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The Great Recession's Varied Effects on Household Well-being and Its Consequences for Inequality

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1. Introduction*

The recent recession likely touched most U.S. households in one way or another—a job loss, a drop in housing wealth, or a decline in the value of financial assets. Indeed, net worth fell for over 60 percent of households between 2007 and 2009. For many of these families, the decline in wealth was substantial: the median wealth loss over the two-year period was 18 percent, and a quarter of families lost over half of their net worth between 2007 and 2009 (Bricker *et al.*, 2011).

Although the recession eroded many families' finances, its effects differed widely across families, as documented by Bricker *et al*. (2011). The repercussions of aggregate economic deterioration including increased unemployment, declines in home values, and drops in equity prices would be expected to vary depending on whether family members were of working age, whether the family owned or rented their home, and the composition of a family's financial portfolio. Further, there was surely variation in the magnitude of the economic shocks that households experienced—housing prices declined much more sharply in some areas of the country than others, for example—and in households' abilities to recover from those shocks. This variation in families' experiences is evidenced by the fact that while over 60 percent of households lost wealth between 2007 and 2009, conversely, wealth increased for about one-third of families over the same period (Kennickell, 2012, Bricker *et al*., 2011).

The wide variation in households' experiences in the wake of the recession may have led to a substantial "reshuffling" of the wealth and income distributions and, in turn, a shift in wealth and income inequality. This paper considers the extent to which this is the case based on panel data from the 2007–09 panel of the Survey of Consumer Finances (SCF). Because the data provide detailed household-level information on families' finances in these two years, they highlight the variation in families' experiences and allow us to directly examine the sources of changes in family's income and wealth.

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This paper extends the analysis of Bricker *et al*. (2011). The wide variation in the magnitude of changes in wealth and income for households between 2007 and 2009 is a recurring conclusion of the earlier paper and one which motivates this paper's analysis of the implications for income and wealth inequality. This paper also complements the analyses of Kennickell (2011, 2012) which examine changes in the wealth and income distributions between 2007 and 2009 for the top and bottom halves of the wealth distribution, respectively. Kennickell (2011) focuses on changes in wealth at the top of the wealth distribution and finds that the share of wealth held by the top 1 percent was unchanged over the 2007–09 period but that the share of wealth accounted for by the bottom half of the distribution fell from 2.5 percent to 1.5 percent. That paper also shows the high degree of reshuffling of households between 2007 and 2009, driven by changes in the value of residential real estate, corporate equities, and businesses.

Kennickell (2012) examines the experiences of households in the bottom half of the wealth distribution and finds the fraction of households with negative wealth increased from 8.2 percent to 12.3 between 2007 and 2009. The paper also reveals the considerable changes in the demographic characteristics of the bottom 10 percent of the wealth distribution over the period, including finding that, in contrast to the pattern in the 1989 through 2007 SCF surveys, families in the lowest wealth decile had greater median and mean income than families with wealth between the 10^{th} and 30^{th} percentiles in 2009. This finding suggests that the recent recession indeed led to some rearrangement of households within the wealth distribution. In particular, Kennickell (2012) concludes the pattern is the result of sharp declines in value of assets for families whose relatively higher income allowed them to accumulate wealth prior to the recession. In contrast to the previous studies, our analysis focuses on how actual and predicted changes in different segments of the income and wealth distributions influence measures of inequality.

We find that income inequality fell between 2007 and 2009 as a consequence, it appears, of relatively large declines in income for families at the top of the 2007 income distribution. In contrast, wealth inequality increased, driven at least in part by declines in net worth for families in the middle of

the 2007 wealth distribution. Finally, the analysis suggests the value of detailed microdata on household wealth for understanding the distributional consequences of macroeconomic fluctuations. In particular, we find that projections of changes in net worth and, in turn, inequality based on applying an aggregate index, say, of house prices to estimate the evolution of wealth and its components may provide a noisy approximation to the actual changes experienced by households.

2. Data

The analysis draws on data from the U.S. Survey of Consumer Finances (SCF), which provides the highest quality data available on U.S. household wealth. The SCF has been conducted by the Federal Reserve Board every three years since 1983 and has had a consistent survey design since 1989. The SCF sample comprises a geographically stratified random sample, which accounts for about 60 percent of the total sample, and a list sample that utilizes statistical data derived from tax returns to oversample households that are predicted to be relatively wealthy. To provide estimates that are representative of all U.S. households, we use the SCF-provided analysis weights which account for the sample design and which adjust for systematic differences in non-response rates across households.

This study is one of the first to use the longitudinal data collected from a 2009 follow-up survey of families that participated in the Survey of Consumer Finances (SCF) in 2007. At the time of the 2007 survey, the Federal Reserve Board had not planned to conduct a follow-up survey, but the 2009 re-interview was designed and implemented to meet the need for comprehensive microdata on the effects of the recession on families' finances.

The 2009 follow-up survey collected data on major components of household balance sheets as well as descriptive information about changes families made or planned to make in their portfolios. By and large, the 2009 survey retained the ordering, wording, and structure of the 2007 SCF survey so that one can construct comparable definitions of families' holdings of most assets and debts, net worth, and

income in 2007 and 2009.[1] The 2009 re-interview sought to follow the household that had been interviewed in 2007.[2] Overall, nearly 90 percent of the eligible 2007 SCF participants were re-interviewed, and analysis of nonresponse to the 2009 interview suggests that there is little relationship between response to the re-interview and the most important characteristics in the panel (Kennickell, 2010).

3. Shifts in income and wealth inequality during the Great Recession

The analysis and exposition reflect the close link between changes in inequality over time and heterogeneity in the changes in wealth or income experienced by households. Shifts in wealth inequality, for example, necessarily reflect changes in the shape of the wealth distribution, which, in turn, reflect differences in wealth changes across households.[3] In contrast, if all households experienced the same absolute change in wealth, the shape of the wealth distribution would be unchanged other than a uniform shift in its location. Thus, we begin by characterizing the variation in the changes in families' income and wealth between 2007 and 2009 before quantify the resulting changes in income and wealth inequality. We then explore the sources of the shifts in inequality and, more specifically, consider how differences in the experiences of households, for example, at different points of the income and wealth distributions contributed to changes in overall inequality.

There are of course numerous measures of inequality, but many of these measures are not defined when the distribution of interest includes negative or zero values, as is the case for income and, especially, for wealth. We focus on two measures—the Gini coefficient and a generalized entropy

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[1] In contrast to the 2007 survey and other SCF cross-sections, which generally collect information on the value of individual assets or debts (e.g., the balance in each, say, checking account that a family owns), the 2009 re-interview often collected information on the total value of each asset or debt (e.g., the total value of all checking accounts combined).

[2] In instances where the 2007 respondent was deceased or not permanently living in the U.S., the survey sought to interview the household that included the person, if any, who was the spouse or partner of the 2007 respondent and lived with the respondent in 2007. If no such eligible former spouse or partner existed (including if that former spouse or partner had died or was no longer living permanently in the U.S.), then the case was considered ineligible for the 2007–09 panel.

[3] To be certain, the converses of these statements are not necessarily true. The wealth distribution, for example, could shift without producing a change in inequality (at least by some measure). Likewise, families' wealth could change over time by different amounts in a way that nonetheless left the overall wealth distribution unchanged in two time periods.

measure (GE(2))—that are estimable when values are not strictly positive.[4] The generalized entropy inequality measures are only well-defined for negative values of y if θ is an integer greater than one, and we choose $\theta=2$, in which case the measure is equivalent to half the square of the coefficient of variation. It should be noted that the GE(2) is relatively sensitive to large values in the right tail. In addition, in contrast to instances where the data are positive, the Gini coefficient can exceed one if the data include negative values. Because the analysis often uses quartiles and other percentiles to summarize the wealth and income distributions, we additionally consider quartile ratios. However, we place comparatively less weight on these ratios as measures of inequality since they are less-comprehensive measures of inequality (and, in particular, are insensitive to changes in the distributions between the percentile cutoffs).

Changes in income and income inequality

Income increased or fell by several thousand dollars over the 2007–09 period for the vast majority of families, whereas few families had income that remained roughly steady of the two years (Figure 1).[5] The density of income changes is strongly bimodal, with peaks at roughly positive and negative 12,000 dollars.[6] Income losses and gains were almost equally likely: about 47 percent of families had less income in 2009 than in 2007, and 2009 income was greater than 2007 income for about 48 percent of families.[7] Consistent with this rough symmetry, the median change in income was about 100 dollars. Nonetheless, income losses tended to be slightly largely than gains as the mean income change was approximately -8,300.

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[4] For an unweighted sample of size N with mean μ, the Gini coefficient is $G = \frac{1}{2N^2\mu}\sum_{i,j}|y_i - y_{ij}|$, and the class of generalized entropy measures with parameter θ is $GE(\theta) = \frac{1}{\theta(\theta-1)}[\sum_i \frac{1}{N}(\frac{y_i}{\mu})^\theta - 1]$.

[5] Wealth and income distributions are skewed, with a small number of relatively large values. Given this, to ease interpretation, Figure 1 and other figures plot net worth and income values after applying the neglog transformation. The neglog transformation is equal to $-\log(-x + 1)$ for $x \leq 0$ and to $\log(x + 1)$ for $x > 0$ (Whittaker, Whitehead and Somers, 2005). The density estimates are adaptive (variable-bandwidth) kernel density estimates calculated using the Stata package `akdensity` (Van Kerm, 2005).

[6] All reported dollar values are in 2009 dollars.

[7] These estimated percentages treat families with incomes that differed by no more than 500 dollars across the two years as having neither gained nor lost income. This pattern of income declines that were just slightly less common than income gains, however, is not sensitive to the choice of this dollar threshold.

On net, these changes in families' incomes shifted the estimated density of income only slightly (Figure 2). The median was roughly steady at 50,000 dollars, for example, and the mean decreased by about 8,000 dollars to 81,000 dollars. Broadly speaking, the 2009 income distribution appears to be a bit more dispersed around the central tendency and particularly below the median. This visual impression is confirmed by comparing the quartile ratios of the 2007 and 2009 income distributions shown in Table 1.

The shifts in the distribution were small, but taken together, they led to a decline in income inequality as the Gini declined from 0.57 to 0.53, and the GE(2) decreased from 10.84 to 4.06.[8] The relatively larger decline in the GE(2) may reflect that fact that, as noted earlier, the GE(2) is comparatively sensitive to large values in the right tail of the distribution. Over the period the 99th percentile of the income distribution fell from $717,800 in 2007 to $528,000, which an indication of compression of the right tail of the distribution that is difficult to discern from Figure 1.

Table 1. Percentiles of income, 2007-09 Panel SCF

Percentiles are thousands of 2009 dollars

	Income	
	2007	2009
p10	13.8	14.0
p25	26.6	25.9
p50	50.1	49.8
p75	90.5	89.7
p90	149.1	145.4
p75/p25	3.40	3.46
p50/p25	1.88	1.92
p75/p50	1.81	1.80
Gini	0.57	0.53
GE(2)	10.84	4.06

[8] The Gini coefficient and GE(2) measure are calculated using the Stata package `ineqdec0` (Jenkins, 1999).

To understand the sources of these declines in measured income inequality, we examine how differences in the evolution of income for families in different regions of the income distribution contributed to lower income inequality. Specifically, we estimate counterfactual levels of income inequality if income had not changed between 2007 and 2009 for families in each quartile of the 2007 income distribution. Table 2 shows the quartiles of income and inequality measures under the counterfactuals, which we construct by replacing, in turn, actual 2009 income with 2007 income for families in a given quartile of the 2007 income distribution. For reference, the table also reproduces the actual levels of these statistics from Table 1.)

Table 2. Actual and counterfactual percentiles of income, 2007-09 Panel SCF

Percentiles are thousands of 2009 dollars

	Actual income		2009 income if income unchanged from 2007 for families in given quartile of 2007 income			
	2007	2009	1st quartile	2nd quartile	3rd quartile	4th quartile
p25	26.6	25.9	22.4	29.8	26.9	26.5
p50	50.1	49.8	47.8	44.7	54.8	50.8
p75	90.5	89.7	89.7	86.7	84.1	99.0
p75/p25	3.40	3.46	4.01	2.91	3.13	3.74
p50/p25	1.88	1.92	2.14	1.50	2.04	1.92
p75/p50	1.81	1.80	1.88	1.94	1.54	1.95
Gini	0.57	0.53	0.55	0.53	0.52	0.57
GE(2)	10.84	4.06	4.27	4.18	4.05	10.10

Much of the decrease in income inequality appears to be attributable to changes in income for families that were in the top income quartile in 2007. If the income of these families in the top quartile had held steady between 2007 and 2009, the Gini coefficient would have would been unchanged, and the change in the GE(2) measure would have been a small fraction (-0.74) of the actual change (-6.78). By comparison, the counterfactual values of the Gini and GE(2) when income is held constant at 2007 values for families in each of the bottom three quartiles are more similar to the actual values of the Gini and

GE(2) in 2009. This pattern of results points to the importance of declines in income for families that were in the upper tail of the 2007 income distribution, in particular, for understanding the decrease in inequality between 2007 and 2009.

This pattern of results points to the importance of declines in income for families that were in the upper tail of the 2007 income distribution, in particular, for understanding the decrease in inequality between 2007 and 2009. Figure 3 illustrates the variation in income dynamics across families that underlie this conclusion. The figure is analogous to Figure 1 but shows the density of income changes separately for each 2007 income quartile. All four of the income-change densities are bimodal, but the share of families with losses increases with each income quartile, while the share of families with gains declines. Put differently, the rough symmetry observed for the overall density of income changes over the two-year period does not hold for the densities for the individual quartiles, and families at the top of the 2007 income distribution were more likely to experience a drop in income between 2007 and 2009 than were other families.

Changes in wealth and wealth inequality

Like the density of changes in income, the density of 2007–09 net worth changes is bimodal (Figure 4). In contrast to income changes, however, losses were clearly more common than gains. As noted above, over 60 percent of families experienced anerosion in net worth over the two years. The median wealth loss for families with a loss was $60,400, while the median gain was $32,700. In addition, the histogram of wealth changes highlights the fact that a noticeable fraction of families essentially no change in net worth between 2007 and 2009. Given the shape of the distribution of wealth gains and losses, it is not surprising that density of 2009 net worth has a larger mass below zero and less mass in the positive range than the 2007 density (Figure 5).

The changes in percentiles of the net worth distribution between 2007 and 2009, shown in Table 3, tended to be more pronounced than the changes in percentiles of the income distribution. All quartiles of the net worth distribution declined substantially over the period, but the percentage changes were larger

for percentiles below the median than for the 75th and 90th percentiles. The p72/p25 ratio increased from 25.1 in 2007 to 40.1 in 2009, with most of the change due to greater dispersion between the 25th and 50th percentiles. Although the Gini and GE(2) increased over the period, the increases were much smaller than the declines in income inequality. The broad-based nature of the decrease in wealth from 2007 to 2009 appears to have tempered any large rise in inequality, a conclusion that aligns with the results in Kennickell (2011).

Table 3. Percentiles of net worth, 2007-09 Panel SCF
Percentiles are thousands of 2009 dollars

	Net worth	
	2007	2009
p10	0.05	-2.9
p25	15.5	8.2
p50	125.5	96.0
p75	388.3	330.0
p90	969.8	823.5
p75/p25	25.1	40.1
p50/p25	8.1	11.7
p75/p50	3.1	3.4
Gini	0.82	0.83
GE(2)	17.72	18.27

As with the income distribution, we construct counterfactual distributions of 2009 net worth by holding net worth constant for families in each quartile of the 2007 wealth distribution. As shown in Table 4, the 25th, 50th, and 75th percentiles of the resulting counterfactual wealth distributions typically are lower than the actual 2007 percentiles. This might be expected since most families' wealth declined, for each counterfactual, wealth for three-quarters of families is equal to their 2009 wealth. However, the percentiles that correspond to the lower bound of the wealth quartile for which wealth is held constant (*e.g.*, the 25th percentile under the counterfactual which holds wealth at 2007 levels for families in the 2nd wealth quartile) are *greater* than the 2007 quartiles.

At least based on this set of counterfactuals, the observed increase in inequality as measured by the Gini and GE(2) between 2007 and 2009 appears to be driven in large measure by changes in wealth for families in the second and third quartiles of the 2007 wealth distribution. If the wealth of families in the third quartile had remained steady at their 2007 values, the Gini and GE(2) would have been similar in 2009 to the 2007 values. The quartile ratios indicate the primary driver of the increase in wealth inequality were changes in the net worth of families in the second quartile of 2007 distribution: absent the wealth changes for these families, the p75/p25 and p75/p50 ratios would have fallen instead of increasing. In contrast, if the net worth of families in the bottom wealth quartile were held constant, much or all of the increase in these measures of wealth inequality would have nonetheless occurred.

Table 4. Actual and counterfactual percentiles of net worth, by quartile, 2007-09 Panel SCF

Percentiles are thousands of 2009 dollars

	Actual net worth		2009 net worth if net worth unchanged from 2007 for families in given quartile of 2007 net worth			
	2007	2009	1st quartile	2nd quartile	3rd quartile	4th quartile
p25	15.5	8.2	6.8	19.6	10.0	8.7
p50	125.5	96.0	92.2	96.4	140.1	100.5
p75	388.3	330.0	326.6	325.2	320.7	434.4
p75/p25	25.1	40.1	47.8	16.6	32.1	50.1
p50/p25	8.1	11.7	13.5	4.9	14.0	11.6
p75/p50	3.1	3.4	3.5	3.4	2.3	4.3
Gini	0.82	0.83	0.83	0.82	0.81	0.84
GE(2)	17.72	18.27	18.41	18.20	17.83	18.02

Figure 6 illustrates how wealth dynamics differed across families located in different regions of the 2007 wealth distribution. As was the case for the overall density of wealth changes in Figure 4, each of the four wealth-change densities is bimodal. The magnitude of both gains and losses are increasing in the 2007 wealth quartile. Further, as one considers progressively higher wealth quartiles, the share of families with wealth losses increases whereas the share with wealth gains decreases.

To gain additional perspective on the sources of the increase in wealth inequality observed in the 2007–09 SCF panel, we consider the extent to which declines in home values and stock prices, specifically, might explain the decline in wealth inequality and the greater share of wealthier households that experienced a loss. We take two approaches to constructing counterfactual wealth distributions that might highlight the role of these two factors.

The first method, which we refer to as the "constant" method simply replaces the 2009 values of the primary residence and stock equity with the 2007 values, and leaves all other net worth components at their actual 2009 values. Under the second, or "adjust" method, we construct a counterfactual 2009 wealth level for each family by projecting the 2009 value of homes (for homeowners) based on the reported 2007 home value and the change in the CoreLogic state-level House Price Index between 2007 and 2009. We similarly project the 2009 value of stocks based on the reported stock holdings in 2007 and the change in the Wilshire index over the two-year period.[9]

Table 5. Actual and projected net worth, 2007–09 Panel SCF

Percentiles are thousands of 2009 dollars

	Actual net worth		Counterfactual 2009 net worth	
	2007	2009	Hold 2007 housing and stock equity constant	Adjust 2007 housing and stock equity by indexes
p25	15.5	8.2	15.3	6.0
p50	125.5	96.0	127.6	93.5
p75	388.3	330.0	400.3	322.7
p75/p25	25.1	40.1	26.2	53.8
p50/p25	8.1	11.7	8.3	15.6
p75/p50	3.1	3.4	3.1	3.5
Gini	0.82	0.83	0.81	0.85
GE(2)	17.72	18.27	15.83	18.77

[9] The adjustments are done based on the value of the CoreLogic index in the 2007 interview month and the 2009 interview month and the value of the Wilshire 5000 index on the day of the 2007 interview and the day of the 2009 interview.

Table 5 shows the actual values of 2007 and 2009 wealth and the two counterfactual distributions of 2009 wealth and reveals that the two methods lead to substantial differences in the counterfactual distributions of 2009 wealth. Under the "constant" method the 50th and 75th percentiles actually increase over the period and both inequality measures decline slightly. In contrast, under the "adjust" method all the counterfactual percentiles are below the actual 2009 values and the inequality measures increase more than the actual change over the period. The over-prediction of wealth losses by the adjust method reveals the main weaknesses of that method; there is no adjustment for portfolio reallocations, no heterogeneity in stock returns, and no adjustment for selling or losing the primary residence.

Table 6 decomposes the counterfactual wealth estimates into the two main parts—housing and stock equity. It is clear from results for the constant method that the collapse of house prices affected all the percentiles shown, but the effect weakens at higher points in the distribution. Values at all percentile points shown are higher than the actual 2009 values when holding housing values constant. Holding stock equity constant results in values at 25th and 50th percentile that are similar to the actual 2009 values, but the 75th percentile is substantially higher than the actual 2009 value. Both inequality measures decrease when housing is held constant at 2007 levels and increase when stock equity is held constant.

Table 6. Actual and projected net worth, by component of net worth, 2007–09 Panel SCF

Percentiles are thousands of 2009 dollars

	Actual net worth		Constant 2007		Adjust 2007	
	2007	2009	Housing	Stock equity	Housing	Stock equity
p25	15.5	8.2	15.6	8.3	6.7	6.8
p50	125.5	96.0	127.1	100.0	98.0	94.1
p75	388.3	330.0	377.1	352.6	325.3	328.2
p75/p25	25.1	40.1	24.2	42.5	48.7	48.3
p50/p25	8.1	11.7	8.1	12.0	14.6	13.8
p75/p50	3.1	3.4	3.0	3.5	3.3	3.5
Gini	0.82	0.83	0.81	0.84	0.85	0.84
GE(2)	17.72	18.27	15.87	17.91	18.9	18.2

The next two tables examine how replacing specific quartiles of the net worth distribution by estimates from the two counterfactual methods influences the measures of inequality. Table 7 presents results from using the constant method, which replaces 2009 values of housing and stock equity with 2007 values and leaves all other components of 2009 wealth unchanged. Results for the first quartile are very similar to the actual 2009 values for both the percentiles and the inequality measures. The lower incidence of homeownership and stock equity ownership in the first quartile limit the effects on the counterfactual distribution. For the next three quartile groups, the values of the percentiles of the counterfactual distributions are all larger than the actual 2009 values. In terms of the inequality measures, holding housing and stock equity constant at 2007 levels for the second or third quartile results in about the same level of inequality as 2007.

Table 7. Actual and counterfactual net worth, constant method, by quartile, 2007-09 Panel SCF

Percentiles are thousands of 2009 dollars

	Actual net worth		2009 net worth if housing and stock equity unchanged from 2007 for families in given quartile of 2007 net worth			
	2007	2009	1st quartile	2nd quartile	3rd quartile	4th quartile
p25	15.5	8.2	8.8	13.4	9.4	8.5
p50	125.5	96.0	98.0	104.8	120.0	98.3
p75	388.3	330.0	329.4	330.9	344.0	388.3
p75/p25	25.1	40.1	37.4	24.8	36.6	45.7
p50/p25	8.1	11.7	11.1	7.8	12.8	11.6
p75/p50	3.1	3.4	3.4	3.2	2.9	4.0
Gini	0.82	0.83	0.83	0.82	0.82	0.83
GE(2)	17.72	18.27	18.22	17.95	17.61	16.53

Interestingly, holding the fourth quartile constant yields a higher Gini coefficient, but lower GE(2) value than in 2007. This result seems counterintuitive given that right tail of this counterfactual distribution is much longer than the actual 2009 distribution. For example, the actual value of net worth at the 99th percentile in 2009 was $6.9 million, while the 99th percentile of the counterfactual distribution was $8.0 million. Understanding the differences between the actual and counterfactual wealth

distributions more fully and, in particular, the differences that lead to a lower counterfactual value of the GE(2) despite the greater skew of the upper tail is the subject of ongoing work.

Table 8 presents the counterfactual wealth distributions using the adjust method. Not surprisingly, given the methodology of the adjust method, the values of the percentiles under the counterfactual distributions are all below their 2007 values. Compared to the actual 2009 percentile values, adjusting the net worth of families in the first, second, or third quartile produces values at the 25th, 50th, and 75th percentiles that are lower or only slightly higher than the actual values. Both the Gini coefficient and the GE(2) values are very similar when adjusting either of the first three quartiles. In contrast, adjusting the net worth of families in the fourth quartile produces values at the 25th and 50th percentiles that are remarkably similar to the actual 2009 values. The value of the adjusted 75th percentile is actually larger than the actual 2009 value, and the inequality measures are similar to the value for 2007. Thus, if net worth for families in the top quartile had changed as the adjust method predicted, inequality would have remained at 2007 levels.

Table 8. Actual and counterfactual net worth, adjust method, by quartile, 2007-09 panel SCF

Percentiles are thousands of 2009 dollars

	Actual net worth		2009 net worth if housing & stock equity projected from 2007 for families in given quartile of 2007 net worth			
	2007	2009	1st quartile	2nd quartile	3rd quartile	4th quartile
p25	15.5	8.2	6.5	7.0	8.4	8.3
p50	125.5	96.0	95.3	90.7	101.2	95.9
p75	388.3	330.0	327.0	329.4	314.8	341.0
p75/p25	25.1	40.1	50.3	46.8	37.3	41.1
p50/p25	8.1	11.7	14.7	13.0	12.0	11.6
p75/p50	3.1	3.4	3.4	3.6	3.1	3.6
Gini	0.82	0.83	0.84	0.84	0.84	0.83
GE(2)	17.72	18.27	18.53	18.56	18.58	17.92

An interesting result from Table 8 is that for the counterfactual based on projections for the third quartile the 50th percentile and for the fourth quartile the 75th percentile are larger than the actual 2009

values. Thus, the adjust method predicts that if housing and stock equity values for those families followed the changes in the house price and stock indexes then wealth would have been higher in 2009. This results highlights a drawback of the adjust method, which assigns an average return for housing and stock equity when there is clear heterogeneity of returns across families.

In comparing the results from the two different methods of estimating the counterfactual distributions of wealth, the constant method finds that holding key components of net worth constant at 2007 levels for the second or third quartiles leads to similar values for inequality measures in 2007 and 2009. Under the adjust method, using the adjusted values of 2007 net worth for families in the fourth quartile leads to similar values for inequality measures in 2007 and 2009. The difference in results highlights the difficulty in projecting wealth, especially during a period of substantial economic turmoil.

4. Conclusions and future work

This paper draws on the comprehensive household-level data on income and wealth from the 2007–09 panel of the Survey of Consumer Finances to gauge the immediate-term consequences of the Great Recession for income and wealth inequality in the U.S. The analysis is motivated, in part, by the substantial variation in families' financial experiences over this period documented by Bricker *et al.* (2011) and Kennickell (2011, 2012).

This paper provides similar evidence that, although mean and median income changed little over the two years and net worth fell for many families, the evolution of income and wealth was far from uniform across families. In fact, the densities of income and wealth changes between 2007 and 2009 are largely bimodal, with large losses and large gains generally more common than more modest changes.

For income, these heterogeneous shifts led to a decline in measures of income inequality, and most of this decline it appears might be attributed to comparatively large declines in income for families in the top income quartile. In contrast, wealth inequality increased somewhat. Changes in net worth for families in the middle 50 percent of the income distribution appear to have played the primary role in this increase, but conclusions regarding the source of the shift in wealth inequality are more sensitive to the choice of

inequality measure. The consequences of the sharp declines in home values and equity prices over the 2007–2009 period for wealth inequality are clearer. House price declines tended to increase wealth inequality, as the effect of lowered home equity appears to taper off for families in the upper portion of the wealth distribution. In contrast, the erosion in the value of stock holdings disproportionately affected relatively wealthy families and so tended to reduce inequality.

Finally, this paper underscores the value of detailed household-level data for understanding the effects of macroeconomic fluctuations. Researchers and policy makers that seek a contemporaneous understanding of the repercussions of such fluctuations on households may necessarily model these effects by estimating, say, wealth changes based on available aggregate statistics or indexes such as house price indexes and stock indexes. Contrasting decompositions of wealth changes based on projecting wealth changes in this manner to the actual, observed wealth changes for families in the 2007–09 SCF panel, we find that such projections may provide a noisy approximation, at least of changes in wealth inequality.

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Figure 1. Density of income changes between 2007 and 2009

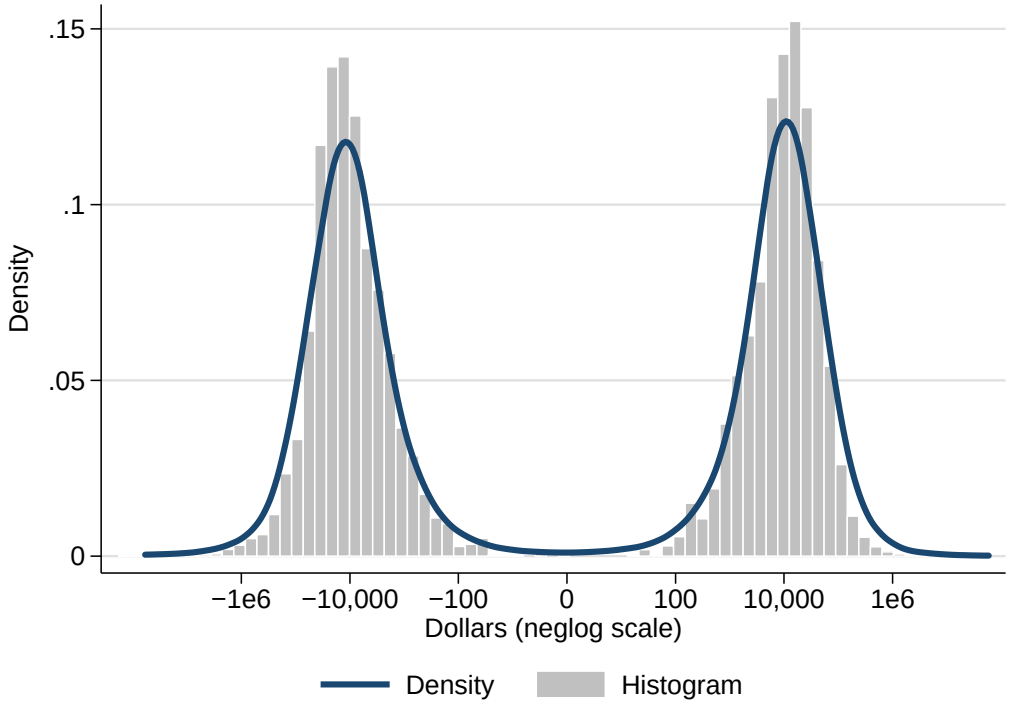

Figure 2. Densities of income: 2007 and 2009

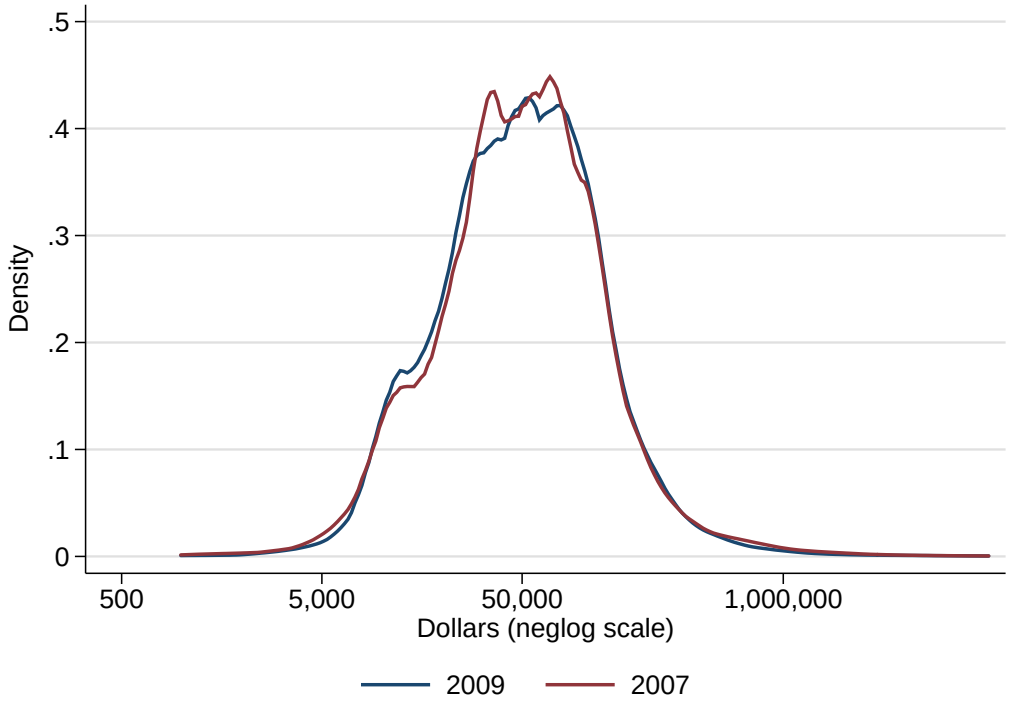

Figure 3. Density of income changes between 2007 and 2009, by 2007 income quartile

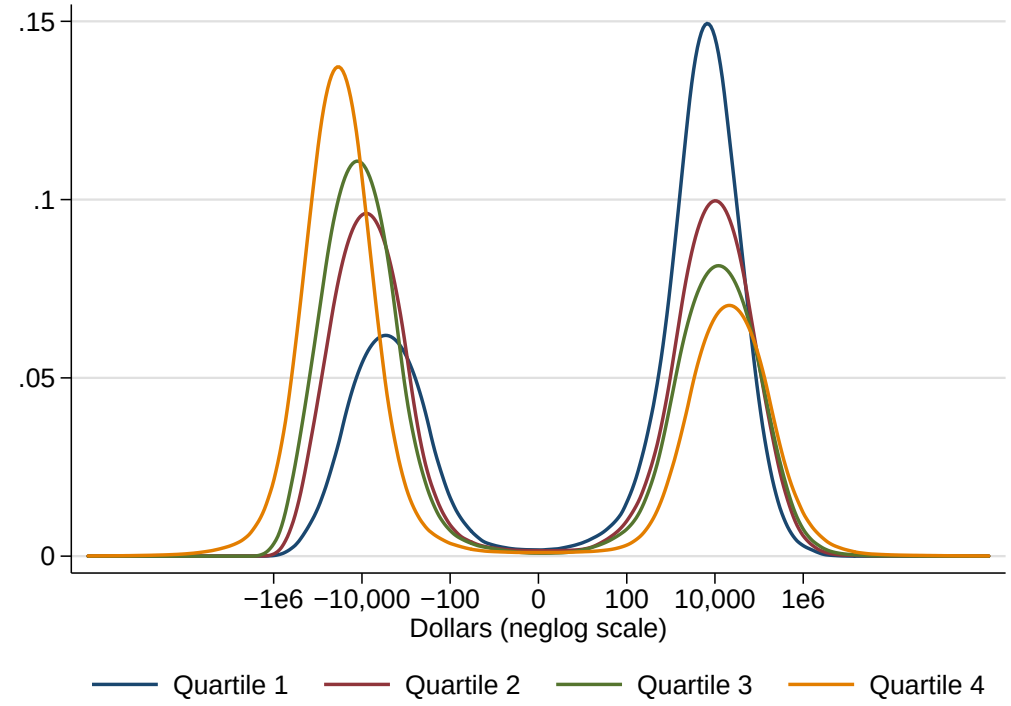

Figure 4. Density of net worth changes between 2007 and 2009

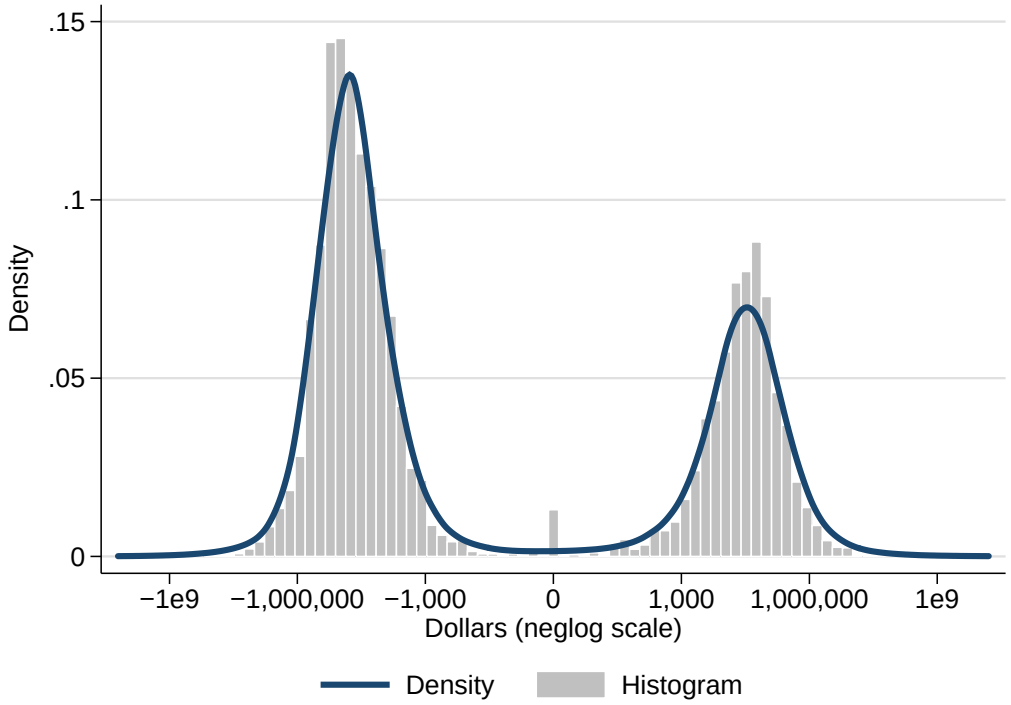

Figure 5. Densities of net worth: 2007 and 2009

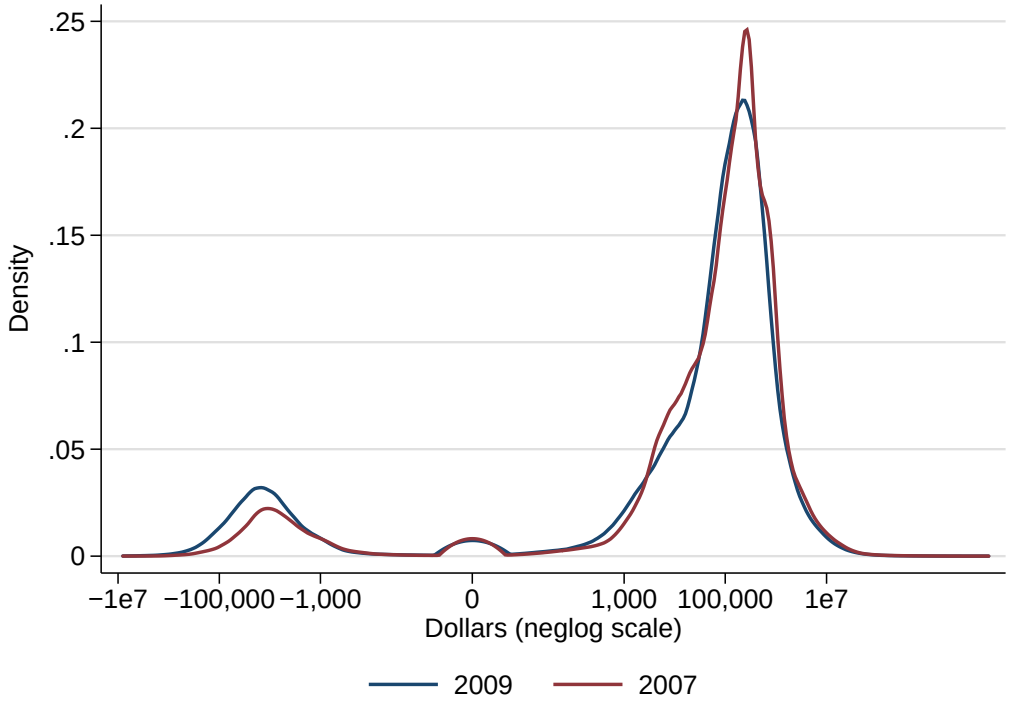

Figure 6. Density of net worth changes between 2007 and 2009, by 2007 net worth quartile