An Analysis of the Distribution of Wealth Across Households, 1989-2010

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Summary

The distribution of wealth (net worth) across households has been an underlying consideration in congressional deliberations on various issues, including taxation and social welfare. This report analyzes the change over time in the concentration of net worth (assets minus liabilities) to help inform those policy deliberations.

According to data from the Federal Reserve's latest Survey of Consumer Finances (SCF), mean household net worth was $498,800 and median household net worth was $77,300 in 2010.The median is the value at which one-half of wealth-owners have lower values and one-half have higher values of wealth. It is a better indication of the wealth of the "typical" household than is the mean which, because of the way in which it is calculated, is greatly affected by the small number of households with high values of wealth. A mean over six times a median suggests substantial concentration of wealth among households at the upper end of the wealth distribution.

The change over time in the relationship between the mean and median provides an indication of how the distribution of wealth has changed across households. Both mean and median net worth increased from 1989 to 2007, with the mean typically increasing to a greater extent than the median. This suggests that in recent decades wealth became more concentrated among households at the upper end of the distribution. Both measures fell between 2007 (the outset of the December 2007-June 2009 recession) and 2010 (the first full year of recovery). The relatively greater decline in the median than in the mean between 2007 and 2010 suggests that the recession and slow recovery more adversely affected the households in the bottom half of the wealth distribution than those further up the distribution.

According to a June 2012 article in the *Federal Reserve Bulletin*, which presents data from the 2010 SCF, "a broad collapse in house prices" was the main reason for the overall decrease in median household wealth between 2007 and 2010. A decline in the value of financial assets (e.g., stocks) played a considerable but lesser role. Unlike house prices, the prices of stocks (which are less widely owned than principal residences) have broadly recovered from their lows.

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Introduction

Policymakers are concerned about the wealth of U.S. households because of the relationship between wealth and economic well-being:

> Wealth serves critical economic security functions. It is a store of future income, in the case of retirement, unemployment, illness or injury and thus allows families to smooth consumption over their lifetimes, even when incomes and expenses change. Families with *sufficient* wealth also need not worry about the basic necessities of life and may focus on longer term economic opportunity.[1] [Emphasis added.]

But how much wealth is *sufficient* for a family's economic security? How might changes to tax and transfer policies[2] that enable more families to become economically secure over their lifetimes affect work, saving, and investment behavior? In other words, will making policy decisions that alter the distribution of wealth across households affect the capacity of the economy to grow?[3]

Different views about the impact of redistributive policies on long-term economic growth underlie congressional deliberations on such issues as taxation and social welfare.[4] To help inform these policy debates, this report analyzes data from the 1989 to 2010 Survey of Consumer Finances (SCF) on the trend in the distribution of wealth across households. The roles of stock and home ownership in wealth accumulation are subsequently examined. The report closes with a review of explanations for the accumulation and distribution of wealth across households.

The Distribution of Household Wealth

Data Limitations

Data regarding the distribution of wealth are very limited. There are some data available from estate tax returns,[5] but these reflect only the small proportion of the population that is subject to the tax.[6] The U.S. Census Bureau periodically reports on net worth and asset ownership, but the

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[1] Christian E. Weller and Amy Helburn, *Public Policy Options to Build Wealth for America's Middle Class*, Political Economy Research Institute, Working Paper no. 210, November 2009, p. 1.

[2] These policies include, but are not limited to, tax incentives to save for retirement as well as retirement, disability, and health benefits under Social Security.

[3] Trend or potential economic growth is dependent on the rate of labor force and productivity growth. Labor productivity is dependent on the state of technology and the size of the capital stock which is, in turn, dependent on the rate of investment. For more information, see CRS Report RS21480, *Saving Rates in the United States: Calculation and Comparison*, by Craig K. Elwell.

[4] Michael I. Norton and Dan Ariely, "Building a Better America—One Wealth Quintile at a Time," *Perspectives on Psychological Science*, vol. 6, no. 1 (2011).

[5] See, for example, Wojciech Kopczuk and Emmanuel Saez, "Top Wealth Shares in the United States: 1916-2000, Evidence from Estate Tax Returns," *National Tax Journal*, vol. 57, no. 2 (2004), pp. 445-488.

[6] The estate tax exemption was $3.5 million in 2009, and 0.7% of all deaths incurred estate and gift tax liability, according to CRS Report RS20593, *Asset Distribution of Taxable Estates: An Analysis*, by Steven Maguire.

data are drawn from the Survey of Income and Program Participation, which over samples lower income households. As a result, the Census Bureau data on wealth underestimate average (mean) and total household wealth.[7]

The most comprehensive source of data on the wealth distribution is the SCF. As result of over sampling wealthy households, the SCF is better able than other surveys to gather more complete and detailed information on high-income and high-net worth households.[8] The Federal Reserve Board (Fed), in cooperation with the Treasury Department, sponsors the SCF. The survey, which is conducted every three years, collects detailed statistics not only on the level, but also the composition of household assets, liabilities, and before-tax income.[9]

The SCF has been criticized for not taking into account taxes paid and welfare assistance received by households or the value of households' future Social Security and private pension benefits.[10] Others also have argued that some items the SCF counts toward net worth (e.g., vehicles) should be excluded. At least one researcher has constructed estimates of net worth that include pension and Social Security benefits and exclude vehicles.[11]

Median and Mean Household Net Worth

Two summary measures commonly used to describe a distribution of values, such as a distribution of earnings, income, or wealth, are the median and mean. In the instant case, if all wealth-owning households are ranked from poorest to richest, median net worth is that of the household in the middle of the distribution. Put another way, it is the value at which one-half of households in the distribution have less wealth and one-half have more wealth. The median is a better indication of the wealth of the "typical" household than the mean because of the way in which a mean is calculated. To derive mean net worth, for example, the value of all wealth owned by households is added up and then divided by the total number of wealth owners. If a minority of high-wealth households own more than one-half of all wealth, the mean will be greater than the median. Thus, the relationship between the median and mean provides an indication of the general shape of a distribution.

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[7] For additional information on this point, see Alfred O. Gottschalck, "Net Worth and the Assets of Households: 2002," Current Population Reports P70-115, U.S. Census Bureau, April 2008. Wealth data over time from the Census Bureau series are available at http://www.census.gov/hhes/www/wealth/wealth.html.

[8] Javier Diaz-Gimenez, Jose-Victor Rios-Rull, and Andy Glover, "Facts on the Distribution of Earnings, Income, and Wealth in the United States: 2007 Update," *Federal Reserve Bank of Minneapolis Quarterly Review*, vol. 34, no. 1 (February 2011).

[9] The SCF counts both financial and nonfinancial (real) assets. Financial assets include the value of checking and savings accounts; stocks, bonds, and mutual funds; annuities and life insurance; and tax-deferred retirement accounts (e.g., individual retirement accounts and 401(k) accounts). Real assets include the value of principal residences, corporate and non-corporate businesses, vehicles (e.g., cars, trucks, boats, and airplanes), and miscellaneous valuables (e.g., antiques, jewelry, and coins). Liabilities include home mortgages and consumer debt (e.g., credit card balances and auto and student loans).

[10] See, for example, Scott Winship, *Middle Class Wealth: It's Not as Bad as It Looks*, July 5, 2012, http://www.brookings.edu/research/opinions/2012/07/05-middle-class-winship; and Diana Furchtgott-Roth, senior fellow and director of the Hudson Institute's Center for Employment Policy, *The Wealth Inequality Mirage*, October 7, 2010, http://www.hudson.org/index.cfm?fuseaction=publication_details&id=7388#.

[11] Edward Wolff, "The Retirement Wealth of the Baby Boom Generation," *Journal of Monetary Economics*, vol. 54, no. 1 (January 2007), pp. 1-40.

As shown in **Table 1**, mean household wealth in each year was substantially greater than median net worth.[12] The mean ranged from almost four to more than six times the median during the 1989-2010 period. As explained immediately above, such a relationship indicates considerable concentration of wealth among households in the upper tail of the distribution.

Table 1. Median and Mean Household Net Worth, 1989-2010

(2010 dollars)

Year	Median	Mean	Mean-to-Median Ratio
1989	$79,100	$313,600	4.0
1992	75,100	282,900	3.8
1995	81,900	300,400	3.7
1998	95,600	377,300	3.9
2001	106,100	487,000	4.6
2004	107,200	517,100	4.8
2007	126,400	584,600	4.6
2010	77,300	498,800	6.5

Source: Federal Reserve Board, 2010 SCF Chartbook, http://federalreserve.gov/econresdata/scf/files/2010_SCF_Chartbook.pdf.

Mean household wealth typically increased to a greater extent than median household wealth through 2007,[13] which suggests that the wealth distribution became more concentrated at the upper end of the distribution over time. Most recently, both measures decreased. (See **Table 1**.) The relatively greater decline for the median (38.8%) than the mean (14.7%) between 2007 and 2010 suggests that the 2007-2009 recession and slow recovery more adversely affected those in the lower half of the wealth distribution than those higher up in the distribution. (More information on the impact of the Great Recession on household net worth is provided later in this report.)

The decrease in median net worth to $77,300 in 2010 dropped median net worth almost to its level 18 years earlier ($75,100 in 1992). The decrease in mean net worth to $498,800 in 2010 dropped mean net worth almost to its level 9 years earlier ($487,000 in 2001).

Share of Total Net Worth by Percentile of Wealth Owners

A more detailed picture of the distribution of wealth emerges from examining the share of total net worth held by various percentiles of the wealth distribution. As shown in **Table 2**, the top 1% of households accounted for a little more than one-third of total net worth in 2010. The next 9% of households (the 90th to 99th percentile) held two-fifths of all wealth. Taken together then, the top 10% of wealth-owning households accounted for a disproportionate share (74.5%) of total

[12] Data from the SCF are consistent from 1989 forward. SCF data are available at http://federalreserve.gov/econresdata/scf/scfindex.htm.

[13] Arthur B. Kennickell, *Ponds and Streams: Wealth and Income in the U.S., 1989 to 2007*, FEDS Working Paper 2009-13, Federal Reserve Board, Washington, DC, January 2009.

wealth. Inequality is the term commonly applied to the concentration of total net worth among the relatively few households at the top of the wealth distribution.

Net worth has become more concentrated in recent decades. (See **Table 2**.) The share of wealth held by the top 10% of wealth owners grew from 67.2% in 1989 to 74.5% in 2010. Declines occurred in the remaining 90% of households. The share of total net worth owned by households in the 50th to 90th percentile of the wealth distribution fell from 29.9% in 1989 to 24.3% in 2010, and the share of households in the bottom half fell from 3.0% to 1.1%.

Table 2. Share of Total Net Worth by Percentile of Wealth Owners, 1989-2010

Percentile of Net Worth Distribution	Year							
	1989	1992	1995	1998	2001	2004	2007	2010
0% -50%	3.0%	3.3%	3.6%	3.0%	2.8%	2.5%	2.5%	1.1
50%-90%	29.9	29.6	28.6	28.4	27.4	27.9	26.0	24.3
90%-99%	37.1	36.9	33.2	34.7	37.1	36.1	37.7	40.0
99% to 100%	30.1	30.2	34.6	33.9	32.7	33.4	33.8	34.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Arthur B. Kennickell, Ponds and Streams: Wealth and Income in the U.S., 1989 to 2007, FEDS Working Paper 2009-13, Federal Reserve Board, Washington, DC, January 2009; and unpublished 2010 SCF data.

The Effect of Changes in Asset Prices

In addition to accumulating wealth through saving of current income, those who own assets may see their wealth grow or shrink due to rising or falling asset prices. The distribution of such assets as stocks and homes has implications for who benefits from asset appreciation and who is harmed by asset depreciation.

Stock and Housing Price Appreciation, 1989-2007

The appreciation of stock values during the 1990s and of home values into the first decade of this century appears to have substituted for saving from current income as a means of increasing household wealth. A number of studies estimated a close connection between the decline in the household saving rate during the 1990s and the rapid rise in equity prices.[14] Empirical analyses similarly estimated that appreciation in housing prices through the mid-2000s drove up the value of residential assets, which substituted for saving out of current income as a way to accumulate wealth.[15]

[14] See, for example, Annamaria Lusardi, Jonathan Skinner, and Steven Venti, *Saving Puzzles and Saving Policies in the United States*, National Bureau of Economic Research, Working Paper 8237, April 2001; and Dean M. Maki and Michael G. Palumbo, *Disentangling the Wealth Effect: A Cohort Analysis of Household Saving in the 1990s*, Board of Governors of the Federal Reserve, Finance and Economics Discussion Series 2001-12, April 2001.

[15] See, for example, Eric Belsky and Joel Prakken, "Housing's Impact on Wealth Accumulation, Wealth Distribution and Consumer Spending," National Association of Realtors National Center for Real Estate Research, 2004, available (continued...)

The median value of stock owned by households tripled in real terms between 1989 and 2001.[16] Once equity prices stopped steadily increasing after 2000, the rapid rise in housing prices through 2006 appears to have kept the saving rate low.[17] Whereas the real median value of stock fell by 16% between 2001 and 2007, the median value of primary residences rose by 39% over the same period.[18]

Although the share of households owning their primary residences grew much less (5 percentage points to 69%) than the share of households directly owning stock (19 percentage points to 51%) between 1989 and 2007, residential assets are much more widely distributed than stock.[19] In 2007, the wealthiest 10% of households held 38.5% of the gross equity in principal residences compared with 90.4% of the value of stock.[20] Households in the next 40% of the distribution (the 50th to 90th percentile) held 48.9% of the gross equity in principal residences compared with 9.0% of the value of stock. Thus, if appreciation in house prices substituted for saving out of current income, it did so for a much larger proportion of the population than did stock price appreciation. Specifically, households in the upper half of the wealth distribution stood to benefit more than others from rising house prices while the top 10% of wealth-owning households stood to benefit the most from rising stock prices.

Stock and Housing Price Depreciation, 2007-2010

The 2007 SCF was completed as the economy entered a financial crisis. Because results from the 2010 SCF were not going to be available until 2012, respondents to the 2007 survey were reinterviewed shortly after the end of the December 2007-June 2009 recession to assess its impact on the wealth of U.S. households.

According to results from the reinterview of 2007 SCF households, which was released in March 2011, most households (63%) experienced a loss in net worth between 2007 and 2009. The median percentage decrease in wealth among these households was 45%.[21]

The broad-based downward shift of the wealth distribution between 2007 and 2009 was reflected by reductions in median and mean summary measures. The drop in median net worth (23%) was greater than the drop in mean net worth (19%), which suggests that households in the lower half

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at http://www.realtor.org/research/ncrer/rewealtheffect; John D. Benjamin, Peter Chinloy, and G. Donald Jud, "Real Estate Versus Financial Wealth in Consumption," *Journal of Real Estate Finance and Economics*, vol. 29, no. 3, 2004; and John N. Muellbauer, "Housing, Credit and Consumer Expenditure," paper prepared for the Federal Reserve Bank of Kansas City's Jackson Hole Symposium, August 2007, available at http://www.kansascityfed.org/publicat/sympos/2007/PDF/2007.08.15.Muellbauer.pdf.

[16] Federal Reserve Board, *2010 SCF Chartbook*, available at http://federalreserve.gov/econresdata/scf/files/2010_SCF_Chartbook.pdf.

[17] CRS Report RS21480, *Saving Rates in the United States: Calculation and Comparison*, by Craig K. Elwell.

[18] Federal Reserve Board, *2010 SCF Chartbook*.

[19] Ibid.

[20] Arthur B. Kennickell, *Ponds and Streams: Wealth and Income in the U.S., 1989 to 2007*, FEDS Working Paper 2009-13, Federal Reserve Board, Washington, DC, January 2009.

[21] Jesse Bricker, Brian Bucks, and Arthur Kennickell et al., *Surveying the Aftermath of the Storm: Changes in Family Finances from 2007 to 2009*, Federal Reserve Board, Finance and Economics Discussion Series Working Paper 2011-17, March 2011.

of the wealth distribution were more adversely affected by the 2007-2009 recession than those further up the distribution.

Among financial assets, the median value of stocks fell most sharply (by 23%) during the recession. Among nonfinancial assets, vehicles (26%), business equity (24%), and equity in nonresidential property (23%) experienced percentage declines in median value comparable with that of stock. Although the median value of primary residences fell by a lesser extent (12%), primary residences' absolute value dropped by $18,700 (expressed in 2009 dollars), much more than that of any other financial or nonfinancial asset.

Decreases in the value of home equity and stock as well as business equity appear to have greatly contributed to the overall decline in net worth during the 2007-2009 recession. Primary residences as a proportion of total assets fell by 1.5 percentage points. Stock and business equity's share dropped by 4.7 percentage points. However, with homes being a much more widely held asset than stock and business equity, housing price depreciation appears to have had the larger role in changes in household wealth during the recession, according to data from the 2009 reinterview of 2007 SCF households.

Results from the 2010 SCF confirm the role played by house and stock price depreciation in reducing net worth since 2007. "Although declines in the values of financial assets or business were important factors for some families, the decreases in median net worth [between 2007 and 2010] appear to have been driven by a broad collapse in house prices."[22] Although stock prices have broadly recovered from their lows, continuing problems in the residential real estate market continue to suggest that it will be a drag on the wealth of homeowners for some time to come.

Explanations of the Accumulation and Distribution of Wealth

Researchers typically use the distribution of income as a starting point for understanding the accumulation and distribution of wealth. Higher income households are generally better positioned to set more aside, and thus accumulate greater wealth, than those at the lower end of the income distribution.[23] As shown in **Table 3**, four of every five households in the top 10% of the income distribution saved in 2010 compared with one of every three households in the bottom 20% of the income distribution.[24]

Despite income and wealth generally increasing in tandem, wealth is more concentrated than income. The ratio of the mean to median is an indicator of the degree of concentration in a distribution because, as previously mentioned, the mean is greatly affected by a few high-value observations. In this case, the ratio of mean-to-median income was 1.7 times more than median

[22] Ibid., p. 1.

[23] Income in the SCF includes wages and salaries; self-employment and farm income; returns from real estate, partnerships and subchapter S corporations, trusts and estates; interest and dividends; realized capital gains and losses; pension, Social Security, annuity and disability payments; payments from unemployment insurance or workers' compensation; and alimony and child support.

[24] The percentage of all households in the 2010 SCF that saved in the previous year was 52.0%. It is the lowest savings rate reported by respondents to the SCF since the question was first asked in the 1992 survey.

income and mean net worth was 6.5 times more than median net worth—almost four times the income ratio. The larger mean-to-median ratio indicates that wealth is more concentrated than income among households at the upper end of the respective distributions.

Table 3.Household Income and Net Worth by Income Class

(2010 dollars)

Percentile of Income	Income ($ in thousands)		Net worth ($ in thousands)		Percentage of Households Who Saved
	Median	Mean	Median	Mean	
All families	45.8	78.5	77.38	498.8	52.0
less than 20%	13.4	12.9	6.2	116.8	32.3
20% to 40%	28.1	27.9	25.6	127.9	43.4
40% to 60%	45.8	46.3	65.9	199.0	49.8
60% to 80%	71.7	73.6	128.6	293.9	60.1
80% to 90%	112.8	114.6	286.6	567.2	67.7
90% to 100%	205.3	349.0	1,194.3	2944.1	80.9

Source: Jesse Bricker, Arthur B. Kennickell, Kevin B. Moore, and John Sabelhaus, "Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances," *Federal Reserve Bulletin*, vol. 98, no. 2, June 2012.

Note: Income data are for 2009, the year before the 2010 SCF was conducted survey. Asset and liability data are for 2010, as of the time interviews were conducted.

Analysts have sought explanations for the greater concentration of wealth than income across households. A common explanation is that as individuals' incomes rise during their working lives they save (accumulate wealth) for their retirement years. Upon retirement, income falls and so does saving as retirees draw down wealth to maintain living standards in their remaining years. Empirical studies have estimated that saving for retirement cannot completely explain people's saving behavior and the higher concentration of wealth than income, however.[25]

Researchers added to their statistical model of savings behavior a variable for unpredictable events (e.g., job loss and divorce) that, like retirement, could reduce an individual's standard of living. They estimated that saving for so-called precautionary reasons contributes to but does not fully explain a distribution of wealth that is more concentrated than the distribution of income.[26]

As a result, analysts have sought other explanatory variables. Entrepreneurship is one such factor.[27] Although business owners (the self-employed or entrepreneurs) are a small proportion of the population, the group comprises a much larger share of the wealthiest households—more than

[25] Marco Cagetti and Mariacristina De Nardi, "Wealth Inequality: Data and Models," *Macroeconomic Dynamics*, vol. 12, suppl. 2 (2008), pp. 285-313.

[26] Luis Cubeddu and Jose-Victor Rios-Rull, "Families as Shocks," *Journal of the European Economic Association*, vol. 1, no. 2-3 (April-May 2003), pp. 671-682; and Vincenzo Quadrini and Jose Victor Ríos-Rull, "Understanding the U.S. Distribution of Wealth," *Federal Reserve Bank of Minneapolis Quarterly Review*, spring 1997, pp. 22-36.

[27] Vincenzo Quadrini, "Entrepreneurship, Saving and Social Mobility," *Review of Economic Dynamics*, vol. 3, no. 1 (2000), pp. 1-40.

one-half of the top 1% of the wealth distribution.[28] Researchers estimated this to be the case *less* because entrepreneurs are more motivated than others to save for precautionary reasons,[29] and *more* because business owners encounter difficulty borrowing funds to start or expand firms.[30] In other words, those who want to start their own businesses have learned they typically need to fund it from their own savings.

Another contributory factor appears to be the desire of wealthier households to bequeath assets to their children. Analysts estimated that this desire prompts wealthy households to save at a high rate and helps to explain why households in the upper tail of the wealth distribution even in old age do not consume all their assets. Researchers further suggest that bequests take the form not only of financial capital (assets), but also of human capital (years of education).[31] Wealthy parents may be able to pass on greater earnings ability to their children because wealthier households are less affected by educational borrowing constraints than households further down the wealth distribution. In other words, wealthy parents can more easily finance their children's post-secondary education compared with parents who have amassed less savings.

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[28] Marco Cagetti and Mariacristina De Nardi, "Entrepreneurship, Frictions, and Wealth," *Journal of Political Economy*, vol. 114, no. 5 (October 2006), pp. 835-870.

[29] Erik Hurst, Annamaria Lusardi, Arthur Kennickell, and Francisco Torralba, "The Importance of Business Owners in Assessing the Size of Precautionary Savings," *The Review of Economics and Statistics*, vol. 92, no. 1 (February 2010), pp. 61-69.

[30] Robert W. Fairlie and Harry A. Krashinsky, *Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited*, Institute for the Study of Labor, IZA Discussion Paper No. 2201, Bonn, Germany, revised October 2011.

[31] Mariacristina DeNardi, "Wealth Inequality and Intergenerational Links," *The Review of Economic Studies*, vol. 71, no. 3 (July 2004), pp. 743-768.