A Life-Cycle Perspective on the Great Recession's Effects on the Middle Class

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1. Introduction

More than five years after the end of the 2007–2009 "Great Recession," our understanding of the downturn's immediate and longer-term consequences for families' finances is still taking shape. Bricker et al. (2015), for example, show that the recession's effects were far from uniform: though over half of U.S. households lost wealth between 2007 and 2009, about one-third of households experienced increases in wealth over this period. In addition, studies that have examined the roles of house price growth, mortgage originations, and mortgage delinquencies in the crisis have reached differing conclusions about the relative importance of mortgage lending to lower-income borrowers compared with lending to middle-income borrowers (Mian and Sufi, 2009; Adelino, Schoar, and Severino, 2016).

I use longitudinal data from the 2007–09 Survey of Consumer Finances (SCF) panel and from the 1989–2007 SCF cross-sections to examine the effects of the Great Recession on the finances of U.S. households, particularly on the finances of "middle-class" households. The paper's definition of middle class reflects not only a household's current wealth but also its expected wealth accumulation over the life cycle. To apply this definition, I estimate model household net worth, separately by race/ethnicity and education of the household head, as a function of age to calculate age-adjusted wealth levels.

I focus on a household's age-adjusted wealth, rather than its current wealth, in defining the middle class because the set of households in a given range of the wealth distribution at a point in time likely includes households at different ages and life-cycle stages. The middle of the cross-sectional wealth distribution might include, for instance, both older households with relatively low lifetime income but who are near the peak of their lifetime wealth as well as high-income, younger households in the early stages of accumulating wealth. The longer-term consequences of the Great Recession for household wealth and wealth inequality, however, may differ depending on whether wealth losses for the middle class were, in this example, concentrated among younger, high-income households or older, low-income households. Younger households that lost wealth may, for example, delay homeownership but would have several years to potentially recover wealth losses. In contrast, the older households may be more heavily reliant on Social Security (government benefits for older households) than they otherwise would have been and would have limited opportunity to replace lost savings.

The building blocks of the analysis are the estimated age-wealth profiles. In modelling these relationships, the paper clearly highlights the differences in the level of wealth held by households by education and by race/ethnicity that have been noted elsewhere. I then take two approaches to calculating counterfactual, age-adjusted wealth at age 50 for households—one that assumes an age effect that is additive in a household's rank in the net worth distribution and another the other assumes proportional increases in wealth as households age. I find that both of these approaches change the set of households classified as middle class, but they do not significantly shift the demographic characteristics of "middle-class" households. For both approaches, adjusting for life-cycle patterns in wealth has almost no effect on conclusions about how the middle-class fared over the Great Recession. Instead estimates of the magnitude and distribution of changes in wealth, assets, and debt are essentially unchanged when using age-adjusted wealth rather than actual wealth to define a household's socioeconomic class.

2. Data and methods

Survey of Consumer Finances

This study draws on cross-sectional and longitudinal data from the United States' Survey of Consumer Finances (SCF). The SCF provides the highest quality microdata available on U.S. household wealth and its components. The Federal Reserve Board has collected cross-sectional SCF data every three years since 1989.[1] The SCF sample design combines a geographically based random sample and an oversample of households likely to be relatively wealthy. Oversampling wealthier households improves the accuracy of estimates of the types and amount of wealth concentrated among wealthy households.[2] The analysis in this study uses the SCF-provided nonresponse-adjusted weights, which account for the sample design, so that estimates are representative of the U.S. household population.

The SCF is typically conducted as a series of cross-sections. As data collection for the 2007 SCF was nearly complete, however, the Federal Reserve decided to follow-up with households who had participated in the 2007 survey to gain a more complete picture of the recession's

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[1] Bricker et al. (2012) provide an overview of the SCF.

[2] One of the ways that oversampling improves the survey estimates is by compensating for lower response among wealthier households. The overall response rate for the 2004 SCF, for example, was about 52 percent (Kennickell, 2005), and the response rate for the geographically based random sample was 69 percent. By comparison, the response rate for the list sample as a whole was about 35 percent, and the response rate was just 10 percent for households in the wealthiest stratum of the list sample.

effects on households' balance sheets.[3] Although the 2009 survey was conceived and executed in a relatively short amount of time, almost 90 percent of eligible 2007 households were re-interviewed in 2009. The structure of the 2009 survey questions largely mirrored the structure of the 2007 survey, so it is possible to construct comparable measures of wealth and its components in both years.

Age-adjusted definitions of the middle class

I examine the effects of the Great Recession on middle-class households through the lens of life-cycle patterns in wealth. Households typically accumulate wealth early in their working lives which they can draw on to finance retirement, end-of-life expenses, and bequests. Median wealth among households headed by someone aged 65 to 74, for example, was about five times the median wealth of households whose head was aged 35 to 44 in the 2013 SCF (Bricker et al., 2014). Thus, the set of households in a given range of the wealth distribution at a point in time might include households at different stages of the life cycle. By the same token, for example, a young household that can expect to have wealth near the middle of the overall wealth distribution in its peak earnings years may well be classified as "lower-class" based on its current wealth.[4] Rather than classifying households based on their current wealth, I define lower-, middle-, and upper-class households as those in the bottom, middle, and upper third, respectively, of a counterfactual, age-adjusted distribution of predicted wealth at age 50.

To adjust for the correlation between age and wealth, I model household wealth as a flexible function of age and demographic characteristics[5]. More specifically, I estimate median regressions of household wealth (in real 2013 dollars), w, of the following form, separately for eight demographic groups, g:

$$h(w) = f(age, g, period) = rcs_g(age) + \gamma_g' \, SCFsurvey, \qquad (1)$$

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[3] See Bricker et al. (2014) for additional detail on the design of the 2007–09 SCF panel.

[4] I define socioeconomic class based on wealth rather than income because wealth provides a more comprehensive measure of households' resources and well-being. The need to adjust for correlations between age and wealth holds, however, for income-based definitions of class as well. In fact, the need may be greater when analyzing income because age-income profiles are more distinctly hump-shaped than are age-wealth profiles. Numerous studies have sought to explain why older households typically do not decumulate wealth as strongly as predicted by a simple life-cycle model; recent examples include Ameriks et al., 2011; De Nardi, French, and Jones, 2010; and Poterba, Venti, and Wise, 2011.

[5] This approach is similar in spirit to that of Almås and Mogstad (2011), who adjust for life-cycle patterns for wealth in defining and estimating wealth inequality.

where $h(w)$ is a transformation of wealth, $rcs(age)$ is a restricted cubic spline in age, and $SCFsurvey$ is an indicator for the SCF year (equal to zero in 1989, one in 1992, etc.).[6] The models are estimated on pooled 1989–2007 SCF cross-sections. The goal in combining data across these years—a period which includes the 1990–91 and 2001 recessions—is to estimate stable relationships between age and wealth, net of macroeconomic fluctuations. The coefficient γ captures longer-term trends in the level of wealth over this period.

The models are allowed to differ across demographic subgroups, g, defined by the race and ethnicity (white non-Hispanic, and nonwhite or Hispanic) and education (less than high school; high school degree; some college, and college degree) of the household head. The choice to model wealth separately across the resulting eight subgroups reflects two considerations. First, individuals' schooling choices imply that age-wealth profiles will likely differ by educational attainment. Second, as confirmed below and highlighted, for example, by Conley and Glauber (2008), the level and age trajectory of wealth differ starkly by race.[7]

I consider two transformations of wealth: i) the neglog transformation; and ii) the rank transformation.[8] Unlike other common transformations such as the log or Box-Cox, the neglog and rank transformations are defined for negative and zero values, which are common in wealth data. The neglog transformation of x is:

$$nl(x) = sign(x) * \ln(abs(x) + 1),$$

where $abs(x)$ is the absolute value of x. The rank transformation is simply the percentile rank of each household's wealth in overall net worth distribution (in a given SCF-survey year).

With estimates of equation (1) in hand based on data from the 1989–2007 SCF surveys, I construct two estimates of age-adjusted counterfactual wealth at age 50 for households in the 2007–09 SCF panel. The first adjustment relies on estimates from the model of neglog-transformed wealth and is a multiplicative adjustment to the level of wealth. Specifically, denote the actual wealth of a household in group g whose head is x years old as w_g^x and the estimated

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[6] A restricted cubic spline is a piecewise function that is linear before the first knot and beyond the last knot and a cubic polynomial between the interior knots with first and second derivatives that are continuous at the knots. I place the knots at the 8th, 36th, 64th, and 92nd percentiles of the age distribution.

[7] The samples sizes from the Panel Study of Income Dynamics that the authors analyzed were insufficient for analyses of wealth for racial/ethnic subgroups other than whites and African-Americans.

[8] See Whittaker, Whitehead, and Somers (2005) for a discussion of the neglog transformation. Pfeffer and Killewald (2015) use the rank transformation in analyzing intergenerational wealth mobility

median level of wealth for households in group g with a head aged x, based on model (1), as $medw_g^x$. Under this first approach, the counterfactual, age-adjusted wealth for the household is assumed to be:

$$w_g^{50} = w_g^x * \left(medw_g^{50} \middle/ medw_g^x \right).^9$$

Ranking households in the SCF panel based on their predicted w_g^{50}, I classify each household as lower-, middle-, or upper-class based on which tercile (third) of the overall distribution of w_g^{50} the household is located.

The second approach to adjusting for age differences uses estimates from the rank-transformed models of wealth and is additive in percentiles of the wealth distribution. Denote the percentile rank of a household in group g whose head is x years old as $rank_g^x$ and the predicted median rank of households in group g with a head aged x as $medrank_g^x$. The second adjustment calculates the household's counterfactual position in the wealth distribution at age 50 as:

$$rank_g^{50} = rank_g^x + (medrank_g^{50} - medrank_g^x).$$

I classify each household in the SCF panel are classified into lower-, middle-, and upper-class based on the tercile of the distribution of $rank_g^{50}$ the household falls into.

Sample restrictions

I restrict the sample to households whose head was between the ages of 28 and 72 to mitigate potential biases in estimating models of wealth as a function of age. For younger households, these concerns arise from the potential endogeneity of education and marital status with respect to wealth. Excluding households whose head is aged 27 or younger should reduce the first of these potential biases because household heads generally have obtained their highest degree by age 28. Similarly, the share of married households rises with the age of the household head before holding roughly steady between ages 30 and 60 as the rates of marital dissolution

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[9] For households with a head aged 50, the counterfactual coincides with actual wealth. Note that the dependent variable in the corresponding median regression model is the neglog of wealth, but the counterfactual is the level of wealth. Thus, the predicted median wealth values from the model are back-transformed to levels.

through separation or divorce roughly offsets the rate of new marriages over this age range (Table 1).[10]

I exclude older households because major medical or end-of-life expenses—which are not directly measured in the SCF—may bias the estimates of counterfactual wealth at age 50. Consider, for example, two households each headed by a person aged 75 and each with identical current wealth, but only one of which had faced substantial medical outlays. These households likely had quite different levels of wealth 25 years earlier, but the simple life-cycle adjustment applied here would assign them the same position in the counterfactual wealth distribution at age 50. The potential for such bias is suggested by the third column of Table 1, which shows that the share of widowed household heads increases rises steeply for those aged 70 or older, coupled with the finding of Poterba, Venti, and Wise (2011) that the death of a spouse or substantial medical expenses are correlated with drawdowns on home equity among retirement-age households.[11]

3. Results

This section by presenting estimated age-wealth profiles and summarizing differences in these profiles across demographic groups. It then examines how accounting for life-cycle patterns in wealth shifts households' ranks in the net worth distribution and, in turn, affects conclusions about the experiences of middle-class households during the 2007–2009 recession.

Life-cycle profiles of wealth and implications for the composition of the middle-class

Estimated median household wealth generally rises with age for all race/ethnicity-education groups and flattens out, and the relationship is hump-shaped—as predicted by simple life-cycle model—only for nonwhite or Hispanic households whose head had some college education (Figure 1). These patterns hold for models based on neglog-transformed wealth (top row), as well as for rank-transformed wealth (bottom row). The estimated age-wealth profiles shift upward with higher levels of educational attainment by the household head, although the

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[10] To be certain, stability of overall rates of marriage and co-habitation is insufficient to ensure unbiased estimates. Instead, unbiased estimates generally would generally require stronger assumptions such as the stability of these rates within race/ethnicity-education groups and comparable effects of marriage and divorce on wealth at each age. A future draft may examine the empirical plausibility of these or similar assumptions.

[11] A further reason to consider restricting the age range of the sample is that the SCF does not interview in group quarters such as dormitories or nursing homes, so the SCF may not be representative of all households in these age ranges.

differences are relatively small when comparing households headed by a person with some college rather than only a high school diploma. For nearly all age and education levels, the estimated wealth profiles for households whose head is a white non-Hispanic (left charts) lies above the wealth profiles for households whose head was either nonwhite or Hispanic (right charts).[12] In fact, the level of the estimated age-wealth profile for college-educated nonwhite or Hispanic households roughly tracks the profile for White non-Hispanic households with some college or a high school degree, and the estimated profile for nonwhite or Hispanic households headed by a high-school graduate is similar that for White, non-Hispanic households whose head did not complete high school.

Both the multiplicative counterfactual for the neglog-transformed model and the additive counterfactual for the rank-transformed model lead to some reordering of households relative to the ranking by actual net worth, but households' ranks in the distributions of actual and counterfactual wealth are strongly positively correlated (Table 2). Specifically, Kendall's tau-a is about 0.79 for households' percentile ranks in actual and the multiplicative-counterfactual net worth distributions and 0.73 for the percentiles of actual and additive-counterfactual wealth distributions.[13] Kendall's tau-a for ranks in the two counterfactual distributions is higher, about 0.9. This suggests that the assumptions embedded in the additive and multiplicative counterfactuals about how wealth evolves over the life cycle matter, since this correlation is not perfect, but it is quite high, so the modeling choice is not likely to drive conclusions for many questions. Looking instead at the share of households that are in the same terciles in any two of the distributions (for example, in the bottom third of both the actual and additive-counterfactual net worth distributions) yields a similar conclusion: for both counterfactual measures, about 78 percent of households are in the same thirds of the actual and counterfactual wealth distributions, and 92 percent of households are in the same wealth thirds of the two counterfactual wealth measures.

As might be expected given the shape of the age-wealth profiles in Figure 1, the effects of the age adjustments are largest for younger households (Figure 2).[14] For households headed by

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[12] The differences by race and ethnicity diminish or reverse only for the youngest households headed by a person without a high school diploma.

[13] Kendall's tau-a between two measures is the ratio of the number of concordant pairs minus the number of discordant pairs to the number of possible pairs.

[14] Figure 2 plots the median and interquartile range of the differences between actual and counterfactual wealth based on the additive age adjustment. Results based on the multiplicative age adjustment are similar.

someone aged 30, the median age-adjustment implies an upward shift in the overall wealth distribution of just over 20 percentile points, for example, whereas for households with a head aged 40, the median adjustment is about eight percentile points. The interquartile range of adjustments is also greatest for the youngest and oldest households. Note that the age adjustments are based on predictions of each household's wealth at age 50, an age near the peak of the age-wealth profiles. On the whole then, the age adjustments lead to a rightward shift of the counterfactual wealth distribution relative to the actual wealth distribution, so the median difference between these distributions is about -4 percentile points for households with a 50 year-old head.

Defining households' socioeconomic status based on age-adjusted wealth rather than actual wealth does shifts the set of households in the "middle class" more than might be expected based on the estimates in Table 2. Roughly one-third of households who are classified as middle class based on counterfactual wealth fall into the bottom or top terciles of the actual wealth distribution (Table 3). The change in the set of households classified as middle class, however, does not substantially alter the distributions of demographic and economic characteristics for middle-class households. Most differences in the distributions of the characteristics shown in Table 3 are small, with a few exceptions: the middle third of households ranked by either of the two counterfactual wealth measures includes a smaller fraction of homeowners, a smaller fraction of high-income households, and a greater fraction of household heads with only a high school education.

Effects of the 2007–2009 recession on middle-class households

Table 4 summarizes the consequences of the 2007–2009 recession on households' finances based on the percentage change in households' net worth over this two-year period. The median decline in wealth as a percentage of 2007 net worth was nearly 18 percent, and net worth fell for 63 percent of households in the age-restricted sample that I analyze. One-quarter of households experienced losses of 56 percent or more, while wealth increased by 25 percent or more for another quarter of households. These results align with those of Bricker et al. (2015) for full SCF panel and Pfeffer and Grabka's (2014) analysis of wealth data in the U.S. Panel Study of Income Dynamics (PSID) between 2007 and 2011.

The median percentage decline in wealth and the share of families that experienced wealth declines increase with actual 2007 net worth and age-adjusted net worth. Wealth fell for just

over half of households in the lowest terciles of the actual or counterfactual net worth distributions, for example, compared with roughly three-quarters of families in the top terciles.[15] Adjusting for the relationship between age and wealth has essentially no effect on these estimates. Instead, the quartiles of percentage changes in net worth and the shares of families with wealth declines within the groups of lower-, middle-, and upper-class households are remarkably similar for the actual and two counterfactual measures.

The finding that age adjustments in fact do not change conclusions about the effects of the Great Recession on middle-class families holds further when examining the sources of the changes in net worth summarized in Table 4. The top panel of Table 5 shows that, by all three definitions of middle class, the median change in the value of households' assets between 2007 and 2009 was about 16 to 18 percent of 2007 net worth. Similarly, regardless of whether one uses actual or either measure of age-adjusted 2007 net worth to categorize middle-class households, the first quartile of changes in assets as a percent of 2007 net worth was about 50 percent, and the third quartile of changes was about 20 to 25 percent.

The quartiles of the change in debt between 2007 and 2009 relative to 2007 net worth are likewise similar for households in the middle of the actual and counterfactual wealth distributions. In contrast to the percentage changes in assets in the top panel, the median change in debt as a percent of 2007 assets is essentially zero, and for half households, the change in this ratio was no more than about ten percent. This indicates, it seems that changes in the net worth of middle-class households over the Great Recession was driven by changes in the value of assets rather than in the value of debt, a finding that mirrors the analysis and conclusions of Bricker et al. (2015).

Declines in house prices and increases in mortgage delinquencies were a key factor in the 2007–2009 recession. In addition, Bricker et al. (2015) show that the households that fared worse over recession were more likely to have experienced comparatively large drops in home equity. The final rows of Table 5 examine changes in home equity as a fraction of total assets for middle-class households. Adjusting for life-cycle patterns in wealth reduces the estimated median decline in this ratio and narrows the span of the interquartile range. By comparison to

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[15] The interquartile range of percentage changes in wealth between 2007 and 2009 narrows with net worth, a pattern that reflects in large part the focus on percentage changes, since small absolute changes in wealth can translate to large percentage changes for households with relatively low net worth; Bricker et al. (2015) show that the interquartile range of absolute changes in wealth generally widen with 2007 net worth.

the estimates for assets and debts, in the top panel, the estimates for the counterfactuals are more clearly similar to one another than to the estimates based on actual net worth. Nevertheless, these differences for the estimates based on actual net worth compared with age-adjusted net worth are small and may not be statistically significant.

The clear—and perhaps surprising—finding from Tables 4 and 5 is that adjusting for life-cycle patterns in wealth has, at best, a negligible effect on estimates of the magnitude and distribution of changes in wealth, assets, and debt for middle-class households over the Great Recession. A few related considerations may help to explain this. First, as shown in Figure 1, race, ethnicity, and education are also strong predictors of wealth and of households' rank in the net worth distribution, and they remain unchanged under the counterfactuals.[16] Further, Figure 2 suggests that for many households, the difference in percentile ranks in the actual and counterfactual distributions is about 10 percentile points or less. Consequently, it may be that many households that are in different terciles of the actual and counterfactual distributions are close to the tercile cutoffs. If the economic effects of the 2007-2009 recession were similar for households at the, say, 25th and 35th percentiles of the actual wealth distribution, then reclassifying these households from middle- to lower-class or vice versa would have little effect on the estimates shown here. The conjecture that households close to the tercile cutoffs had similar experiences seems plausible given that the robustness of many broad conclusions regarding the recession's effects on households, such as the finding that sizable fractions of households gained wealth, hold for a range of demographic and economic subgroups including, for example, both homeowners and renters.

4. Conclusion

This paper presents two approaches to adjusting for life-cycle patterns of wealth accumulation and, in turn, to defining middle-class households. The adjustments are based on differences by age in the predicted median values of nonlinear transformations of wealth estimated using the seven SCF cross-sections for 1989 through 2007. The median regression models underlying these adjustments are estimated separately by race/ethnicity and education

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[16] Based on (pseudo-) R^2s, interactions between the education and race/ethnicity categories are in fact stronger predictions than a cubic spline in age for logit models of being in the second wealth tercile; ordered logit models of a household's wealth tercile; and median and mean regression of a household's percentile rank.

and illustrate the different life-cycle patterns of wealth accumulation across demographic groups. Adjusting for life-cycle effects changes the set of households classified as middle class, but it does not significantly shift the demographic characteristics of "middle-class" households, and it has essentially no effect on conclusions about the effects of the Great Recession on the balance sheets of middle-class households.

A limitation of the simple approaches to adjusting for life-cycle patterns in wealth is that it allows for limited wealth mobility across years (that is, shifts in the location of a given household in the overall wealth distribution over time). Under this approach, wealth mobility arises only from differences in the life-cycle patterns in wealth across demographic groups, and for households in the same race/ethnicity-education groups, age-wealth profiles are assumed to be parallel. A possible extension to the approach in this paper would be to draw on longitudinal data on household wealth such as the PSID to estimate richer models of a household's position in the wealth distribution over time, models which could also directly incorporate wealth dynamics due to changes in family structure or employment transitions. More-complex microeconomic models of the evolution of household wealth in this vein may deepen our understanding of the intermediate-term repercussions of the 2007–2009 recession and other research and policy questions. Nonetheless, the findings of this paper suggest that a richer model is unlikely to yield substantially different conclusions specifically about the Great Recession's effects on the middle-class.

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Table 1. Marital history of household head by age

Row percent

Age of head	Married or living with a partner	Separated or divorced	Widowed	Never Married
22 or younger	38	2	0	60
23–27	51	5	0	44
28–32	65	10	0	24
33–37	67	16	0	17
38–42	64	21	1	15
43–47	64	22	1	13
48–52	63	24	3	9
53–57	58	27	6	8
58–62	62	22	11	6
63–67	61	24	10	5
68–72	57	16	23	3
73–77	53	11	32	4
78–82	38	4	56	3
85 or older	30	5	60	4

Pooled 2004 and 2007 SCF surveys

Table 2. Correlations between actual and counterfactual net worth measures

	Actual net worth	Age-adjusted counterfactual net worth	
		Multiplicative	Additive
*Kendall's tau-a *100*			
Actual net worth	100		
Counterfactual: Multiplicative	78.6	100	
Counterfactual: Additive	73.0	88.9	100
Share in the same tercile (percent)			
Actual net worth	100		
Counterfactual: Multiplicative	78.0	100	
Counterfactual: Additive	77.7	92.3	100

2007–09 SCF panel households with a head aged 28 to 72

Table 3. Selected characteristics of "middle-class" households

Percent

	Actual net worth	Age-adjusted counterfactual net worth	
		Multiplicative	Additive
Net worth tercile			
Bottom third	0	14.1	17.8
Middle third	100	67.6	67.2
Top third	0	18.3	15.0
Education of head			
Less than high school	10.2	8.4	8.7
High school diploma	32.6	36.2	35.1
Some college	21.9	23.0	23.2
College degree	35.3	32.4	33.0
Age of head			
28–34	14.0	12.4	16.9
35–44	26.2	22.8	25.3
45–54	27.9	28.0	25.6
55–64	20.1	24.0	21.0
65–72	11.9	12.9	11.2
Income tercile			
Bottom third	27.3	28.7	28.2
Middle third	43.5	44.5	45.7
Top third	29.2	26.8	26.1
White non-Hispanic	72.3	74.3	72.0
Homeowner	88.5	86.3	84.9

2007–09 SCF panel households with a head aged 28 to 72

Notes: Households in each column are those in the middle third of the distribution based on the respective wealth measure.

Table 4. Distribution of changes in household wealth between 2007 and 2009 and share of families with wealth declines

Percent

|	Percentage change in net worth			Share with a decline in net worth
	Median	25th percentile	75th percentile	
All households	-17.6	-56.0	25.1	62.5
Net worth tercile				
Bottom third				
Actual net worth	-1.7	-88.9	121.6	50.4
Age-adj.: Multiplicative	-2.3	-86.7	109.7	51.1
Age-adj.: Additive	-3.3	-81.0	100.1	51.7
Middle third				
Actual net worth	-17.4	-55.9	19.0	63.8
Age-adj.: Multiplicative	-15.5	-51.3	21.4	62.4
Age-adj.: Additive	-15.8	-54.2	23.5	62.6
Top third				
Actual net worth	-21.0	-44.0	1.7	73.4
Age-adj.: Multiplicative	-22.6	-49.0	1.4	73.9
Age-adj.: Additive	-22.3	-47.0	2.1	73.2

2007–09 SCF panel households with a head aged 28 to 72

Table 5. Distribution of changes in assets, debts, and home equity between 2007 and 2009 for
middle-class households

Percent

|	Percentage change		
	Median	25th percentile	75th percentile
Change in assets as a share of 2007 net worth			
Actual net worth	-17.8	-52.5	19.5
Age-adjusted.: Multiplicative	-16.2	-48.9	20.8
Age-adjusted: Additive	-16.9	-52.0	25.4
Change in debt as a share of 2007 net worth			
Actual net worth	-0.3	-11.6	9.4
Age-adjusted: Multiplicative	0.0	-10.4	9.5
Age-adjusted: Additive	0.0	-11.9	11.3
Change in home equity as a share of 2007 assets			
Actual net worth	-3.4	-16.1	2.6
Age-adjusted: Multiplicative	-2.7	-14.3	2.1
Age-adjusted: Additive	-2.8	-15.0	2.0

2007–09 SCF panel households with a head aged 28 to 72

Figure 1. Estimated age-wealth profiles by race/ethnicity and education (2007)
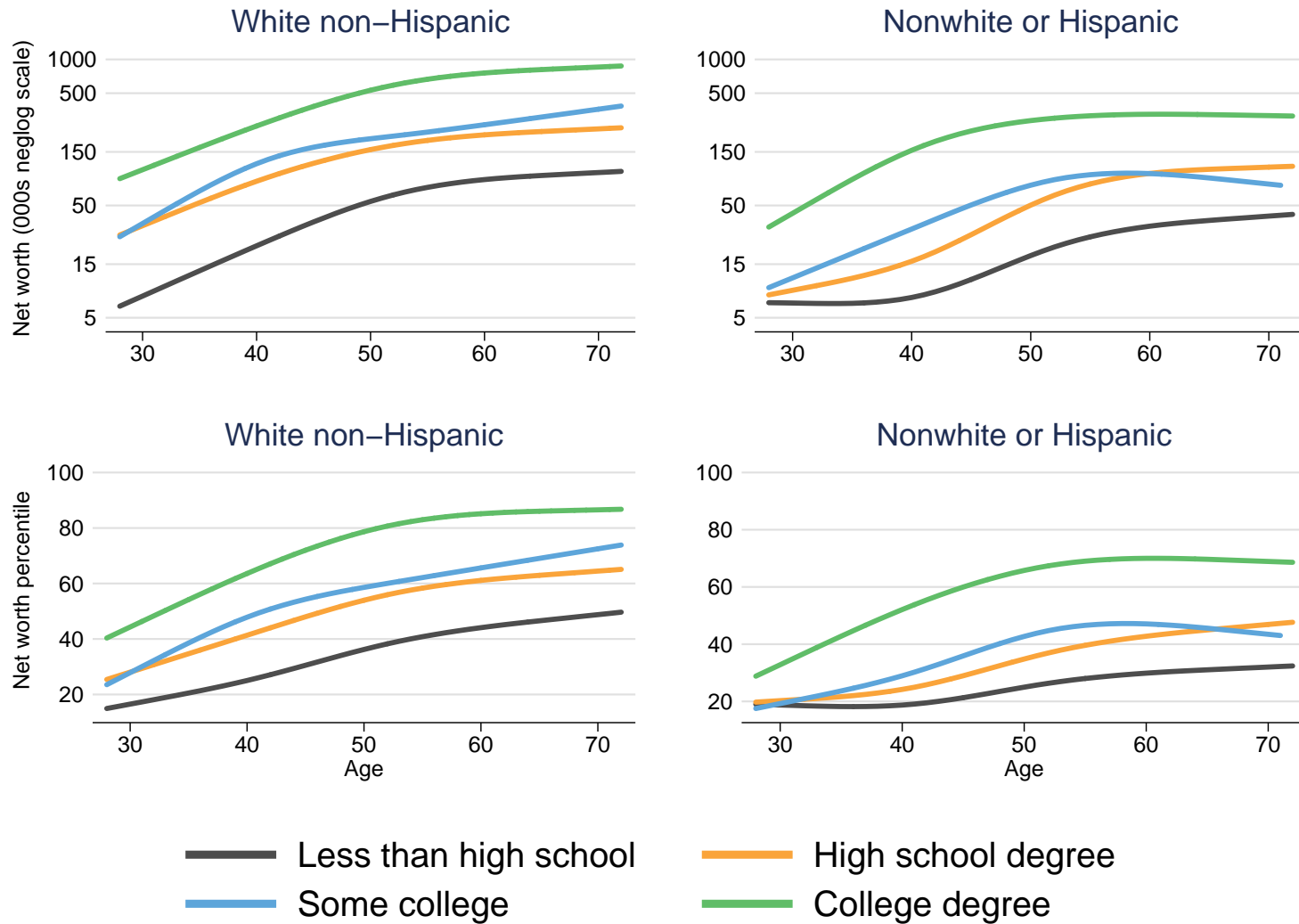
Figures show predicted median wealth by age for households in the 2007 SCF cross section head by a person aged 28 to 72. The model is estimated on pooled data from the 1989 through 2007 SCF surveys.

Figure 2. Distribution of differences in percentile ranks in actual and age-adjusted wealth distributions
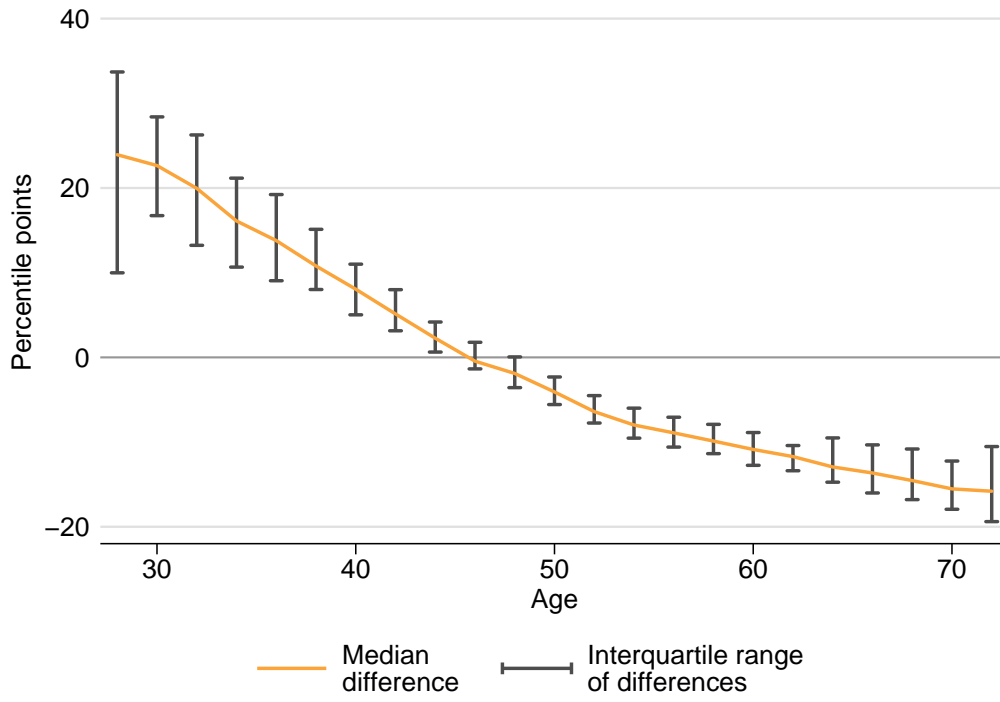
2007–09 SCF panel households with a head aged 28 to 72

Notes: Differences are (rank in additive counterfactual wealth distribution) – (rank in actual net worth distribution). The interquartile range and medians are plotted for two-year age ranges.