The Diverse Impacts of the Great Recession*

BY MAKOTO NAKAJIMA

The Great Recession had a large negative impact on the U.S. economy. Asset prices, most notably stock and house prices, declined substantially, resulting in a loss in wealth for many American households. In this article, Makoto Nakajima documents how diverse households were affected in a variety of dimensions during the Great Recession, in particular between 2007 and 2009, using newly available data from the 2007-2009 Survey of Consumer Finances. He discusses why it is important to look at the data on households, rather than focusing on the aggregate data, and he reviews some recent studies that look at the recession's diverse effects on different types of households.

The Great Recession, which began in December 2007, had a large negative impact on the U.S. economy.[1] According to a recent study by Emmanuel Saez, average family income (excluding capital gains) dropped by 17 percent between 2007 and 2009. Average income recovered slightly in 2011, but it was still 16 percent lower than income in 2007. A significant part of the decline in income was caused by a rise in the unemployment rate. Figure 1 shows how the unemployment rate and average income changed during the Great Recession. The unemployment rate surged, from 4.7 percent in the fall of 2007 to 10 percent at its peak in October 2009.

Asset prices, most notably stock and house prices, declined substantially during the Great Recession. This decline in asset prices caused a loss in wealth for many American households. As for stock prices, Figure 2 shows that the S&P 500 dropped from 1,496 in the last quarter of 2007 to 808 in the first quarter of 2009, before recovering to around 1,400. The figure also shows how house prices declined. The average house price in 20 major metropolitan areas dropped by 34 percent from its peak in 2006 and has remained low since then.[2]

In this article, I will document how diverse households were affected in a variety of dimensions during the Great Recession, in particular between 2007 and 2009, using newly available data from the 2007-2009 Survey of Consumer Finances (SCF). The SCF provides detailed information on the finances of U.S. households, and the special panel data allow us to compare the same respondents between 2007 and 2009. While we might also like to compare the fate of households over the boom period before the Great Recession, the panel data from the SCF

[1] In this article, I do not explain why stock prices and house prices dropped significantly during the Great Recession. Some economists, including Andy Glover, Jonathan Heathcote, Dirk Krueger, and Jose-Victor Rios-Rull, argue that shocks to economic productivity or demand spilled over to the stock and housing markets. Nobuhiro Kiyotaki, Alexander Michaelides, and Kalin Nikolov analyze how such shocks to the economy become amplified and have a large impact on asset prices. Other hypotheses exist. For example, Roger Farmer argues that changes in the beliefs of the market caused the decline in housing and stock markets, which spilled over to the rest of the economy. Ulf von Lilienfeld-Toal and Dilip Mookherjee argue that the consumer bankruptcy law reform in 2005 triggered the decline in house prices.

[2] The Case-Shiller Composite-20 index is used. The Case-Shiller national house price index fell similarly.

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*The views expressed here are those of the author and do not necessarily represent the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

are not available before 2007.[3]

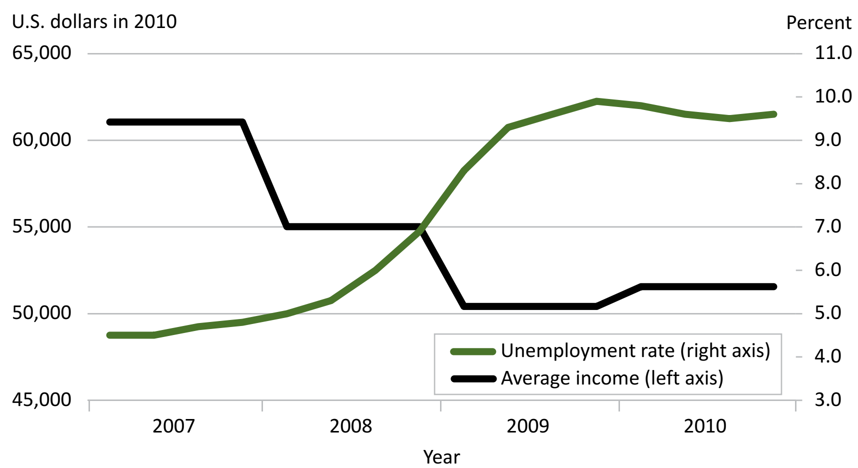
Why is it important to look at data on households instead of focusing on the aggregate data? Although the fall in average family income and the decline in asset prices were large, behind the headline numbers, the effects of the Great Recession varied greatly across households. One reason is that different households suffered different degrees of income loss. Moreover, different households were affected differently by the decline in asset prices because households differed in the amount and composition of wealth when the Great Recession started. For example, a household in Las Vegas (where the house price index has declined by 62 percent since 2006) that owned a house and invested most of its assets in stocks suffered a larger loss in wealth than another household that was renting in Dallas (where the house price index declined by 6 percent) and kept most of its assets in bank accounts. Differences in income and wealth at the time of the Great Recession are also tied, in part, to households having different earnings histories as well as different choices for saving and investment.

In response to the severe recession, economists have been trying to better understand the recession's diverse effects on different types of households, and I will review some recent studies. It is easy to understand that households that suffered a larger loss of income or portfolio values suffered greatly from the recession. However, Wenli Li and Rui Yao argue that when house prices decline, younger renters benefit because they could buy houses at cheaper prices. On the other hand, older homeowners, who tend to be sellers of houses, suffer from a decline in house prices. As Glover and coauthors note, such an effect was stronger during the Great Recession because the prices of houses and financial assets fell significantly. They investigate how the welfare of different types of households has been affected differently by the Great Recession. On the other hand, Sewon Hur argues that

[3] The regular Survey of Consumer Finances (SCF) has been conducted every three years starting in 1983 to provide detailed information on the finances of U.S. families. Data from the SCF are widely used in economic analyses. In the most recent survey, about 6,500 families were interviewed. Usually, the regular SCF does not follow the same households across different surveys. However, families who participated in the 2007 survey were reinterviewed in 2009 in order to capture how those households had been financially affected by the Great Recession. The paper by Jesse Bricker, Brian Bucks, Arthur Kennickell, Traci Mach, and Kevin Moore summarizes the results of the 2007-2009 SCF.

FIGURE 1

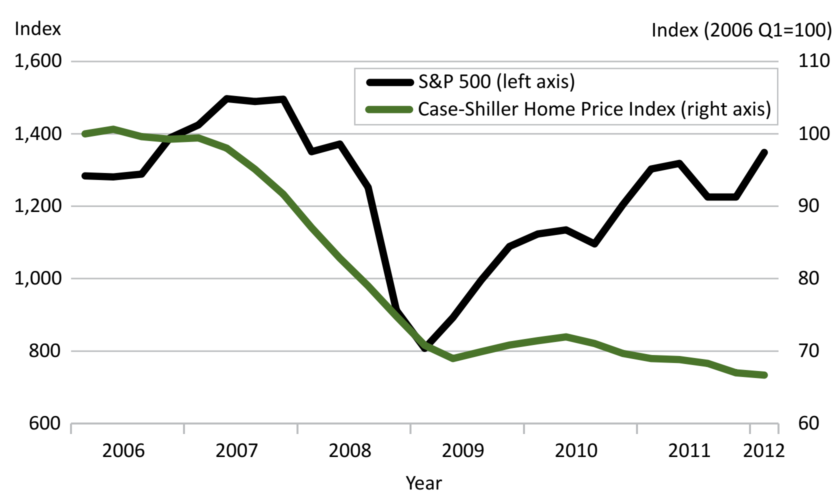
Average Income and Unemployment Rate



Source: Saez (2012) and Bureau of Labor Statistics

FIGURE 2

Stock Market and House Price Indexes



Source: Standard & Poor's

young households might not be able to seize the opportunity to buy housing and other assets at depressed prices because young households typically do not have a lot of savings with which to buy assets, and it is difficult to borrow, especially during recessions.

LIFE CYCLE AND WEALTH BEFORE THE GREAT RECESSION

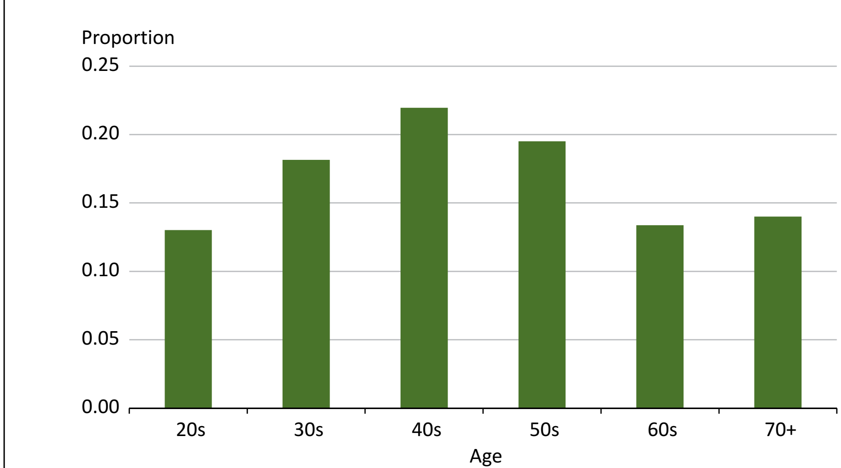
Before looking into how different households have been affected by the Great Recession, let's look at how households differed on the eve of the Great Recession. As you can see in Figure 3, there were more households whose heads were in their 40s and 50s in 2007 than in other age groups.

Net wealth (which is the sum of all assets, including the value of houses, net of the sum of all debts) differs over one's life cycle. It is relatively low for young households but keeps increasing during the working life of households, up to around age 65, and declines after retirement. We can see such a pattern in Figure 4. Why does the life cycle profile look like this? Franco Modigliani and Richard Brumberg provide a simple theory of the life cycle of a household.[4] Young households, whose income is limited, spend most of their income for consumption expenditures, leaving little savings to accumulate wealth. However, as households age and their income increases, they start saving to prepare for retirement. Figure 4 shows that both wealth and income go up for households between their 20s and 50s. Saving for retirement is desirable because after retirement, income is typically lower than it is during middle age, when income is typically the highest over the life cycle. Households do not want to have less money to spend after retirement. After retirement, households use their savings to supplement their (lower) income, gradually reducing savings.

The composition of wealth also shows a distinctive pattern over the life cycle. Let's start with housing. Figure 5 shows the proportion of households in each age group with a positive amount of housing assets, stocks, and businesses. The homeownership rate was 71 percent in 2007 overall, but it was only 28 percent for households in their 20s.[5] The homeownership rate increases to

FIGURE 3

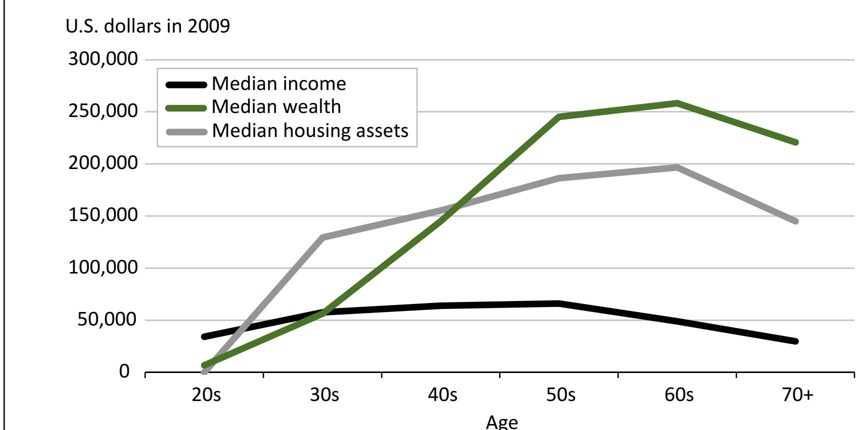
Proportion of Households in Different Age Groups in 2007



Source: Survey of Consumer Finances, 2007-09

FIGURE 4

Income, Housing, and Total Wealth of Households in 2007



Source: Survey of Consumer Finances, 2007-09

[4] Satyajit Chatterjee's *Business Review* article provides a more detailed explanation of the theory.

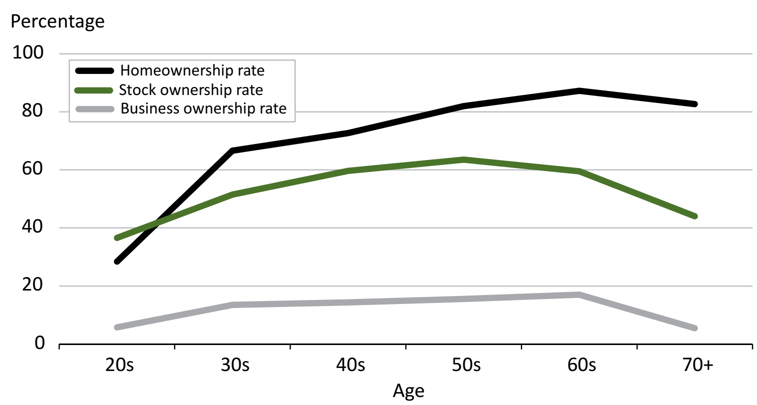
67 percent for households in their 30s and reaches 87 percent for those in their 60s, before shifting down to 83 percent for those above 70. We can see the hump-shaped pattern in Figure 5. The proportion of wealth invested in housing assets (shown in Figure 6) is also hump shaped, but the peak comes much earlier than it does for wealth or the homeownership rate. Figure 6 shows the portfolio allocation grouped by different types of assets of households with median wealth.[6] All values of assets and debt are normalized by the wealth holdings of the median households. For example, the value of housing assets for median households in their 20s is 1.63, which implies that the value of housing assets of the median households is 163 percent of the value of the wealth of these households. Debts are shown in negative value. "Safe assets" include all assets except housing, stocks, and businesses, e.g., checking and saving accounts, U.S. Treasury bills, and saving bonds. Therefore, for each age group, the sum across all assets and debts is one. In other words, if the bar in Figure 6 is stretched long, it means the groups of households are taking a leveraged position, by borrowing and using the extra money to have more assets.

What can we see in Figure 6? First, the proportion of wealth invested in housing increases between the 20s and the 30s and declines after that. Second, households in their 20s and 30s borrow significant amounts compared with their wealth holdings. In other words, these young households are highly leveraged.

Let's go back to the comparison between Figure 5 and Figure 6. The homeownership rate picks up between the 20s and the 30s because, by then, more households have accumulated enough wealth to make a down payment. When these households purchase their first house, many of them have to invest most of their wealth in home equity in the form of a down payment. That's why the proportion

FIGURE 5

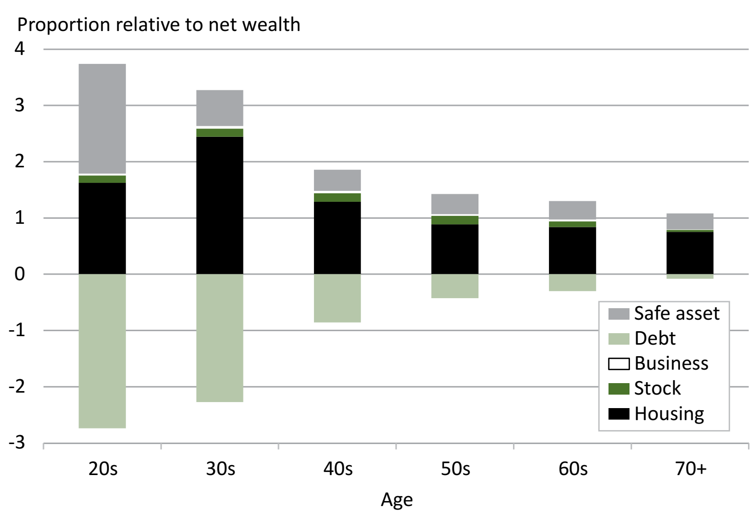
Percentage of Households with Homes, Stocks, and Businesses



Source: Survey of Consumer Finances, 2007-09

FIGURE 6

Portfolio Allocation by Median Households (relative to total value of wealth)



Source: Survey of Consumer Finances, 2007-09

[5] The homeownership rate remained stable at around 64 percent between 1965 and 1995, before rising to around 70 percent. However, the hump-shaped pattern described in the article remained stable. Matthew Chambers, Carlos Garriga, and Don E. Schlagenhauf investigate reasons behind the increase.

[6] Instead of looking at the single household with median wealth, I take the average of households in the middle quintile (between 40 and 60 percent when ranked by wealth holdings). By doing this, I can avoid the situation that the results are affected by the behavior of one household. See the next footnote as well.

of wealth invested in housing peaks for households in their 30s. However, after households buy their first house, they repay the mortgage and start accumulating financial assets, which decreases housing assets as a proportion of household wealth. As we can see in Figure 6, for median households in their 20s to 40s, the average value of housing assets is higher than the value of their net wealth. As households continue to accumulate wealth for retirement, the proportion of the value of housing assets included in households' wealth keeps shrinking. In other words, households keep deleveraging.

The proportion of households with a positive amount of stocks (including directly held stocks as well as those held indirectly through mutual funds, retirement funds, etc.) is also hump shaped, as in Figure 5. The proportion is 37 percent for households in their 20s, peaks at 64 percent for households in their 50s, and then goes down to 44 percent for households in their 70s. Why is it hump shaped? Annette Vissing-Jorgensen argues that many households do not hold stocks because of the costs of participating in the stock market. Since younger households tend to have lower wealth, they tend to stay away from the stock market because the cost of participation is too high for the small gain that households expect from investing in the stock market. Young households also want to use their money to own housing rather than to invest in stocks. On the other hand, older households withdraw from the stock market to reduce their exposure to risky assets. In terms of the proportion of wealth invested in stocks, the size is relatively small, as seen in Figure 6. Average households invest relatively small proportions of their wealth in stocks. For example, the proportion is about 15 percent for median households in their 30s to 50s and 10 percent among households in their 60s.

The proportion of households that have an equity interest in a privately held business also exhibits a hump shape, as shown in Figure 5. Among households in their 20s, only 6 percent have business equity, while the proportion is highest among households in their 60s, at 17 percent. The proportion is 5 percent for households age 70 and above. I will come back to the wealth allocated to businesses in the next section, since investment in business is closely related to large wealth holdings. Figure 6 shows that the proportion of wealth invested in businesses by median households is less than 5 percent for all age groups.

RICH AND POOR ON THE EVE OF THE GREAT RECESSION

There are large differences across households if we look at them in different quintiles of wealth distribution.[7] As shown in Figure 7, the amount of assets held by households in different quintiles of the wealth distribution differed significantly in 2007. The median wealth holding of the wealthiest 20 percent was $972,000, while the least wealthy 20 percent of households held almost zero wealth. The median wealth among the wealthiest 1 percent was almost $13 million.[8]

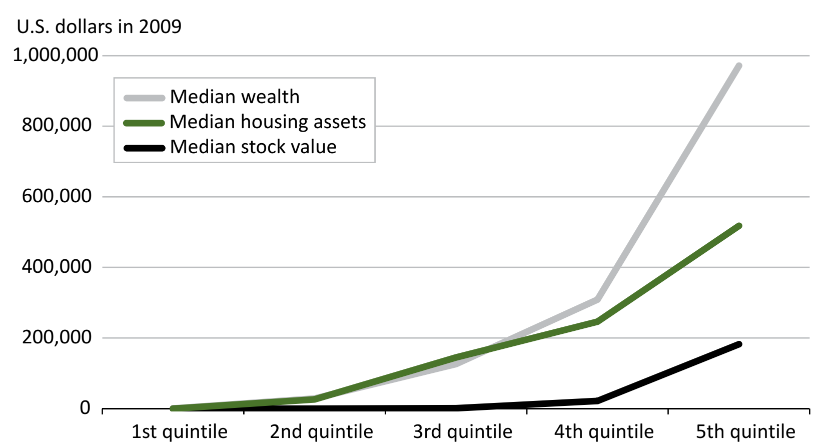
Figures 7 and 8 show that there is a substantial difference in stock holdings across households with different amounts of wealth. Among the wealthiest 20 percent, 90 percent hold stocks. On the other hand, among the households in the bottom 20 percent in terms of wealth in 2007, only 17 percent own stocks. Richer households tend to invest more in stocks as well. The median value of stocks held by the wealthiest 20 percent of households is $183,000, while the median stock value is zero among the bottom 20 percent and the median stock value of the middle quintile of wealth distribution is about $1,000.

[7] A quintile is one-fifth of all households. The first quintile represents the bottom 20 percent of households when households are sorted by the amount of wealth holdings. In other words, the first quintile includes households with the least amount of wealth, and the fifth quintile includes the top 20 percent of the wealthiest households.

[8] It was about $11 million in 2004, according to the SCF.

FIGURE 7

Asset Holdings for Different Wealth Quintiles



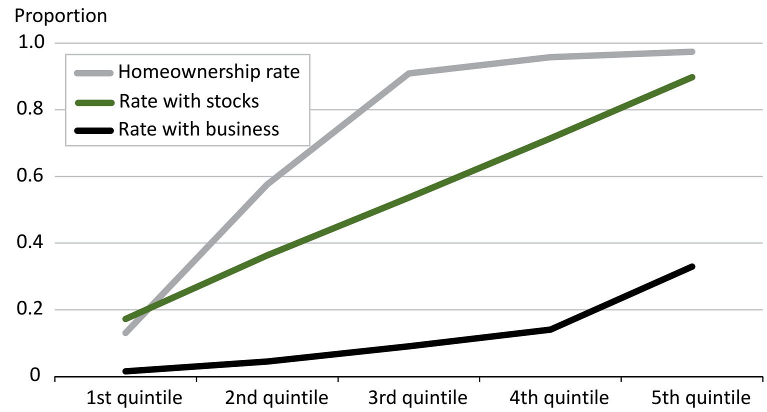
Source: Survey of Consumer Finances, 2007-09

The homeownership rate is also higher for wealthier households (Figure 8). Among the top 20 percent in wealth holdings, 97 percent are homeowners. On the other hand, the homeownership rate was 13 percent for the bottom 20 percent of the wealth distribution in 2007. Naturally, the median value of housing assets is higher for wealthier households (Figure 7). It is $518,000 for the wealthiest 20 percent, while it is zero for the bottom 20 percent. However, the proportion of wealth invested in housing is decreasing as a share of household wealth among homeowners, precisely because households with lower wealth have to spend more of their wealth on a house in order to buy one. For example, among households in the middle quintile, the value of housing relative to wealth is 115 percent. On the other hand, the ratio is only 53 percent among the top 20 percent of the wealth distribution.

The proportion of households that own businesses increases significantly with the level of wealth (Figure 8). In other words, wealthier households are more likely to be entrepreneurs. For example, 33 percent of the wealthiest 20 percent of households own interests in business, while the ratio is less than 2 percent among the least wealthy 20 percent. The ratio is even higher for the wealthiest 1 percent: 74 percent of these households invest in businesses. The proportion of wealth invested in businesses also increases significantly with the level of wealth (Figure 7).

FIGURE 8

Proportion of Households with Home, Stocks, and Businesses in Different Wealth Quintiles



Source: Survey of Consumer Finances, 2007-09

WHAT SHOULD WE EXPECT?

From the way assets are distributed, one can guess how changes in asset prices affect different households differently. When house prices drop, middle-aged and older households, especially wealthy ones, suffer more because they are more likely to own a house. In terms of the *absolute* level, the negative effect on wealth is larger for older and wealthier households, which tend to own larger houses. However, in *relative* terms, younger homeowners, who tend to invest a larger proportion of their wealth in housing, suffer the most in terms of the damage relative to their wealth. Remember Figure 6, which shows that younger households tend to be highly leveraged. As for other assets such as stocks, again, middle-aged and older households, especially the wealthy ones who invest more in the stock market, suffer from a decline in stock prices. The unfavorable business environment during recessions damages the wealthiest households, which are more likely to own businesses, the most.

THE GREAT RECESSION'S DIVERSE EFFECTS ON INCOME

Before looking at wealth, let's start with income. The Great Recession had a large effect on income. According to a recent study by Saez that uses data on individual tax returns, average income per family in the U.S. declined by 11 percent between 2007 and 2009 if income from capital gains is excluded. If capital gains are included, average income dropped by 17 percent.[9] Andy Glover and coauthors computed that overall average earnings declined by 8.3 percent, according to the Current Population Survey (CPS). Moreover, Glover and coauthors computed that earnings of households in their 20s declined by 11 percent, while earnings of households in their 60s dropped by only 6 percent. These facts are consistent with the ones presented by Michael Elsby, Bart Hobijn, and Ayşegül Şahin, who report that, in recessions, the unemployment rate rises more for younger workers.

Elsby and coauthors also report that the unemployment rate of workers with less education tends to rise more during recessions, including the Great Recession. This fact implies that workers with relatively lower levels of education (and lower income) suffered a larger percentage drop in income during the Great Recession.

[9] The drop was larger if capital gains are included because capital gains tend to react strongly to economic booms and recessions.

In contrast, Saez reports that, in general, top income earners experience a larger percentage decline in income from recessions. The explanation is that the source of a large part of income for top income earners is capital gains. Saez computed that the top 1 percent of the income distribution suffered an income loss as large as 36 percent between 2007 and 2009, while the income loss was lower in proportion for the rest, at 12 percent.

In sum, between 2007 and 2009, U.S. households suffered a large drop in income. The groups of households that suffered a larger loss than average were younger households, lower-income households in each age group, and extremely wealthy households. Retired households, many of whom no longer rely on labor income, suffered the least in terms of a percentage decline in income.

HOUSEHOLDS' WEALTH IN THE GREAT RECESSION

In this section, I document how wealth and its components changed between 2007 and 2009, using the SCF. According to the SCF, the average net wealth of all households decreased from $595,000 in 2007 to $481,000 in 2009, a 19 percent ($114,000) decline. Median wealth declined even more, from $126,000 in 2007 to $97,000, a 23 percent decline ($29,000). For comparison, according to the 2004 SCF, median household wealth was $107,000. Simply put, between 2007 and 2009, more than the gains in wealth between 2004 and 2007 and about one-fifth of the wealth held by households in 2007 disappeared. For comparison, average household earnings (wage income) declined by 3 percent, from $56,000 to $54,000, and average household total income dropped by 9 percent, from $89,000 to $81,000.

Although I compare the data from 2007 and 2009 because the SCF kept track of the same households only in these two years, housing prices continued to stagnate even after 2009. In *How About 2010?*, I compare households' income and wealth in 2009 and 2010, using the newly available data from the SCF, although a direct comparison is difficult because the 2010 SCF does not keep track of the same households as in 2007 and 2009.

Housing. Let's look at important components of wealth individually. The average value of housing assets dropped by 13 percent, from $262,000 to $228,000. The size of the drop is smaller than the size of the drop in the national house price index during the interval between the two surveys (19 percent). There are two reasons for this. First, the value of housing assets is self-reported in the SCF, so there is possibly an upward bias, especially in a

How About 2010?

The table compares the data on income and wealth across the 2007, 2009, and 2010 Survey of Consumer Finances (SCF) provided by the Federal Reserve Board. Note that the households included in computing the statistics are different across the 2007-2009 SCF and the 2010 SCF. The 2007-2009 SCF includes households that were age 20-99 in 2007 and surveyed in both 2007 and 2009. On the other hand, households between ages 20 and 99 in 2010 are included in the 2010 SCF. Although housing prices and stock prices recovered somewhat between 2009 and 2010, median total net wealth dropped from $97,000 to $76,000. Median housing assets declined slightly, from $180,000 in 2009 to $176,000 in 2010. Median income declined as well, from $50,000 in 2009 to $45,000 in 2010. The proportion of households that own housing and that own stocks also declined. However, a large part of these changes appears to be generated by differences in the households included in the SCFs. In particular, statistics in 2009 tend to be higher because 2009 data do not include households that were younger than 20 in 2007 or moved residence between 2007 and 2009 and thus were not followed in 2009. These households tend to be younger and thus earn less and hold less wealth. As evidence, the Census Bureau reports that the homeownership rates in 2009 and 2010 were 67.4 percent and 66.9 percent, respectively. This homeownership rate is substantially lower than the homeownership rate in the SCF in 2009 (71.8 percent) but is closer to the homeownership rate in the 2010 SCF (68.9 percent).

Comparison Between 2007, 2009, and 2010

	2007	2009	2010
Median income (dollars)	50,000	50,000	45,000
Median total wealth (dollars)	126,000	97,000	76,000
Median house value (dollars)	207,000	180,000	176,000
Homeownership rate (%)	71.0	71.8	68.9
Proportion of stockholders (%)	53.7	55.6	50

Note: Income and wealth are in 2009 dollars. For 2007 and 2009 data, households of age 20-99 in 2007 and surveyed in both 2007 and 2009 are included, while all households of age 20-99 in 2010 are included in 2010 data.

Source: Survey of Consumer Finances, 2007-2009 and 2010 down market. Households interviewed for the survey might tend to think (or believe) that the value of their house is higher than it actually is. Second, the majority of households are at a stage in life during which they are increasing their holdings of housing assets. Note that we are talking about the value of the houses that households own. If households buy a house for the first time or move up to a larger house, the value of the house owned by the household probably increased, even if the same house was cheaper in 2009 compared with 2007. The median value of housing assets declined less, from $135,000 in 2007 to $125,000 in 2009, a 7 percent decline.

Stocks. Between 2007 and 2009, the total value of stocks held directly or indirectly per household dropped by 29 percent, from $125,000 to $88,000. The total value of directly held stocks (which do not include those held by pension funds or mutual funds) per household dropped even more, by 37 percent, from $45,000 to $28,000. The drop in the average value of stocks is consistent with the size of the drop in the stock market index. Although these numbers are large, the long-run effects of this drop are probably limited, because, as seen in Figure 2, the stock market rebounded strongly after 2009. As long as households were able to wait until the stock market recovered, they were able to minimize the damage caused by the temporary slump in the stock market. The average value of businesses owned also dropped sharply, by 23 percent, from $135,000 to $104,000.

Financial Assets and Debt. The total value of nonhousing assets per household, which includes stocks, business interests, and other financial assets, declined by 18 percent, from $435,000 to $357,000. On the other hand, the average size of debt was stable: $103,000 in 2007 and $104,000 in 2009. The average total value of safe assets, which are defined as total assets minus the value of housing assets, stocks, and businesses, was also relatively stable, at $175,000 in 2007 and $165,000 in 2009 (a 6 percent decline). This is not surprising, since the prices of safe assets such as bank accounts and Treasury bills remained relatively stable during the Great Recession.[10]

Life Cycle. Figures 9 to 12 exhibit how households in different age groups were affected during the Great Recession. For example, in Figure 9, each grey line represents how the median wealth of one age group changed between 2007 and 2009; the points on the left and right side of each line represent the median wealth in 2007 and 2009, respectively. Figure 9 also shows how the median value of housing assets and stocks changed between 2007 and 2009. Figure 10 exhibits the changes in mean value of wealth, housing, and stocks.

Households in their 30s and 40s suffered a large loss in terms of median wealth between 2007 and 2009.

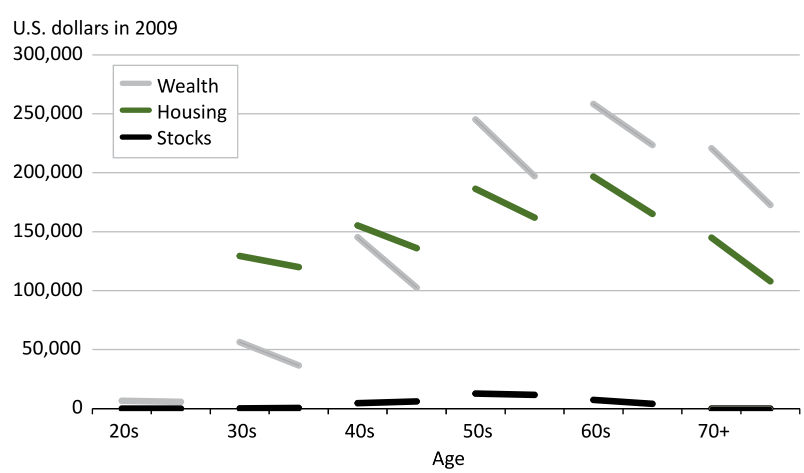
Looking at different households separately in Figures 9 and 10, we see that average wealth declined for all age groups between 2007 and 2009. However, there are interesting differences across different age groups.

First, the loss of wealth suffered by households headed by those in their 20s was limited in terms of the absolute level. The loss, however, was large relative to the wealth they had in 2007. The mean value of wealth for households in their 20s dropped by 23 percent between 2007 and 2009. The median wealth held by households in their 20s declined by 14 percent, which

[10] In 2004, the total value of nonhousing assets per household was $368,000 (in 2009 U.S. dollars). The per-household debt was $90,000. The value of safe assets per household was $159,000. Roughly speaking, the values in 2004 are not far from those in 2009.

FIGURE 9

Changes in Median Value of Wealth, Housing, and Stocks, 2007-09



Source: Survey of Consumer Finances, 2007-09

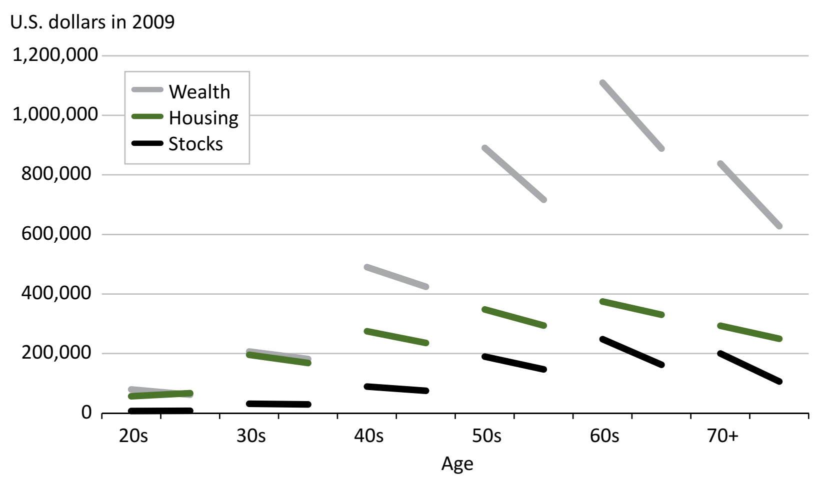
was smaller than the size of the decline in the median wealth of all households (23 percent). This is mainly due to the characteristics of the median household among those in their 20s. In particular, since less than half of households in their 20s own a home, the household with median wealth was a renter and did not suffer from a decline in house prices, while homeowners suffered a large loss in wealth relative to their wealth holdings, because they were highly leveraged (taking out a mortgage that is large relative to their wealth holdings to buy a house). The mean value of housing assets increased slightly for this age group, but that is because they were at the stage in life during which they were buying houses. Figure 11 shows that homeownership for households in their 20s increased even during the Great Recession and that more and more of them started participating in the stock market. For households ages 20 to 29, the life-cycle effect strongly influences the changes in the data.

Figure 12 is the counterpart to Figure 6. Figure 12, which shows how the proportion of the value of housing assets relative to net wealth for median households changed between 2007 and 2009, is consistent with the fact that younger households were buying houses even during the Great Recession. We can see that the proportion of wealth invested in housing increased between 2007 and 2009 for households in their 20s. The value of debt relative to wealth also increased. Although we often hear that American households have been deleveraging (reducing debt) since the onset of the Great Recession, young households were still leveraging, implying that, for these households, the life-cycle effect (borrowing and buying houses when they are young) has dominated the deleveraging in which older households were engaged. Figure 12 also shows that the proportion of wealth invested in stocks or businesses by households with median wealth remained low during 2007-2009.

Households in their 30s and 40s suffered a large loss in terms of median wealth between 2007 and 2009 (Figure 9). Median wealth declined by 35 percent and 29 percent for households in their 30s and 40s, respectively. Their wealth declined even though stock

FIGURE 10

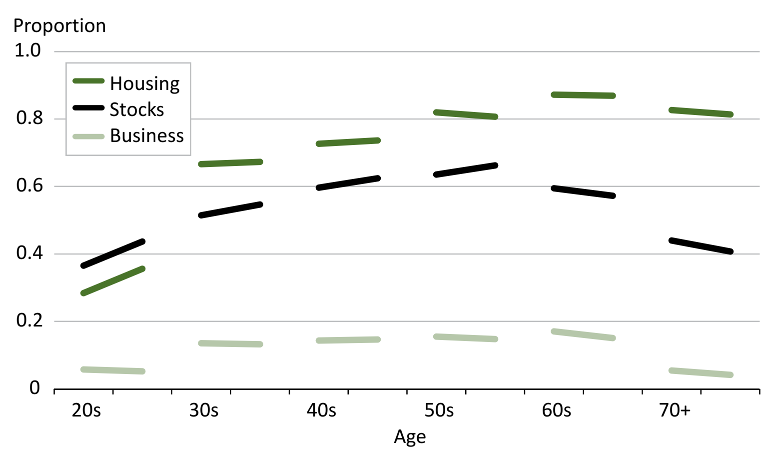
Changes in Mean Value of Wealth, Housing, and Stocks, 2007-09



Source: Survey of Consumer Finances, 2007-09

FIGURE 11

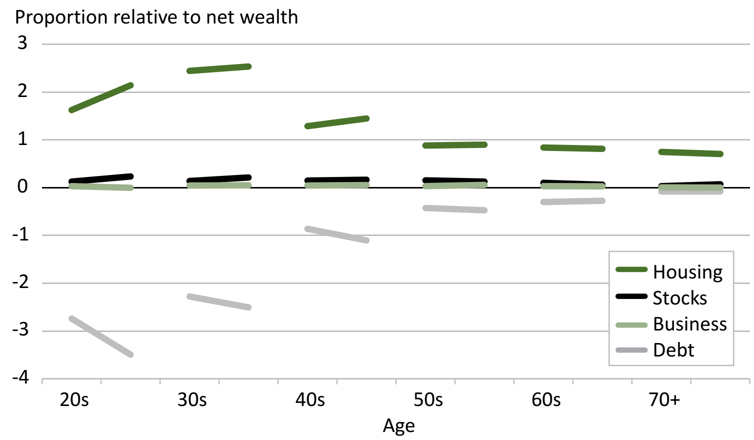
Changes in Ratio of Households with Housing, Stocks, and Businesses, 2007-09



Source: Survey of Consumer Finances, 2007-09

FIGURE 12

Changes in Portfolio Allocation by Households with Median Wealth



Survey of Consumer Finances, 2007-09

holdings are limited, especially for households in their 30s. Their wealth declined significantly mainly because the median household is a homeowner with a highly leveraged portfolio and thus exposed to a higher risk of declining housing and stock prices. On the other hand, mean wealth declined less because changes in wealth holdings of renters, who were not affected by declining housing prices, affect the mean more than the median. Figure 12 shows that the proportion of wealth invested in housing by households with median wealth continued to increase because of the life-cycle effect. The size of debt relative to wealth also increased between 2007 and 2009 for middle-aged households.

For households in their 50s and 60s, wealth declined between 2007 and 2009, as seen in Figures 9 and 10, but the loss was relatively small, because these households had already accumulated wealth and invested a larger part of their wealth in safer assets (see also Figure 6). Therefore, their exposure to risky assets such as housing and stocks was lower. The median wealth of households in their 50s and 60s declined by 20 percent and 13 percent, respectively. On the other hand, their mean wealth declined more than their median wealth, but this was due to a large decline in the value of businesses, which was concentrated among a small number of households in their 50s and 60s. Figure 11 shows that the proportion of households with business interests was highest within these age groups. Since the homeownership rate stabilized at ages 50s to 60s, the proportion of wealth allocated to housing assets remained relatively stable between 2007 and 2009 (Figure 12).

The median wealth of households aged 70 and above declined by 22 percent, which was larger than the decline for households in their 50s and 60s. Mean wealth declined by 25 percent. An important part of this large decline was due to life-cycle patterns; households age 70 and above were spending down their accumulated wealth to support consumption expenditures in retirement. In other words, the size of the decline for households in retirement looks larger because the value of their assets fell, and they were actively reducing wealth. Figure 12 is consistent with such an interpretation; the proportion of wealth allocated to housing by older households with median wealth declined between 2007 and 2009, albeit slightly.

Turning to stock holdings, Figure 10 shows that the proportion of households older than 70 with stocks declined between 2007 and 2009. In other words, households age 70 and above were selling stocks. Therefore, the declining value of stocks among older households exaggerates the loss suffered by these households because they were actively selling stocks. However, as shown in Figure 12, households with median wealth do not invest much in stocks. On the other hand, the homeownership rate did not drop during 2007-2009, implying that homeowners age 70 and above suffered a loss in the value of their housing.[11]

Wealth Distribution. There is also a large diversity in how different households in different parts of the wealth distribution were affected by the Great Recession. Figure 13 shows the percentage changes in the mean value of wealth, housing, and stocks for groups of households in different parts of the wealth distribution. We can see clearly that changes in wealth were significantly different for households with different levels of wealth. In particular, households with the lowest amount of wealth increased their wealth holdings between 2007 and 2009, mainly because of life-cycle effects. These households were in the life-cycle stage during which they accumulate wealth. Between 2007 and 2009, the average wealth held by the bottom 40 percent of the wealth distribution increased by 54 percent, from $13,000 to $20,000.

[11] In an earlier *Business Review* article, I documented how retirees decumulate wealth, with a focus on the distinction between housing and financial assets.

This is due in large part to an increase in average holdings of housing assets, which increased from $39,000 to $44,000. The homeownership rate among these households also increased, from 35 percent to 40 percent. They increased their stock holdings, but stocks' contribution to the increase in wealth is limited because these households invested little in the stock market from the beginning. On the other hand, the average wealth among the top 20 percent in the wealth distribution declined by 21 percent, from $2.5 million to $2.0 million. They experienced a loss in holdings of housing assets, stocks, and businesses. The loss was even more pronounced for the wealthiest 1 percent; their wealth dropped by 29 percent during 2007-2009, although about two-thirds of them remained among the wealthiest 1 percent even after the loss.

WHO GAINED AND WHO LOST IN THE GREAT RECESSION

Who benefited and who suffered from the Great Recession? Before going into details, let me emphasize that the choice of the timing of the comparison matters significantly. Even if a household lost during the Great Recession, because the value of the assets that the household owns declined between 2007 and 2009, the household might have gained if the value of the assets in 2009 is compared with the value in, say, 2002. On the other hand, households that purchased their house at the peak of house prices (around 2006-2007) lost value in their house without benefitting from the boom that preceded the decline.[12] The analysis here is limited in the sense that it cannot account for changes that happened before the Great Recession.

As I have shown, households with different levels of income or wealth and at a different stage of life were affected differently by the Great Recession. Moreover, there are some non-trivial channels that create winners and losers. I will slice households along various dimensions and discuss who gained and who lost from the Great Recession; in particular, I will look at the large drops in income, house prices, and stock prices.

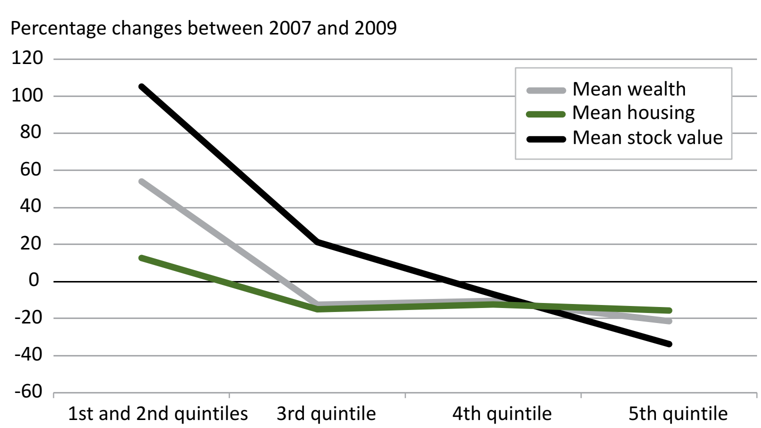
Income. On average, households lost income from the Great Recession. However, young and less educated households tended to suffer a larger percentage drop in income. Moreover, using Canadian data, Philip Oreopoulos, Till von Wachter, and Andrew Heisz show that college students graduating and entering the job market in a recession suffer a large initial income loss, and the loss is persistent, lasting as long as 10 years. On the other hand, Saez shows that households at the top of the income distribution experienced a larger percentage loss from the Great Recession. Middle-aged households suffered less because more of them have stable, full-time jobs. Not surprisingly, retired households suffered little.

Housing. Homeowners, especially those who wanted to sell their house, suffered from the drop in house prices. Younger homeowners suffered less because they could likely wait until house prices recover (if they ever do) to sell. Although house prices have hit bottom and are finally rising, they remain a long way from their levels before the housing crash. Whether and how much homeowners suffer depends on how fast and how much house prices recover in the future. On the other hand, renters who were about to buy their first home or homeowners planning to move up to a larger house could buy houses at lower prices than before the recession. Relatively young renters and younger homeowners were in this category. In their study, Wenli Li and Rui Yao investigate these asymmetric effects of house-price changes. At the same time, they are likely to have suffered a loss in income, and lost savings to be used for a down payment

[12] Many people, including economist Robert Shiller (who helped to develop the Case-Shiller house price index), perceive the substantial rise in housing prices before the Great Recession to be a "bubble." Please see my previous *Business Review* article for a discussion of the "bubble" theory of house prices.

FIGURE 13

Percentage Changes in Mean Value of Wealth, Housing, and Stocks, 2007-09



Source: Survey of Consumer Finances, 2007-09

with the declining asset prices. Therefore, whether these households gained, all things considered, is not certain.

Note that the timing of a home purchase also matters. Homeowners who purchased their house when house prices were still low might not have suffered too much from the Great Recession, even with a large decline in house prices, because the purchase price was also low. To give an extreme example, the average price of new homes was $229,000 in 2002, $314,000 in 2007, and $273,000 in 2010.[13] For a person who purchased his house in 2002, selling in 2010 is worse than selling in 2007, but still his selling price would be higher than the purchase price. For a person who purchased his house in 2007, that's not the case.[14] On the other hand, homeowners who purchased their house recently are the ones who suffered the most from the large decline in prices.

Stocks. Similarly, households that were about to sell stocks and could not wait until the stock market recovered suffered from the Great Recession. Older households, which tend to sell stocks to support consumption expenditures in retirement, were in this group. Relatively younger households and those experiencing income growth gained in this regard because they tend to be buyers of financial assets, and they were able to buy assets at depressed prices.

Wealth and Debt. Households with little wealth or those that were heavily indebted did not suffer from declining asset prices but could suffer from the Great Recession from a different channel. How? If such a household experienced a loss of income, even if it wanted to borrow money to avoid a large drop in consumption expenditures, it might not be able to do so if borrowing was difficult. A household that wants to borrow but cannot is called *borrowing constrained*. Households that are planning to buy houses or other assets suffer from the borrowing constraint as well because, even though they want to buy houses or assets at depressed prices, they cannot do so because they have little wealth and are unable to borrow. This point is emphasized in a recent paper by Sewon Hur.

Young and Old. Glover and coauthors argue that age is an important determinant of the impact of the Great Recession, especially if the decline in stock and house prices is temporary and prices recover in the not-too-distant future. Under such circumstances, young households that have assets such as housing and stocks can hold on to these assets until prices recover and avoid losing wealth from the decline in asset prices. On the other hand, older households might not have time to wait until asset markets recover. Time is especially important when they want to sell the assets to support current consumption expenditures; holding on to assets with depressed prices hurts them because they might not be able to buy what they want if they do not sell these assets.

A similar argument can be made about income. Relatively younger workers might have experienced a decline in income during the Great Recession, but they have more time to bounce back, with possible booms in the future canceling the Great Recession's negative effects on income. Older workers, on the other hand, have a shorter time horizon because they will retire sooner.

Welfare. All things above considered, how did the Great Recession affect the welfare (well-being) of diverse households? The discussion above indicates that young households suffered more in terms of income, but older households suffered more from declining asset prices. Using a sophisticated economic model, Glover and coauthors computed that the size of the decline in the average welfare of households age 70 and above associated with the Great Recession was equivalent to an 8 percent drop in consumption every year for the rest of their lives. On the other hand, the decline in the welfare of young (20s) households was equivalent to a less than 0.5 percent decline in consumption every year.

Why did young households suffer less than older households? First, young households are expected to live longer. As long as the economy recovers from the Great Recession in the future, the young can smooth out the losses from the Great Recession over their lifetime. Second, young households tend to be accumulating assets, and thus they benefit from lower asset prices. As we have seen, younger

Although house prices have hit bottom and are finally rising, they remain a long way from their levels before the housing crash. Whether and how much homeowners suffer depends on how fast and how much house prices recover in the future.

[13] According to the Census Bureau, the median house price was $188,000 in 2002, $248,000 in 2007, and $222,000 in 2010.

[14] Here I assume that these are the prices with which households buy or sell their houses. Of course, the first person "suffered" as well if he thought the value of his house was actually $314,000, but that's a different story.

households suffered a larger percentage loss in income on average, but according to the calculation by Glover and coauthors, this effect is weaker than the two favorable effects for the young. However, we should remember that this calculation did not take into account the possibility that young households with little or zero wealth could suffer due to the borrowing constraint, as discussed above.

CONCLUSION

In this article, I summarized the diverse economic impact of the Great Recession on different groups of households. In terms of income, young, lower-income, and extremely high-income households suffered a larger percentage decline. Moreover, a large decline in asset prices caused a larger drop in the value of wealth for homeowners, stockholders, and business owners. In terms of age, middle-aged households tended to suffer a larger decline in wealth because they tend to own those risky assets more than younger and retired households. The wealthiest households suffered more than the less wealthy in proportion because they tend to invest more of their wealth in risky assets, although the majority of those wealthy households remain relatively wealthy even after experiencing a large loss.

There are also nontrivial channels. Older households tend to suffer more because they tend to have less time to wait for asset prices to recover. On the other hand, young households that buy assets indirectly benefit from lower asset prices, but how much they benefit from the Great Recession depends on whether they can actually afford to buy these assets even after suffering a loss in income.

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