on ROR / $\Delta \bar{W}^*$, and the contribution of the ROR effect to the change in mean wealth over the period will be biased *downward.* Since savings is imputed as a residual, this will, in general, bias *upward* the estimated savings for that wealth class over the period. Conversely, if households move up into a higher wealth class over the period, then, $\Delta \bar{W}^* \geq \Delta \bar{W}$. This may be the case for the median household. In that case, the estimated residual may be biased downward. On the other hand, households may also move to a lower wealth class, in which case the residual will be biased upward. In general, we cannot tell which way the ROR effect and the residual are biased.

We can directly estimate ROR, the change in the mean wealth of a group emanating only from capital appreciation. The residual will include traditional savings but it will also include net wealth transfers and the effects of new households entering the wealth group over the period and existing households exiting the group.

In Sections 8 and 9, I perform the same analysis for race/ethnicity and age group. The same problems with regard to the entry of new households and the exit of existing households affect these decompositions as they do for all households. Also, with regard to race/ethnicity, while the category remains constant over the lifetime for an individual, changes in marital status may affect the classification of a *household* over time since it is based on the household head. With regard to age classes, while a *birth cohort* remains constant over time for an individual, households in an age *class* may change over time due to the death of the household head, marital status changes, emigration, and immigration since households are classified into an age group on the basis of the household head.

Table 12 shows the results of a decomposition of the change in mean net worth by wealth class. Considering first the time trend in mean net worth (Panel A), we find that the share of the change in

mean net worth from the return on wealth alone (the "ROR effect") more than explains the growth in wealth for each of the five periods. That is to say, if households had simply held onto their assets, their wealth would have grown faster than in actuality. The difference is reflected in the residual – presumably mostly dissavings. The only exception to this pattern is the financial crisis of 2007-2010, when the residual was positive. The results suggest that households in general save only when they experience capital losses – presumably, to make up for their lost wealth.

At the median, capital appreciation accounts for more than the total increase in their wealth in all periods except 2007-2010 (Panel B). But in this case the residual (mainly savings) is negative in all five periods. Over years 2007 to 2010, the high negative return on assets accounted for 62 percent of the (negative) change in wealth at the median and the residual the other 38 percent.

The pattern of results is, surprisingly, almost the same for the top one percent as for mean wealth (Panel C). Capital gains more than fully explains the change in their mean wealth in each of the five periods. The residual is negative in all four sub-periods except 2007-2010, when it is positive. As argued above, the ROR effect is likely to be biased upward and thus, the savings effect biased downward. If the bias in the latter is not too great, then once again we find that the top one percent had a positive residual (presumably, mainly savings) only when they experienced capital losses.

As a measure of wealth inequality I use the ratio of the mean wealth of the top one percent to median wealth (Panel D). According to this measure, wealth inequality increased in each of the five periods (row 1).[38] The second row shows what happens to the wealth ratio if capital appreciation only is added to initial wealth. In all five periods, the change in the ratio is reduced, in some cases quite considerably. In the 1983-1989 period, the (slightly) higher return on wealth of the top percentile relative to the middle group would have raised the wealth ratio by 0.8. The wealth ratio rose, instead, by 15.1. Consequently, differences in rates of return between the two groups accounted for 5 percent (0.8/15.1) of the increase in the wealth ratio over these years, and the residual (presumably, the relatively smaller dissavings of the top group compared to the middle) accounted for the other 95 percent. In 1989-2001, 2001-2007, and 2010-2016 the higher return on wealth of the middle group relative to the top group would have lowered the wealth ratio by 8.3, 16.4, and 22.2, respectively. Instead, the actual wealth ratio rose in each of these periods, presumably due again to the smaller relative dissavings of the top group. In 2007-2010, the higher return on wealth (that is, the less negative return) of the top relative to the middle would have caused the wealth ratio to rise by 23.3. The ratio actually rose by 91.5, so that differences in rates of return accounted for 25 percent of its rise and differences in the residual the other 75 percent.

8. The racial divide widens over the Great Recession

8.1 Trends from 1983 to 2007

Striking differences are found in the wealth holdings of different racial and ethnic groups. In Table 13, households are divided into three groups: (i) non-Hispanic whites, (ii) non-Hispanic African-Americans, and (iii) Hispanics.[39] In 2006, while the ratio of mean incomes between non-Hispanic white ("white") and non-Hispanic black ("black") households was an already low 0.48 and the ratio of median incomes was 0.60, the ratios of mean and median wealth holdings in 2007 were even lower, at 0.19 and 0.06, respectively, and those of financial resources (FR) still lower, at 0.14 and 0.01, respectively (also see Figure 11).[40] The homeownership rate for black households was 49 percent in 2007, a little less than

[38] Note that this trend is rather different from that of the Gini coefficient for net worth.

[39] The residual group, American Indians and Asians, is excluded here because of its small sample size.

[40] It should be stressed that the unit of observation is the household, which includes both families (two or

two thirds the rate among whites, and the percentage of black households with zero or negative net worth stood at 33.4, more than double the corresponding percentage among whites.

[Table 13 about here]

Between 1982 and 2006, while the average real income of white households increased by 42 percent and the median by 10 percent, the former rose by only 28 percent for blacks and the latter by 18 percent. As a result, the ratio of mean income slipped from 0.54 in 1982 to 0.48 in 2006, while the ratio of median income rose from 0.56 to 0.60. The contrast in the time trends for the ratio of means and that of medians reflects the fact that a relatively small number of white households increased their incomes by a huge amount over these years – a result of rising income inequality among white households.

Between 1983 and 2001, average net worth (in constant dollars) climbed by 73 percent for whites but rose by only 31 percent for black households, so that the net worth ratio fell from 0.19 to 0.14. However, between 2001 and 2007, mean net worth among black households gained an astounding 58 percent while white wealth advanced only 29 percent, so that by 2007 the net worth ratio was back to 0.19, the same level as in 1983. In the case of median wealth, the black-white ratio increased from 7 percent in 1983 to 10 percent in 2001 but then dipped to 6 percent in 2007, a little less than the ratio in 1983. In this case, median wealth among white households grew by 37 percent between 1983 and 2001 but more than doubled among black households. However, between 2001 and 2007, median net worth among black households actually crashed by 26 percent, reflecting in part the rising share of black households with zero or negative net worth.

Average FR also increased about the same for black and white households between 1983 and 2001, so that the ratio remained basically unchanged. Between 2001 and 2007, it increased somewhat faster for whites so that the ratio increased to 0.14. The main reason is the larger share of stocks held by white households than black ones. Median FR of black households also increased, from virtually zero in 1983 to a positive $1,500 in 2001, and the corresponding ratio also grew, from zero to 3 percent. However, from 2001 to 2007, median FR among blacks toppled to only $600 and the corresponding ratio fell to only 1 percent. The reason for the decline is the faster growth of non-mortgage debt among black middle class households than among whitest.

The homeownership rate of black households grew from 44 to 47 percent between 1983 and 2001 but relative to white households, the homeownership ratio slipped slightly from 0.65 to 0.64 in 2001 because of a big jump in the white homeownership rate of 6.0 percentage points. However, from 2001 to 2007, the black homeownership rate surged to almost half, while the white homeownership rate moved up to only 74.8 percent. The large increase in the black home ownership rate was most likely due to the lending practices of mortgage companies and banks, such as non-prime loans. As a result, the homeownership ratio recovered a bit to 0.65 by 2007. In contrast, the percentage of black households reporting zero or negative net worth fell from 34.1 percent in 1983 to 30.9 percent in 2001 (and also fell relative to the corresponding rate for white households). However, by 2007, the share was up to 33.4 percent (though a bit lower relative to whites).

The picture is somewhat different for Hispanics. The ratio of mean income between Hispanics and (non-Hispanic) whites in 2007 was 0.50, almost the same as that between blacks and whites. However, the ratio of median income was 0.70, much higher than the ratio between black and white households. The ratio of mean net worth was 0.26 compared to a ratio of 0.19 between blacks and whites

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more related individuals living together), as well as single adults. As is widely known, the share of female-headed households among African-Americans is much higher than that among whites. This difference partly accounts for the relatively lower income and wealth among African-American households.

and the ratio of mean FR was 0.19, compared to a ratio of 0.14 between blacks and whites. However, the ratios of medians were 0.06 and 0.01, respectively, almost identical to those between blacks and whites. The Hispanic homeownership rate was 49 percent, almost identical to that of black households, and 34 percent of Hispanic households reported zero or negative wealth, almost the same as African-Americans.

Progress among Hispanic households over the period from 1983 to 2007 was generally a positive story. Mean income for Hispanics grew by 18 percent and median income by 16 percent, so that the ratio of mean income slid from 60 to 50 percent while that of median income advanced from 66 to 70 percent. Between 1983 and 2001 mean wealth almost doubled for Hispanic households and mean FR grew almost four-fold. The ratio of mean net worth between Hispanic and white households increased a bit from 16 percent in 1983 to 17 percent in 2001, and the ratio of mean FR jumped from 7 to 14 percent between 1983 and 2001. Mean net worth among Hispanics climbed by an additional 82 percent between 2001 and 2007 and mean FR by 60 percent, and the corresponding ratios advanced to 26 percent and 19 percent, respectively. The surge in Hispanic wealth from 2001 to 2007 can be traced to a five percentage point jump in the Hispanic home ownership rate (see below).

From 1983 to 2007, median wealth among Hispanics remained largely unchanged, as did median FR (at virtually zero!), so that the ratio of both median wealth and median non-home wealth between Hispanics and whites stayed virtually the same. In contrast, the homeownership rate among Hispanic households surged from 33 to 44 percent between 1983 and 2001 and the ratio of homeownership rates between the two groups grew from 0.48 to 0.60. Between 2001 and 2007, the Hispanic homeownership rose once again, to 49 percent, about the same as black households, and the homeownership ratio jumped to 0.66. The percentage of Hispanic households with zero or negative net worth fell rather steadily over time, from 40 percent in 1983 to 34 percent in 2007, and the share relative to white household tumbled from a ratio of 3.55 to 2.69.

Despite some progress from 1983 to 2007, the respective wealth gaps between African-Americans and Hispanics on the one hand and non-Hispanic whites on the other were still much greater than the corresponding income gaps in 2007. While mean income ratios were of the order of 50 percent, mean wealth ratios were of the order of 20-25 percent. Median FR among non-Hispanic black and Hispanic households was still virtually zero in 2007 and the percent with zero or negative net worth was around a third, in contrast to 15 percent among non-Hispanic white households (a difference that appears to mirror the gap in poverty rates). While blacks and Hispanics were left out of the wealth surge of the 1990s because of relatively low stock ownership, they actually benefited from this (and the relatively high share of houses in their portfolio) in the 2001-2007 period.

8.2 Trends from 2007 to 2016

The racial/ethnic picture really changed radically by 2010. While the ratio of both mean and median income between black and white households changed very little between 2007 and 2010 (mean income, in particular, declined for both groups), the ratio of mean net worth dropped from 0.19 to 0.14 and that of mean FR from 0.14 to 0.10. The proximate causes were the higher leverage of black households and their higher share of housing wealth in gross assets (see Table 14). In 2007, the ratio of debt to net worth among African-American households was an astounding 0.553, compared to 0.154 among whites, while housing as a share of gross assets was 54 percent for the former as against 31 percent for the latter. The ratio of mortgage debt to home value was also much higher for blacks, 0.49, than for whites, 0.32. The sharp drop in home prices from 2007 to 2010 thus led to a relatively steeper loss in home equity for black homeowners, 26 percent, than for white homeowners, and this factor, in turn, led to a much steeper fall in mean net worth for the former.[41] In fact, the annual rate of return on the

[41] Unfortunately, there are no data available to separate out actual declines in house prices for white, black, and

net worth of black families over years 2007 to 2010 was a staggering -9.9 percent, compared to -7.1 percent for white households. Moreover, the higher leverage of African-American households relative to white households and the broad decline in asset prices led to greater relative losses in mean FR for the former than the latter.[42]

[Table 14 about here]

The early part of the Great Recession actually hit Hispanic households much harder than black households in terms of wealth. Mean income among Hispanic households rose a bit from 2007 to 2010 and the ratio with respect to white households increased from 0.50 to 0.57. On the other hand, the median income of Hispanics fell, as did the ratio of median income between Hispanic and white households. Moreover, the mean net worth in constant dollars of Hispanics collapsed almost in half, and the mean wealth with respect to white households plummeted from 0.26 to 0.15. The same factors were responsible as in the case of black households. In 2007, the debt-equity ratio for Hispanics was 0.51, compared to 0.15 among whites, while housing as a share of gross assets was 53 percent for the former as against 31 percent for the latter. The ratio of mortgage debt to home value was also higher for Hispanics, 0.452, than for whites, 0.324. As a result, net home equity dropped by 47 percent among Hispanic homeowners, compared to 24 percent among white homeowners, and this factor, in turn, was largely responsible for the huge decline in Hispanic net worth both in absolute and relative terms. Indeed, the annual rate of return on the net worth of Hispanic families over these years was an astonishing -10.8 percent, compared to -7.1 percent for white households. The high overall leverage among Hispanic households was also mainly responsible for the nearly 50 percent decline in their mean FR and the fall in the ratio of this to that of white households from 0.19 to 0.11.

[Table 14 about here]

There are two reasons that might explain the extreme drop in Hispanic net worth. First, a large proportion of Hispanic home owners bought their home in the interval from 2001 to 2007, when home prices were peaking. This is reflected in the sharp increase in their homeownership rate over this period. As a result, they suffered a disproportionately large percentage drop in their home equity. Second, it is likely that Hispanic home owners were more heavily concentrated than whites in parts of the country like Arizona, California, Florida, Arizona, and Nevada where home prices plummeted the most.

There was also a steep drop in the homeownership rate among Hispanic households of 1.9 percentage points from 2007 to 2010. Indeed, after catching up to white households in this dimension from 1983 to 2007, Hispanic households fell back in 2010 to the same level as in 2004.

Using the same decomposition technique as in Section 7, I find that differences in rates of return between whites and black households ("the ROR effect") accounted for 35 percent of the decline in the black/white mean wealth ratio and 23 percent of the drop off in the Hispanic/white ratio, with the remainder due to net wealth transfers and savings (see Panel II of Table 14).

Was there any relative improvement over the second half of the Great Recession, 2010-2013? Black households continued to suffer moderate losses in both mean and median household income in absolute terms, and declines relative to white households. The mean net worth of black households also continued to fall, in this case by 9 percent, though the ratio of mean net worth between black and white households dipped slightly from 0.14 to 0.13. Their median net worth actually fell from $6,700 to $1,700, and the ratio relative to white households plunged from 0.06 to 0.01. Their mean FR increased slightly

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Hispanic homeowners.

[42] There was almost no change in the relative homeownership rates of the two groups – both experienced moderate losses – while the share of households with non-positive net worth actually increased more in relative terms for white households than black ones.

but the ratio relative to white households remained the same, while their median FR declined slightly and also relative to whites.

One of the most notable developments was a sharp fall in the black homeownership rate from 48 to 44 percent, which followed a more modest 0.9 percentage point decrease from 2007 to 2010, and a decline in the homeownership rate relative to white households from 0.64 in 2010 to 0.60 in 2013. Equally striking was the steep uptick in the share of black households with no net worth, from 33 percent in 2010 to 40 percent in 2013. Thus, by almost all indicators, the absolute and relative position of black household deteriorated even further from 2010 to 2013.

The absolute and relative decline in the net worth of black households over these years actually seems surprising in light of the fact that the annual yield on the portfolio of black households was 7.14 percent, compared to 6.12 percent for white households. The key is the sharp decline in their homeownership rate. Indeed, this led to a considerable loss in home equity in the black portfolio, which fell by 26 percent overall and 20 percent among black homeowners.

Income developments were very similar for Hispanics but wealth developments were different. Mean incomes of Hispanics were down 15 percent from 2010 to 2013, and the ratio relative to white households plunged from 0.57 to 0.45. The story was similar for median income. On the other hand, the mean net worth of Hispanic households remained stable from 2010 to 2013, as did their position relative to white households, while their median wealth fell from $3,000 to $2,000. Their mean FR remained unchanged from 2010 to 2013, as did their relative position, and their median FR increased slightly.

However, like black families, their homeownership rate continued to fall, in this case from 47 percent to 44 percent (back to where it was in 1992), and their homeownership rate relative to white households also slipped from 0.63 to 0.60. The percentage of Hispanics with non-positive wealth actually fell slightly from 2010 to 2013. Overall, Hispanic households had an average annual rate of return on their portfolio of 7.48 percent, compared to 7.14 percent for black households. The main difference between them and black households was a much smaller decline in home equity – only 5 percent overall – and an actual 1.6 percent increase among Hispanic homeowners alone.

What happened during the recovery, 2013-2016? Incomes of black and Hispanic households recovered and by 2016 had either equaled or surpassed their 2007 peaks. Moreover, the ratio of mean income between blacks and white households jumped from 0.42 to 0.46 and that between Hispanics and whites from 0.45 to 0.48, while the ratio of median incomes between black and white households increased a bit from 0.56 to 0.58 and that between Hispanics and whites shot up from 0.59 to 0.65.

The mean net worth of both groups showed a remarkable recovery. It grew by 45 percent among black households and 64 percent among Hispanic households, though the 2016 levels were still below their 2007 peaks. In contrast, the net worth of whites surpassed its 2007 peak. However, the wealth gap did attenuate somewhat during these years, with the racial wealth ratio increasing from 0.13 to 0.14 and the Hispanic-white ratio climbing from 0.15 to 0.19. Median net worth among the two minority groups showed some recovery also, though relative to white households the ratios remained close to zero. Mean FR of black households rose by 51 percent and mean FR of Hispanics by a huge 81 percent. In the case of black households, mean FR in 2016 slightly surpassed its previous peak in 2007 but in the case of Hispanics it was still below its previous peak. Mean FR for whites in 2016 was way above its 2007 peak. The ratio of mean FR between blacks and whites advanced slightly from 0.10 to 0.11 while that between Hispanics and whites climbed from 0.11 to 0.15. However, median FR of the two minority groups remained close to zero. The homeownership rate picked up somewhat for Hispanics but remained unchanged for black households, while it fell for whites. As a result, the homeownership rate of black

households relative to white households was up slightly and that of Hispanics relative to whites up more strongly, from 0.60 to 0.63. The percentage of households with non-positive wealth fell for all three groups, particularly among Hispanics.

One reason for the closure in the mean net worth racial and ethnic gap was the much higher rate of return on the black and Hispanic wealth portfolio, compared to white households. In 2013-2016, the annual real rate of return on the white portfolio was 6.32 percent, compared to 8.53 percent for black households and 8.33 percent for Hispanics (see Panel I of Table 14). Using the same decomposition technique as in Section 7, I calculate that differences in rates of return between whites and black households ("the ROR effect") accounted for 57 percent of the rise in the black/white wealth ratio and 23 percent of the rise in the Hispanic/white ratio, with the remainder due to net wealth transfers and savings (see Panel II of Table 14).

9. Wealth shifts from the young to the old

As shown in Table 15, the cross-sectional age-wealth profiles of the various years between 1983 and 2016 generally follow the predicted hump-shaped pattern of the life-cycle model (see, for example, Modigliani and Brumberg, 1954). Mean wealth increases with age up through age 65 or so and then falls off. FR has an almost identical profile, though the peak is generally somewhat higher than for net worth. Homeownership rates also have a similar profile, though the fall-off after the peak age is much more attenuated than for the wealth numbers (and in 2004 they actually show a steady rise with age). In 2016, the wealth of elderly households (age 65 and over) was twice as high as that of the non-elderly and their homeownership rate was 23 percentage points higher.

[Table 15 about here]

Despite the apparent similarity in the profiles, there were notable shifts in the relative wealth holdings of age groups between 1983 and 2007 (also see Figures 12 and 13). The relative wealth of the youngest age group, under 35, expanded from 21 percent of the overall mean in 1983 to 29 percent in 1989 but then collapsed to 17 percent in 2007. In 2007, the mean wealth of the youngest age group was $105,500 (in 2016 dollars), which was only slightly more than the mean wealth of this age group in 1989 ($102,400). Though student loans expanded markedly over the 2000s, still 74 percent of the total debt of this age group in 2007 was mortgage debt and only 9.5 percent took the form of student loans.[43]

[Figure 12 and Figure 13 about here]

The mean net worth of the next youngest age group, 35-44, relative to the overall mean tumbled from 0.71 in 1983 to 0.58 in 2007. The relative wealth of the next youngest age group, 45-54, also declined rather steadily over time, from 1.53 in 1983 to 1.19 in 2007, while that of age group 55-64 generally gained over time from 1.67 in 1983 to 1.69 in 2007. The relative net worth of age group 65-74 dipped somewhat from 1.93 in 1983 to 1.86 in 2007, while that of the oldest age group went from 5 percent above the mean in 1983 to 16 percent above in 2007.

Results for FR are very similar. The average FR of the youngest age group climbed from 17 to 28 percent of the overall mean from 1983 to 1989 and then plummeted to only 15 percent in 2007. A similar pattern is evident for age group 35 to 44. The relative average FR of age group 45-54 and 65-74 also fell over the 1983-2007 period, whereas that of age group 55-64 rose and that of the oldest age group was the same in 2007 as in 1983 (10 percent above the mean).

Changes in homeownership rates tend to mirror net worth trends. While the overall ownership rate increased by 5.2 percentage points between 1983 and 2007, the share of households in the youngest age group owning their own home increased by only 2.1 percentage points. The homeownership rate of

[43] However, fully one third of the households in this age group reported having a student loan outstanding.

households between 35 and 44 of age actually fell by 2.3 percentage points, and that of age group 45 to 54 years of age declined by 0.9 percentage points. Big gains in homeownership were recorded by the older age groups: 3.9 percentage points for age group 55-64, 7.1 percentage points for age group 65-74, and 7.6 percentage points for the oldest age group. By 2007, homeownership rates rose monotonically with age up to age group 65-74 and then dropped for the oldest age group. The statistics point to a relative shifting of homeownership away from younger towards older households from 1983 to 2007.

Changes in relative wealth were even more dramatic from 2007 to 2010. The relative wealth of the under 35 age group plummeted from 0.17 to 0.11 and that of age group 35-44 from 0.58 to 0.42, while that of age group 45-54 fell somewhat from 1.19 to 1.14. In actual (2016 dollar) terms, the average wealth of the youngest age group collapsed almost in half, from $105,500 in 2007 to $57,000 in 2010, its second lowest point over the 30 year period (the lowest occurred in 1995),[44] while the relative wealth of age group 35-44 shrank from $357,400 to $217,600 its lowest point over the whole 1983 to 2010 period. One possible reason for these steep declines in wealth was that younger households were more likely to have purchased their homes near the peak of the housing cycle.

In contrast, the relative net worth of age group 55-64 increased sharply from 1.69 to 1.80 (though it shrank in actual 2016 dollar terms from $1,046,100 to $938,500) and that of the oldest age group from a factor of 1.16 to 1.36 (though once again it was down in absolute terms from $719,500 to $705,400), while the relative wealth of age group 65 to 74 declined from 1.86 to 1.74 (and fell in absolute dollars as well, from $1,154,100 to $900,000). The pattern of change is very similar for FR. Homeownership rates fell for all age group from 2007 to 2010 (except the very oldest) but the percentage point decline (3.3 percentage points) was greatest for the youngest age group.

Changes in the relative wealth position of different age groups depend in large measure on relative asset price movements and differences in asset composition. The latter are highlighted in Table 16 for the year 2007. Homes comprised over half the value of total assets for age group 35 and under, and its share of total assets fell off with age to about a quarter for age group 55-64 and then rose to 30 percent for age group 75 and over. Liquid assets as a share of total assets remained relatively flat with age group, at around 6 percent, except for the oldest group for whom it was 11 percent, perhaps reflecting the relative financial conservativeness of older people. Pension accounts as a share of total assets rose from 4 percent for the youngest group to 16 percent for age group 55 to 64 and then fell off to 5 percent for the oldest age group. This pattern likely reflects the build-up of retirement assets until retirement age and then a decline as these retirement assets are liquidated.[45] Corporate stock and financial securities showed a steady rise with age, from a 4 percent share for the youngest group to a 26 percent share for the oldest. A similar pattern is evident for total stocks as a percentage of all assets. Business equity and non-home real estate were relatively flat as a share of total assets with age, about 30 percent.

There was a pronounced fall off of debt with age. The debt-equity ratio declined from 93 percent for the youngest group to 2 percent for the oldest, the debt-income ratio from 168 percent to 30 percent, and mortgage debt as a share of house value from 65 to 5 percent. As a result of the latter, net home equity as a proportion of total assets rose from 19 to 29 percent from the youngest to oldest age group.

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[44] As in 2007, the principal source of debt was mortgage debt, which comprised 70 percent of the total debt for the youngest age group in 2010. However, educational loans now amounted to 15 percent of their total liabilities, up from 9.5 percent in 2007, and 40 percent of households in this age group reported a student loan in 2010.

[45] This pattern may also be partly a cohort effect since 401(k) plans and other defined contribution plans were not widely introduced into the workplace until after 1989.

Younger households were thus more heavily invested in homes and more heavily in debt whereas the portfolio of older households was more heavily skewed to financial assets, particularly corporate stock. As a result, younger households benefit relatively when housing prices rise and inflation is strong while older households benefit relatively from rising stock prices. Changes in the relative net worth position of age groups over the 1983 to 2007 period were to a large extent due to differences in portfolio composition and relative asset price movements. Conversely, as with black and Hispanic households, the higher leverage of younger age groups made them vulnerable when asset prices, particularly housing prices, declined.

As a result, the steep decline in house prices from 2007 to 2010 led to a relatively steeper loss in home equity for the youngest homeowners, 53 percent, than all homeowners, 29 percent, and this factor, in turn, led to a much steeper fall in net worth . Indeed, in terms of the annual rate of return on their wealth portfolio, this group, which had the highest return over the 2001-2007 period, 7.9 percent, had the lowest over the 2007-2010 period, -13.5 percent! Moreover, the very high leverage of the youngest age group and the general decline in asset prices led to much steeper losses in FR as well. On the basis of the same decomposition technique as used in Section 7, I find that differences in rates of return between age group under 35 and all households ("the ROR effect") accounted for 87 percent of the decline in the ratio of the mean wealth of this age group to overall mean wealth, with the remaining 17 percent due to differences in most notably savings (see Panel II of Table 16).

The story is very similar for age group 35 to 44. Their debt-equity ratio was 0.41 in 2007, the ratio of mortgage debt to house value was 0.51, and the share of housing in gross assets was 44 percent, all much higher than overall. As with the youngest age group, the drop in home prices from 2007 to 2010 caused a large fall in home equity of 48 percent among homeowners, which in turn caused a steep fall off in their relative net worth, and their higher than average overall leverage led to a relative deterioration of FR as well. In terms of the annual rate of return on their wealth portfolio, this group went from being the second highest in years 2001-2007, 5.6 percent, to the second lowest in years 2007 to 2010, -7.4 percent. In this case, the ROR effect accounted for 46 percent of the relative decline in this group's mean wealth from 2007 to 2010, with the remainder due to other factors.

Years 2010 to 2013 saw an 11 percent (real) increase in the net worth of the youngest age group and a slight rise in relative terms as well. [46] On the surface, one might have expected an even larger rise since the rate of return on the portfolio of this age group was a robust 10.7 percent per year – the highest of any age group. However, further investigation indicates that the main reason why its net worth did not increase more was the continued decline in its homeownership rate, which fell by 2.1 percentage points. Its mean FR relative to the overall mean held steady over these years. With regard to net worth, the higher rate of return of the under 35 age group relative to all households would have by itself led to a 0.032 rise in its relative level compared to the actual rise of 0.011. The lower savings of this age group relative to all households offset the ROR effect and was responsible the group's net relative decline.

Between 2013 and 2016 the relative wealth of the youngest age group continued its downward trajectory, and plummeted to a ratio of 0.09. The annual rate of return of this age group was again much higher than that of all households (a differential of 5.53 percentage points). The ROR effect by itself would have led to a 0.048 increase in the ratio of mean wealth between this age group and all households,

[46] As in 2007 and 2010, mortgage debt comprised the majority of overall debt of this age group, 64 percent, but student loans now comprised 20 percent of their total debt, up from 15 percent in 2010, and 41 percent of households in this age group reported an outstanding student loan in 2013.

instead of an actual decline of 0.030. The lower savings of these young households relative to all household thus fully explains the relative decline in their net worth. Their low (actually, negative savings) is reflected in another drop in their homeownership rate of 2.4 percentage points.

Age group 35-44 appeared to make a big comeback in terms of net worth, which rose an astonishing 54 percent (in real terms) from 2010 to 2013. The average net home equity among homeowners in this age group jumped by 36 percent, and though the homeownership rate did fall by two percentage points, average home equity among all households in this age group expanded by 32 percent. This age group also had a 7.5 annual average return on its portfolio over these years, and, partly as a result, the mean value of other real estate was up by 39 percent, that of business equity by 137 percent, mean pension accounts by 42 percent, and mean corporate stock and mutual funds by 40 percent. There was also a big recovery in FR for this age group from 2010 to 2013.

However, by 2016 there was a huge turnaround and the mean net worth of this age group relative to the overall average dropped to 0.40, even lower than in 2010. Its mean FR relative to the overall average also fell below its 2010 level, and the homeownership rate was down by another 3.9 percentage points between 2013 and 2016. It thus seems likely that the 2013 figure for this age group was a statistical fluke. If we combine the 2010-2013 and 2013-2016 periods together, then the relative net worth of this group fell by 0.020. The rate of return of this age group was greater than the overall rate of return in this period. As a consequence, the ROR effect would have caused a 0.096 rise in the relative net worth of age group 35-44 and the lower relative savings of this age group more than fully accounted for the decline in their relative wealth.

The pattern was mixed for the older age groups. Age group 45-54 showed relative losses in net worth from 2010 to 2016, as did age groups 55-64 and 65 to 74 but age group 75 and over experienced a large gain in its relative net worth position (from 1.35 to 1.57). Results are similar for FR.

10. Stock ownership first rises and then falls

Tables 17a and 17b report on overall stock ownership trends from 1983 to 2016 (also see Figure 14). The proportion of households who owned corporate stock shares directly declined a bit between 1983 and 1989, from 13.7 to 13.1 percent, while the share that owned any stocks or mutual funds plunged over these years, from 24.4 to 19.9 percent.[47] In contrast, the share of households owning stocks and mutual funds worth $5,000 or more (in 1995 dollars) was stable over this period; and, indeed, the proportion with holdings of $10,000 or more and with $25,000 or more actually rose. These changes over the 1983-1989 period might reflect the steep drop in the stock market in 1987 and the consequent exit of small fund holders after 1987. Yet, despite a 62 percent real increase in stock prices (as measured by the Standard and Poor 500 index), stocks plus mutual funds as a share of total household asset actually dipped form 9.0 percent in 1983 to 6.9 percent in 1989 – probably because many investors were scared off from the stock market by the short-lived stock market crash of 1987.

[Table 17a, Table 17b, and Figure 14 about here]

In contrast, the years 1989 to 2001 saw a substantial increase in stock ownership (see Table 17b). The share of households with direct ownership of stock climbed from 13.1 to 21.3 percent, while the share with some stock owned either outright or indirectly through mutual funds, trusts, or various pension accounts surged from 31.7 to 51.9 percent. Much of the increase was fueled by the growth in pension accounts like IRAs and 401(k) plans. Between 1989 and 2001, the share of households owning stock through a pension account more than doubled, accounting for the bulk of the overall increase in stock ownership. Indirect ownership of stocks through mutual funds also greatly expanded over the 1989-2001

[47] The 1983 data do no permit an estimation of indirect stock ownership, so that I present the results for 1983 and 1989 separately from the other years.

period, from 5.9 to 16.7 percent. All told, the share of households with indirect ownership of stocks more than doubled, from 23.5 to 46.6 percent.

The next twelve years, 2001-2013, generally saw a retrenchment in stock ownership. This trend probably reflected the sharp drop in the stock market from 2000 to 2001, its rather anemic recovery through 2004, its subsequent rebound from 2004 to 2007, and its even sharper fall off from 2007 to 2010. Direct stock ownership plummeted from 21.3 to 13.8 percent, while indirect stock ownership fell from 47.7 to 43.1 percent. The latter trend was largely due to a sharp decline in stock ownership through mutual funds (down by 9 percentage points). Stock ownership through pension accounts was down by 3.4 percentage points from 2001 to 2004 but then rose by 2.2 percentage points from 2004 to 2007 as the stock market recovered. Interestingly, despite the collapse of stock prices from 2007 to 2010, the share of households holding stocks through pension accounts remained essentially unchanged. There was also essentially no change from 2010 to 2013 as the stock market recovered.

By 2007 the share of households who owned stock directly or indirectly dipped below half, down to 49.1 percent, down from its peak of 51.9 percent in 2001. The share then dropped to 46.9 percent in 2010 and 46.1 percent in 2013. Years 2013 to 2016 saw a rebound in stock ownership, with the proportion owning stock rising to 49.3 percent, though still 2.6 percentage points above its peak in 2001. The leading factors were through the ownership of stock held in pension accounts (up 3.2 percentage points) and through the ownership of stock held in mutual funds (up 2.0 percentage points).

However, many of these families had only a minor stake in the stock market in 2016, with only 36.8 percent with total stock holdings worth $5,000 (in 1995 dollars) or more, down from 40.1 percent in 2001; 32.0 percent owned $10,000 or more of stock, down from 35.1 percent in 2001; and 24.6 percent with $25,000 or more of stocks, down from 27.1 percent 15 years earlier.

Direct plus indirect ownership of stocks as a percent of total household assets more than doubled from 10.2 in 1989 to 24.5 in 2001. This increase may reflect in large measure the 171 percent surge in stock prices (in constant dollars) over these years. However, between 2001 and 2007, the share plummeted to 16.8 percent, though it did recover slightly to 17.5 percent in 2010. This change was a result not only of the relative stagnation of the stock market over these years but also of the withdrawal of many families from the stock market. However, from 2010 to 2013 the proportion rose to 20.7 percent, a reflection of the surge in the stock market over these years, and then from 2013 to 2016 to 22.4 percent as the stock market continued to rebound.

Table 17c shows the distribution of total stocks owned by vehicle of ownership. Here there are very marked time trends. Direct stock holdings as a share of total stock holdings fell almost continuously over time, from 54.0 percent in 1989 to 26.6 percent in 2016. In contrast, stock held in mutual funds as a share of total stocks rose almost continuously over time from 8.5 percent in 1989 to 34.0 percent in 2016, while that held in trust funds declined by 7.2 percentage points from 1989 to 2016.

[Table 17c about here]

The most variable pattern was with regard to stock held in DC pension accounts (including IRAs) as a share of total stocks. This trend mainly reflected the almost continuously rising share of pension accounts in total assets (from 3 percent in 1989 to 16 percent in 2016) and fluctuations in the stock market. Its share of total stocks increased from 24.4 percent in 1989 to 31.4 percent in 2007, then shot up to 40.2 percent in 2010, where it generally remained in 2013. However, in 2016 the proportion fell off to 33.4 percent. The big jump from 2007 to 2010 was likely due to two factors. First, interest rates were very low over these years, so that pension holders substituted stocks for bonds in their retirement portfolio, despite the sharp drop in stock prices. Second, the share of pensions in total assets increased from 12 to 15 percent. The sharp drop-off from 2013 to 2016 was mainly a reflection of the sharp rise in

mutual fund investment.

The proportion of the total value of pension plans held in the form of stocks showed a parallel movement. It more than doubled between 1989 and 2001, from 32.6 to 66.3 percent but then plunged to 43.6 percent in 2007. The sharp tail-off from 2001 to 2007 likely reflected the lethargic performance of the stock market over this period and the search for more secure investments among plan holders. However, from 2007 to 2010, the share of pensions invested in stocks rose from 43.6 to 46.8 percent, as interest rates dropped sharply, and then to 50.0 percent in 2013, as the stock market recovered. However, the proportion fell off slightly to 48.0 percent in 2016 despite the continued strong performance of the stock market as investors diversified more into bonds.

Stock ownership was also highly skewed by wealth and income class. As shown in Table 18a, 94 percent of the top one percent of wealth holders reported owning stock either directly or indirectly in 2016, compared to 47 percent of the middle quintile and 20 percent of the poorest 20 percent. While 94 percent of the top percentile also reported stocks worth $10,000 or more (in current dollars), only 27 percent of the middle quintile and 4 percent of the bottom quintile did so. The top one percent of households owned 40 percent of all stocks, the top five percent 71 percent, the top 10 percent 84 percent, and the top quintile 93 percent.

[Table 18a and Table 18b about here]

Stock ownership is also highly concentrated by income class (see Table 18b). Whereas 93 percent of households in the top 5.2 percent of income recipients (those who earned $250,000 or more) owned stock in 2016, 35 percent of the middle class (incomes between $25,000 and $50,000), 17 percent of the lower middle class (incomes between $15,000 and $25,000), and only 9 percent of poor households (income under $15,000) reported stock ownership. The comparable ownership figures for stock holdings of $10,000 or more are 90 percent for the top income class, 19 percent for the middle class, 7 percent for the lower middle class, and 4 percent for the poor. Moreover, 91 percent of all stocks were owned by households earning $75,000 or more (the top 35 percent) and 96 percent by those earning $50,000 or more in terms of income.

Another notable development after 2001 was an increase in the concentration of stock ownership. The share of total stock owned by the richest one percent in terms of wealth increased from 34 percent in 2001 to 40 percent in 2016 and that of the richest 5 percent from 62 to 71 percent. The share of stocks owned by the richest 10 percent of households was 90 percent in 1983, fell to 77 percent in 2001, its lowest level, and then climbed to 84 percent in 2016 (see Figure 15). In terms of income, the share of total stock owned by the top income class jumped from 41 to 61 percent (though, it should be noted their fraction of total households also rose, from 2.7 to 5.2 percent) and that of the top two income classes from 69 to 85 percent. One result of the stock market bust of the early and late 2000s was a withdrawal of middle class families from the stock market (as shown in Table 8, their stock ownership rate fell from 51 percent in 2001 to 41 percent in 2010). There was almost no change in stock ownership from 2010 to 2013 even as the stock market recovered. However, a large jump was recorded from 2013 to 2016, to 45 percent, as the stock market continued to perform well.

[Figure 15 about here]

11. Defined contribution pension wealth continues to rise

Despite the extreme downturn in the stock market from 2007 to 2010, defined contribution (DC) pension accounts continued to advance over these years. DC accounts include not only 401(k) and other employer-provided retirement plans but also Individual Retirement Accounts (IRAs), Keogh plans, and similar government-sponsored plans. Table 19 charts the development of these accounts from 1983 to 2016. There was a huge increase in the share of households holding these accounts from 1983 to 2001 both overall and by individual age group. Overall, the proportion skyrocketed from 11 to 52 percent. The

mean value of these plans climbed dramatically. It almost tripled among account holders and skyrocketed by a factor of 13.6 among all households. These time trends partially reflected the history of DC plans. IRAs were first established in 1974. This was followed by 401(k) plans in 1978 for profit-making companies (403(b) plans for non-profits are much older). However, 401(k) plans and the like did not become widely available in the workplace until about 1989.

[Table 19 about here]

From 2001 to 2007 the share of households with a DC plan leveled off and then from 2007 to 2010 the share fell modestly, from 52.6 to 50.4 percent. The average DC holdings in constant dollars continued to grow after 2001. Overall, it advanced by 21 percent from 2001 to 2007 and then by 11 percent from 2007 to 2010 among account holders and by 22 percent and 7 percent, respectively, among all households. Thus, despite the stock market collapse of 2007-2010 and the 18 percent decline of overall mean net worth, average DC wealth continued to grow after 2007. The reason was that households shifted their portfolio out of other assets and into DC accounts. As noted above, the proportion of total assets in pension accounts rose from 12.1 to 15.3 percent over these years (see Table 5).[48]

The pattern of change was similar for middle-aged households (ages 47 to 64) and older households (ages 65 and over). However, the story was quite different for younger households (ages 46 and under). The average DC wealth among account holders was unchanged from 2001 to 2007 and then fell by 2.5 percent from 2007 to 2010, whereas among all households in the age group, average DC wealth declined by 7 percent from 2001 to 2007 and by another 7 percent from 2007 to 2010 (the difference reflected the reduction in the share of young households holding pension accounts). Thus, in terms of DC accounts, there was no deterioration in retirement preparedness from 2007 to 2010 among middle-aged and older households, though there was among younger households.[49] The fall-off among younger workers was likely due to their high unemployment rate and relatively low wages among those who did have a job.

There was a one percentage point decline in the share of households with a DC account between 2010 and 2013. By age group, there was a 0.5 percentage point decline among young households, a 1.3 percentage point fall-off among middle-aged households, and a 1.7 percentage point drop among the elderly. This result is consistent with the finding reported in Table 8 that pension ownership fell off for the middle three wealth quintiles over these years. Despite this, with the recovery of the stock market, the mean value of DC accounts continued to grow. Its value increased by 10 percent among all account holders and 8 percent among all households; 15 and 14 percent, respectively among young households; and 37 and 31 percent, respectively, among elderly ones. The only exception was middle-aged households, among whom mean DC wealth fell by 6 percent among account holders and 8 percent among all households in the group. The value of DC plans did recover to (indeed, surpassed) its 2007 level among young and elderly households but was still below its 2007 level among middle-aged households.

From 2013 to 2016, the share of all households with a DC account rebounded to 52.1 percent, only slightly below its 2007 peak. The proportion of pension account holders rose among all three age groups. Its mean value in 2016 dollars rose by 10 percent among all account holders and 16 percent among all households. Among young households, the mean value was down by 3.7 percent among

[48] Mean DC wealth among all households increased by $5,900 (in 2016 dollars) from 2007 to 2010, whereas the value of stocks and mutual funds alone declined by $15,800.

[49] However, a full appraisal of retirement preparedness would also require a consideration of defined benefit pensions and Social Security.

account holders but up by 2.2 percent among all young households; among middle-aged ones, the mean value was up by an astonishing 26 percent among account holders and 27 percent among all households in the group; and among older ones, the mean was down by 9.5 percent among account holders but up by 5.3 percent among all households in the age group.

12. Summary and concluding remarks

Median household net worth in constant dollars showed robust growth from 1962 to 2001, gaining 74 percent or 1.43 percent per year. Over the 2001-2007 period the median increased by 19 percent or 2.91 percent per year, even faster than in the preceding decades. Median income, based on CPS data and also in constant dollars, had a different time trend, rising by 28 percent or 0.92 percent per year from 1962 to 1989, and then by a mere 7.6 percent (in total) from 1989 to 2007.

Then the Great Recession hit and like a tsunami wiped out 40 years of wealth gains. From 2007 to 2010, house prices fell by 24 percent in real terms, stock prices by 26 percent, and median wealth by a staggering 44 percent. By 2010 median wealth was even below where it was in 1969. The share of households with zero or negative net worth rose sharply from 18.6 to 21.8 percent. From 2010 to 2013, asset prices recovered with stock prices up by 39 percent and house prices by 8 percent. Despite this, median wealth stagnated and the share of households with non-positive net worth remained at 22 percent. Over years 2013 to 2016, house prices boomed by 18.4 percent and stock prices surged by 27.9 percent. Median wealth was up by 19 percent, though still by 2016 it was 34 percent below its 2007 peak, and the proportion of households with non-positive net worth was down only slightly. Mean wealth, on the other hand, more than fully recovered and by 2016 was 7.6 percent above its previous 2007 peak. The results indicate that wealth grew more vigorously at the top of the wealth distribution than in the middle.

According to the Gini coefficient, wealth inequality rose sharply from 1983 to 1989 (0.029 Gini point increase). It then remained relatively stable from 1989 to 2007 but showed a steep increase over years 2007 to 2010, with the Gini coefficient climbing from 0.834 to 0.866 and the share of the top 20 percent from 85 to 89 percent. The share of the bottom 40 percent experienced a precipitous drop from 0.2 to -0.8 percent. The Gini coefficient for net worth rose slightly from 2010 and 2013, while the share of the top one percent was up by 1.6 percentage points. There was another moderate rise in the Gini coefficient from 2013 to 2016 while the share of the top one percent shot up by another 2.9 percentage points. By 2016 the Gini coefficient for net worth and the share of the top one percent were at their highest level over the 54 years, at 0.877 and 39.6 percent, respectively.

In contrast, the Gini coefficient for income inequality, calculated from the SCF data, showed an almost continuous rise from 1962 to 2000 (a stunning 0.135 Gini point advance), a slight remission from 2000 to 2003, and then another jump of 0.034 Gini points through 2006. By 2006 the Gini coefficient for income had reached 0.574. It then dropped substantially from 2006 to 2009 (a decrease of 0.025 Gini points). But income inequality spiked upward from 2009 to 2012, with the Gini coefficient returning to its 2006 level. From 2012 to 2015 there was another surge in income inequality, with the Gini coefficient reaching 0.598, its highest point over the half century plus.

The mean wealth of the top one percent jumped to 26.4 million dollars in 2016. The percentage increase in net worth from 1983 to 2016 was much greater for the top wealth groups than for those lower in the distribution. The average wealth of the poorest 40 percent declined from $6,900 in 1983 to -$8,900 in 2013 (both in 2016 dollars). All in all, the greatest gains in wealth were enjoyed by the upper 20 percent, particularly the top 0.1, the top 0.5 and the top one percent. Between 1983 and 2016, the top one percent received 45 percent of the total growth in net worth, while the top 20 got close to 100 percent.

Another notable development was the sharply rising debt to income ratio in the early and mid-2000s, reaching its highest level in almost 25 years, at 119% among all households in 2007. Also the

ratio of debt to net worth was way up, from 14.3 percent in 2001 to 18.1 percent in 2007. Most of the rising debt was from increased mortgages on homes. From 2007 to 2010, both ratios continued to rise, the former moderately from 119 to 127 percent and the latter more steeply from 18.1 to 20.6 percent. This was true despite a moderate retrenchment of overall average debt of 4.4 percent and reflected the drop in both mean wealth and income. Both ratios fell off sharply by 2013, to 107 percent and 17.9 percent, respectively, as outstanding debt continued to shrink, by 13 percent in this case. Average debt among all households then showed a slight upturn of 1.7 percent in constant dollars from 2013 to 2016, mainly due to a 28 percent surge in educational loans. However, relative indebtedness continued to fall, with the debt-income ratio down to 95 percent and the debt to net worth ratio down to 14.3 percent. These trends were due to sharp increases in both mean income and mean wealth.

While home values as a share of total assets among all households remained relatively unchanged from 1983 to 2013 (around 30 percent), net home equity as a share of total assets fell from 24 to 17 percent. This trend reflected rising mortgage debt on homeowner's property, which grew from 21 percent in 1983 to 39 percent in 2013. From 2013 to 2016, the share of homes in total assets fell off to 25 percent, despite a boom in house prices. The main reason was a continued decline in the homeownership rate, in this case from 65.1 to 63.7 percent (as well as prices rising faster for other assets). Net home equity as a percentage of total assets fell slightly from 17.3 to 16.5, even though outstanding mortgage debt fell by 4.8 percent. However, this reduction was not enough to compensate for the substantial decline in the ratio of gross home value to total assets.

The overall stock ownership rate (either directly or indirectly through mutual funds, trust funds, or pension plans), after rising briskly from 32 percent in 1989 to 52 percent in 2001, fell off to 46 percent in 2013. It then rebounded to 49 percent in 2016, though still below its 2007 peak. The concentration of investment type assets generally was very high in 2016. Over 90 percent of the total value of stock shares, bonds, and business equity, and 85 percent of non-home real estate were held by the top 10 percent of households. Stock ownership was also highly skewed by wealth class. The top one percent of households classified by wealth owned 40 percent of all stocks in 2016, the top 10 percent 84 percent, and the top quintile 93 percent. The concentration of investment-type assets showed a substantial increase since 1989.

Among the middle three wealth quintiles (the “middle class”) there was a huge increase in the debt-income ratio from 1.00 in 2001 to 1.57 in 2007 and of the debt to net worth ratio from 0.46 to 0.61. The debt to net worth ratio was also much higher among the middle 60 percent of households in 2007, at 0.61, than among the top one percent, at 0.028. However, from 2007 to 2010, while the debt to net worth ratio continued to advance to 0.69 percent, the debt to income ratio actually fell off to 1.34. The reason was the substantial retrenchment of debt among the middle class, with overall debt falling by 25 percent in real terms. The fact that the debt to net worth ratio rose over these years was a reflection of the steep, 44 percent, drop in their net worth. Both ratios dropped from 2010 to 2013 as outstanding debt levels continued to fall by 8 percent. From 2013 to 2016 these ratios declined sharply again even though outstanding debt (in constant dollars) rose. The reason is that middle class income and wealth rose strongly over these years.

The key to understanding the plight of the middle class over the Great Recession was their high degree of leverage and the high concentration of assets in their home. The steep decline in median net worth between 2007 and 2010 was primarily due to the very high negative rate of return on net worth of the middle three wealth quintiles (-10.6 percent per year). This, in turn, was attributable to the precipitous fall in home prices and their very high degree of leverage. High leverage, moreover, helped explain why median wealth fell more than house prices over these years. Indeed, using a decomposition analysis I find that the high negative rate of return accounted for 62 percent of the decline in median net

worth (with the other 38 percent due mainly to dissavings). In fact, the homeownership rate plunged by 8.9 percentage points from 2007 to 2010. Ownership of pension accounts also fell by 7.7 percentage points, that of financial assets by 7.8 percentage points, and stock ownership by 6.4 percentage points. Middle class households were draining their assets over these years.

What about the (partial) recovery in median net worth from 2010 to 2016? In that period, the high positive rate of return should have led to a $35,100 increase in median wealth, compared to its actual increase of $11,500, so that dissavings reduced the gain by $23,500.

The large spread in rates of return on net worth between the middle three wealth quintiles and the top percentile (over four percentage points) also helped explain why wealth inequality advanced steeply from 2007 to 2010. In a decomposition of the change in the ratio of the mean wealth of the top one percent to median wealth, the differential in rates of return between the two group accounted for a quarter of the increase in the ratio, with differences in other factors such as savings accounting for the other part. It was thus the case that the middle class took a bigger relative hit on their net worth from the decline in home prices than the top one percent did from the stock market plunge. This factor is also reflected in the fact that median wealth dropped much more in percentage terms than mean wealth over the Great Recession. There was a modest rise in wealth inequality from 2010 to 2016. The same decomposition shows that the differential in rates of return between the two group (now in favor of the middle group) should have led to a decline of 22.2 in the ratio of the mean wealth of the top one percent to median wealth, compared to the actual increase of 65.8.

The racial disparity in wealth holdings, after fluctuating over the years from 1983 to 2007, was almost exactly the same in 2007 as in 1983. However, the Great Recession hit African-American households much harder than whites and the ratio of mean wealth between the two groups plunged from 0.19 in 2007 to 0.14 in 2010, mainly due to a 33 percent decline (in real terms) in black wealth. The relative (and absolute) losses suffered by black households from 2007 to 2010 are ascribable to the fact that blacks had a higher share of homes in their portfolio than did whites and much higher leverage than whites (debt to net worth ratios of 0.55 and 0.15, respectively). These factors led to a wide discrepancy in rates of return on their respective portfolios (-9.92 versus -7.07 percent per year). A decomposition analysis indicates that 35 percent of the decline in the racial wealth ratio can be attributed to the differential in rates of return. From 2010 to 2016, the wealth ratio remained unchanged, despite the fact that the rate of return on the portfolio of black families was greater than that of white families (7.70 versus 6.17 percent per year). The reason is that that black families had a substantially higher dissavings rate than white families.

Hispanic households made sizeable gains on (non-Hispanic) white households from 1983 to 2007. The ratio of mean net worth grew from 0.16 to 0.26, the homeownership rate among Hispanic households climbed from 33 to 49 percent, and the ratio of homeownership rates with white households advanced from 48 to 66 percent. However, in a reversal of fortunes, Hispanic households got hammered in the first half of the Great Recession. Their mean net worth plunged in half from 2007 to 2010, the ratio of mean net worth with white households fell from 0.26 to 0.15, their home ownership rate fell by 1.9 percentage points, and their net home equity plummeted by 47 percent. The relative (and absolute) losses suffered by Hispanic households over these three years were, black households, mainly due to the much larger share of homes in their wealth portfolio and their much higher leverage rate (a debt-equity ratio of 0.51 versus 0.15). These factors led to a wide disparity in returns on their respective portfolios (-10.8 versus -7.1 percent per year). A decomposition analysis indicates a quarter of the decline in the ethnic wealth ratio was due to the differential in rates of return. Another likely factor is that a high percentage of Hispanics bought their homes close to the housing cycle peak. From 2010 to 2016, the mean wealth ratio rebounded to 0.19, from 0.15. In this case, 41 percent of the increase in the wealth ratio can be

ascribed to the higher rate of return on the portfolio of Hispanic households (7.75 versus 6.17 percent per year). These gains were partly offset by a higher dissavings rate among Hispanic families.

Young households also got pummeled by the Great Recession. The ratio of net worth between households under age 35 and all households fell almost continuously from 0.29 in 1989 to 0.17 in 2007 and then plunged to 0.11 in 2010. In (real) dollar terms, their mean net worth declined by 46 percent from 2007 to 2010. Among age group 35-44, the ratio of their net worth to the overall figure fell from 0.71 in 1983 to 0.58 in 2007 and then declined precipitously to 0.42 in 2010. In dollar terms, their wealth fell by 39 percent over the latter three years. The same two factors explain the losses suffered by young households as for minorities – the higher share of homes in their wealth portfolio and their much higher leverage ratios. In terms of rates of return, the youngest age group had an annual return of -13.5 percent and age group 35-44 had a return of -9.6 percent compared to -7.3 percent for all households in years 2007-2010. Fully 87 percent of the relative decline in the mean wealth of age group 35 and under can be ascribed to the rate of return differential, and 46 percent for age group 35 to 44, with the remainder mainly due to their lower than average savings rates. The relative net worth of the under 35 age group continued its downward trajectory to 0.09 in 2016 while that of age group 35-44, after apparently rebounding to 0.64 in 2013, fell below its 2010 level to 0.40 in 2016. These trends mainly reflected the high rate of dissavings of these two age groups because the annual rate of return on their wealth portfolio – 11.2 percent for the under 35 age group and 7.7 percent for age group 35-44 – was higher than the 6.3 percent overall rate.

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Table 1: Mean and Median Wealth and Income, 1962-2016

(In thousands, 2016 dollars)

Variable	1962	1969	1983	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016
A. Net Worth													
1. Median	57.1	70.1	80.4	86.1	73.4	71.9	89.3	99.6	99.0	118.6	66.5	65.8	78.1
2. Mean	213.7	256.0	313.0	358.6	348.6	322.1	397.9	515.2	546.9	620.5	521.0	524.1	667.6
3. Percent with net worth													
a. Zero or negative	18.2	15.6	15.5	17.9	18.0	18.5	18.0	17.6	17.0	18.6	21.8	21.8	21.2
b. Less Than $5,000[a]	30.0	20.9	25.4	27.6	27.2	27.8	27.2	26.6	26.8	26.6	32.3	33.5	31.4
c. Less Than $10,000[a]	34.1	26.0	29.7	31.8	31.2	31.9	30.3	30.1	29.9	30.0	36.2	37.1	34.7
B. Financial Resources													
1. Median	15.5	19.5	17.4	20.5	17.2	15.7	26.2	31.4	23.1	27.2	13.9	14.2	15.1
2. Mean	169.9	217.2	227.2	267.7	265.8	247.2	312.6	404.5	405.8	464.0	407.4	417.1	541.7
3. Percent with zero or negative non-home wealth	25.9	23.5	25.7	26.8	28.2	28.7	25.7	25.5	28.0	27.4	29.4	28.7	30.4
C. Income (CPS)[b]													
1. Median	43.4	56.6	49.4	55.7	53.0	55.0	59.0	59.1	58.1	60.0	56.0	55.2	59.0
2. Mean	49.5	64.6	60.2	70.7	67.4	72.7	78.9	81.7	79.5	81.0	76.8	77.5	83.1

	Annual Growth Rates (percent)								Percentage Change		
	1962-1983	1983-1989	1989-2001	2001-2007	2007-2010	2010-2013	2013-2016	1962-2016	2007-2010	2010-2013	2013-2016
II Annual Growth Rates (percent)											
A. Net Worth											
1. Median	1.63	1.13	1.22	2.91	-19.27	-0.39	5.73	0.58	-43.9	-1.2	18.7
2. Mean	1.82	2.27	3.02	3.10	-5.83	0.20	8.07	2.11	-16.0	0.6	27.4
B. Financial Resources											
1. Median	0.55	2.76	3.57	-2.41	-22.46	0.90	1.93	-0.05	-49.0	2.7	6.0
2. Mean	1.38	2.74	3.44	2.29	-4.34	0.78	8.71	2.15	-12.2	2.4	29.9

C. Income (CPS)[b]											
1. Median	**0.61**	**2.03**	**0.48**	**0.26**	**-2.32**	**-0.45**	**2.23**	**0.57**	**-6.7**	**-1.3**	**6.9**
2. Mean	**0.93**	**2.66**	**1.21**	**-0.14**	**-1.78**	**0.29**	**2.35**	**0.96**	**-5.2**	**0.9**	**7.3**

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.
Additional sources are the 1962 SFCC and the 1969 MESP file.
Wealth figures are deflated using the Consumer Price Index (CPI-U).
a. Constant 1995 Dollars.
b. Source for household income data: U.S. Census of the Bureau, Current Populations Surveys, available on the Internet.
http://www.census.gov/hhes/www/income/data/historical/household/
The 1962 figures are based on family income and the rate of change of family income between 1962 and 1969.
All figures are re-based to the 2016 CPS figures for mean and median income.

Table 2. The Size Distribution of Wealth and Income, 1962-2016

		Percentage Share of Wealth or Income held by:									
Year	Gini Coefficient	Top 1.0%	Next 4.0%	Next 5.0%	Next 10.0%	Top 20.0%	4th 20.0%	3rd 20.0%	2nd 20.0%	Bottom 20.0%	All
A. Net Worth											
1962	0.803	33.4	21.2	12.4	14.0	81.0	13.4	5.4	1.0	-0.7	100.0
1969	0.828	35.6	20.7	12.5	13.8	82.5	12.2	5.0	0.9	-0.6	100.0
1983	0.799	33.8	22.3	12.1	13.1	81.3	12.6	5.2	1.2	-0.3	100.0
1989	0.828	35.2	22.8	11.9	13.2	83.0	12.0	4.7	0.9	-0.7	100.0
1992	0.823	37.2	22.8	11.8	12.0	83.8	11.5	4.4	0.9	-0.5	100.0
1995	0.828	38.5	21.8	11.5	12.1	83.9	11.4	4.5	0.9	-0.7	100.0
1998	0.822	38.1	21.3	11.5	12.5	83.4	11.9	4.5	0.8	-0.6	100.0
2001	0.826	33.4	25.8	12.3	12.9	84.4	11.3	3.9	0.7	-0.4	100.0
2004	0.829	34.3	24.6	12.3	13.4	84.7	11.3	3.8	0.7	-0.5	100.0
2007	0.834	34.6	27.3	11.2	12.0	85.0	10.9	4.0	0.7	-0.5	100.0
2010	0.866	35.1	27.4	13.8	12.3	88.6	9.5	2.7	0.3	-1.2	100.0
2013	0.871	36.7	28.2	12.2	11.8	88.9	9.3	2.7	0.2	-1.1	100.0
2016	0.877	39.6	27.1	12.1	11.1	89.9	8.2	2.4	0.3	-0.8	100.0
B. Financial Resources (FR)											
1962	0.838	39.5	22.4	15.0	9.2	86.1	9.5	3.3	2.5	-1.4	100.0
1969	0.841	38.4	22.3	16.9	10.1	87.7	10.3	3.6	0.1	-1.7	100.0
1983	0.893	42.9	25.1	12.3	11.0	91.3	7.9	1.7	0.1	-1.0	99.9
1989	0.920	44.1	25.5	12.1	11.2	92.8	7.4	1.3	0.1	-1.6	100.0
1992	0.903	45.6	25.0	11.5	10.2	92.3	7.3	1.5	0.3	-1.4	100.0
1995	0.914	47.2	24.6	11.2	10.1	93.0	6.9	1.4	0.1	-1.4	100.0
1998	0.893	47.3	21.0	11.4	11.2	90.9	8.3	1.9	0.1	-1.2	100.0
2001	0.888	39.7	27.8	12.3	11.4	91.3	7.8	1.7	0.1	-0.8	100.0
2004	0.902	42.2	26.7	12.0	11.6	92.5	7.3	1.2	0.0	-1.1	100.0
2007	0.908	42.7	29.3	10.9	10.1	93.0	6.8	1.3	0.0	-1.1	100.0
2010	0.921	41.3	29.5	13.3	10.7	94.8	5.9	0.8	0.1	-1.6	100.0
2013	0.923	42.8	29.7	11.9	10.3	94.7	6.0	0.8	0.0	-1.5	100.0
2016	0.930	45.9	28.7	11.6	9.3	95.4	5.2	0.7	0.0	-1.3	100.0
C. Income											
1962	0.428	8.4	11.3	10.2	16.1	46.0	24.0	16.6	9.9	3.5	100.0
1969	0.469	10.4	12.4	10.3	15.9	48.9	23.4	16.4	9.5	1.7	100.0

1982	0.480	12.8	13.3	10.3	15.5	51.9	21.6	14.2	8.7	3.7	100.0
1988	0.521	16.6	13.3	10.4	15.2	55.6	20.6	13.2	7.8	2.9	100.0
1991	0.528	15.7	14.8	10.6	15.3	56.4	20.4	12.8	7.4	3.1	100.1
1994	0.518	14.4	14.5	10.4	15.9	55.1	20.6	13.6	8.3	2.4	100.0
1997	0.531	16.6	14.4	10.2	15.0	56.2	20.5	12.8	7.5	3.0	100.0
2000	0.562	20.0	15.2	10.0	13.5	58.6	19.0	12.3	7.4	2.6	100.0
2003	0.540	17.0	15.0	10.9	14.9	57.9	19.9	12.1	7.4	2.8	100.0
2006	0.574	21.3	15.9	9.9	14.3	61.4	17.8	11.1	6.8	2.8	100.0
2009	0.549	17.2	16.5	10.7	14.7	59.1	18.7	14.9	4.3	3.0	100.0
2012	0.574	19.8	16.5	10.8	14.7	61.8	17.8	11.1	6.6	2.8	100.0
2015	0.598	23.5	16.2	10.2	14.1	64.0	16.8	10.2	6.3	2.7	100.0

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF;. Additional sources are the 1962 SFCC and the 1969 MESP file.
For the computation of percentile shares of net worth, households are ranked according to net worth; for FR shares, households are ranked according to FR; and for income shares, they are ranked by income.

Table 3. The Count of Millionaires and Multi-Millionaires, 1983-2016

	Number of Households	The Number of Households (in 1,000s) with Net Worth Equal to or Exceeding (in 1995$):		
Year	(1,000s)	1 Million	5 Million	10 Million
1983	83,893	2,411	247.0	66.5
1989	93,009	3,024	296.6	64.9
1992	95,462	3,104	277.4	41.6
1995	99,101	3,015	474.1	190.4
1998	102,547	4,783	755.5	239.4
2001	106,494	5,892	1,067.8	338.4
2004	112,107	6,466	1,120.0	344.8
2007	116,120	7,274	1,466.8	464.2
2010	117,606	7,931	1,073.9	352.3
2013	122,527	7,123	1,314.7	406.5
2016	125,979	9,145	1,850.8	635.8
% Change	50.2	279.3	649.3	856.3

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.

Table 4. Mean Wealth Holdings and Income by Wealth or Income Class, 1983-2016

(In thousands, 2016 dollars)

Variable	Top 0.1%	Top 0.5%	Top 1.0%	Next 4.0%	Next 5.0%	Next 10.0%	Top 20.0%	4th 20.0%	3rd 20.0%	Bottom 40.0%	All
A. Net Worth											
1983	43,267	16,097	10,565	1,747.5	760.0	410.4	1,273.0	196.7	81.7	6.9	313.0
2016	100,811	40,414	26,401	4,520.0	1,611.4	740.8	2,999.0	273.6	81.7	(8.9)	667.6
% change	133.0	151.1	149.9	158.7	112.0	80.5	135.6	39.1	0.0	--	113.3
% of gain[a]	16.3	34.4	44.7	31.3	12.0	9.3	97.4	4.3	0.0	-1.8	100.0
B. Financial Resources											
1983	--	--	9,110	1,333.8	521.2	233.6	969.4	83.9	18.1	(4.7)	212.4
2016	--	--	24,859	3,879.9	1,252.4	503.4	2,584.5	141.1	19.5	(18.5)	541.7
% change	--	--	172.9	190.9	140.3	115.5	166.6	68.2	7.9	--	155.0
% of gain[a]	--	--	47.9	30.9	11.1	8.2	98.1	3.5	0.1	-1.7	100.0
C. Income											
1982	--	--	910	235.2	146.0	109.6	183.9	76.7	50.2	21.9	70.9
2015	--	--	2,352	405.2	205.8	135.0	313.5	84.8	52.2	22.7	100.5
% change	--	--	158.4	72.3	40.9	23.2	70.5	10.5	4.0	3.8	41.7
% of gain[a]	--	--	49.6	23.4	10.3	8.7	91.9	5.5	1.4	1.2	100.0

Source: author's computations from the 1983 and 2016 SCF.
For the computation of percentile shares of net worth, households are ranked according to their net worth.
Likewise for financial resources and income.
a. The computation is performed by dividing the total increase in wealth of a given group by the total increase of wealth for all households over the period, under the assumption that the number of households in each group remains unchanged over the period. It should be noted that the households found in a given group (such as the top quintile) may be different in each year.

Table 5. Composition of Total Household Wealth, 1983 - 2016

(Percent of gross assets)

Wealth component	1983	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016
Principal residence	30.1	30.2	29.8	30.4	29.0	28.2	33.5	32.8	30.7	28.5	25.1
Other real estate[a]	14.9	14.0	14.7	11.0	10.0	9.8	11.5	11.3	11.6	10.2	10.4
Unincorporated business equity[b]	18.8	17.2	17.7	17.9	17.7	17.2	17.1	20.1	17.7	18.3	20.1
Liquid assets[c]	17.4	17.5	12.2	10.0	9.6	8.8	7.3	6.6	7.7	7.6	6.7
Pension accounts[d]	1.5	2.9	7.2	9.0	11.6	12.3	11.8	12.1	15.1	16.5	15.6
Financial securities[e]	4.2	3.4	5.1	3.8	1.8	2.3	2.1	1.5	1.8	1.5	1.3
Corporate stock & mutual funds	9.0	6.9	8.1	11.9	14.8	14.8	11.9	11.8	11.2	12.7	16.1
Net equity in personal trusts	2.6	3.1	2.7	3.2	3.8	4.8	2.9	2.3	2.4	3.2	3.4
Miscellaneous assets[f]	1.3	4.9	2.5	2.8	1.8	1.8	1.8	1.7	1.7	1.5	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Debt on principal residence	6.3	8.6	9.8	11.0	10.7	9.4	11.6	11.4	12.7	11.2	8.6
All other debt[g]	6.8	6.4	6.0	5.3	4.2	3.1	3.9	3.9	4.4	4.0	3.9
Total debt	13.1	15.0	15.7	16.3	15.0	12.5	15.5	15.3	17.1	15.2	12.5
Selected ratios in percent:											
Debt / net worth ratio	15.1	17.6	18.7	19.4	17.6	14.3	18.4	18.1	20.6	17.9	14.3
Debt / income ratio	68.4	87.6	88.8	91.3	90.9	81.1	115.0	118.7	127.0	107.1	95.1
Net home equity / total assets[h]	23.8	21.6	20.1	19.5	18.2	18.8	21.8	21.4	18.1	17.3	16.5
Principal residence debt as ratio to house value	20.9	28.6	32.7	36.0	37.0	33.4	34.8	34.9	41.2	39.3	34.4
Stocks, directly or indirectly owned as a ratio to total assets[i]	11.3	10.2	13.7	16.8	22.6	24.5	17.5	16.8	17.5	20.7	22.4

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.

a. In 2001, 2004, and 2007, this equals the gross value of other residential real estate plus the *net equity* in non-residential real estate.

b. Net equity in unincorporated farm and non-farm businesses and closely-held corporations.

c. Checking accounts, savings accounts, time deposits, money market funds, certificates of deposits, and the cash surrender value of life insurance.

d. IRAs, Keogh plans, 401(k) plans, the accumulated value of defined contribution pension plans, and other retirement accounts.

e. Corporate bonds, government bonds (including savings bonds), open-market paper, and notes.

f. Gold and other precious metals, royalties, jewelry, antiques, furs, loans to friends and relatives, future contracts, and miscellaneous assets.

g. Mortgage debt on all real property except principal residence; credit card, installment, and other debt.

h. Ratio of gross value of principal residence less mortgage debt on principal residence to total assets.

i. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

Table 6. Composition of Household Wealth by Wealth Class, 2016

(Percent of gross assets)

Asset	All Households	Top One Percent	Next 19 Percent	Middle 3 Quintiles
Principal residence	25.1	7.6	25.6	61.9
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	6.7	4.6	7.7	8.5
Pension accounts	15.6	6.0	22.4	16.6
Corporate stock, financial securities, mutual funds, and personal trusts	20.8	31.4	18.6	3.9
Unincorporated business equity other real estate	30.5	49.0	24.5	7.9
Miscellaneous assets	1.3	1.4	1.2	1.2
Total assets	100.0	100.0	100.0	100.0
Memo (selected ratios in percent):				
Debt / net worth ratio	14.3	2.4	10.1	58.9
Debt / income ratio	95.1	35.0	88.9	120.4
Net home equity / total assets[a]	16.5	6.4	18.8	33.3
Principal residence debt / house value	34.4	15.4	26.5	46.1
All stocks / total assets[b]	22.4	25.5	24.5	9.7
Ownership Rates (Percent)				
Principal residence	63.7	94.1	94.6	67.0
Other real estate	17.4	74.7	46.7	11.7
Pension assets	52.1	91.3	83.8	48.9
Unincorporated business	11.4	66.1	28.7	7.8
Corporate stock, financial securities, mutual funds, and personal trusts	22.8	89.2	61.6	15.3
Stocks, directly or indirectly owned[b]	49.3	94.0	86.2	45.0
(1) $5,000 or more	39.3	94.0	84.4	33.9
(2) $10,000 or more	34.9	93.8	82.7	28.3

Source: author's computations from the 2016 SCF. Households are classified into wealth class according to their net worth. Brackets for 2016 are:

Top one percent: Net worth of $10,257,000 or more.
Next 19 percent: Net worth between $471,600 and $10,257,000.
Quintiles 2 through 4: Net worth between $0 and $471,600.

Also, see Notes to Table 5.

a. Ratio of gross value of principal residence less mortgage debt on principal residence to total assets.

b. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

Table 7. Composition of Household Wealth by Wealth Class, 1983 and 2016

(Percent of gross assets)

	Top One Percent		Next 19 Percent		Middle 3 Quintiles	
Component	**1983**	**2016**	**1983**	**2016**	**1983**	**2016**
Principal residence	**8.1**	**7.6**	**29.1**	**25.6**	**61.6**	**61.9**
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	**8.5**	**4.6**	**21.4**	**7.7**	**21.4**	**8.5**
Pension accounts	**0.9**	**6.0**	**2.0**	**22.4**	**1.2**	**16.6**
Corporate stock, financial securities, mutual funds, and personal trusts	**29.5**	**31.4**	**13.0**	**18.6**	**3.1**	**3.9**
Unincorporated business equity other real estate	**52.0**	**49.0**	**32.8**	**24.5**	**11.4**	**7.9**
Miscellaneous assets	**1.0**	**1.4**	**1.6**	**1.2**	**1.3**	**1.2**
Total assets	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Memo:						
Debt / net worth ratio	**5.9**	**2.4**	**10.9**	**10.1**	**37.4**	**58.9**
Debt / income ratio	**86.8**	**35.0**	**72.8**	**88.9**	**66.9**	**120.4**

Note: author's computations from the 1983 and 2016 SCF. Also, see Notes to Tables 5 and 6.

Table 8. Composition of Household Wealth of the Middle Three Wealth Quintiles, 1983-2016

(Percent of gross assets)

Asset	1983	1989	1998	2001	2004	2007	2010	2013	2016
Principal residence	61.6	61.7	59.8	59.2	66.1	65.1	64.8	62.5	61.9
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	21.4	18.6	11.8	12.1	8.5	7.8	8.0	8.1	8.5
Pension accounts	1.2	3.8	12.3	12.7	12.0	12.9	13.9	16.1	16.6
Corporate stock, financial securities, mutual funds, and personal trusts	3.1	3.5	5.5	6.2	4.2	3.6	3.1	3.4	3.9
Unincorporated business equity other real estate	11.4	9.4	8.8	8.5	7.9	9.3	8.9	8.6	7.9
Miscellaneous assets	1.3	2.9	1.8	1.2	1.4	1.3	1.3	1.2	1.2
Total assets	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memo (selected ratios in percent):									
Debt / net worth ratio	37.4	41.7	51.3	46.4	61.6	61.1	69.2	64.0	58.9
Debt / income ratio	66.9	83.0	101.6	100.3	141.2	156.7	134.3	125.0	120.4
Net home equity / total assets[a]	43.8	39.2	33.3	33.8	34.7	34.8	31.4	31.4	33.3
Principal residence debt / house value	28.8	36.5	44.4	42.9	47.6	46.6	51.5	49.8	46.1
All stocks / total assets[b]	2.4	3.3	11.2	12.6	7.5	7.0	8.1	9.5	9.7
Ownership Rates (Percent)									
Principal residence	71.6	71.5	73.3	75.9	78.2	76.9	68.0	66.7	67.0
Other real estate	15.4	15.5	13.7	13.2	13.6	14.7	12.4	12.4	11.7
Pension assets	12.2	27.3	48.5	52.9	51.4	53.4	45.8	44.4	48.9
Unincorporated business	8.5	8.4	8.5	7.9	8.1	8.8	8.2	6.6	7.8
Corporate stock, financial securities, mutual funds, and personal trusts	21.6	24.2	26.7	27.5	27.1	23.1	15.3	14.2	15.3
All stocks[b]	16.5	29.4	46.6	51.1	49.7	47.8	41.4	41.0	45.0
Mean Debt (thousands, 2013$)									
Debt on principal residence	24.2	35.2	34.2	51.2	73.5	78.4	60.2	54.0	53.9
All other debt	12.9	10.8	9.5	12.6	15.6	19.8	13.5	13.7	16.1
Total debt	37.1	46.0	43.7	63.8	89.1	98.1	73.8	67.7	69.9

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF. Households are classified into wealth class according to their net worth. Also, see Notes to Table 5.

a. Ratio of gross value of principal residence less mortgage debt on principal residence to total assets.
b. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

Table 9. The Evolution of Household Debt, 2007-2016

(Mean values, in thousands, 2016 dollars)

					Percentage Change		
	2007	2010	2013	2016	2007-2010	2010-2016	2007-2016
A. All Households							
1. Mortgage Debt[a]	83.9	79.7	69.3	66.0	-5.0	-17.2	-21.3
2. All Other Debt	28.5	27.8	24.6	29.5	-2.6	6.4	3.7
a. Educational Loans	3.8	5.4	6.0	7.6	43.6	40.7	102.0
b. Non-Educational Debt	24.7	22.3	18.7	21.9	-9.6	-1.9	-11.4
3. Total Debt	112.4	107.5	93.9	95.5	-4.4	-11.1	-15.0
B. Middle Three Wealth Quintiles							
1. Mortgage Debt[a]	78.4	60.2	54.0	53.9	-23.1	-10.6	-31.3
2. All Other Debt	19.8	13.5	13.7	16.1	-31.6	19.0	-18.6
a. Educational Loans	2.8	2.8	3.1	4.2	-0.6	52.0	51.0
b. Non-Educational Debt	17.0	10.7	10.6	11.9	-36.7	10.5	-30.1
3. Total Debt	98.1	73.8	67.7	69.9	-24.8	-5.2	-28.7

Source: author's computations from the 2007, 2010, 2013, and 2016 SCF.
a. Principal residence debt only.

Table 10. The Percent of Total Assets Held by Wealth Class, 2016

	Top	Next	Bottom		Share of Top 10 %										
Asset Type	1.0%	9.0%	90.0%	All	1983	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016
A. Investment assets															
Stocks & mutual funds	53.2	40.0	6.8	100.0	90.4	86.0	86.3	88.4	85.1	84.5	85.4	89.4	91.2	90.9	93.2
Financial securities	64.6	29.2	6.2	100.0	82.9	87.1	91.3	89.8	84.1	88.7	87.9	98.5	93.6	94.3	93.8
Trusts	51.4	33.2	15.4	100.0	95.4	87.9	87.9	88.5	90.8	86.7	81.5	79.4	80.9	83.5	84.6
Business equity	65.7	28.5	5.7	100.0	89.9	89.8	91.0	91.7	91.7	89.6	90.3	93.3	91.8	93.8	94.3
Non-home real estate	40.0	42.1	17.9	100.0	76.3	79.6	83.0	78.7	74.9	78.5	79.4	76.9	78.9	77.8	82.1
Total for group	55.6	35.2	9.2	100.0	85.6	85.7	87.6	87.5	86.2	85.5	85.6	87.8	87.5	88.5	90.8
Stocks, directly or indirectly owned[a]	40.3	43.6	16.0	100.0	89.7	80.8	78.7	81.9	78.7	76.9	78.8	81.2	80.6	81.4	84.0
B. Housing, liquid assets, pension assets, and debt															
Principal residence	10.7	30.6	58.7	100.0	34.2	34.0	36.0	31.7	35.2	37.0	38.0	38.5	40.2	40.8	41.3
Deposits[b]	23.7	41.7	34.7	100.0	52.9	61.5	59.7	62.3	51.0	57.2	60.9	57.7	67.5	67.2	65.3
Life insurance	28.1	36.1	35.8	100.0	33.6	44.6	45.0	44.9	52.8	46.0	57.3	54.9	54.4	65.3	64.2
Pension accounts[c]	13.7	51.2	35.2	100.0	67.5	50.5	62.3	62.3	59.8	60.4	58.3	59.2	65.4	65.2	64.8
Total for group	13.6	38.8	47.6	100.0	41.0	43.9	45.2	42.5	44.0	45.9	45.7	45.8	51.0	52.1	52.4
Total debt	6.7	20.9	72.4	100.0	31.8	29.4	37.5	28.3	27.0	25.9	27.0	26.6	27.4	26.5	27.6

Source: author's computations from the 1983, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.

Households are classified into wealth class according to their net worth. Brackets for 2016 are:

Top one percent: Net worth of $10,257,000 or more.

Next 9 percent: Net worth between $1,143,200 and $10,257,000.

Bottom 90 Percent: Net worth less than $1,143,200

a. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

b. Includes demand deposits, savings deposits, time deposits, money market funds, and CDs.

c. IRAs, Keogh plans, 401(k) plans, and other retirement accounts.

Table 11. Average Annual Rates of Return by Period and Wealth Class, 1983 - 2016
(percentage)

	1983-1989	1989-2001	2001-2007	2007-2010	2010-2013	2013-2016	1983-2016
A. Gross Assets							
1. All Households	**2.33**	**3.33**	**3.10**	**-6.38**	**4.74**	**5.42**	**2.54**
2. Top 1 Percent	**3.07**	**3.92**	**3.75**	**-6.37**	**5.88**	**5.62**	**3.13**
3. Next 19 Percent	**2.33**	**3.44**	**2.88**	**-6.07**	**4.68**	**5.35**	**2.56**
4. Middle 3 Quintiles	**1.35**	**2.32**	**2.71**	**-7.07**	**3.06**	**5.23**	**1.69**
B. Net Worth							
1. All Households	**3.32**	**4.35**	**4.04**	**-7.28**	**6.08**	**6.46**	**3.40**
2. Top 1 Percent	**3.45**	**4.19**	**3.92**	**-6.52**	**6.13**	**5.79**	**3.35**
3. Next 19 Percent	**3.00**	**4.09**	**3.46**	**-6.63**	**5.56**	**6.05**	**3.11**
4. Middle 3 Quintiles	**3.35**	**4.67**	**5.58**	**-10.55**	**6.59**	**9.05**	**3.79**
Memo: difference between top 1% and middle quintiles	**-0.10**	**0.48**	**1.67**	**-4.04**	**0.46**	**3.26**	**0.43**

Source: author's computations from the 1983, 1989, 2001, 2007, 2010, 2013, and 2016 SCF.
Rates of return by asset type are provided in Appendix 1.
Households are classified into wealth class according to their net worth.
Calculations are based on household portfolios averaged over the period for each group.
Miscellaneous assets are excluded from the calculation.

Table 12. Decomposition of Trends in Median and Mean Wealth, the Mean Wealth of the Top Percentile, and the ratio of the Mean Wealth of the Top Percentile to Median Wealth
(Wealth levels in thousands, 2016 dollars)

	1983-1989	1989-2001	2001-2007	2007-2010	2010-2016
A. Mean Net Worth					
1. Actual change in mean net worth	45.6	156.6	105.3	-99.6	146.7
2. Change in mean net worth from return on wealth alone	68.9	245.7	141.3	-121.8	216.2
3. Share of change in mean net worth from return on wealth alone (percent)	151.2	156.9	134.1	122.3	147.4
4. Share of change in mean net worth from other sources	-51.2	-56.9	-34.1	-22.3	-47.4
B. Median Net Worth					
1. Actual change in median net worth	5.7	13.6	19.0	-52.1	11.5
2. Change in median net worth from return on wealth alone	17.9	64.7	39.6	-32.2	35.1
3. Share of change in median net worth from return on wealth alone (percent)	316.8	477.0	208.8	61.8	303.5
4. Share of change in median net worth from other sources	-216.8	-377.0	-108.8	38.2	-203.5
C. Mean Wealth of the Top One Percent					
1. Actual change in mean wealth of the top 1%	2,045	4,591	4,247	(3,330)	8,283
2. Change in mean wealth of the top 1% from return on wealth alone	2,431	8,233	4,559	(3,810)	7,295
3. Share of change in mean wealth of the top 1% from return on wealth alone (percent)	118.9	179.3	107.3	114.4	88.1
4. Share of change in mean wealth of the top 1% from other sources	-18.9	-79.3	-7.3	-14.4	11.9
D. Ratio of the Mean Wealth of the Top One Percent to Median Wealth					
1. Actual change in the ratio	15.1	26.1	8.2	91.5	65.8
2. Change in the ratio from return on wealth alone	0.8	(8.3)	(16.4)	23.3	(22.2)
3. Share of the change in the ratio from return on wealth alone (percent)	5.1	(31.7)	(201.2)	25.4	(33.7)
4. Share of the change in the ratio from other sources (percent)	94.9	131.7	301.2	74.6	133.7

Source: author's computations from the 1983, 1989, 2001, 2007, 2010, 2013, and 2016 SCF.
Rates of return by wealth group are provided in Table 11. I use the rate of return for the middle three wealth quintiles in the decomposition for median wealth.
Households are classified into wealth class according to their net worth.

Table 13. Household Income and Wealth by Race and Ethnicity, 1983-2016

(In thousands, 2016 dollars)

Component	1983	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016
A. Mean Income											
Whites	75.0	82.2	81.7	75.0	85.2	102.8	98.9	106.9	95.6	102.9	117.8
Blacks	40.4	36.6	40.9	36.2	41.9	49.8	48.4	51.6	45.6	42.8	53.9
Hispanics	45.4	37.5	38.6	48.6	45.8	51.0	48.8	53.7	54.0	46.1	57.0
Ratio:											
Blacks/Whites	0.54	0.45	0.50	0.48	0.49	0.48	0.49	0.48	0.48	0.42	0.46
Hispanics/Whites	0.60	0.46	0.47	0.65	0.54	0.50	0.49	0.50	0.57	0.45	0.48
B. Median Income											
Whites	52.8	54.7	50.3	50.4	54.5	59.6	61.0	57.9	56.1	55.6	60.0
Blacks	29.4	20.8	28.5	26.8	29.4	33.9	35.6	34.7	33.0	30.9	35.0
Hispanics	35.0	26.2	26.8	34.6	33.9	32.5	33.0	40.5	37.4	33.0	39.0
Ratio:											
Blacks/Whites	0.56	0.38	0.57	0.53	0.54	0.57	0.58	0.60	0.59	0.56	0.58
Hispanics/Whites	0.66	0.48	0.53	0.69	0.62	0.55	0.54	0.70	0.67	0.59	0.65
C. Mean Net Worth											
Whites	365.8	432.8	418.8	381.7	472.5	631.3	678.4	754.9	666.0	676.1	875.6
Blacks	68.8	72.5	77.8	64.2	85.8	89.9	128.9	142.0	95.6	87.0	126.3
Hispanics	59.5	71.2	93.1	80.8	116.6	108.6	145.4	197.2	102.4	101.2	165.8
Ratio:											
Blacks/Whites	0.19	0.17	0.19	0.17	0.18	0.14	0.19	0.19	0.14	0.13	0.14
Hispanics/Whites	0.16	0.16	0.22	0.21	0.25	0.17	0.21	0.26	0.15	0.15	0.19
D. Median Net Worth											
Whites	105.3	125.1	104.9	96.1	120.3	144.2	150.3	166.3	113.8	120.3	140.5
Blacks	7.0	3.2	17.7	11.6	14.7	14.4	15.0	10.7	6.9	1.7	3.4
Hispanics	4.1	2.6	6.3	7.9	4.4	4.0	7.0	10.5	3.0	2.0	6.3
Ratio:											
Blacks/Whites	0.07	0.03	0.17	0.12	0.12	0.10	0.10	0.06	0.06	0.01	0.02
Hispanics/Whites	0.04	0.02	0.06	0.08	0.04	0.03	0.05	0.06	0.03	0.02	0.04
E. Mean Financial Resources											
Whites	269.5	327.1	322.4	296.8	375.2	501.0	511.4	573.3	528.8	546.2	722.5
Blacks	34.7	35.5	44.3	33.4	55.4	58.6	78.2	81.8	52.2	55.0	82.8
Hispanics	17.6	34.8	59.8	46.1	74.2	69.8	85.1	111.5	58.8	59.9	108.4
Ratio:											
Blacks/Whites	0.13	0.11	0.14	0.11	0.15	0.12	0.15	0.14	0.10	0.10	0.11
Hispanics/Whites	0.07	0.11	0.19	0.16	0.20	0.14	0.17	0.19	0.11	0.11	0.15
F. Median Financial Resources											
Whites	29.3	39.6	32.2	28.4	55.4	57.1	45.8	50.5	36.7	42.0	47.5
Blacks	0.0	0.0	0.2	0.3	1.8	1.5	0.3	0.6	0.3	0.2	0.1
Hispanics	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.5	0.1	0.2	0.2
Ratio:											
Blacks/Whites	0.00	0.00	0.01	0.01	0.03	0.03	0.01	0.01	0.01	0.00	0.00
Hispanics/Whites	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
F. Homeownership Rate (in Percent)											
Whites	68.1	69.3	69.0	69.4	71.8	74.1	75.8	74.8	74.6	73.1	71.9
Blacks	44.3	41.7	48.5	46.8	46.3	47.4	50.1	48.6	47.7	44.0	44.0
Hispanics	32.6	39.8	43.1	44.4	44.2	44.3	47.7	49.2	47.3	43.9	45.4

Ratio:											
Blacks/Whites	**0.65**	**0.60**	**0.70**	**0.67**	**0.64**	**0.64**	**0.66**	**0.65**	**0.64**	**0.60**	**0.61**
Hispanics/Whites	**0.48**	**0.57**	**0.62**	**0.64**	**0.61**	**0.60**	**0.63**	**0.66**	**0.63**	**0.60**	**0.63**
G. Percentage of Households with zero or negative net worth											
Whites	**11.3**	**12.1**	**13.8**	**15.0**	**14.8**	**13.1**	**13.0**	**14.5**	**17.9**	**16.3**	**15.5**
Blacks	**34.1**	**40.7**	**31.5**	**31.3**	**27.4**	**30.9**	**29.4**	**33.4**	**32.9**	**40.0**	**37.0**
Hispanics	**40.3**	**39.9**	**41.2**	**38.3**	**36.2**	**35.3**	**31.3**	**33.5**	**34.6**	**33.9**	**32.8**
Ratio:											
Blacks/Whites	**3.01**	**3.38**	**2.28**	**2.09**	**1.85**	**2.35**	**2.27**	**2.30**	**1.84**	**2.46**	**2.38**
Hispanics/Whites	**3.55**	**3.31**	**2.98**	**2.56**	**2.45**	**2.69**	**2.41**	**2.30**	**1.93**	**2.09**	**2.11**

Source: author's computations from the 1983, 1989 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF. Households are divided into four racial/ethnic groups: (I) non-Hispanic whites; (ii) non-Hispanic blacks; (iii) Hispanics; and (iv) American Indians, Asians, and others. For 1995, 1998, and 2001, the classification scheme does not explicitly indicate non-Hispanic whites and non-Hispanic blacks for the first two categories so that some Hispanics may have classified themselves as either whites or blacks.

Table 14. Composition of Household Wealth by Race and Ethnicity, 2007

(Percent of gross assets)

Asset	All	Non-Hispanic Whites	African-Americans	Hispanics
Principal residence	32.8	30.8	54.0	52.5
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	6.6	6.6	7.6	3.9
Pension accounts	12.1	12.5	12.3	7.7
Corporate stock, financial securities, mutual funds, and personal trusts	15.5	17.1	3.4	2.5
Unincorporated business equity other real estate	31.3	31.3	20.9	32.9
Miscellaneous assets	1.7	1.7	1.8	0.4
Total assets	100.0	100.0	100.0	100.0
Memo (selected ratios in percent):				
Debt / net worth ratio	18.1	15.4	55.3	51.1
Debt / income ratio	118.7	109.0	152.2	187.9
Net home equity / total assets[a]	21.4	20.8	27.3	28.8
Principal residence debt / house value	34.9	32.4	49.4	45.2
All stocks / total assets[b]	16.8	18.3	5.0	5.1
I. Annual rate of return on net worth (in percent)[c]				
1983-1989	3.32	2.97	2.37	3.20
1989-2001	4.35	4.28	4.46	4.71
2001-2007	4.04	3.87	6.00	6.51
2007-2010	-7.28	-7.07	-9.92	-10.76
2010-2013	6.08	6.01	6.87	7.18
2013-2016	6.46	6.32	8.53	8.33

II. Percentage contribution of ROR effect to change in racial/ethnic wealth ratio[d]

	Black/White	Hispanic/White
1983-1989	32.6	111.8
1989-2001	-14.8	119.6
2001-2007	42.5	33.1
2007-2010	34.7	25.5
2010-2013	-25.1	-132.2
2013-2016	56.8	23.3

a. Ratio of gross value of principal residence less mortgage debt on principal residence to total assets

b. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

c. Based on average portfolio composition and rates of return by asset type over the period.

d. The "ROR effect" is the change in the ratio of mean net worth between groups attributable to differences in rates of return between groups.

Table 15. Age-Wealth Profiles and Homeownership Rates by Age Group, 1983-2016

Age	1983	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016
A. Mean Net Worth (Ratio to Overall Mean)											
Overall	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Under 35	0.21	0.29	0.20	0.16	0.22	0.19	0.14	0.17	0.11	0.12	0.09
35-44	0.71	0.72	0.71	0.65	0.68	0.64	0.65	0.58	0.42	0.64	0.40
45-54	1.53	1.50	1.42	1.39	1.27	1.25	1.21	1.19	1.14	0.99	1.05
55-64	1.67	1.58	1.82	1.81	1.91	1.86	1.91	1.69	1.80	1.52	1.70
65-74	1.93	1.61	1.59	1.71	1.68	1.72	1.57	1.86	1.73	2.01	1.55
75 & over	1.05	1.26	1.20	1.32	1.12	1.20	1.19	1.16	1.35	1.17	1.57
B. Mean Financial Resources (Ratio to Overall Mean)											
Overall	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Under 35	0.17	0.28	0.18	0.14	0.21	0.19	0.12	0.15	0.10	0.10	0.07
35-44	0.59	0.68	0.69	0.62	0.67	0.61	0.64	0.54	0.40	0.63	0.36
45-54	1.53	1.48	1.45	1.43	1.31	1.27	1.24	1.19	1.15	1.00	1.04
55-64	1.72	1.60	1.89	1.86	1.99	1.94	1.97	1.80	1.87	1.55	1.77
65-74	2.12	1.69	1.60	1.75	1.66	1.74	1.61	1.86	1.74	2.04	1.56
75 & over	1.10	1.27	1.14	1.26	1.00	1.11	1.08	1.10	1.27	1.10	1.55
C. Homeownership Rate (in Percent)											
Overall	63.4	62.8	64.1	64.7	66.3	67.7	69.1	68.6	67.2	65.1	63.7
Under 35	38.7	36.3	36.8	37.9	39.2	40.2	41.5	40.8	37.5	35.6	33.1
35-44	68.4	64.1	64.4	64.7	66.7	67.6	68.6	66.1	63.8	61.7	57.8
45-54	78.2	75.1	75.5	75.4	74.5	76.1	77.3	77.3	75.2	69.1	68.8
55-64	77.0	79.2	77.9	82.3	80.6	83.2	79.1	80.9	78.1	74.2	73.7
65-74	78.3	78.1	78.8	79.4	81.7	82.5	81.2	85.5	82.5	85.8	78.9
75 & over	69.4	70.2	78.1	72.5	76.9	76.2	85.1	77.0	81.3	80.1	83.1

Source: author's computations from the 1983, 1989 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF. Households are classified according to the age of the householder.

Table 16 Composition of Household Wealth by Age Class, 2007

(Percent of gross assets)

Asset	All	Under 35	35-44	45-54	55-64	65-74	75 & over
Principal residence	32.8	54.3	43.7	33.8	25.6	28.2	30.2
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	6.6	5.7	5.4	6.4	6.3	6.1	10.5
Pension accounts	12.1	6.0	10.7	13.0	15.8	12.9	5.0
Corporate stock, financial securities, mutual funds, and personal trusts	15.5	4.2	8.6	13.1	16.4	20.5	25.6
Unincorporated business equity other real estate	31.3	28.7	30.1	32.0	34.4	30.2	27.1
Miscellaneous assets	1.7	1.2	1.5	1.7	1.5	2.1	1.6
Total assets	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memo (selected ratios in percent):							
Debt / equity ratio	18.1	92.7	41.3	20.2	11.9	7.1	2.1
Debt / income ratio	118.7	167.5	156.5	118.2	100.0	79.7	29.9
Net home equity / total assets[a]	21.4	18.8	21.3	20.9	18.1	23.4	28.7
Principal residence debt / house value	34.9	65.4	51.4	38.3	29.2	16.9	4.9
All stocks / total assets[b]	16.8	5.9	11.2	15.1	19.4	21.5	20.0
I. Annual rate of return on net worth (in percentage)[c]							
2001-2007	4.04	7.90	5.63	4.25	3.68	3.38	2.53
2007-2010	-7.28	-13.49	-9.56	-7.54	-6.64	-6.50	-6.47
2010-2013	6.08	10.33	7.29	6.38	5.83	5.63	5.22
2013-2016	6.46	11.99	8.06	6.84	6.16	5.89	5.68

II. Percentage contribution of ROR effect to change in the ratio of mean wealth by age group to the overall mean[d]

	Under 35	35 - 44
2001-2007	-203.9	-95.1
2007-2010	87.3	46.4
2010-2013	281.8	--
2013-2016	-160.1	--
2010-2016		-490.0

Source: author's computations from the 2007 Surveys of Consumer Finances. Households are classified into age class according to the age of the household head.

a. Ratio of gross value of principal residence less mortgage debt on principal residence to total assets.
b. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts
c. Based on average portfolio composition and rates of return by asset type over the period.
d. The "ROR effect" is the change in the ratio of mean net worth between groups attributable to differences in rates of return between groups.

Table 17a. Stock Ownership, 1983 and 1989

(Percent of households holding stocks)

Stock Type	1983	1989	1983-1989
Direct stock holdings only	13.7	13.1	
Stocks and mutual funds			
1. Any holdings	24.4	19.9	
2. Holdings worth $5,000 or more[a]	14.5	14.6	
3. Holdings worth $10,000 or more[a]	10.8	12.3	
4. Holdings worth $25,000 or more[a]	6.2	8.4	
Memo:			
Stocks plus mutual funds as a percent of total assets	9.0	6.9	
Percentage change in S&P 500 Index, in constant dollars over period			61.7

Source: author's computations from the 1983 and 1989 SCF.
a. 1995 dollars

Table 17b. Stock Ownership, 1989-2016

(Percent of households holding stocks)

Stock Type	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016	1989-2016
Direct stock holdings only	13.1	14.8	15.2	19.2	21.3	20.7	17.9	15.1	13.8	13.9	
Indirect stock holdings only	23.5	29.3	34.8	43.4	47.7	44.0	44.4	43.4	43.1	46.6	
1. Through mutual funds	5.9	8.4	11.3	15.2	16.7	14.1	10.6	8.3	7.8	9.8	
2. Through pension accounts	19.5	24.8	29.2	37.4	41.4	38.0	40.2	40.0	40.3	43.5	
3. Through trust funds	1.6	1.2	1.9	2.4	5.1	4.7	4.1	4.2	4.1	3.9	
All stock holdings[a]											
1. Any holdings	31.7	37.2	40.4	48.2	51.9	48.6	49.1	46.9	46.1	49.3	
2. Stock of $5,000 or more[b]	22.6	27.3	29.5	36.3	40.1	34.9	34.6	33.6	34.4	36.8	
3. Stock of $10,000 or more[b]	18.5	21.8	23.9	31.8	35.1	29.8	29.6	28.8	29.7	32.0	
4. Stock of $25,000 or more[b]	10.5	13.1	16.6	24.3	27.1	22.5	22.1	21.6	22.5	24.6	
Memo:											
Direct plus indirect stocks as a percent of total assets	10.2	13.7	16.8	22.6	24.5	17.5	16.8	17.5	20.7	22.4	
Percentage change in S&P 500 index in constant dollars over period		13.8	20.0	87.3	1.3	-11.2	19.0	-26.6	39.0	27.9	256.8

Source: author's computations from the 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.

The source for stock prices is Table B-96 of the *Economic Report of the President, 2013*, available at available at http://www.gpoaccess.gov/eop/tables13.html, with updates to 2016 from:
http://www.fedprimerate.com/s-and-p-500-history.htm

a. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts.

b. 1995 dollars

Table 17c. Distribution of Stock Ownership by Asset Type, 1989-2013

(Percent of total stock held in each asset type)

Stock Type	1989	1992	1995	1998	2001	2004	2007	2010	2013	2016	Change, 1989-2016
Direct stock holdings	54.0	49.4	36.7	42.6	38.5	37.1	37.1	30.6	31.4	26.6	-27.4
Indirect stock holdings only	46.0	50.6	63.3	57.4	61.5	62.9	62.9	69.4	68.6	73.4	27.4
1. Through mutual funds	8.5	10.9	17.9	16.3	16.0	21.9	21.3	22.7	21.3	34.0	25.5
2. Through pension accounts	24.4	34.1	37.9	32.9	33.5	30.9	31.4	40.2	39.8	33.4	9.0
3. Through trust funds	13.2	5.6	7.6	8.2	12.0	8.1	7.2	6.5	7.5	6.0	-7.2
Memo:											
Stocks held in pension accounts/ total value of pension accounts	32.6	44.8	67.5	64.1	66.3	45.6	43.6	46.8	50.0	48.0	15.4

Source: author's computations from the 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, and 2016 SCF.

Table 18a. Concentration of Stock Ownership by Wealth Class, 2016

	Percent of Households Owning Stock Worth More Than			Percent of Stock Owned		
Wealth Class	Zero	$4,999	$9,999	Shares	Cumulative	Cumulative-2001
Top one percent	94.0	94.0	93.8	40.3	40.3	33.5
Next four percent	93.2	10.6	92.4	31.1	71.4	62.3
Next five percent	91.3	11.5	89.2	12.6	84.0	76.9
Next ten percent	80.8	78.6	76.3	9.3	93.2	89.3
Second quintile	68.5	60.0	54.2	5.0	98.3	97.1
Third quintile	47.3	34.5	27.3	1.3	99.5	99.3
Fourth quintile	23.8	12.1	7.6	0.3	99.8	99.8
Bottom quintile	20.4	7.5	4.1	0.2	100.0	100.0
All	0.0	39.8	35.3	100.0		

Source: author's computations from the 2016 SCF.
Note: Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAS, Keogh plans, 401(k) plans, and other retirement accounts. All figures are in 2016 dollars.

Table 18b. Concentration of Stock Ownership by Income Class, 2016

	Share of	Percent of Households Owning Stock Worth More Than			Percent of Stock Owned		
Income Level	Households	Zero	$4,999	$9,999	Shares	Cumulative	Cumulative-2001
$250,000 or more	5.2	93.4	91.4	90.3	60.5	60.5	40.6
$100,000-$249,999	18.9	82.6	75.1	69.6	24.8	85.4	68.6
$75,000-$99,999	11.3	71.6	57.7	51.5	5.8	91.2	77.4
$50,000-$74,999	16.7	51.9	39.9	33.4	4.8	95.9	89.3
$25,000-$49,999	25.7	35.3	23.5	18.7	2.8	98.7	97.6
$15,000-$24,999	12.5	17.0	9.4	7.4	0.4	99.2	98.9
Under $15,000	9.8	9.1	4.9	3.9	0.8	100.0	100.0
All	100.0	0.0	39.8	35.3	100.0		

Source: author's computations from the 2016 SCF.
Note: Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts. All figures are in 2016 dollars.

Table 19 Defined Contribution Pensions by Age Group, 1983-2016
(In thousands, 2016 dollars)

	1983	1989	2001	2007	2010	2013	2016	% Change 1983-2016
A. All Households								
1. Percent with a DC Account	**11.1**	**24.0**	**52.2**	**52.6**	**50.4**	**49.2**	**52.1**	
2. Mean DC Pension Wealth (Pension holders only)	**48.4**	**51.0**	**139.3**	**168.9**	**188.1**	**207.2**	**228.7**	**372.9**
3. Mean DC Pension Wealth (All households in group)	**5.4**	**12.2**	**72.7**	**88.9**	**94.7**	**102.0**	**119.1**	**2124.2**
B. Ages 46 and under								
1. Percent with a DC Account	**13.7**	**31.2**	**53.8**	**49.9**	**47.8**	**47.3**	**50.2**	
2. Mean DC Pension Wealth (Pension holders only)	**25.0**	**34.2**	**71.2**	**71.2**	**69.4**	**79.9**	**76.9**	**208.2**
3. Mean DC Pension Wealth (All households in group)	**3.4**	**10.7**	**38.3**	**35.5**	**33.2**	**37.8**	**38.6**	**1024.6**
C. Ages 47-64								
1. Percent with a DC Account	**12.3**	**28.3**	**62.0**	**63.8**	**59.6**	**58.3**	**59.0**	
2. Mean DC Pension Wealth (Pension holders only)	**91.3**	**83.6**	**211.2**	**242.9**	**265.9**	**249.4**	**314.3**	**244.3**
3. Mean DC Pension Wealth (All households in group)	**11.2**	**23.7**	**130.9**	**154.9**	**158.5**	**145.3**	**185.4**	**1554.7**
D. Ages 65 and over								
1. Percent with a DC Account	**2.0**	**1.3**	**35.0**	**40.8**	**41.1**	**39.4**	**45.8**	
2. Mean DC Pension Wealth (Pension holders only)	**116.1**	**201.4**	**207.5**	**239.9**	**282.6**	**385.7**	**349.0**	**200.7**
3. Mean DC Pension Wealth (All households in group)	**2.4**	**2.6**	**72.6**	**97.9**	**116.2**	**151.9**	**159.9**	**6637.2**

Note: author's computations from the 1983, 1989, 2001, 2007, 2010, 2013, and 2016 SCF.
Defined contribution (DC) pensions include Individual Retirement Accounts (IRAs), Keogh Plans, 401(k) plans, and other employer-provided DC plans.
Households are classified into age groups by the age of the head of household.

Appendix Table 1. Average Annual Nominal Rates of Return By Asset Type and Period, 1983-2016

Average nominal rates of return by period (percentage)

Description	1983-2013	1983-1989	1989-2001	2001-2007	2007-2010	2010-2013	2013-2016
Residential Real Estate	3.51	4.02	4.49	5.84	-7.22	4.59	6.84
Business + Non-Home Real Estate	4.53	3.94	4.10	9.75	-5.83	7.38	6.13
Liquid Assets	3.98	6.70	4.69	3.11	1.28	0.12	0.12
Financial Assets (including stocks)	9.21	13.32	13.01	2.34	-3.72	12.45	8.58
Pension Accounts	7.56	11.63	9.60	3.00	-0.34	8.26	6.54
Mortgage Debt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-mortgage Debt	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflation (CPI-U average)	2.88	3.72	3.02	2.66	1.71	2.23	1.00

Notes: Real Rate of Return = (1 + nominal rate) / (1 + ΔCPI) - 1

Owner-Occupied Housing: The source for years 1989 to 2007 is Table 935 of the *2009 Statistical Abstract,* US Bureau of the Census, available at [http://www.census.gov/compendia/statab/].For years after 2007, the source is: National Association of Realtors, "Median Sales Price of Existing Single-Family Homes for Metropolitan Areas," available at: http://www.realtor.org/. The figures are based on median prices of existing houses for metropolitan areas only.

Business and Non-Home Real Estate: Holding gains (taken from the Financial Accounts of the United States (FFA),Table R.100) divided by equity in noncorporate business (taken from the FFA, Table B.100), available at: http://www.federalreserve.gov/releases/Z1/20140605.

Liquid assets: The weighted average of the rates of return on checking deposits and cash, time and saving deposits, and life insurance reserves. The weights are the proportion of these assets in their combined total (calculated from the FFA, Table B.100). The assumptions regarding the rates of return are: zero for checking deposits, the rate of return on a 1-month CD (taken from the table "H.15 Selected Interest Rates" published by the Federal Reserve and available at: http://www.federalreserve.gov/releases/h15/data.htm) for time and saving deposits, and, one plus the inflation rate for life insurance reserves.

Financial assets: The weighted average of the rates of return on open market paper, Treasury securities, municipal securities, corporate and foreign bonds, corporate equities, and mutual fund shares. The weights are the proportion of these assets in total financial assets held by the household sector (calculated from the FFA, Table B.100). The assumption regarding the rate of return on open market paper is that it equals the rate of return on 1-month Finance paper (taken from the table H.15 "Selected Interest Rates" published by the Federal Reserve and

available at: http://www.federalreserve.gov/releases/h15/data.htm). The data for the rates of return on other assets are taken from the *Economic Report of the President 2017,* Table B-25, available at https://www.govinfo.gov/content/pkg/ERP-2017/pdf/ERP-2017-table25.pdf

The assumptions regarding Treasury securities, municipal securities, corporate and foreign bonds, and corporate equities are, respectively, average of Treasury security yields, high-grade municipal bond yield, average of corporate bond yields, and annual percent change in the S&P 500 index.

Mutual fund shares are assumed to earn a rate of return equal to the weighted average of the rates of return on open market paper, Treasury securities, municipal securities, corporate and foreign bonds, and corporate equities. The weights are the proportions of these assets in the total financial assets of mutual funds (calculated from the FFA, Table L.123).

<u>Stock prices</u>: Table B-96 of the *Economic Report of the President, 2013,* available at available at http://www.gpoaccess.gov/eop/tables13.html, with updates to 2016 from: http://www.fedprimerate.com/s-and-p-500-history.htm

<u>Pension (DC) Accounts</u>: Weighted average of returns on stocks, bonds, and money market funds, where the weights are based on the average portfolio composition of DC accounts over the period (for the 1983-89 period period, the weights are based on 1989 data only).

CPI-U: from the *Economic Report of the President 2017,* Table B-10, available at: https://www.govinfo.gov/content/pkg/ERP-2017/pdf/ERP-2017-table10.pdf

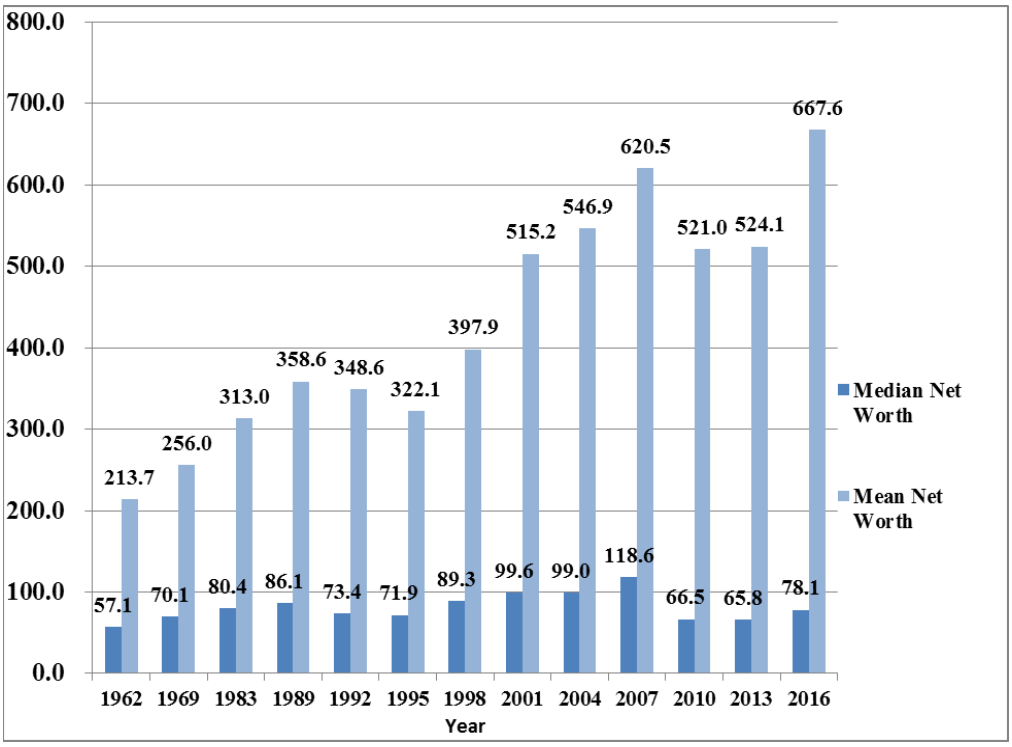

Figure 1. Mean and Median Net Worth, 1962-2016 (in thousands, 2016 dollars)

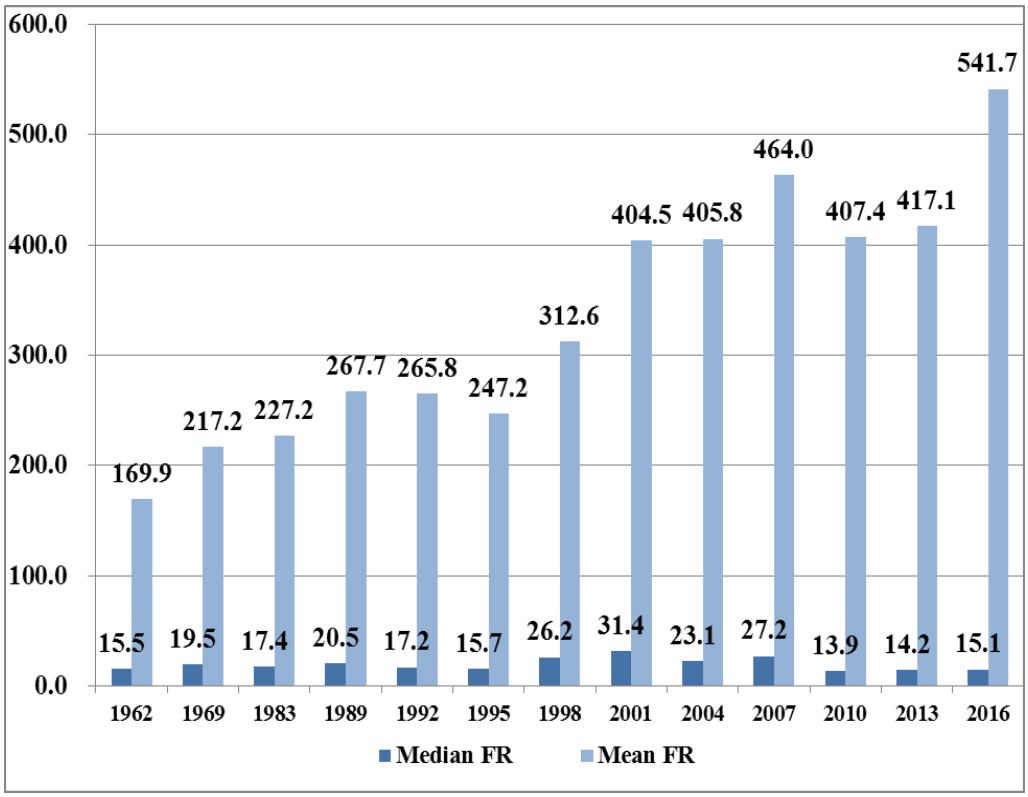

Figure 2. Mean and Median Financial Resources (FR), 1962-2016 (in thousands, 2016 dollars)

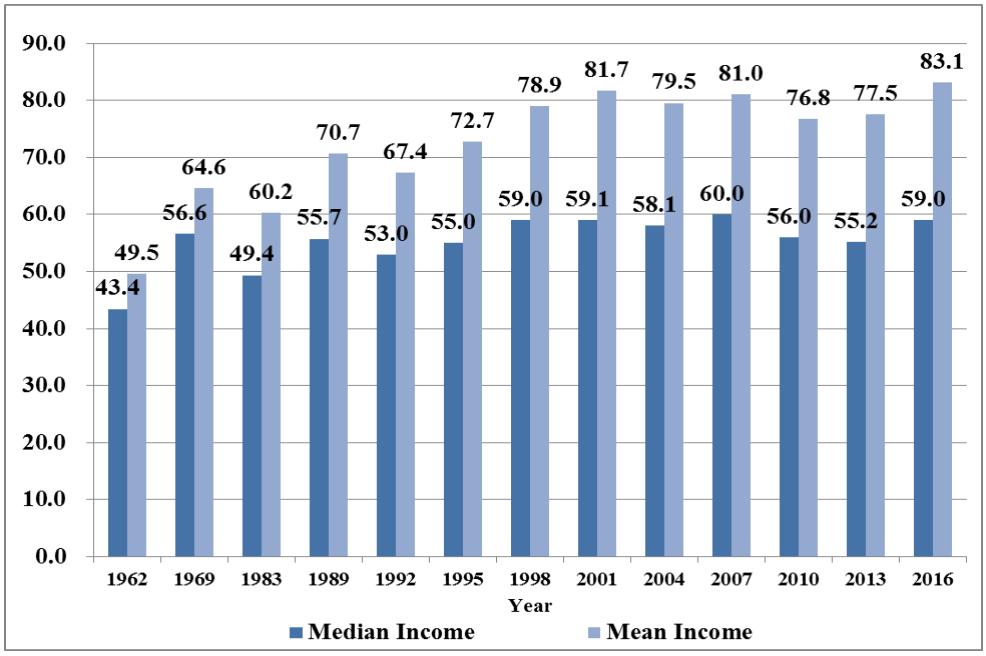

Figure 3. Mean and Median Household Income, 1962-2016 (in thousands, 2016 dollars)

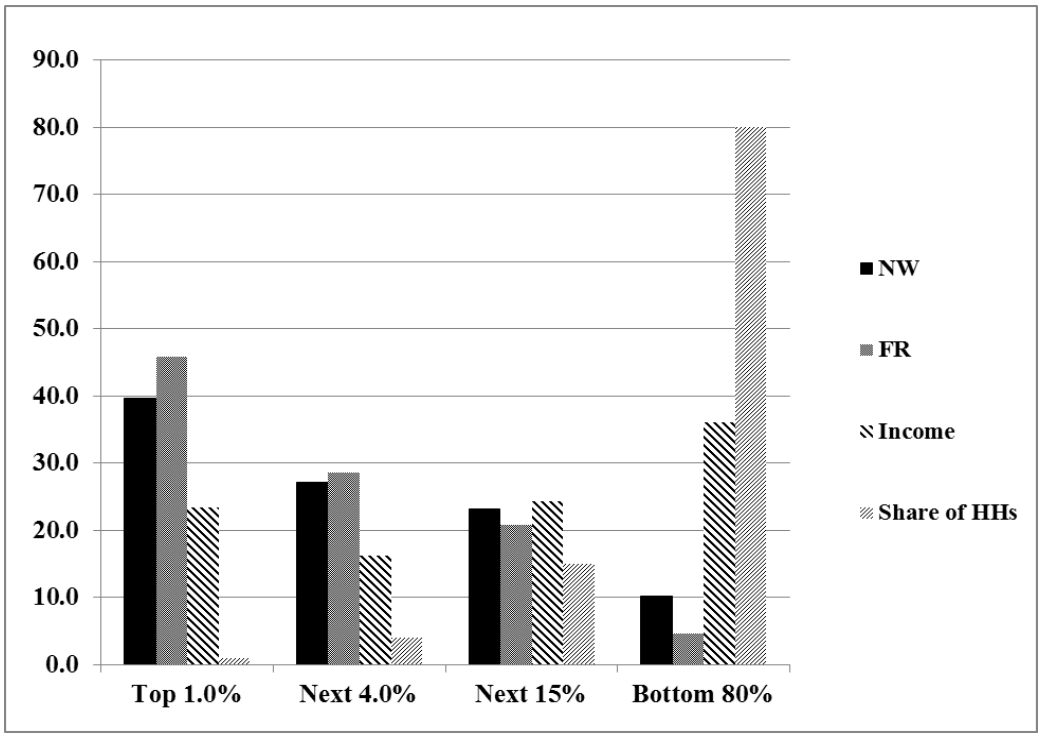

Figure 4 The Size Distribution of Net Worth (NW), Financial Resources (FR), and Income, 2016 (Percentage Shares)

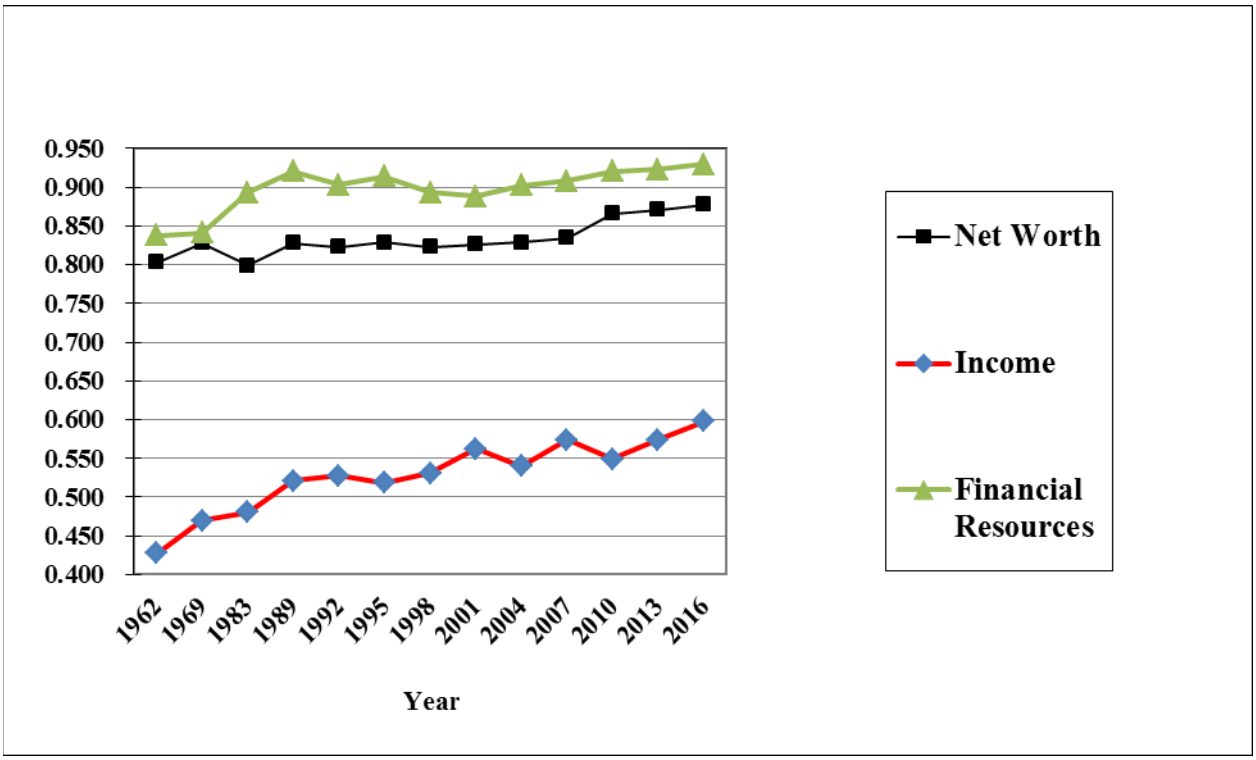

Figure 5 Wealth and Income Inequality, 1962-2016 (Gini coefficients)

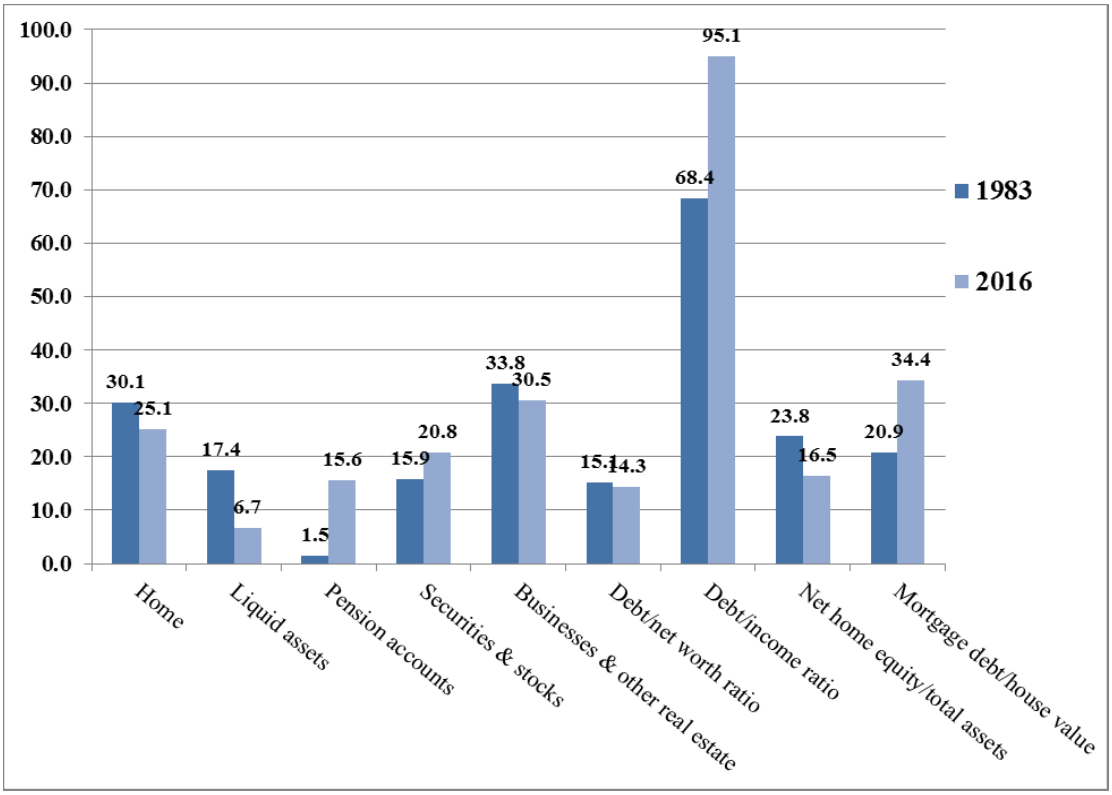

Figure 6 Composition of Household Wealth, 1983 and 2016 (percent of gross assets)

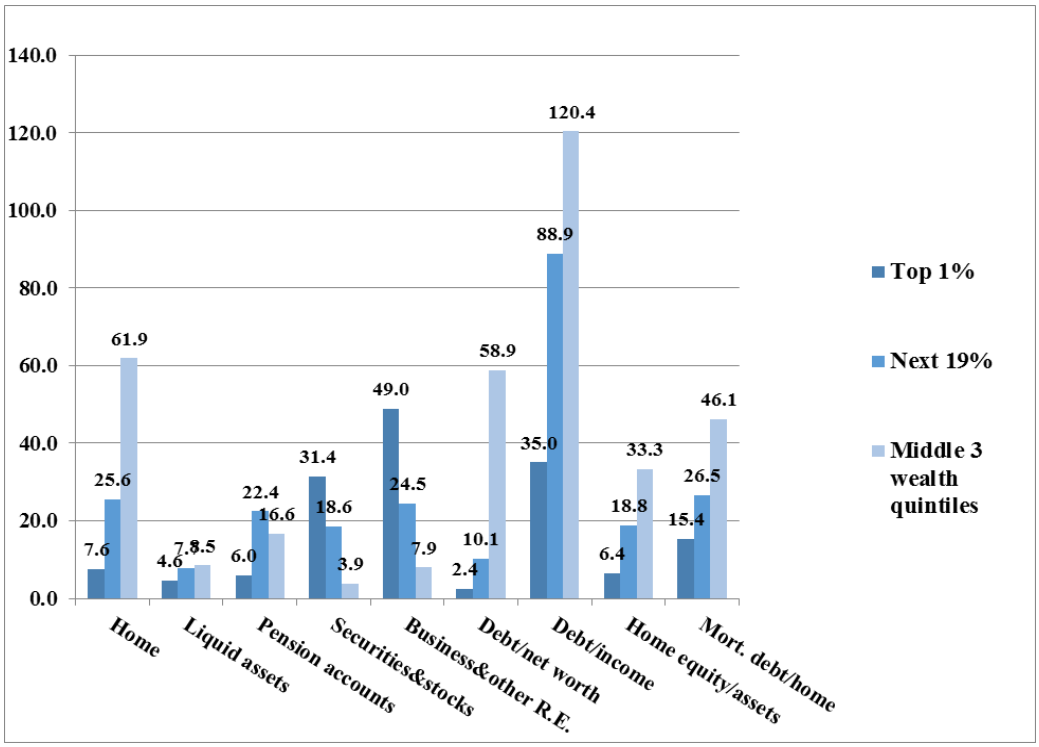

Figure 7. Composition of Household Wealth by Wealth Class, 2016 (percent of gross assets)

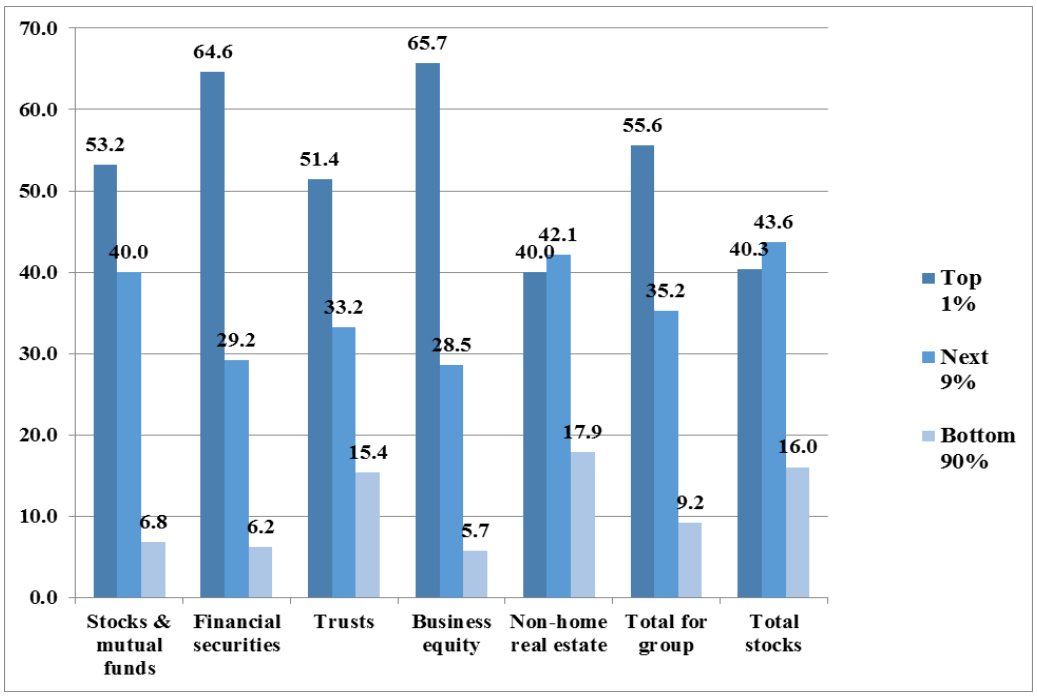

Figure 8. Percent of Total Investment Type Assets Held by Wealth Class, 2016

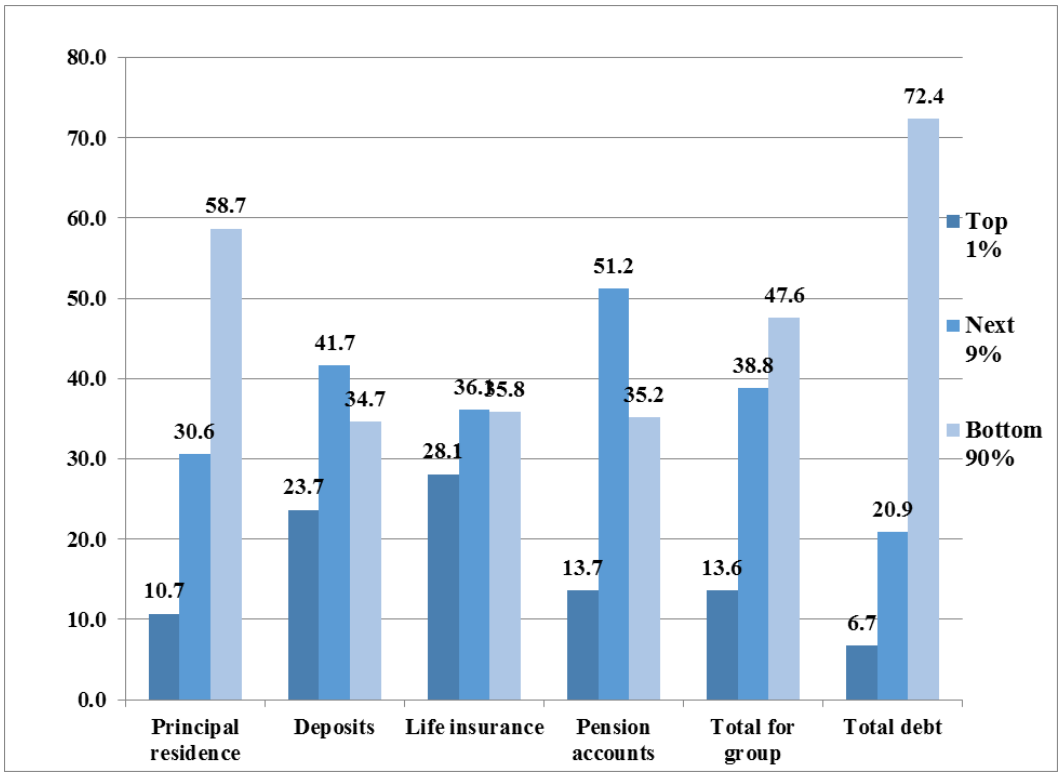

Figure 9. Percent of Non-Investment Assets and Debt Held by Wealth Class, 2016

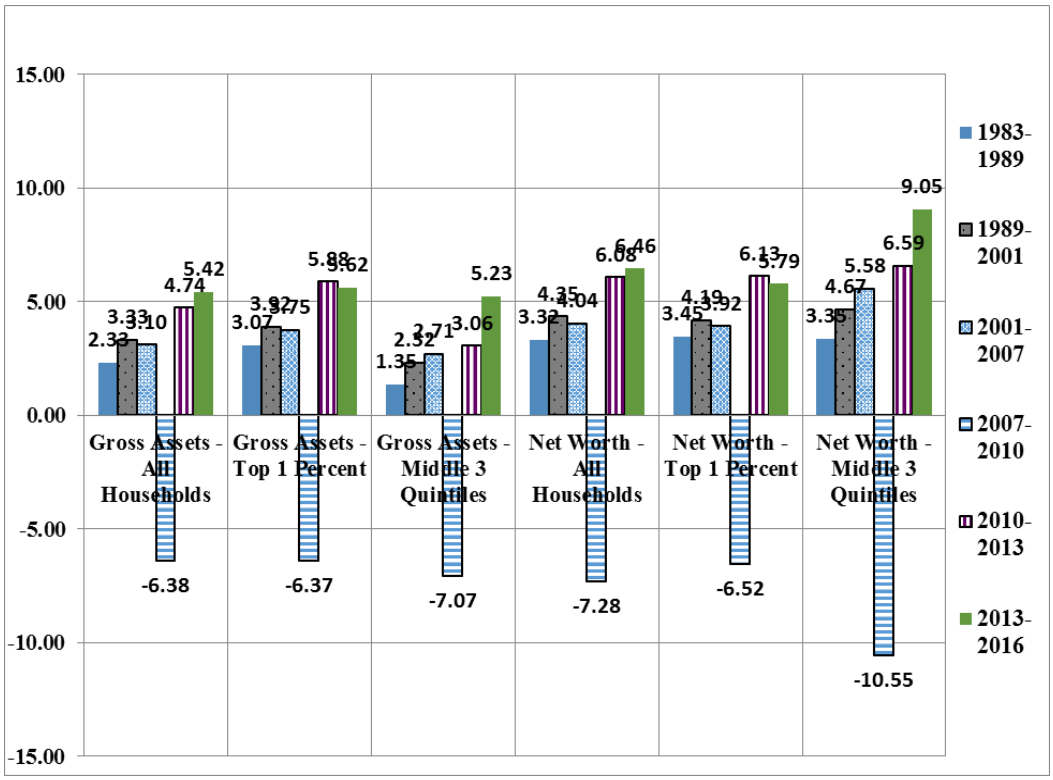

Figure 10 Average Annual Real Rates of Return by Period and Wealth Class (percent)

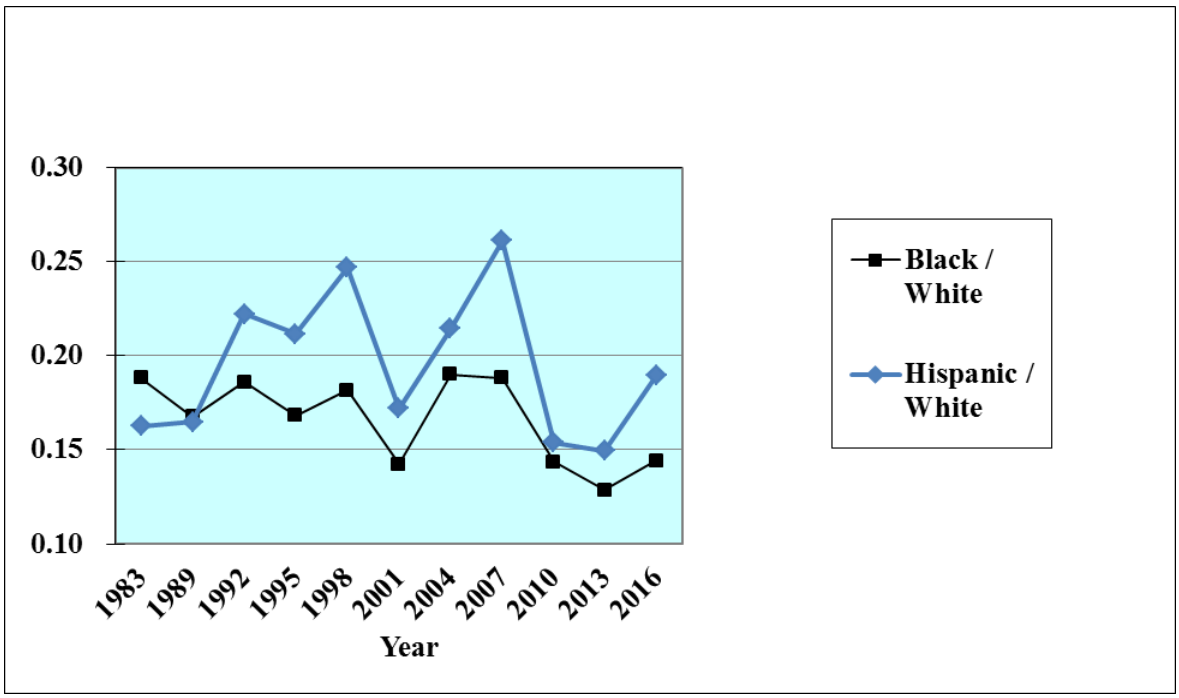

Figure 11. Ratio of Mean Net Worth between Racial and Ethnic Groups, 1983-2016

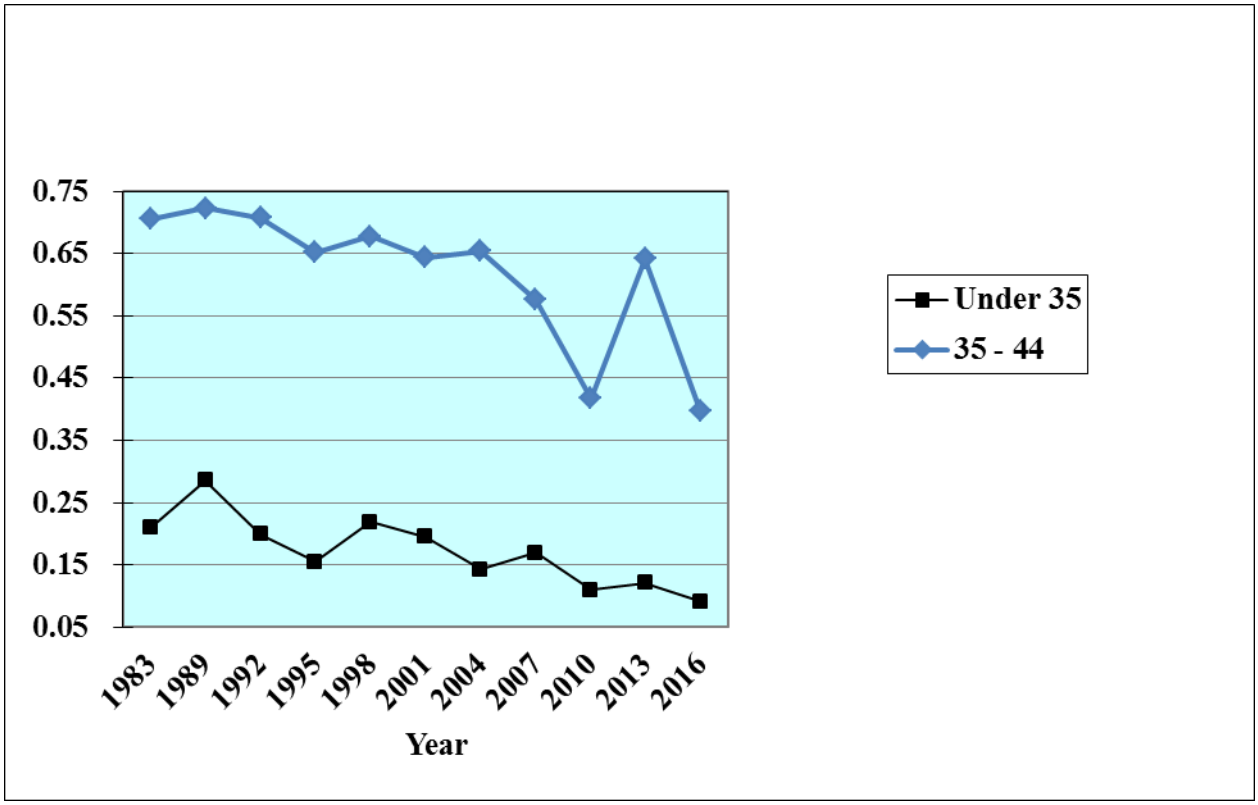

Figure 12. Ratio of Mean Net Worth of Young Age groups to Overall Mean Net Worth, 1983-2016

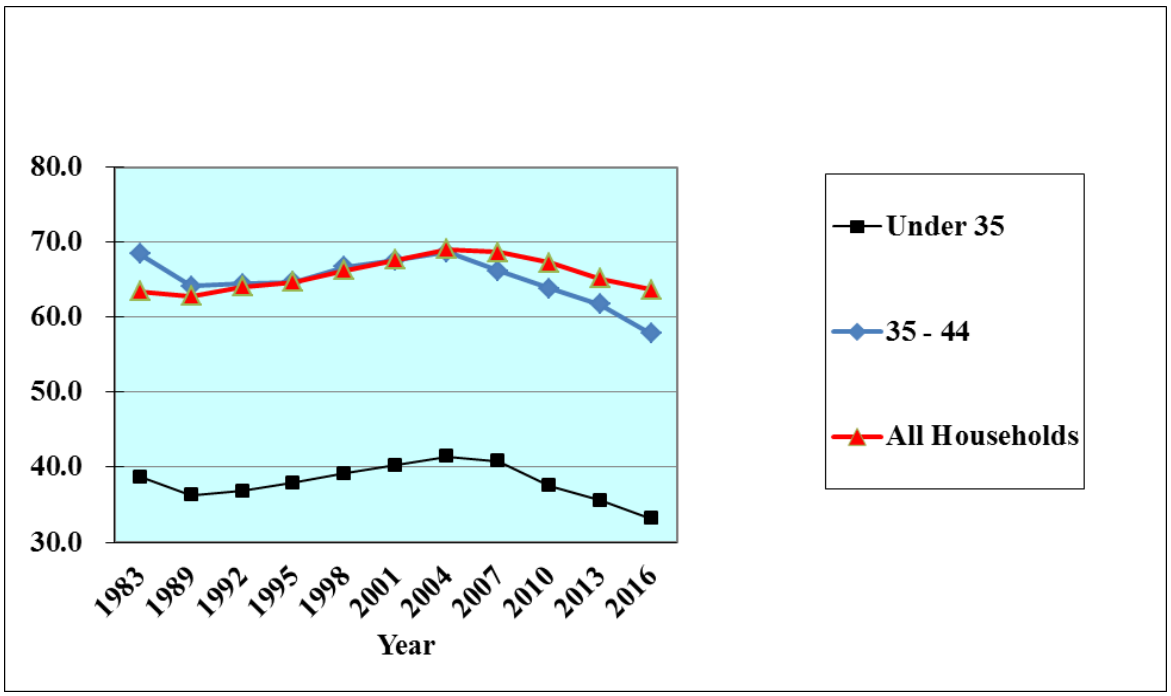

Figure 13. Homeownership Rate for Young Age Groups and All Households, 1983-2016 (percentage)

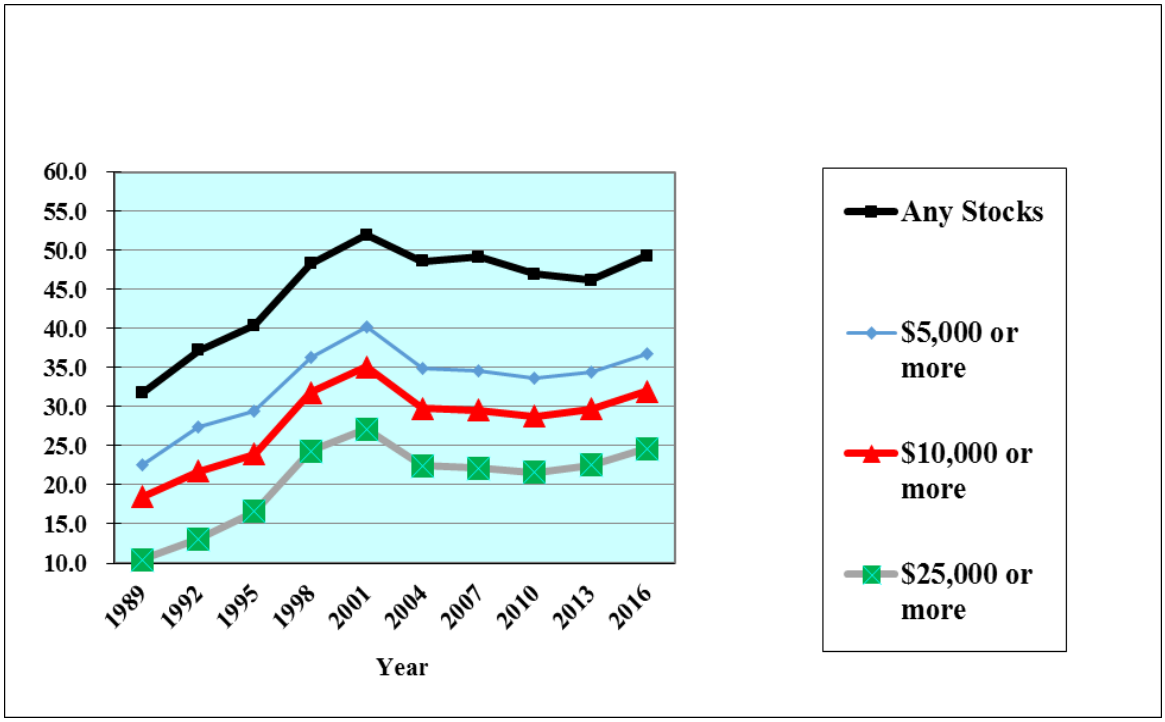

Figure 14. Percentage of Households Owning Stock, 1989-2016

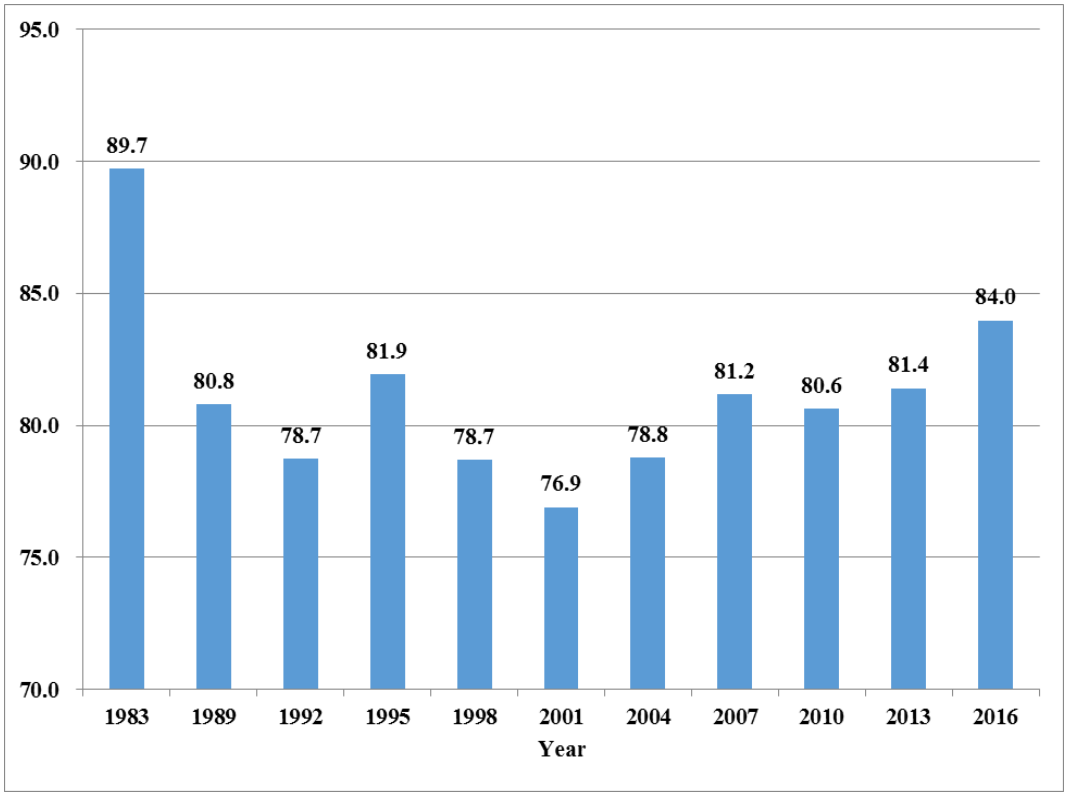

Figure 15. Percentage of Total Stocks Owned by the Top 10 Percent of Households, 1983-2016