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The Finances of American Households in the Past Three Recessions: Evidence from the Survey of Consumer Finances

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Abstract

Abstract: The downturn in economic activity in the U.S. that began in December 2007 (as determined by researchers with the National Bureau of Economic Research) has been noticeably deeper and has already lasted considerably longer than the prior two recessions—those beginning in July 1990 and in March 2001. In addition, a key difference between the current and the past two recessions is the extent to which consumer spending and residential investment have dropped since late 2007—that is, the extent to which the household sector appears to have "led" the drop in aggregate economic activity in this recession. This paper uses household-level data from the Federal Reserve Board's series of Surveys of Consumer Finances to document three factors that appear to have contributed to greater financial stress in the household sector in the current downturn compared with the prior two: 1) substantial and widespread reductions in home values that resulted in sizable erosions of home equity and net worth for many homeowners; 2) markedly expanded holdings of corporate equity among middle-income households which lost significant market value, on net, as stock prices sunk; and, 3) greater debt on household balance sheets and overall financial vulnerability around the onset of the 2008-09 recession, particularly for those in the middle of the income distribution.

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1 Introduction

The downturn in economic activity in the U.S. since December 2007 has been noticeably deeper and has already lasted considerably longer than the prior two recessions—those beginning in July 1990 and in March 2001. In addition, a key difference between the current and the past two recessions is the extent to which declines in consumer spending and residential investment contributed to the drop in aggregate demand since late 2007—that is, the extent to which the current episode has, thus far, been more of a "consumer-led" than a "business-led" recession.

This paper uses household-level data from the Federal Reserve Board's series of Surveys of Consumer Finances (SCFs) to document three specific factors that appear to have contributed to greater financial stress in the household sector in the current downturn compared with the prior two: 1) substantial and widespread reductions in home values that resulted in sizable erosions of home equity and net worth for many homeowners; 2) markedly expanded holdings of corporate equity among middle-income households which lost significant value, on net, as stock prices sunk; and, 3) greater debt on household balance sheets, and overall financial vulnerability, around the onset of the 2008-09 recession, particularly for those in the middle part of the income and wealth distributions. These latter developments appear to have left many households without significant financial buffers and, therefore, particularly vulnerable to drops in assets values and to job losses.

A key methodological issue our analysis faces is that the Board's cross-section surveys are conducted only every three years, with none of those conducted since 1989 corresponding precisely with business cycle peaks and troughs. Thus, many of our balance sheet tabulations are based on market values for real estate and corporate equity holdings that have been adjusted to approximately measure changes in the year-and-a-half following the past three business cycle peaks (July 1990, March 2001, and December 2007).

2 The Macroeconomic Backdrop: A Brief Comparison of the Past Three U.S. Recessions

Timing and duration of the past 3 business cycles: On December 11, 2008, the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) "determined that a peak in economic activity occurred in the U.S. economy in December 2007," marking "the end of the expansion that began in November 2001 and the beginning of a recession."[1] The available data—and consensus forecasts—suggest that it will likely be quite a while before the NBER Dating Committee determines the timing of the trough for the current business cycle. In general, the Dating Committee tends to put off its announcements of

[1] See `http://www.nber.org/cycles/main.html`; accessed 5 May 2009.

the key business cycle dates until a range of macroeconomic indicators suggest that a peak or trough in activity has clearly occurred. Thus, it was not until July 17, 2003, that the NBER Dating Committee announced its determination that a trough in economic activity had occurred in November 2001—almost two years before.

The Dating Committee emphasizes four broad indicators of economic activity: industrial production, real manufacturing and retail trade sales, real personal income less transfer payments, and payroll employment. Current data indicate that industrial production and real manufacturing and retail trade sales may have bottomed out in June 2009. However, real personal income edged down, on net, through September 2009, and payroll employment continued to contract sharply through October 2009 (190,000 job losses were estimated that month, while the unemployment rate rose 0.4 percentage point to 10.2 percent). Nonetheless, real GDP is estimated to have expanded at an annual rate of 3-1/2 percent in the third quarter of 2009, the first quarterly increase since the second quarter of 2008 and the largest increase since the third quarter of 2007.[2]

Through August 2009 (the latest available data when this paper was drafted), the 2008-09 U.S. recession had lasted 20 months—2-1/2 times as long as either of the previous two recessions. As can be seen in the table below, the prior recession lasted just 8 months, from a peak in activity in March 2001 to a trough in November 2001; the recession that occurred prior to that also lasted 8 months, from a peak in July 1990 to a trough in March 1991. In terms of the broadest measure of aggregate economic activity, real GDP contracted 3-3/4 percent, in total (not at an annual rate), from the fourth quarter of 2007 and the second quarter of 2009. In the 2001 recession, real GDP only decreased slightly in two quarters and the lowest level of real GDP was only 1/4 percent below the peak level reached in the fourth quarter of 2000. In the 1990-91 recession, the trough in real GDP (1991:Q1) was 1-1/2 percent lower than in the NBER peak quarter (1990:Q3)—much smaller than in the current downturn.

Timing and Duration of the Past 3 Downturns in Overall U.S. Economic Activity

Business Cycle Reference Dates		Duration, in months			
Peak	Trough	Contraction	Expansion	Cycle	
Quarterly dates in parentheses		*Peak to trough*	*Previous trough to this peak*	*Trough from previous trough*	*Peak from previous peak*
December 2007 (IV)	through August 2009	*20*	73	*94*	81
March 2001 (I)	November 2001 (IV)	8	120	128	128
July 1990 (III)	March 1991 (I)	8	92	100	108

Source: NBER; as of this writing, the NBER has not determined that a trough in economic activity has occurred since the peak in December 2007.

[2] All of the figures in this paragraph use the current, "provisional" vintage of macroeconomic data. As emphasized by Dynan and Elmendorf (3), however, significant revisions are often made to major economic indicators, particularly around business cycle turning points.

Figure 1 displays the evolution of selected macroeconomic variables associated with household sector developments in the current recession and in the prior two recessions; plots are indexed so that levels equal 100 at the peak in the overall business cycle—as determined by the National Bureau of Economic Research—and so that changes are measured as percentage deviations from activity at each cyclical peak. The vertical lines (placed at "0" along the x-axis) distinguish the time periods before and after the NBER-dated business cycle peaks. The primary take-away from figure 1 is that the 2008-09 recession has seen a larger contraction in consumer spending and residential investment, suggesting that the household sector has contributed more to the drop-off in aggregate demand in this cyclical downturn than in either the 1990 or the 2001 episodes.[3]

Employment: Cumulative employment losses over the first 19 months of the current recession have been much larger than in either the 1990 or 2001 recessions—about 5 percent, on net, compared with around $1\frac{1}{2}$ percent at similar points in the two prior episodes. Although the extent of the contraction in overall employment in the first 10 months of 2008 were very similar to the experience in the prior 2 recessions, job losses accelerated sharply late last year and into early 2009, whereas levels of employment had more or less stabilized a year after the two prior business cycle peaks. Thus, in terms of aggregate net job losses alone, the 2008 recession would seem to amount to a larger cyclical "shock" to households' economic circumstances than either of the previous two.

Personal income: Like aggregate employment, real personal income from wages and salaries has also decreased substantially in the current recession—6 percent, on net, from December 2007 through July 2009. At this point in the recessions, the size of the net decrease in real aggregate wages is about the same as occurred in the 1990 episode and is three times as large as was seen following the 2001 cyclical peak.[4] Meanwhile, as can be seen in the middle left panel, on balance since the cyclical peak in December 2007, real disposable personal income has *increased* about 1 percent—not quite as much as the 2 percent net rise experienced at

[3]Figures 1 through 3 and Appendix A were created at the end of September 2009; at that time, monthly data were available through June, July, or August of 2009 (depending on the specific series) and quarterly data were available through the second quarter of 2009.

[4]In figure 1, the underlying dollar-denominated variables—wage and salary income, disposable personal income, personal consumption expenditures, and residential investment —are expressed in "real" terms; wage and salary income and disposable personal income have been deflated using BEA's chain-weighted price index for personal consumption expenditures. All data from the U.S. national income and product accounts reflect the comprehensive revision published by BEA in July 2009.

this point in the 1990 episode and markedly less than the $3\frac{1}{2}$ percent increase following the 2001 cyclical peak. As can be seen by the "blips," in both 2001 and 2008, one-time stimulus payments and tax rebates were quickly enacted that temporarily raised disposable incomes, with the largest (arithmetic) effects occurring about six months into theses two recessions. The stimulus packages that were enacted included less transitory elements and, importantly, automatic fiscal stabilizers contributed to holding up disposable income in recent months (relative to wages and salaries and to personal interest and dividend income, as well). In the year-and-a-half since the December 2007 cyclical peak, personal transfer payments have risen more than 15 percent, on net, and personal taxes have dropped nearly 30 percent. At the same point in the 1990 episode, personal transfers had also increased nearly 15 percent, but personal taxes had decreased just 8 percent; in the 2001 recession, transfers rose about 10 percent and personal taxes dropped about 20 percent.[5]

Personal consumption expenditures (PCE): On net over the first 18 months of the 2008-09 recession, real aggregate consumer spending declined about 2 percent—a considerably weaker trajectory than occurred in either the episode in 1990 (no net change in real PCE over the similar time frame) or that in 2001 (a net increase of about 4 percent). The 2 percent peak-to-trough decline in real PCE that was reached about twelve months into the current recession is similar in magnitude to the peak-to-trough decline that occurred about six months into the 1990 episode. However, consumer spending rebounded fairly quickly in late 1990, then remained essentially flat for most of 1991. Although consumer spending appears to have more or less stabilized at a relatively low level this year, it has yet to recover at all. What really stands out in the plot, of course, is the rising trajectory for real PCE that occurred in the 2001 recession, resulting in a 4 percent net increase in real consumer spending over the year-and-a-half following the NBER-dated peak in overall economic activity.

Residential investment and sales of newly built homes: It is clear from the lower two panels of figure 1 that the housing sector's downward trajectory in the current recession has been much more severe than the contraction in the 1990 episode and the steady rise in housing activity that occurred in the 2001 episode (note the wide y-axis scaling in this panel).

[5] Appendix A shows cyclical comparisons for some of the major components of aggregate disposable personal income in the U.S. national accounts.

Indeed, the 40 percent drop in real residential investment and in new home sales since December 2007 occurred on the heels of 60 percent decreases in residential investment and new home sales in the year or two leading up to the business cycle peak. By contrast, there was no net contraction in aggregate housing activity around the 2001 cyclical peak, and the contraction seen in the 1990 episode was shallower and shorter-lived than in the current episode. Indeed, a gradual recovery in construction activity was underway only a few quarters after the 1990:Q3 peak in overall economic activity; in current episode, real residential investment fell sharply over the first six quarters of the recession.

Figure 2 shows cyclical comparisons for several factors affecting aggregate net worth of the household sector.

Personal saving: On net, the combination of a cumulative decrease in consumer spending in the current recession and a small cumulative increase in disposable income has led to a net rise in the aggregate personal saving rate of about 3 percentage points, from a rate of $1\frac{1}{2}$ percent in December 2007 to $4\frac{1}{2}$ percent in July 2009. By contrast, in the two previous cyclical downturns, the saving rate fluctuated in a much narrower range and was essentially unchanged, on net, over the first 18 months of those recessions. The personal saving rate was close to 7 percent heading into the 1990 recession, while it was only about 3 percent at the onset of the 2001 downturn.

Household net worth: Aggregate household net worth tumbled more than 15 percent, on net, in the first six quarters of the current economic downturn, from \$63.9 trillion in 2007:Q4 to \$53.1 trillion in 2009:Q2. By contrast, in the six quarters following the 1990 peak in economic activity, aggregate net worth increased more than 10 percent and it was only down about 3 percent, on net, at this point in the 2001 episode. The substantial decline in household net worth in the current recession primarily reflects appreciable decreases in both equity prices—down around 25 percent, on net, even after the past few months' market rally—and the drop in house prices across the country—about 10 percent since December 2007 and 20 percent since the peak in prices in December 2006. Of course, plunging equity prices were also a big part of the story behind the 2001 recession, but the timing was different: Figure 2 shows that, in the 2001 episode, stock prices fell around 35 percent ahead of the NBER-dated peak in economic activity; indeed, the "bursting of the tech bubble" is commonly viewed as having triggered that business-cycle downturn. In addition, equity prices decreased another 25 percent, on balance, between March 2001 and September 2002. In the current episode, stock prices were roughly flat over the year before the NBER-dated peak and plunged while overall economic activity was also contracting. Equity prices might be considered a relatively "neutral" factor in the 1990 recession: They were about unchanged in the year leading up to the NBER-dated peak in overall economic activity and over the following year, as well. A subsequent stock-market rally left equity prices 15 percent higher 20 months after the July 1990 cyclical peak.

House prices: The aforementioned drop in aggregate house prices in the current recession is not something that played a large role in either of the prior two episodes. In the 2001 recession, home prices across the country rose at an annual rate of about 10 percent in the year leading up to the NBER-dated peak in overall activity and at about the same pace over the year-and-a-half after that peak. In addition, although nominal home prices decreased almost 2 percent, on net, in the first six months of the 1990 recession, they recovered in the following six months and flattened out after that.

Household debt: With household assets declining in value, and amid very tight credit market conditions, aggregate household debt has been essentially flat since the end of 2007, reflecting essentially steady levels of home mortgage debt outstanding (including first liens, second mortgages, and home equity loans and drawn lines of credit) and of unsecured consumer credit (credit card balances, auto loans, student loans, and personal loans). Thus, the borrowing experience in this recession differs starkly from that in the 2001 episode——when both mortgage debt and consumer credit increased at average annual rates close to 10 percent——and is noticeably weaker even than what occurred after the 1990 business cycle peak——when mortgage debt expanded at an average annual rate of $7\frac{1}{2}$ percent rate, while consumer credit outstanding was about unchanged.

Figure 3 documents cyclical changes in the performance of some major components of household debt and plots indexes of consumer sentiment and confidence to summarize households' attitudes over the past 3 recessions.

Household credit performance: Figure 3 makes clear how much more difficulty the household sector as a whole has had staying current on their debt obligations in the current recession compared with the prior two episodes. While overall mortgage delinquency rates edged up by just a quarter percentage point or less in the 2001 and the 1990 episodes, they have climbed about 2 percentage since 2007:Q4; as of 2009:Q1, overall mortgage delinquency rates stood almost 4 percentage points above the trough level registered at the end of 2006.[6] In addition, as of June 2009, delinquency rates on credit card accounts were about 2 percentage points higher than at the business cycle peak and were $2\frac{1}{2}$ percentage points above the level registered at the end of 2006. Delinquency rates on auto loans extended to prime-rated borrowers also rose much more in the first year of the current recession than in the 2001 episode, although these delinquency rates have improved significantly over the first half of 2009. Moreover, personal bankruptcy filings have continued to trend higher in recent months——about 125,000 more personal bankruptcy petitions were filed (per month) in the second quarter of 2009 than at the onset of the recession. At the same point in the 2001 recession, the pace of bankruptcy filings had risen only by about 25,000 per month.

3 Analysis of Household-Level Data in the Survey of Consumer Finances

The remainder of the paper draws on data in the Federal Reserve's Survey of Consumer Finances (SCF) to examine changes in balance sheets across the distribution of American households in each of the three most recent recessions. The SCF is a cross-section survey conducted every three years to gather comprehensive information on household assets, liabilities, and income. Because the core elements in the surveys were essentially unchanged from 1989 through 2007, the data collected in those waves are directly comparable.

Although the underlying quality of the SCF data is very good, we face two problems in using them for this study: First, because households are not re-interviewed across waves of the SCF, we cannot directly observe how they responded to changes in assets, employment, or income during the cyclical downturns or economic recoveries—the things we would most like to know. Therefore, our focus is on contrasting the severity of the "cyclical shocks" as they affected household net worth across the three recent recessions, taking into account

[6] Figure 3 plots the "serious delinquency rate" from the Mortgage Bankers Association's quarterly National Delinquency Survey; this rate is the percentage of first-lien mortgages with payments that are 90 days or more delinquent or in foreclosure.

the composition of assets and liabilities at the onset of the economic downturns to gauge the vulnerability of household finances heading into each episode. Second, the timing of the SCF surveys is not intended to correspond with any particular state of the macroeconomy. The 1989 survey was in the field several months before a peak in economic activity and the 1992 data were collected about a year after the macroeconomic recovery had begun. The 2001 survey was also conducted several months into the business-cycle downturn and the 2004 wave occurred well after the economy had reestablished fairly strong growth. Although the timing of the 2007 wave coincided closely with the peak in economic activity, the next SCF cross-section survey is not scheduled until 2010.[7]

In this study, we focus on household-level data in each SCF survey that is closest to a peak in overall economic activity—the 1989, 1992, 2001, and 2007 waves.[8] We then use indexes of price changes to project the value of selected household assets—residential real estate (primarily, but not exclusively, owner-occupied housing) and corporate equity (held directly and through mutual funds and retirement accounts, and privately-held businesses)—to the subsequent NBER-dated trough in economic activity. For the 2001 episode, we project the value of these household assets back to the NBER-dated peak in activity—March 2001—since the survey was actually conducted in the middle of the episode. For real estate revaluations, we use price indexes from LoanPerformance matched to each survey respondent's state of residence;[9] for corporate equity and privately-held business valuations, we use the Wilshire 5000 stock market index.[10] We do not make any projections for other household assets (primarily checking accounts, saving accounts, and consumer durable goods) or for household liabilities (primarily, mortgages, auto loans, student loans, and credit card balances). Our thinking is that these other household assets are not subject to substantial revaluations, household liabilities (in the aggregate, at least) are very slow

[7]As we note below, the Federal Reserve Board (and its contractor) is currently fielding a follow-up survey to respondents who participated in the 2007 SCF.

[8]A broader set of results from the 2007 SCF can be found in Bucks, Kennickell, Mach, and Moore (1); detailed results from the earlier SCF waves are published also published in various issues of the *Federal Reserve Bulletin.* In addition, in a recent paper, Dynan (2) analyzes longer-run trends in the composition of household balance sheets using SCF data going back to the late 1960s, but also emphasizing financial consequences of the recent drop in home values and equity prices. Thus, there is considerable overlap between our discussion of changes in household wealth since the late 1980s and hers.

[9]LoanPerformance is a division of First American Core Logic that produces repeat-sales house price indexes covering a very large sample of owner-occupied residential transactions across the United States. Information about the indexes is available at
`http://www.loanperformance.com/loanperformance_hpi.asp`.

[10]This index can be found at `http://www.wilshire.com/Broad/Wilshire5000/`.

moving, and household saving (again, in the aggregate) is generally too low to affect net worth very much over short time periods (that is, changes in household-sector net worth are overwhelmingly driven by revaluations as market prices of corporate equity and housing change).

The following table summarizes our methods for generating household-level balance sheet data roughly corresponding to each of the past three business-cycle peaks and troughs:

Our Translation of Nearest SCF Data to NBER-Dated Cyclical Peaks and Troughs

		SCF wave closest	How we generate data corresponding to the cyclical:	
	NBER-dated peak	to NBER peak	peak	trough
1.	July 1990	1989 and 1992	project to July 1990 using both SCFs and average the results	use the 1992 SCF
2.	March 2001	2001	project to March 2001	project to November 2002
3.	December 2007	2007	use the 2007 SCF	project to June 2009

Finally, note that because the NBER-dated peak in economic activity of July 1990 falls almost right between the 1989 and 1992 SCF surveys, we projected household-level values to July 1990 from both of those SCFs, then reported simple average values for each of the statistics corresponding to that date.

3.1 Changes in net worth across the distribution of households in the past three recessions

Figure 4 presents the evolution of household net worth at the mean (blue line; left y-axis) and the median (red line; right y-axis) of the distribution from 1989 to 2009. Our projections of net worth between the SCF survey waves are denoted by the month-year labels along the x-axis. Generally, the two lines show similar time-series patterns for central tendencies of household net worth. Wealth declined, on net, between 1989 and 1992, and, by 1995, wealth of the typical household had essentially returned to the 1989-level. Household net worth accelerated between 1995 and early 2001—particularly, at the mean of the distribution—and it rose markedly between 2004 and 2007, before plunging from 2007 through the middle of 2009. By June 2009, we estimate that median household net worth was $84,000 (measured in constant dollars using a deflator based on the consumer price index for 2007)—a bit lower than in 1998 and a bit higher than in 1995. Indeed, we estimate that as of June

2009 median household net worth was about 10 percent higher (in real terms) than in the 1989 SCF. As of June 2009, we estimate that mean net worth was $402,000—between the levels registered in the 1998 and 2001 surveys and about 33 percent higher than in the 1989 survey.

Table 1 focuses on changes in median and mean household net worth during the past three recessions. The columns in red in the table compare percentage changes in household net worth in the three recent recessions at the median and mean of the distributions, unconditionally (rows 1 and 2) and conditional on position in the cross-section income distribution (rows 3 through 8) and conditional on place in the age distribution (rows 9 through 14). The statistics in the table show how much more severe the cumulative—and combined—declines in equity prices and house prices have been in the current recession compared with the prior two. Overall, at the median, household net worth dropped 30 percent since December 2007 and, at the mean, net worth about the same amount, 28 percent. In the 1990 and 2001 recessions, median net worth did not decrease significantly, on net, while mean net worth declined only by about 5 percent. At the mean, the drops in net worth experienced in the 1990 and 2001 episodes represented losses on the order of three months of income (put another way, the drops in average net worth lowered wealth-income ratios by about 1/4 percentage point); in the 2008-09 episode, however, the drop in mean net worth represented 1-1/2 years' worth of income.

In the current recession, households in the three different income groups shown in table 1 experienced comparably sized drops in mean and median net worth. By contrast, in the prior two recessions, only households in the highest quintiile of the income distribution (that is, between the 80th and 100th percentiles of the income distribution) experienced significant decreases in median and mean net worth. Moreover, a distinctive feature of the current recession (as compared with the prior two) is that the youngest households (those headed by a person less than 45 years old) have experienced much larger decreases in median and mean net worth (42 and 34 percent, respectively) than have households in the older two age categories. In the prior two recessions, being relatively young was not nearly so large a "risk factor," in terms of tracking the deterioration in balance sheet positions. As we document below, a key element of the increased risk of young households' balance sheets heading into the 2008-09 recession was their greater exposure to revaluations of corporate equity and their increased balance sheet leverage (primarily, from higher mortgage debt).

Figure 5 documents how much more widespread very large decreases in household net worth have been in the current recession than in the previous two. The figure shows percentage changes in net worth at various percentiles of the distribution of household net worth during the past three recessions. As can be seen in figure 5, following the cyclical peak in July 1990, there were widespread (among households), but relatively small, decreases in net worth (that is, the red, green, and orange bars are only slightly in negative territory). Following the business cycle peak in March 2001, only households in the upper quartile of the wealth distribution, on average, experienced a decrease in wealth and the average decrease was only about 7 percent. However, from the cyclical peak to June 2009, we estimate very large average decreases in net worth accruing to households throughout the wealth distribution.

Table 2 focuses on the "tails" of the distribution of changes in household net worth by comparing the frequency of particularly large decreases in household net worth across the three recent recessions, as well as the frequency of sizable increases in net worth. In the current episode, the combination of falling stock prices and home prices (in many places) resulted in 67 percent of households experiencing a decline in net worth exceeding 10 percent and in 47 percent of households seeing their net worth fall by at least 20 percent. By contrast, in the 2001 recession, only 15 percent of households experienced a larger than 10 percent decrease in net worth and just 4 percent saw their positions deteriorate by more than 20 percent. In the 1990 recession, the shares of households experiencing relatively large decreases in net worth were relatively small, as well. Moreover, a distinguishing feature of the current recession is the widespread nature of the declines in home values, which, in large part, are responsible for only 2 percent of households experiencing an increase in net worth of 10 percent or more since the 2007 SCF was fielded. By contrast, we estimate that in the 1990 and 2001 recessions, respectively, about 18 percent and 25 percent of households saw their net worth increase by 10 percent or more.

The middle section of Table 2 reveals that, as in the 2001 episode, the largest (percentage) declines in household net worth were concentrated among households in the upper quintile of the income distribution. That said, in the current recession, more than half of households in the middle of the income distribution saw their net worth positions fall by

20 percent or more, and more than a quarter of households in the bottom of the income distribution experienced such large decreases in net worth. The frequency of large decreases in net worth among lower- and middle-income households were negligible in the 1990 and 2001 recessions, in large part because many in the middle-income group saw the value of their homes rise in those episodes and because, as we'll see later, their exposures to the stock market were relatively small.

3.2 Parsing the factors that have pushed down household net worth in the current recession

It seems clear that falling home prices in many parts of the country and the drop in stock prices has driven down household net worth in the current recession. After documenting the arithmetic contribution of negative revaluations of these key assets to the drop in net worth across the wealth distribution, this section quantifies perhaps a lesser known channel (albeit, one of secondary importance)—the effect of greater exposure to real estate and corporate equity investments across a wide range of households.

3.2.1 The arithmetic contribution of home prices and stock prices to the drop in household net worth across the distribution of households.

The financial strain on household balance sheets in the current recession can be strongly linked to the fact that corporate equity and housing were revalued sharply at (more or less) the same time. By contrast, while many household balance sheets were suffering from negative housing revaluations in the 1989 episode, homeowners in other parts of the country were not; in addition, stock prices rebounded fairly soon in the 1989 recession (and early stages of the recovery) and this served to offset much of the housing revaluation that did occur. In the 2001 recession (and recovery), balance sheets for many households were hit by the sharp equity revaluations, but home price appreciation across most of the country provided a substantial offset.

The following table makes this point more directly by comparing estimated revaluations of corporate equity and homes in each of the three business cycles:

Comparison of Corporate Equity and Housing Revaluations in the Past 3 Business Cycles

		Business cycle:		
	Percentage change in average:	1990-91	2001	2008-09
1.	Household net worth	-5	-6	-28
2.	Corporate equity values	+10	-21	-37
3.	Home values	-6	+14	-22

That is, the table shows our estimate that, overall, in the current recession, corporate equity values on household balance sheets fell 37 percent owing to the net fall in stock prices from December 2007 to June 2009, while sagging home prices cut the value of housing by 22 percent over the same period. By contrast, in the 2001 episode, stock prices fell 21 percent over a period of similar duration, but this effect on household net worth was substantially offset by a 14 percent average net increase in home values. In the 1990-91, episode, a weak housing market pushed home values down by an average of 6 percent (cumulatively), but a net 10 percent increase in the stock market provided a significant arithmetic offset for household wealth. All told, of the 23 percentage point larger net decrease in average household net worth in 2008-09 (-28 percent) compared with the 1990-91 episode (-5 percent), we estimate that 10 percentage points can be accounted for by the larger drop in stock prices (-37 percent vs. +10 percent) and that another 10 percentage points reflects the larger drop in home prices (-22 percent vs. -6 percent). The remaining 3 percentage points greater decline in net worth during the current recession compared with the 1990-91 episode (-3 = -23 - -10 - -10) is associated with other changes in the typical household's balance sheet between the early 1990s and the latter 2000s: In particular, as we discuss next, the key other factors appear to be: greater exposure to the stock market, greater exposure to housing revaluations, and higher balance sheet leverage (greater debt relative to assets).

3.2.2 Increased holdings of real estate and corporate equity investments across the distribution of households.

Not only have the revaluations of housing and corporate equity been more severe in the current recession than in the prior two, but ownership of these two important assets increased notably from the late 1980s through the late 1990s. Thus, a wider range of households were more exposed to revaluations than used to be the case.

Table 3 documents the broad trends. The rows highlighted in red show that between 1989 and 2001 the share of households owning corporate equity (directly or through a mutual fund or in a retirement account) climbed from 32 percent to 52 percent. Moreover, the increased incidence of corporate-equity ownership occurred among lower-, middle-, and higher-income households and was evident across all age groups. The largest increases (in absolute terms) in ownership between 1989 and 2001 occurred for middle-income (28 percentage points) and younger households (24 percentage points). Overall ownership rates for corporate equity were essentially unchanged between 2001 and 2007, although middle-income and younger households reduced their exposures to corporate equity, on net, this decade. As a share of total assets, households' exposure to corporate equity doubled, on net, from 9 percent in 1989 to 18 percent in 2007. Over this time frame, exposures about tripled for households in the lower- and middle- income groups, while they doubled for those in the top income quintile. From 1989 to 2007, the share of corporate equity in total household assets essentially doubled for households in all three age groups shown in table 3.

Table 3 documents a trend toward rising home ownership rates between 1989 and 2007 that was also widespread among households across the income and age distributions, although the 5 percentage point overall increase in the aggregate homeownership rate was much smaller than the rise in corporate equity holdings. From 1989 to 2007, households in each of the three income groups saw their homeownership rates rise by close to 4 percentage points, while the net increase was concentrated among households in the oldest age group (7 percentage points since 1989).

Table 4 reports results from some "counterfactual" scenarios intended to gauge the quantitative importance of the size of the revaluations of corporate equity and housing the current recession for the deterioration in balance sheet positions across the distribution of U.S. households. In particular, the left-hand columns of table 4 are repeated from table 2—they simply report the share of households in each of the past three recessions that are estimated to have experienced decreases in net worth exceeding 10 percent or 20 percent respectively and the share whose net worth increased 10 percent or more. The two right-hand columns compute the same statistics using data from balance sheet positions from the 1989 and the 2001 SCF waves and the monthly revaluations for corporate equity and housing that occurred in the 2008-09 recession.

Thus, table 2 shows that while only 4 percent of households actually experienced decreases in net worth of 20 percent or larger during the 1990 recession, the share would have been 37 percent of households under a counterfactual scenario in which corporate equity and housing revaluations were assumed to follow the same trajectory as in the 2008-09 episode. In addition, the table shows that using the current recession's larger negative revaluations of equity and housing rather than the actual experience in the 2001 episode raises the fraction of household experiencing decreases in net worth exceeding 20 percent to 48 percent (the counterfactual calculation) from the 4 percent actually experienced in the 2001 case.

The counterfactual scenarios reported in table 4 provide a way to gauge the quantitative importance of the greater exposure of households to corporate equity and housing revaluations. In particular, we can compare estimates of the incidence of sizable decreases in net worth that actually occurred in the current recession (column 3) with the counterfactual simulations based on the SCF balance sheets in 1989 and in 2001 (columns 4 and 5). Given the relatively small shifts in ownership of corporate equity and housing between 2001 and 2007, it is not surprising that the figures in columns 3 and 5 are so similar. However, given the more substantial shifts in ownership that have occurred since 1989, the figures in columns 3 and 4 differ more significantly. These indicate, for example, that had the ownership patterns for corporate equity and housing in 2007 been the same as they were in 1989, the sharp, coincident revaluations in the current episode would have resulted in 37 percent of households experiencing decreases in net worth exceeding 20 percent—this contrasts with the 47 percent of households who actually experienced such a large drop in net worth in the current recession.

Looking at the results in table 4 among households in different income and age groups, the SCF data suggest that around four-fifths of the greater severity of the "shock" to net worth in the current recession compared with the prior two can be traced to the size and coincidence of the revaluations to equity and housing; about one-fifth of the greater severity can be traced to the trend toward rising ownership rates for corporate equity and housing since 1989 that left household balance sheets much more exposed to revaluations of those assets this decade than had been the case in the late 1980s. Table 4 shows that for lower-income households, the relatively steep deterioration in balance sheets seen in this recession almost entirely owes to the more severe equity and housing revaluations that have occurred. By contrast, an increased exposure to equity and home values among the oldest households accounts for almost as much of the greater drop in net worth as does the worse performance of the stock market and the housing market in this recession.

3.3 Increased Leverage Heading into the Current Recession

In addition to increased exposure to revaluations associated with rising ownership of corporate equity and housing since the late 1980s, there has been a steady increase in household indebtedness. The red rows in table 5 report trends in the share of households who have any debt on their balance sheets (as well as the component categories, mortgage debt or consumer debt): The share rose from 72 percent in 1989 to 75 percent in 2001 and 77 percent in 2007. This measure of increased leverage was fully accounted for by households in the lower- and middle-income groups, where the shares rose by 8 and 5 percentage points, respectively. However, table 5 shows that the increased incidence of debt between 1989 and 2007 was smallest for households under 45 years of age and was largest for those aged 65 years and older.

Although the prevalence of credit card balances and auto loans (included in the "consumer debt" category) increased somewhat, on net between 1989 and 2007—with all of the increase occurring since 2001—most of the overall increase in the incidence of household debt took the form of mortgages. Among all households, the share with a mortgage climbed from 40 percent in 1989, to 45 percent in 2001, and 49 percent in 2007. The share of middle-income households with an outstanding mortgage balance increased from 47 percent in 1989 to 60 percent in 2007. Net changes in the incidence of consumer debt between 1989 and 2007 were concentrated among households in the lower four quintiles of the income distribution and among households headed by a person between 45 and 64 years old or by a person older than 64 years of age.

Table 5 documents significant increases in the levels of mortgage debt and total debt relative to household income from 1989 to 2007, even as median ratios of consumer debt to income were very little changed over the period. For just about every group of households shown in table 5, the ratio of mortgage debt to income doubled, on net, since 1989, and for many of the groups shown, the ratio of total debt to income more than doubled. Thus, the SCF data indicate that rising balance sheet leverage was also one of the reasons for the more-widespread and larger drops in household net worth seen in the current recession.[11]

Although much of the increase in the incidence of mortgage debt—9 percentage points across all households between 1989 and 2007—can be traced to the rise in homeownership—5 percentages points since 1989, table 6 presents evidence on how many more homeowners took on very large mortgages over the period. For example, at the time the 2007 SCF was conducted, about 7 percent of homeowners reported mortgage debt exceeding 90 percent of their home's value; this fraction had been 7 percent in the 2001 and 2004 SCFs, but it was under 4 percent and under 5 percent, respectively, in the 1989 and 1992 surveys.[12] Of course, the substantial declines in home values across most parts of the country since the 2007 SCF have pushed up the fraction of homeowners with relatively large mortgages: We estimate that the share with home loan-to-value ratios above 90 percent more than doubled to 17 percent by the middle of 2009 and that the share whose owe more than their homes are worth (LTV > 100 percent) has soared from just 1 percent at the time of the 2007 SCF to around 12 percent recently. There can be little doubt the swing to very low and frequently negative equity positions has been a major factor contributing to the rise in mortgage defaults over the past year-and-a-half.[13] By our calculations, roughly 35 percent of homeowners younger than 45 years of age now have mortgages exceeding 90 percent of their home's value and around 25 percent of younger homeowners appear to owe more than their homes are currently worth.

Table 7 takes a different look at the trends in credit and payment problems in the SCF to gauge the vulnerability of households heading into the 2008-09 recession compared with the prior two. More specifically, table 7 reports the fraction of households reporting having been turned down for credit in the past few years, the fraction with debt payments (interest and principle on mortgages, credit card balances, and student loans and auto loans) exceeding 40 percent of their income, and the fraction reporting being 60 days or more late on any payment (including utilities, medical bills, or other "non-debt" payments). The

[11] To be more explicit, greater balance sheet leverage (that is, more debt relative to assets) means that, all alse being equal, a given percentage revaluation in an asset will translate into a larger percentage change in net worth.

[12] In table 6, the terms "loan-to-value" and "LTV" represent the ratio of homeowners' mortgage debt to the reported value of their homes.

[13] For research on this issue, see Mayer, Pence, and Sherlund (7), Sherlund (9), and Gerardi, Lehnert, Sherlund, and Willen (4).

table also reports the fraction of households reporting any of those indications of having been financially "over-extended" or vulnerable. Near the business cycle peak in 2007, 13 percent of households reported having been turned down for credit in recent months—a fraction that was virtually the same as in the 1989 and 2001 surveys. The fraction of households reporting being 60 days or more late on any of their payments was also virtually the same in the 1989, 2001, and 2007 surveys. At face value, these measures do not indicate substantially greater financial vulnerability heading into the current recession than in the previous two downturns.

However, the 2007 SCF did show a larger fraction of households reporting debt payments exceeding 40 percent on income—15 percent of all households in 2007, compared with 12 percent in 2001 and 10 percent in 1989. Among households in the lower two quintiles of the income distribution, the fraction with such high debt payments relative to income was 23 percent in 2007, not very different than the 22 percent share in 2001, but more noticeably above the 19 percent share in 1989. The share of middle-income households with heavy debt payments rose to 14 percent in 2007, from 9 percent in 2001 and 8 percent in 1989. Table 7 documents that the net rise in the share of households with relatively heavy debt payments from 1989 to 2007 was evenly distributed across the age distribution.

The share of households reporting any of the three financial vulnerabilities fluctuated in a fairly narrow range around 28 percent in all of the SCF surveys conducted from 1989 through 2007, indicating no strong overall trend in payment problems. Near the 2007 peak in business cycle activity, 43 percent of households in the bottom two quintiles of the income distribution reported at least one of the three indicators of financial vulnerability, a share that was no different (statistically speaking) than in any of the prior four surveys. At 35 percent, the share of younger households reporting at least one of the credit or payment problems in 2007, was 3 percentage points greater than in 2001 and 4 percentage points higher than in 1989. Of course, the period leading up to 2007 is recognized for the ease in which households obtained credit, which could explain the relatively low incidence of households reporting having recently been turned down for credit and having remained "current" of their obligations (news loans generally carry very low delinquency rates).

3.4 Indications of substantial financial stress

Table 8 presents our final calibration of how much more financially stressful the current recession has been compared with the previous two. The left-hand columns simply report the fraction of households who reported at least one of the financial vulnerabilities queried in the most recent SCF survey (debt payments $>$ 40 percent of income or an existing credit or payment problem) *and* is estimated to have suffered a decrease in net worth of 20 percent or more. As can be seen, in the 1990 and the 2001 recessions, we estimate that only 1 percent of households met this definition of substantial financial stress. By contrast, as of June 2009, at least 13 percent of households are estimated to have. We say "at least" because, no doubt, job losses and other recession-related changes in economic conditions have raised the existence of credit and payment problems well above the levels measured in the 2007 SCF. The right-hand columns repeat our counterfactual estimates that rely on the distribution of balance sheets and existing credit problems measured in the 1989 and 2001 SCFs, but that impose the changes in corporate equity and housing values measured for the 2008 and 2009. Again, the counterfactuals imply that most, but not all, of the greater incidence in our measure of substantial financial stress in the current recession reflects the confluence of sharp declines in the stock and housing markets. Had those price declines occurred with 2001's "existing" balance sheets and credit and payment problems, we estimate that 11 percent of households would've come under substantial financial stress during that recession. In 1989, our estimate is 8 percent of households, suggesting that about two-fifths of the greater incidence of substantial financial stress in the current recession reflects the greater financial vulnerability of households in 2007 compared with 1989 ($\frac{2}{5} \approx \frac{13-8}{13-1}$). The 2001 counterfactual suggests that about one-sixth of the greater incidence of substantial financial stress in the current recession reflects greater vulnerability in 2007 that in 2001 ($\frac{1}{6} \approx \frac{13-11}{13-1}$).

3.5 A caveat

We should emphasize that data from the 2007 SCF permit very little to be said with firm conviction about the role that balance sheet leverage may have played in the current recession. This is because any amplifying effects that may have been caused by leverage at the onset of the recession might not have occurred until after households had experienced job losses or drops in incomes to levels that could no longer support timely debt payments.

In other words, this is a case where specific follow-ups with more-leveraged households and with those whose incomes dropped the most is needed to understand the full ramifications of their "pre-existing" balance-sheet conditions. The next section of the paper briefly describes a Federal Reserve initiative to supplement the 2007 SCF with just that type of follow-up information.

3.6 Looking Ahead: Forthcoming Information from the 2009 SCF Panel Survey

In an effort to better understand the exceptional economic circumstances in 2008 and 2009, the Federal Reserve Board sponsored follow-up interviews for households who participated in the 2007 SCF. These interviews promise to provide important information on the distribution of changes in economic conditions—employment and income, balance sheet positions and other measures of financial stress—and indications of how households responded to them—including possible changes in saving, spending, and rebalancing of investments. The follow-up interviews began in the summer of 2009 and will be completed before the end of the year; comprehensive data are currently expected to be ready by the middle of 2010. As suggested above, having two interviews with each households should allow a more focussed analysis of households' various responses to the financial turmoil and sharper conclusions about the role that balance sheet leverage and other indicators of financial stress and changing credit conditions may have played in amplifying and propogating "shocks" to equity and home valuations.

4 Discussion

This paper documents how much larger and more pervasive substantial decreases in household net worth have been in the 2008-09 U.S. recession compared with the downturns in 2001 and in 1990-91. Arithmetically, the more sizable decreases in wealth across a wide range of households in the current episode was traced primarily to large net decreases in corporate equity and home values. A key quantitative result is that in the 2001 recession, rising home values provided a significant (but incomplete) financial offset to falling corporate quity values, while in the 1990-91 episode, rising equity values offset to a considerable extent the balance sheet consequences of generally falling home values. We also show that increased exposure to equity and housing revaluations and to somewhat more-leveraged positions also contributed to the greater deterioration in household net worth in the current episode, but that, quantitatively, these factors played more of a secondary role.

In terms of the macroeconomic consequences of our results, one issue is how households will respond to the particularly acute net deterioration in their financial positions since the peak in overall business cycle activity late in 2007. According to much commentary by analysts and forecasters, the contour for broad macroeconomic activity seems likely to be strongly influenced by the path of consumer spending. Moreoever, forecasters seem to have quite a range of opinions and express significant uncertainty about the outlook for consumer spending and for the trajectory of the personal saving rate.[14] Indeed, some experts expect a considerable rise in the saving rate fairly soon (for example, see Keene and Walker ((6)) or Glick and Lansing (5)). The context for much of the discussion surrounds the prospects for the pace of household deleveraging or "balance sheet repair," and, indeed, our analysis of the SCF data suggests that the pervasive and substantial deterioration in household net worth in the current business cycle suggests that such a focus might well be justified.

That said, our analysis of the extant cross-section data in the SCF cannot speak directly to questions regarding where household savings rates will end up—that is, whether a pronounced adjustment to a "permanently" higher saving rate could be in train—or how quickly any adjustment might take place. However, we think analysis of the forthcoming data from the 2009 SCF re-interviews will provide some important, albeit still-circumstantial, evidence on these issues. For example, those data should help us identify what types of adjustments households have already taken in reaction to the sharp revaluations of key assets on their balance sheets. Although the re-interview will only collect indicators of spending, we hope to be able to parse to an extent some of the adjustments

[14] A range of fairly detailed private-sector forecasts are summarized each month in Moore (8); the Federal Reserve Bank of Philadelphia reports a Survey of Professional Forecasters near the middle of each calendar quarter (`http://www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/`). In addition, the minutes from meetings of the Federal Open Market Committee (FOMC) in January, April, August, and November include a "Summary of Economic Projections"—forecasts of real GDP, the unemployment rate, and consumer price inflation provided by the Board of Governors and the presidents of the twelve Federal Reserve Banks (`http://federalreserve.gov/monetarypolicy/fomccalendars.htm`).

households made in response to different changes in their economic circumstances: revaluations to their holdings of corporate equity and housing, lay-offs and reductions in wages and hours of work, and problems servicing existing debt and in accessing usual sources of credit.

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Table 1

A Comparison of Changes in Household Net Worth in the Survey of Consumer Finances around NBER Business Cycle Peaks

Cyclical downturn:	Jul-90	(1992 SCF) Nov-92	Mar-01	Nov-02	(2007 SCF) Nov-07	Jun-09	Jul-90 to Nov-92	Mar-01 to Nov-02	Nov-07 to Jun-09
			(thousands of 2007 dollars)					(percent change)	
All households									
Median net worth	74	72	99	106	121	84	-3	7	-30
Mean net worth	285	270	463	435	558	402	-5	-6	-28
Income percentile									
0-40									
Median net worth	16	19	23	25	20	16	16	11	-23
Mean net worth	72	70	97	99	120	92	-2	2	-23
40-80									
Median net worth	85	83	115	121	139	98	-2	5	-29
Mean net worth	183	175	263	260	293	213	-4	-1	-27
80-100									
Median net worth	308	277	493	496	599	437	-10	0	-27
Mean net worth	914	859	1596	1458	1962	1399	-6	-9	-29
Age of head									
< 45 years									
Median net worth	30	29	36	41	31	18	-3	13	-42
Mean net worth	135	125	203	195	211	138	-7	-4	-34
45 years to 64 years									
Median net worth	146	133	171	182	216	158	-9	7	-27
Mean net worth	452	434	680	631	788	568	-4	-7	-28
> 64 years									
Median net worth	128	133	193	200	221	191	4	4	-13
Mean net worth	397	370	670	633	826	621	-7	-6	-25

Note: Values for July 1990, March 2001, November 2002, and June 2009 have been projecting using household-level data in the nearest SCF wave and changes in stock price indexes and regional house price indexes.

Table 2

A Comparison of the Frequency of Large Changes in Household Net Worth in the Survey of Consumer Finances around NBER Business Cycle Peaks

Cyclical downturn:	Jul-90 to 92 SCF	Mar-01 to Nov-02	07 SCF to Jun-09
		(percent of households)	
All households			
Net worth down >= 10%	6	15	67
Net worth down >= 20%	4	4	47
Net worth up >= 10%	18	25	2
Income percentile			
0-40			
Net worth down >= 10%	10	13	45
Net worth down >= 20%	9	8	28
Net worth up >= 10%	16	25	5
40-80			
Net worth down >= 10%	4	12	77
Net worth down >= 20%	1	2	54
Net worth up >= 10%	17	27	0
80-100			
Net worth down >= 10%	4	23	94
Net worth down >= 20%	1	1	71
Net worth up >= 10%	23	23	0
Age of head			
< 45 years			
Net worth down >= 10%	8	17	60
Net worth down >= 20%	5	7	48
Net worth up >= 10%	22	27	3
45 years to 64 years			
Net worth down >= 10%	5	15	77
Net worth down >= 20%	4	2	53
Net worth up >= 10%	18	24	1
> 64 years			
Net worth down >= 10%	3	11	65
Net worth down >= 20%	3	3	36
Net worth up >= 10%	9	23	2

Table 3

Trends in Ownership of Selected Assets in the SCF from 1989 to 2007

	SCF Wave			*Change from:*	
	1989	2001	2007	*1989 to 2001*	*1989 to 2007*
		(percent)		*(percentage points)*	
All households					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	32	52	51	*21*	19
Share of total assets	9	24	18	*15*	10
Primary residence					
Share of households with balance > 0	64	68	69	*4*	5
Share of total assets	32	27	32	*-5*	0
Income percentile					
0-40					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	9	24	24	*14*	15
Share of total assets	3	11	9	*8*	6
Primary residence					
Share of households with balance > 0	44	49	48	*5*	4
Share of total assets	47	48	50	*0*	3
40-80					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	36	64	60	*28*	24
Share of total assets	5	21	15	*15*	9
Primary residence					
Share of households with balance > 0	71	74	77	*3*	6
Share of total assets	43	38	46	*-5*	4
80-100					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	67	86	88	*19*	21
Share of total assets	11	27	20	*16*	10
Primary residence					
Share of households with balance > 0	90	93	93	*3*	4
Share of total assets	25	20	24	*-5*	-1
Age of Head					
< 45 years					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	30	54	46	*25*	16
Share of total assets	6	18	11	*12*	5
Primary residence					
Share of households with balance > 0	51	54	53	*3*	2
Share of total assets	42	37	45	*-5*	3
45 years to 64 years					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	39	59	60	*19*	21
Share of total assets	9	25	19	*16*	10
Primary residence					
Share of households with balance > 0	78	79	79	*1*	1
Share of total assets	30	24	29	*-5*	-1
> 64 years					
Corporate equity (directly or indirectly held)					
Share of households with balance > 0	26	38	46	*11*	20
Share of total assets	11	26	21	*16*	11
Primary residence					
Share of households with balance > 0	74	79	81	*5*	7
Share of total assets	25	24	28	*-2*	3

Table 4

Actual and Counterfactual Frequencies of Large Changes in Household Net Worth around NBER Business Cycle Peaks

	SCF-based Estimates:			*Counterfactuals based on asset price changes since 2007 and:*	
Cyclical downturn:	**Jul-90 to 92 SCF**	**Mar-01 to Nov-02**	**07 SCF to Jun-09**	**1989 SCF**	**2001 SCF**
			(percent of households)		
All households					
Net worth down >= 10%	**6**	**15**	**67**	**59**	**66**
Net worth down >= 20%	**4**	**4**	**47**	**37**	**48**
Net worth up >= 10%	**18**	**25**	**2**	**4**	**3**
Income percentile					
0-40					
Net worth down >= 10%	**10**	**13**	**45**	**41**	**47**
Net worth down >= 20%	**9**	**8**	**28**	**25**	**30**
Net worth up >= 10%	**16**	**25**	**5**	**10**	**7**
40-80					
Net worth down >= 10%	**4**	**12**	**77**	**63**	**73**
Net worth down >= 20%	**1**	**2**	**54**	**40**	**52**
Net worth up >= 10%	**17**	**27**	**0**	**0**	**0**
80-100					
Net worth down >= 10%	**4**	**23**	**94**	**85**	**92**
Net worth down >= 20%	**1**	**1**	**71**	**56**	**75**
Net worth up >= 10%	**23**	**23**	**0**	**0**	**0**
Age of head					
< 45 years					
Net worth down >= 10%	**8**	**17**	**60**	**56**	**64**
Net worth down >= 20%	**5**	**7**	**48**	**42**	**52**
Net worth up >= 10%	**22**	**27**	**3**	**5**	**4**
45 years to 64 years					
Net worth down >= 10%	**5**	**15**	**77**	**71**	**73**
Net worth down >= 20%	**4**	**2**	**53**	**43**	**50**
Net worth up >= 10%	**18**	**24**	**1**	**4**	**1**
> 64 years					
Net worth down >= 10%	**3**	**11**	**65**	**49**	**61**
Net worth down >= 20%	**3**	**3**	**36**	**19**	**34**
Net worth up >= 10%	**9**	**23**	**2**	**2**	**2**

Table 5

Trends in Household Debt in the SCF from 1989 to 2007

	SCF Wave			*Change from:*	
	1989	**2001**	**2007**	***1989 to 2001***	***1989 to 2007***
		(percent or ratio)		*(percentage points or change in ratio)*	
All households					
Debt balance > $0	**72**	**75**	**77**	**3**	**5**
Mortgage debt	**40**	**45**	**49**	***5***	**9**
Consumer debt	**63**	**63**	**66**	***0***	**3**
Median ratio of debt to income	**0.5**	**0.8**	**1.1**	**0.3**	**0.6**
Mortgage debt/income	**0.8**	**1.1**	**1.5**	***0.3***	**0.7**
Consumer debt/income	**0.3**	**0.2**	**0.2**	***-0.1***	**-0.1**
Income percentile					
0-40					
Debt balance > $0	**53**	**60**	**61**	**7**	**8**
Mortgage debt	**16**	**20**	**22**	***5***	**7**
Consumer debt	**48**	**53**	**52**	***5***	**5**
Median ratio of debt to income	**0.3**	**0.5**	**0.7**	**0.2**	**0.3**
Mortgage debt/income	**1.0**	**1.8**	**2.1**	***0.8***	**1.1**
Consumer debt/income	**0.2**	**0.2**	**0.3**	***0.1***	**0.1**
40-80					
Debt balance > $0	**82**	**84**	**87**	**2**	**5**
Mortgage debt	**47**	**53**	**60**	***6***	**13**
Consumer debt	**74**	**72**	**77**	***-1***	**4**
Median ratio of debt to income	**0.6**	**0.9**	**1.4**	***0.3***	**0.8**
Mortgage debt/income	**0.9**	**1.2**	**1.6**	***0.4***	**0.8**
Consumer debt/income	**0.2**	**0.2**	**0.2**	***0.0***	**0.1**
80-100					
Debt balance > $0	**91**	**88**	**89**	**-2**	**-2**
Mortgage debt	**72**	**76**	**79**	***4***	**7**
Consumer debt	**71**	**62**	**68**	***-8***	**-3**
Median ratio of debt to income	**0.6**	**0.9**	**1.2**	***0.2***	**0.6**
Mortgage debt/income	**0.6**	**0.8**	**1.1**	***0.2***	**0.5**
Consumer debt/income	**0.1**	**0.1**	**0.1**	***0.0***	**0.0**
Age of Head					
< 45 years					
Debt balance > $0	**84**	**86**	**85**	**2**	**1**
Mortgage debt	**45**	**48**	**48**	***3***	**3**
Consumer debt	**77**	**75**	**76**	***-1***	**-1**
Median ratio of debt to income	**0.6**	**0.9**	**1.3**	***0.3***	**0.7**
Mortgage debt/income	**0.9**	**1.2**	**1.9**	***0.3***	**1.0**
Consumer debt/income	**0.2**	**0.2**	**0.3**	***0.1***	**0.1**
45 years to 64 years					
Debt balance > $0	**78**	**81**	**85**	**3**	**6**
Mortgage debt	**48**	**56**	**61**	***7***	**13**
Consumer debt	**64**	**64**	**71**	***1***	**7**
Median ratio of debt to income	**0.5**	**0.8**	**1.1**	***0.3***	**0.6**
Mortgage debt/income	**0.6**	**1.0**	**1.3**	***0.4***	**0.7**
Consumer debt/income	**0.1**	**0.2**	**0.2**	***0.0***	**0.0**
> 64 years					
Debt balance > $0	**38**	**43**	**48**	**6**	**11**
Mortgage debt	**15**	**21**	**28**	***6***	**13**
Consumer debt	**29**	**33**	**37**	***4***	**7**
Median ratio of debt to income	**0.2**	**0.4**	**0.7**	***0.1***	**0.5**
Mortgage debt/income	**0.3**	**0.9**	**1.3**	***0.6***	**1.0**
Consumer debt/income	**0.1**	**0.1**	**0.1**	***0.0***	**0.1**

Table 6

Trends in Home Loan-to-Value Ratios (Housing Leverage) from 1989 to 2008

Homeowners with LTV >= 90%, by Income Percentile and Age of Head, SCF

	SCF **1989**	**Jul-90**	*SCF* **1992**	**Mar-01**	*SCF* **2001**	**Nov-02**	*SCF* **2004**	*SCF* **2007**	**Jun-09**
					(percent of households)				
All households	4	3	5	8	7	3	7	**7**	**17**
Income percentile									
0-40	3	2	2	7	6	4	5	**5**	**10**
40-80	6	4	6	10	9	4	9	**9**	**22**
80-100	1	1	5	5	3	1	5	**5**	**17**
Age of head									
< 45 years	8	6	10	15	13	7	14	**16**	**35**
45 years to 64 years	2	1	2	5	4	2	5	**4**	**13**
> 64 years	0	0	0	2	2	1	0	**1**	**4**

Homeowners with LTV > 100%, by Income Percentile and Age of Head, SCF

	SCF **1989**	**33055**	*SCF* **1992**	**Mar-01**	*SCF* **2001**	**Nov-02**	*SCF* **2004**	*SCF* **2007**	**Jun-09**
					(percent of households)				
All households	1	1	1	3	2	1	1	**1**	**12**
Income percentile									
0-40	1	1	0	4	2	1	1	**1**	**8**
40-80	2	2	1	3	2	1	1	**1**	**15**
80-100	1	1	1	1	0	0	1	**1**	**12**
Age of head									
< 45 years	3	3	1	5	3	2	2	**2**	**25**
45 years to 64 years	0	0	1	2	1	1	1	**1**	**8**
> 64 years	0	0	0	1	0	0	0	**0**	**2**

Table 7

Trends in Credit and Payment Problems from 1989 to 2007

SCF wave:	1989	1992	2001	2004	2007	*Change, 1989 to 2007*
		(percent of households who have any debt)				*(percentage pts)*
All households						
Turned down for credit recently	14	18	14	15	13	*-1*
Debt payments > 40% of income	**10**	**11**	**12**	**12**	**15**	***5***
60 days late on any payment	7	6	7	9	7	*0*
Any of the above problems	**26**	**29**	**27**	**29**	**28**	***2***
Income percentile						
0-40						
Turned down for credit recently	20	23	20	20	18	*-1*
Debt payments > 40% of income	**19**	**21**	**22**	**22**	**23**	***4***
60 days late on any payment	15	10	12	15	13	*-2*
Any of the above problems	**43**	**43**	**43**	**44**	**43**	***-1***
40-80						
Turned down for credit recently	15	18	14	16	13	*-2*
Debt payments > 40% of income	**8**	**9**	**9**	**10**	**14**	***5***
60 days late on any payment	5	6	6	9	6	*1*
Any of the above problems	**24**	**28**	**24**	**28**	**27**	***3***
80-100						
Turned down for credit recently	5	10	7	5	4	*-1*
Debt payments > 40% of income	**3**	**3**	**3**	**2**	**6**	***3***
60 days late on any payment	2	1	2	1	1	*-1*
Any of the above problems	**9**	**13**	**10**	**7**	**11**	***2***
Age of Head						
< 45 years						
Turned down for credit recently	19	23	20	20	19	*0*
Debt payments > 40% of income	**10**	**12**	**11**	**13**	**14**	***4***
60 days late on any payment	9	8	9	13	9	*0*
Any of the above problems	**31**	**35**	**32**	**35**	**35**	***3***
45 years to 64 years						
Turned down for credit recently	9	13	9	12	9	*0*
Debt payments > 40% of income	**10**	**12**	**12**	**12**	**15**	***5***
60 days late on any payment	6	5	7	6	6	*1*
Any of the above problems	**20**	**25**	**22**	**25**	**24**	***5***
45 years to 64 years						
Turned down for credit recently	4	6	5	3	4	*0*
Debt payments > 40% of income	**9**	**9**	**15**	**11**	**15**	***6***
60 days late on any payment	3	1	1	4	3	*0*
Any of the above problems	**15**	**13**	**18**	**15**	**19**	***4***

Table 8

Indicators of Substantial Financial Stress in the Past Three Recessions

Percent of households whose net worth dropped 20% or more and had reported debt payments exceeding 40% of income or existing credit or payment problems

	SCF-based estimates			*Counterfactuals based on asset price changes since 2007 and:*	
Cyclical downturn:	1989 SCF and Jul-90 to 02 SCF	2001 SCF and 01 SCF to Nov-02	2007 SCF and 07 SCF to Jun-09	*1989 SCF*	*2001 SCF*
All Households	1	1	13	*8*	*11*
Income percentile					
0-40	1	1	12	*7*	*11*
40-80	0.8	1	16	*11*	*13*
80-100	1	0.2	8	*6*	*7*
Age of Head					
< 45 years	1	2	15	*11*	*14*
45 years to 64 years	0.7	0.3	14	*8*	*11*
> 64 years	0.2	0.0	5	*2*	*4*

Figure 1

Selected Measures of Economic Activity around NBER Business Cycle Peaks

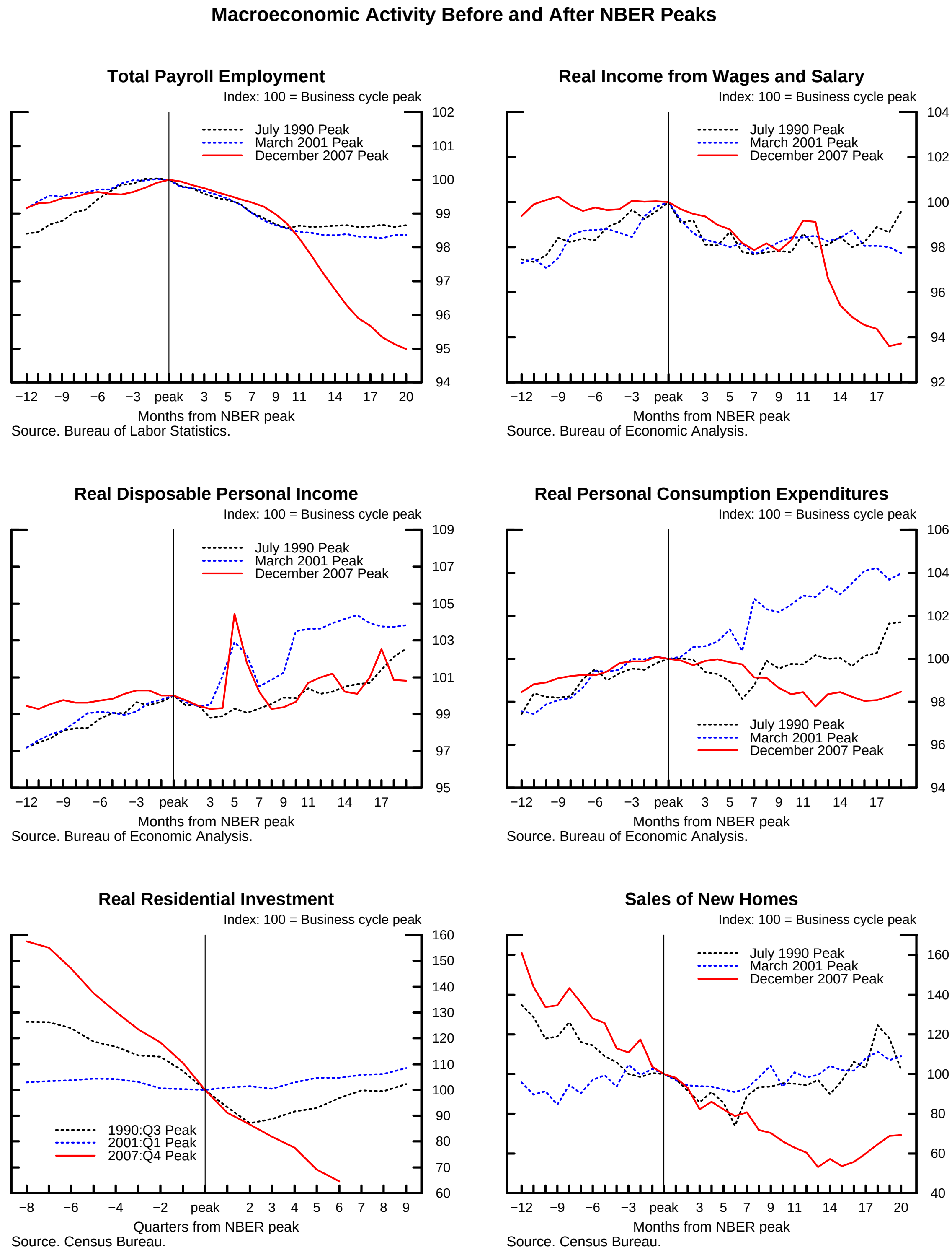


Figure 2

Selected Balance Sheet Items around NBER Business Cycle Peaks

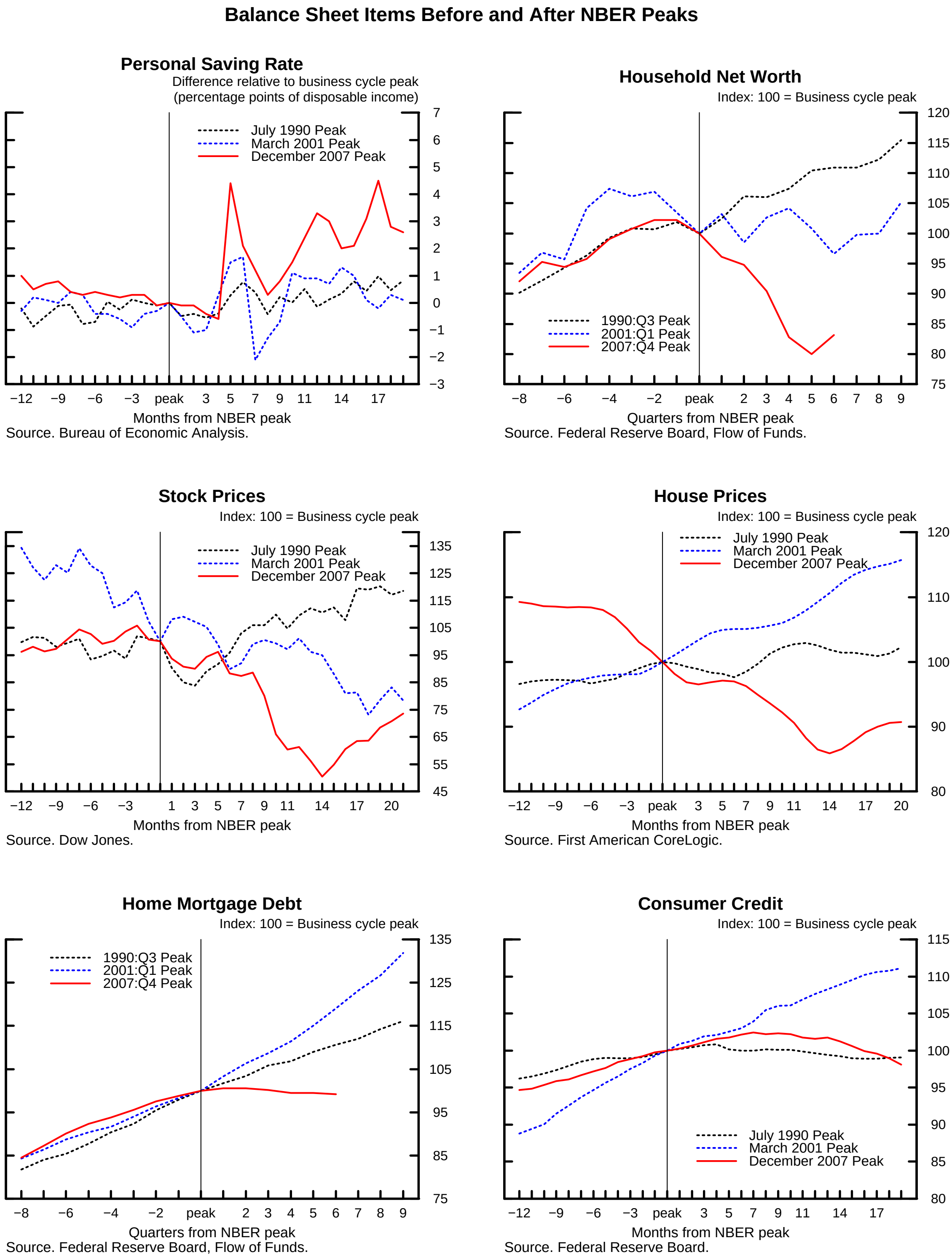


Figure 3

Selected Measures of Household Credit Performance around NBER Business Cycle Peaks

Household Credit Performance Before and After NBER Peaks

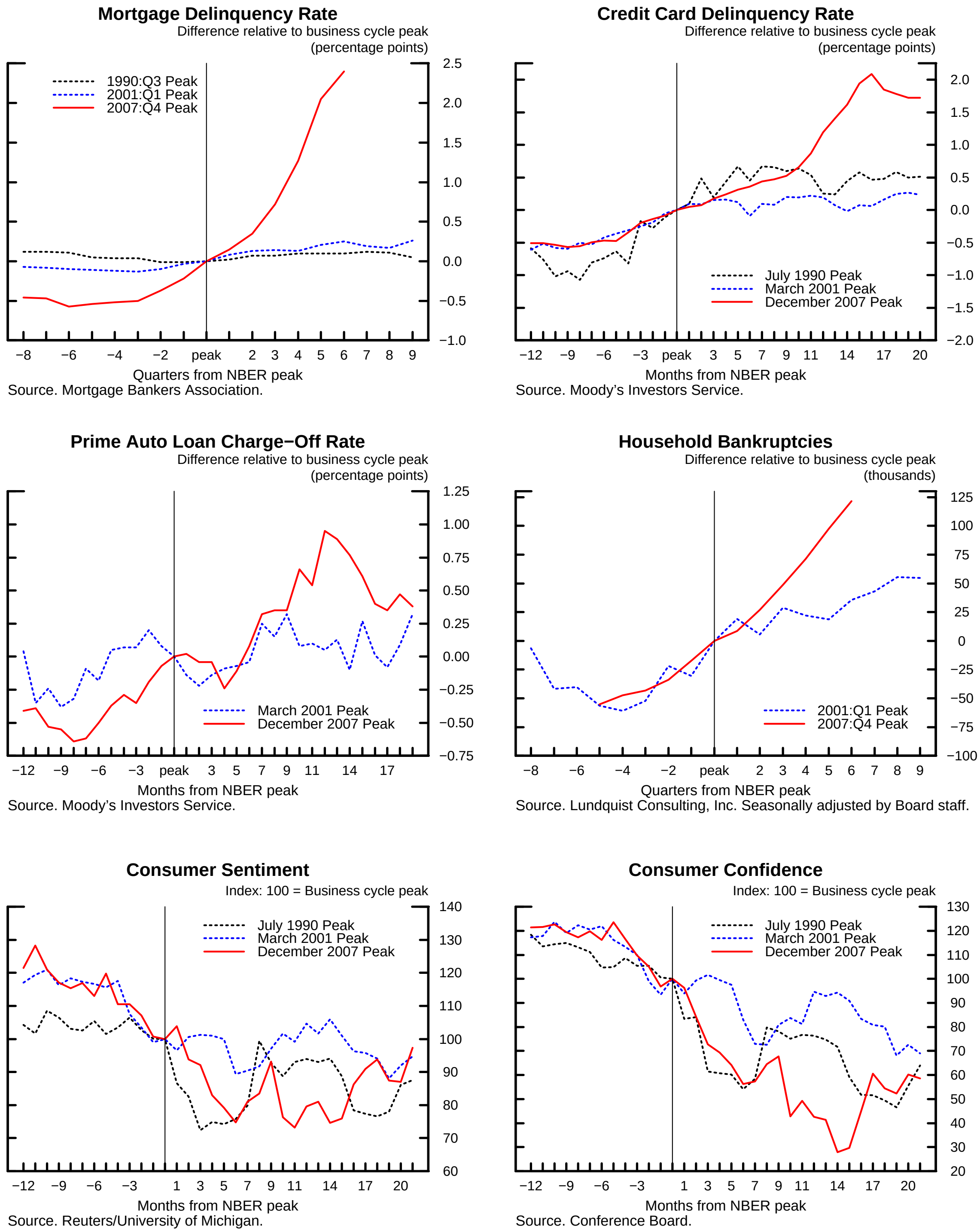


Figure 4

Household Net Worth in the Survey of Consumer Finances, 1989-2009

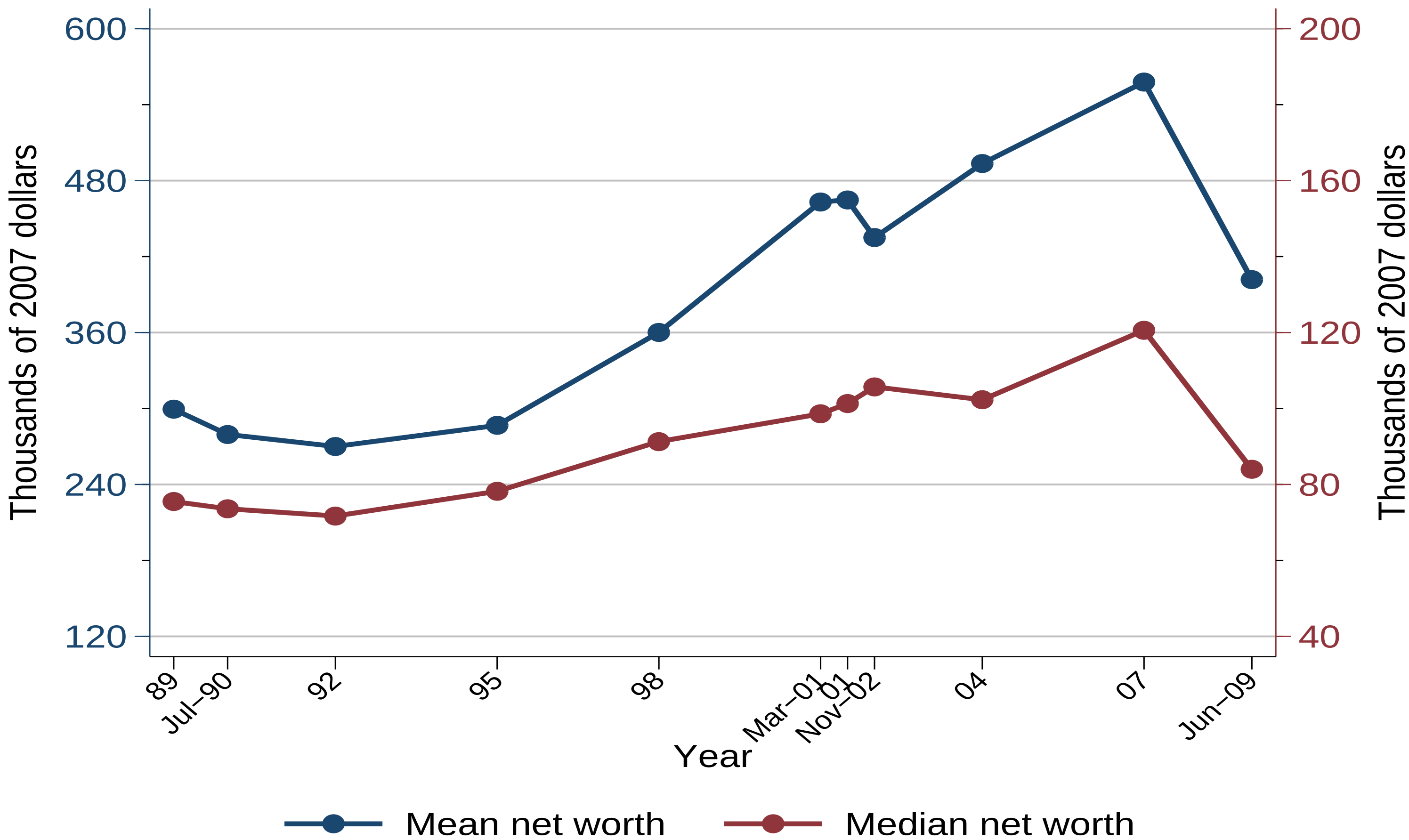
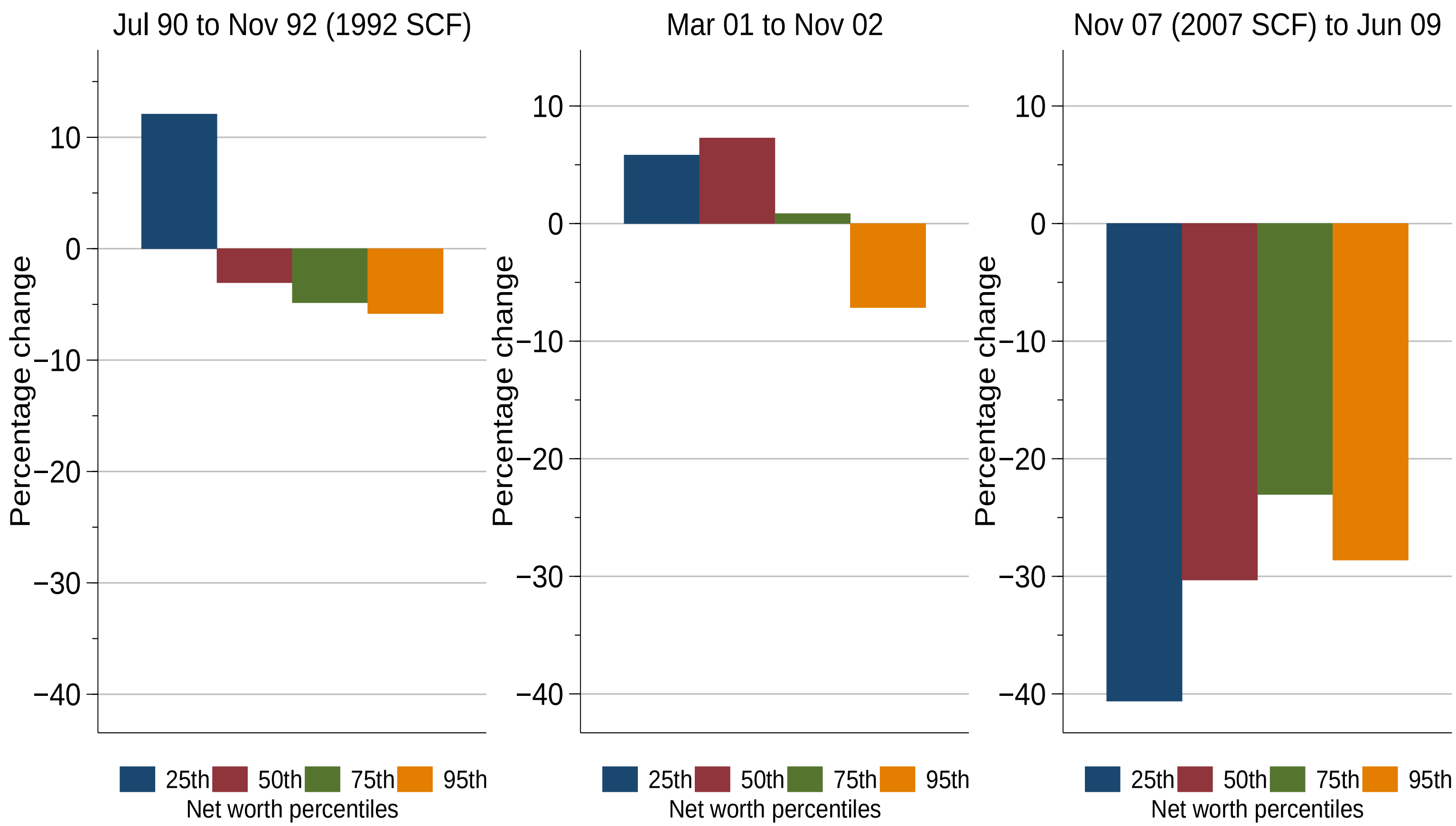


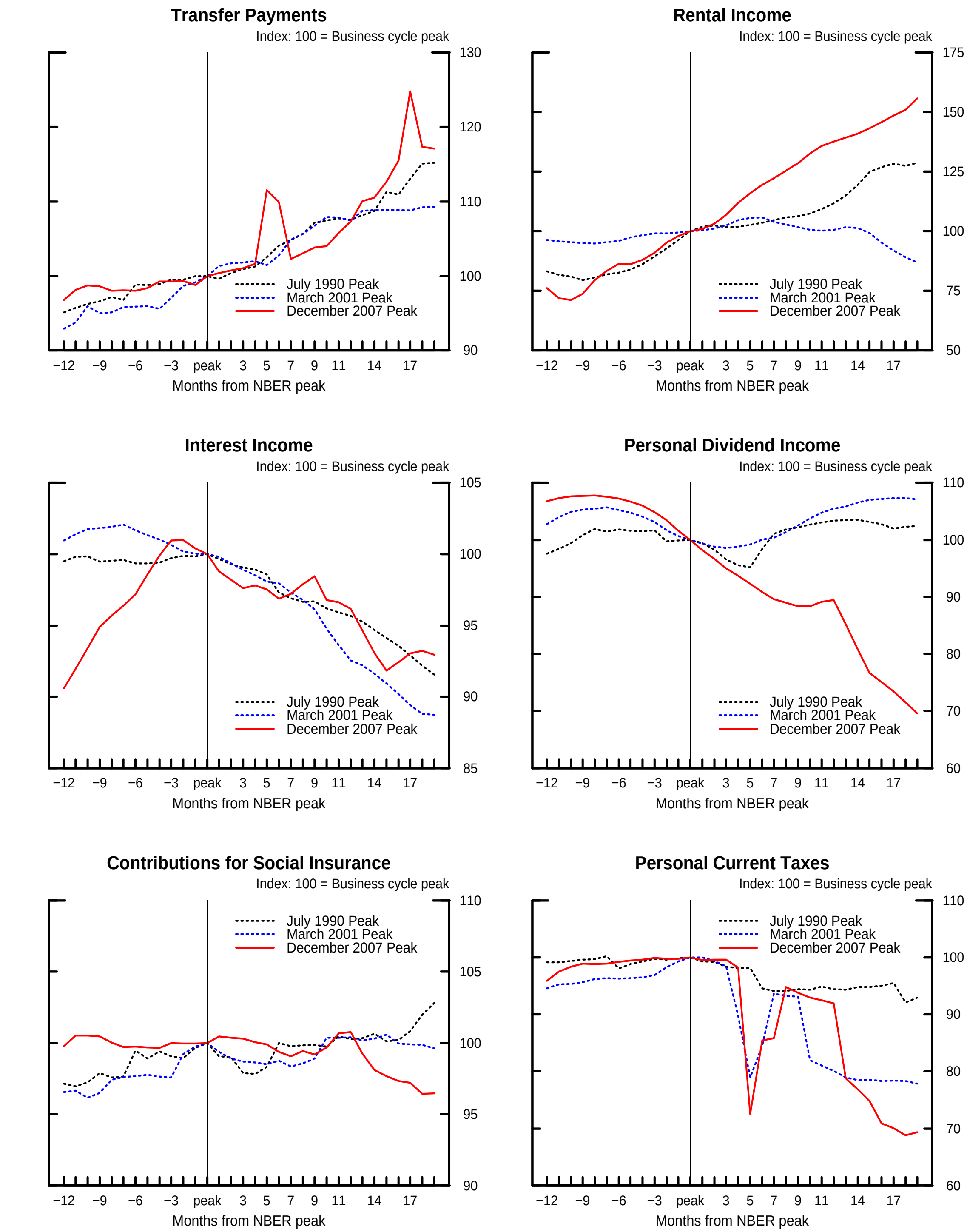
Figure 5

Changes in Net Worth Across the Net Worth Distribution



Appendix A

Changes in Selected Components of Disposable Personal Income around NBER Business Cycle Peaks



Source: Bureau of Economic Analysis.

Appendix B

A Comparison of Change in Household Net Worth in the Survey of Consumer Finances around NBER Business Cycle Peaks

Time period:	*SCF* 1989	Jul-90	*SCF* 1992	Mar-01	*SCF* 2001	Nov-02	*SCF* 2004	*SCF* 2007	Jun-09	89 SCF to Jul-90	Jul-90 to 92 SCF	Mar-01 to 01 SCF	Mar-01 to Nov-02	Nov-02 to 04 SCF	07 SCF to Jun-09
					(thousands of 2007 dollars)							*(percent change)*			
All households															
Median net worth	76	74	72	99	101	106	102	121	84	-3	-3	3	7	-3	-30
Mean net worth	299	285	270	463	465	435	494	558	402	-5	-5	0	-6	13	-28
Income percentile															
0-40															
Median net worth	14	16	19	23	24	25	18	20	16	19	16	3	11	-29	-23
Mean net worth	73	72	70	97	98	99	107	120	92	-2	-2	2	2	8	-23
40-80															
Median net worth	87	85	83	115	117	121	131	139	98	-2	-2	2	5	8	-29
Mean net worth	191	183	175	263	267	260	294	293	213	-4	-4	2	-1	13	-27
80-100															
Median net worth	339	308	277	493	505	496	563	599	437	-9	-10	2	0	14	-27
Mean net worth	969	914	859	1596	1593	1458	1665	1962	1399	-6	-6	p	-9	14	-29
Age of head															
< 45 years															
Median net worth	31	30	29	36	38	41	36	31	18	-3	-3	5	13	-13	-42
Mean net worth	146	135	125	203	204	195	201	211	138	-7	-7	0	-4	3	-34
45 years to 64 years															
Median net worth	158	146	133	171	176	182	196	216	158	-8	-9	3	7	7	-27
Mean net worth	469	452	434	680	682	631	739	788	568	-4	-4	0	-7	17	-28
65+ years															
Median net worth	123	128	133	193	197	200	195	221	191	4	4	2	4	-2	-13
Mean net worth	425	397	370	670	673	633	668	826	621	-6	-7	0	-6	6	-25

Note: Values for July 1990, March 2001, November 2002, and June 2009 have been projecting using household-level data in the nearest SCF wave and changes in stock price indexes and regional house price indexes.