The Economic and Financial Status of Older Americans: Trends and Prospects

William R. Emmons* and Bryan J. Noeth*
Center for Household Financial Stability Working Paper
Federal Reserve Bank of St. Louis

Sept. 4, 2013

Abstract

The global financial crisis and ensuing Great Recession reduced the income and wealth of many families, but older families generally fared better than young and middle-aged families. The Federal Reserve's Survey of Consumer Finances reveals that being young was a significant risk factor during the downturn, regardless of a family's race, ethnicity, or education level. Among older families, those headed by someone 70 or over fared slightly better than those headed by someone between 62 and 69. Income and wealth also increased most strongly among older families during the two decades preceding the crisis. Part of the explanation for favorable income and wealth trends among currently living older Americans is a positive birth-year cohort effect. After controlling for a host of factors related to income and wealth, we find that cohorts born in the late 1930s and 1940s have experienced more favorable income and wealth trajectories over their life courses than earlier- or later-born cohorts. While it is too soon to know how cohorts born in recent decades will fare over their lifetimes, it appears that the median Baby Boomer (born in the 1950s and early 1960s) and median member of Generation X (born in the late 1960s and 1970s) are on track for lower income and wealth in older age than those born in the 1930s and 1940s, holding constant many factors other than when a person was born.

*The views expressed here are those of the authors alone and do not necessarily represent those of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

The Economic and Financial Status of Older Americans: Trends and Prospects

The global financial crisis and ensuing Great Recession reduced the income and wealth of most families. However, older Americans generally fared better than their younger counterparts on both dimensions, continuing a longer-term trend. This article provides an economic and financial profile of older Americans from 1989 through 2010 based on the Federal Reserve's triennial Survey of Consumer Finances.[1] Using the Federal Reserve's quarterly Financial Accounts of the United States, we extend one measure of wealth through early 2013; our findings suggest continuing favorable outcomes for older Americans compared to those under 62.[2]

We distinguish between two groups of older families—the "younger old", headed by someone aged 62-69, and the "older-old", headed by someone aged 70 or older. We compare these older families to each other and to young families (headed by someone under 40) and middle-aged families (headed by someone between 40 and 61 years old). We examine means and medians of family income and wealth as well as the 20th and 80th percentiles of income and wealth distributions in order to more fully characterize the range of experience in each group of families. We highlight the important dimensions of educational attainment and race or ethnicity, both of which are powerful predictors of income and wealth—not just in older age but throughout the life course. We pinpoint some of the factors that may be responsible for the relatively more favorable outcomes enjoyed by many, but not all, older adults, including their sources of income and the structure of their balance sheets—that is, their assets and liabilities. We also track the median income and median wealth of all cohorts born between 1893 and 1992, observing them as many as eight times at three-year intervals, between 1989 and 2010. We find strong evidence that birth year matters for both median income and median wealth of a cohort, holding constant a host of other important contributing factors.

We provide empirical answers to a number of important questions about the economic and financial status of currently living older Americans and the outlook for future generations of older adults. The questions include:

- How did older adults fare economically and financially compared to young and middle-aged families during the financial crisis and recession?
- What factors explain the age-related differences?
- How do recent age-related income and wealth patterns compare to longer-term trends?

[1] See Bricker et al (2012) and Emmons and Noeth (2012) for detailed discussions of the Survey of Consumer Finances and recent income and wealth trends revealed by the survey.
[2] The Financial Accounts of the United States formerly were known as the Flow of Funds Accounts.

- Were there meaningful differences between the "younger old" and the "older old" during the crisis or over a longer time horizon?
- How do income and wealth trends relate to educational attainment, race or ethnicity, birth-year cohort, and placement in the distributions of income and wealth (i.e., the rich and the poor)?
- Will recent income and wealth trends seen among older families continue in the future?

The article proceeds as follows. After providing some basic information about income and wealth through time and across the life course in Section I, we briefly review the growing literature that documents relatively stronger trends in family income and wealth among older families in Section II. The next two sections describe short- and long-term trends in family income and wealth across different age groups (Section III) and across groups of families sorted by race or ethnicity and educational attainment (Section IV). We then turn in Section V to cohort analysis—following families born in a given year through time—to seek insights into why older adults have fared relatively better than younger age groups in recent years. We present regression results that show strikingly large positive cohort effects for families headed by someone born in the late 1930s and 1940s, both in terms of income and wealth. In Section VI, we summarize our findings and conclude that unusually favorable income and wealth outcomes in recent years for currently living older adults are unlikely to continue in the future.

I. *Income and wealth through time and across the life course*

We begin with basic facts about family income and wealth through time and across the life course. We discuss briefly some limitations of how we measure income and wealth.

A. Family income and wealth through time

Among all families across all age groups, real (inflation-adjusted) average household income and real average household net worth declined significantly during the financial crisis and ensuing Great Recession of 2007-09 (Figure 1). The wealth decline was especially noteworthy, exceeding both in dollar amount and in percentage terms any previous downturn during the last six decades. Neither average income nor average wealth has returned to its previous trajectory in the subsequent four years of recovery to date. Indeed, neither income nor wealth had regained even its pre-crisis peak level through the end of 2012, let alone resume its earlier growth path (Figure 2).

Real median family income and real median household net worth (that is, measured at the 50th percentiles of their respective distributions) similarly turned down sharply during the crisis (Figure 3). Comparing the mean and the median, the ratio of real average net worth to real median net worth

increased significantly during the crisis; the comparable ratio for family income is much lower and changed little (Figure 4).[3]

B. Hump shapes in family income and wealth across the life cycle

Income and wealth levels differ predictably across the life cycle: Both trace out a hump shape, with income and wealth first rising through middle age then falling back (with exceptions noted below). Family income tends to rise into middle age and then it declines in old age, with the increase and decline more pronounced at higher average income levels (Figure 5). Family income typically peaks when the family head is in his or her 50s among higher-income families and somewhat earlier among lower-income families.

The trajectory of wealth also is hump-shaped over the life cycle, but the decline in older age is much less pronounced than it is for income (Figure 6). The peak in wealth typically occurs when the family head is in his or her 60s among higher-wealth families.[4] Similar to the pattern in family incomes, the largest declines in wealth in older age are among families at the upper end of the distribution.

Combining the much larger percentage increases in wealth than income during middle age among the more fortunate and the more moderate decline in older age, Figure 6 shows that the wealth distribution becomes and remains much more spread out than the income distribution across the entire life cycle. Another implication is that the ratio of wealth to income typically is larger among older adults than among younger adults. Among families headed by someone 80 years or older, for example, the median wealth in 2010 was over $200,000—far above the population median—, but the median family income among families 80 or older was less than $30,000—considerably below the population median.

C. What is included in family income and wealth?

Two natural questions that arise in any discussion of family income and wealth, but especially one that compares families in different age groups, are:

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[3] The ratio of the mean to the median is related to a number of different statistics used to characterize the skew (asymmetry) of a distribution. Under certain circumstances, a larger mean-to-median ratio implies a higher right skew, or extended right tail—that is, some families have vastly more wealth than others. Hence, in those circumstances, an increase in the skew implies an increase in inequality tilted toward the well-off.

[4] The fact that wealth tends to peak at later ages among the less-wealthy probably is due in part to survivorship bias—that is, relatively wealthier people tend to survive to older ages. The reasons are complex; people who have more wealth may be able to spend more on their health, but equally, people who are healthier may also earn more, leading to greater wealth accumulation. These effects make a group that has survived to any advanced age appear relatively wealthier than it would if everyone had equal survival probabilities from a younger age, regardless of wealth. Complications such as survivorship bias point out that sorting any group according to an endogenous variable—i.e., the result of a complex set of interactions—, such as wealth or income, is inherently fraught with difficulties of interpretation. Conclusions about causation become difficult or impossible. In most of what follows, we sort groups by exogenous or pre-determined variables, such as age, educational attainment, race or ethnicity, or year of birth.

a) What exactly comprises income and wealth in the measures being discussed?

b) What economically relevant quantities and considerations are missing from these measures?

Krimmel, Moore, Sabelhaus and Smith (2013) discuss the first question specifically as it relates to the Survey of Consumer Finances, including estimates of the economic magnitudes of items excluded from income, such as fringe benefits and benefits in kind, including Medicare, Medicaid, and food stamps; and from wealth, including the present value of future distributions from defined-benefit pensions and Social Security. Another important category of intangible wealth not included in balance sheets is so-called human capital, representing expected earnings from future work. Important categories of excluded liabilities include reasonably certain future expenditures on housing and living expenses; estimates of medical expenses; necessary replacement of long-lived assets like automobiles; taxes payable; and a host of other items.

To be sure, common definitions of income and readily measured assets and liabilities give an incomplete picture of a family's true income and wealth in an economic sense. Ideally, we would like to include everything that is economically meaningful, even if it is not easy to measure. It is important to keep in mind that arbitrarily adding one component to our crude measurements of income or wealth, such as an estimate of human capital, does not necessarily give us a truer picture, as many other important components still are excluded. In the end, we are left with a compromise between comprehensiveness and measurability.

II. Research on wealth accumulation across the life course and through economic cycles

It is not obvious whether young, middle-aged, or older families are likely to fare better during various economic and financial cycles. A recession that involves significant job and income losses will hurt young and middle-aged families more than older families because a larger part of the former groups' incomes are exposed to job loss. On the other hand, large declines in asset prices, including stocks and housing, would hurt middle-aged and older families more because they have more accumulated assets. A third consideration is that balance-sheet leverage—that is, the amount of debt used to finance the family's assets—typically is greatest among young families, so asset-price declines are multiplied into proportionately larger declines in net worth, hurting young families. Which effect will dominate is an empirical question.

Asset prices tend to be pro-cyclical—that is, they rise and fall in concert with the economy—so a downturn in the economy is likely to be accompanied by stagnant or falling asset prices. Thus, it's not obvious which channel—income, wealth, or leverage—will be most important in a given situation or for

any family. Adding to the complexity, the original impacts of recessions and asset-price declines could be muted or entirely reversed by the time we observe families' incomes and wealth.

A recent attempt to sort out the life-cycle wealth effects of a severe downturn such as the Great Recession concludes that older families are likely to fare worse than young families due to the greater proportionate decline in asset prices than in wage income observed during the recent downturn (Glover et al, 2011). Older families suffered wealth and income losses from depressed asset prices and interest rates while young families lost relatively little wealth or interest income because they had little wealth at risk. In principle, the young should have benefited by being able to purchase assets at relatively low prices from older families, who needed to continue selling stocks to finance their retirements and, in some cases, houses in order to move to living arrangements more appropriate for older adults. To some extent, these life-stage-driven asset sales would continue even though stock and house prices had fallen. In effect, Glover et al conclude that the old can't wait forever to sell their assets after a severe asset-price decline, which harms them and benefits young families.

Yet, as we discuss below, virtually all of the data that has become available since the downturn suggests that older families have fared better than young families both during the recent period of economic and financial weakness and during longer periods of greater economic and financial strength. We suggest that, while the basic intuition of the Glover et al analysis is correct as far as it goes as a description of economic and financial downturns themselves, it misses an equally important point about household economic and financial resilience during the ensuing recoveries. A key differentiating factor between young and old families is the overall strength and resilience of their income sources and balance sheets.[5] Older families indeed were affected more severely when asset prices fell sharply, but many older families had diversified assets, low or no debt, sufficient liquid assets, and adequate net worth before the crisis in order to ride out what turned out to be a temporary downturn. Stock prices began rising sharply even before the overall economy began its recovery, and, although it took longer, housing markets also have bounced back to some extent.

Even before the financial crisis and Great Recession, researchers had noticed that older adults had fared relatively well in economic and financial terms in recent years. William Gale and Karen Pence (2006), for example, found that virtually all of the increase in household wealth between 1989 and 2001 had accrued to older families, which they defined as aged 55 or older.[6] While Gale and Pence attribute most of the wealth accumulation by older families to the changing nature of the families themselves,

[5] Emmons and Boshara (2013) document important age-related differences in balance-sheet composition.
[6] As described below, we find essentially the same outcome for the 2001-10 period. That is, older families' wealth gains accounted for essentially all of the net increase in overall wealth in the nation.

including a higher likelihood over time of older families being married, being in good health, and being headed by someone with a college education, their explanations do not exclude the possibility that there is something unusual about older families today; that is, there may be "cohort effects" in addition to changing demographic characteristics at work. Indeed, John Sabelhaus (2006, p. 223), commenting on the Gale and Pence paper, conjectured that a cohort effect may be present:

> "But in addition to demographic variables that the authors focus on for explaining wealth, some unexplained cohort effects show up in the earnings data. For example, the data show that baby-boomer males have had (holding education constant) lower relative earnings than their fathers."

We describe below new evidence, based on Survey of Consumer Finances data through 2010, confirming a positive birth-year cohort effect on earnings and wealth accumulation among families headed by someone born in the late 1930s and 1940s, who currently are in their 60s and 70s.

Love, Palumbo, and Smith (2009) provide a theoretical explanation for why older families may have experienced relatively favorable wealth outcomes over recent decades. They (along with many others) conjecture that the primary reasons the typical older family spends down its assets more slowly than the rate at which its remaining life expectancy is declining are: 1) uncertain longevity, 2) unknown medical expenses, and 3) a bequest motive. They confirm their model's predictions with data from the Health and Retirement Study, covering 1998 to 2006. The basic mechanism appears to be that many older families simply are more highly motivated to save than are younger families—that is, older families' precautionary-saving and bequest motives are more immediate and salient than more-distant saving goals among younger families. It is possible that, while young and middle-aged families encountered relatively more economic and financial turbulence in recent years, older families' comparatively calmer circumstances allowed their stronger saving motivation to operate unencumbered. In line with the conclusions of Gale and Pence, Love, Palumbo, and Smith find that strong returns on financial assets and housing contributed to, but were not decisive in, the more favorable wealth trajectories for older families. Love, Palumbo, and Smith's results also are consistent with positive cohort effects on both income and wealth accumulation for families headed by someone born in the two decades or so prior to the Baby-Boom generation, as we show below.

Homeownership experiences in recent years highlight the important interaction between life-cycle financial decision-making and the historical period in which a family lives. Emmons and Noeth (2013a) show that young homeowners were hit particularly hard by the recent housing-centered financial and economic crisis. That is, simply by virtue of being at a stage in life that made them

particularly vulnerable to a severe crash in the housing market, many young families suffered very large wealth losses. Older families, by way of contrast, were at a stage in their lives in which housing most often played a secondary role on the asset side of their balance sheets. Older families typically also had much less debt than young and middle-aged families, making the leverage-induced loss of wealth much less severe for them.

Bricker, Kennickell, Sabelhaus, and Moore (2012) examine the latest wave of the Survey of Consumer Finances, conducted in 2010 and released in mid-2013, to show that, among six mutually exclusive and exhaustive age groups, only the two oldest groups—including families headed by someone aged 65 to 74, and someone aged 75 or older—had higher median inflation-adjusted incomes in 2010 than in 2007. Although every age group in the population had lower inflation-adjusted net worth in 2010 than in 2007, the declines in the two oldest age-group medians were, by a clear margin, the smallest.

In sum, accumulating evidence suggests that older families have fared relatively well in terms of income and wealth accumulation in recent years compared to middle-aged and especially young families. Whether these trends are permanent or temporary remains an open question for which we provide new evidence below.

III. Distributions of family income and wealth across the life course

There are many ways to characterize the distribution of income and wealth across groups of families. In this section, we describe means, medians, and the 20th and 80th percentiles of income and wealth across age groups through time.

A. Estimates of mean net worth by age group through 2013

Because we need to know the entire distribution of a particular statistic to calculate a median (50th percentile) or any other percentile, we cannot go beyond 2010 for those measures. The next wave of the Survey of Consumer Finances is being collected during 2013, with results available in 2015.

However, we can estimate the mean net worth of disaggregated groups by tracking aggregate financial asset and liability categories and demographic developments, such as household growth and population change by age group, and estimating how those overall changes affected subgroups by constructing group-specific estimated balance sheets. [7] This section summarizes our estimates of mean net worth by age group for the first quarter of 2013, which we use to extend the time series of SCF-

[7] See Krimmel et al, who perform a similar exercise using a somewhat different approach.

based mean statistics beyond the years 1989-2010. Due to our limited sample size and our desire to gauge broad trends accurately, our estimates of means consider only one older age group, consisting of all families headed by someone 62 years old or more.

Figure 7 shows the mean net worth of three age groups at three-year intervals between 1989 and 2013, using our balance-sheet estimates for the last year. The mean net worth of older families exceeds that of middle-aged and young families in every year. The strong upward trajectories of average net worth for middle-aged and especially older families over time stand in stark contrast to the long-term stagnation of average wealth among young families. Between 1989 and 2013, the ratio of middle-aged and older families' average wealth to the average wealth of a young family grew from about four times to between six and nine times, respectively.

The proportionately more severe damage to the average wealth of young families during the recent downturn is shown clearly in Figure 8. The average percent decline in wealth between 2007 and 2010 was much greater for young families—down about 44 percent, compared to average losses of about 17 and 10 percent, respectively for middle-aged and older families—while the estimated 2010-13 recovery has been comparable across age groups—an average gain of almost 10 percent for young families and gains of about 9 percent for both middle-aged and older families.

The severe recent downturn in mean wealth amplified a longer-term trend toward dispersion of wealth according to age seen for at least two decades. While we estimate the average wealth of a young family is about 19 percent lower in 2013 than it was in 1989, after adjusting for inflation, the comparable figures for middle-aged and older families are 51 percent and 82 percent higher, respectively. Said differently, the ratio of average wealth of middle-aged families to that of younger families increased from 3.5 to 6.6 between 1989 and 2013, while the ratio of the average wealth of an older family to that of a young family increased from 4.1 to 9.2 during the same time period.

B. Short- and long-run trends in median family income and wealth

Trends in median family income and wealth have been similar to those evident in mean measures. The median pre-tax income among all families surveyed by the Federal Reserve in 2010 ($45,743) was about 7.7 percent lower than the corresponding 2007 median ($49,561), both expressed in terms of 2010 purchasing power. But as Table 1 shows, the median family income among "younger-old" families (family head aged 62-69) was about 12.3 percent *higher* in 2010 than it was in 2007, while the median income among "older-old" families (family head 70 years or older) was about 15.6 percent higher in 2010 than three years earlier. Young (under 40) and middle-aged (ages 40-61) median family incomes, by way of contrast, were each about 12 percent lower in the later year.

The contrast is even starker over a longer, 21-year period (chosen to reflect the maximum span of survey data available). While the median family incomes among both young and middle-aged families were slightly lower in 2010 in inflation-adjusted terms than they had been in 1989, the median incomes among both the younger old and the older old were substantially higher—60.5 percent and 27.9 percent, respectively.

Table 2 shows that the same basic age-related patterns were evident for inflation-adjusted net worth, as well. The median wealth of all families considered together was about 39.2 percent lower in 2010 ($77,000) than in 2007 ($126,539). The wealth of a family headed by someone in both the younger-old and the older-old category was a bit lower in 2010 than in 2007 (about 13.8 percent and 5.8 percent, respectively). These declines were significantly less than those suffered by the median young and middle-aged families, however, which were about 37.6 percent and 42.9 percent, respectively.

Comparing median net worth in 2010 to its level in 1989 for each age group, the younger-old and older-old wealth levels were 74.0 and 47.7 percent *higher* in the latter year, respectively. Among young and middle-aged families, the median levels of net worth were 30.5 percent and 24.1 percent *lower* in 2010 than in 1989, respectively. In terms of the absolute levels of wealth, the median younger-old and the median older-old family each had slightly less wealth in 1989 than that of the median middle-aged family. By 2010, the medians of both older age groups were more than twice as large as the median wealth of a middle-aged family and close to 20 times as large as the median wealth of a young family.

The striking divergence between the economic and financial fortunes of the median family in different age groups probably is due to several factors. Perhaps most important during the recent financial crisis and recession, older families generally had lower exposure to job loss, as well as more stable sources of income and uninterrupted access to health insurance. The median share of income derived from wages or business or farm income in 2007 was 55 percent among younger-old families, headed by someone aged 62-69, and only 24 percent among older-old families, headed by someone 70 or more. Among young families, headed by someone under 40, the share was 94 percent and among middle-aged families, headed by someone between 40 and 61, the share was 86 percent.

Older families' balance sheets also were less concentrated in housing and they had lower levels of debt.[8] Among all older homeowners[9] (62 or more years old), housing accounted for 35 percent of

[8] Emmons and Noeth (2013a, 2013b) and Boshara and Emmons (2013) document significant age-related differences in typical family balance sheets.

[9] About 85 percent of "younger-old" families (ages 62-69) and 80 percent of "older-old" families (70 years or more) in the survey were homeowners in 2007.

their total assets. Middle-aged homeowners (representing 75 percent of all middle-aged families) held 40 percent of their assets in housing, while younger homeowner families (accounting for 48 percent of younger families) had 59 percent of their assets in housing. Meanwhile, older families owed very little debt, so the loss-amplifying effect of leverage was much smaller than among middle-aged and younger families. For example, 91 percent of younger homeowner families had mortgage debt in 2007, 82 percent of middle-aged homeowner families had mortgage debt, but only 57 percent of younger-old homeowner families and 26 percent of older-old homeowner families owed any mortgage debt. Moreover, the rebound in financial markets from their low point in 2009 has bolstered the wealth of many older families, who, on average, hold higher levels of stocks and bonds in their portfolios than do younger families.[10]

In sum, the typical older family fared much better in terms of both income and wealth than the typical young or middle-aged family over both a short-term and a long-term horizon. The recent experience therefore has accentuated long-term trends of stronger income and wealth growth among older families than among young and middle-aged families. Figure 9 shows the median pre-tax incomes of families in each age group at three-year intervals between 1989 and 2010. Perhaps most striking in the figure is the change in relative positions of the median young and the median younger-old family. In 1989, the median young family received an income about $10,000 more than the median income of a younger-old family ($42,226 vs. $31,669, respectively). By 2010, the median income of a young family had stagnated while the median income of a younger-old family had increased by about 60 percent. The median young family's income ended up more than $10,000 *lower* than the median income of a younger-old family in 2010 ($39,664 vs. $50,825, respectively).

A second important observation is that, during the most recent three-year period (2007-10), the median income among both older groups increased, while the medians declined significantly among young and middle-aged families. Figure 10 makes this clear, highlighting the sharply rising trajectories for median family incomes of older families while those of families headed by someone under 62 fell sharply.

Figures 11 and 12 provide analogous summaries of median wealth trends across age groups from 1989 through 2010. Qualitatively, all but one of the patterns noted above for income are true in the net-worth data, as well:

[10] Emmons and Noeth (2013c) estimate that older families had, by late 2012, on average recovered much of the wealth they lost during the financial crisis. Young families had not, due to their very different portfolio structures.

- In contrast to income, the median net worth among older families is higher (rather than lower) than that of young and middle-aged families throughout most of the 1989-2010 period (compare Figures 9 and 11);
- Similar to income during the 2007-10 period, the median net worth of both older groups fared better (declined less in percentage terms) than the corresponding medians of young and middle-aged families (compare Figures 10 and 12);
- Similar to income, the median net worth of both older groups was significantly higher in 2010 than in 1989, in contrast to the net declines seen in both young and middle-aged median wealth during this period (compare Figure 10 to Figure 12);
- Similar to income, the wealth of younger-old families fared relatively better than the wealth of older-old families across most of the period (see Figures 10 and 12).

In sum, median family income and median family wealth trends among older families were significantly stronger than median income and median wealth trends among middle-aged and especially young families, both during the recent downturn and over a two-decade span. This outperformance was especially true among younger-old families (62-69 years old), among whom the median income increased 61 percent and the median wealth increased 74 percent between 1989 and 2010, compared to overall population changes of +4 percent for median income and -3 percent for median wealth.

C. Income and wealth trends at the 20th and 80th percentiles of their distributions

To better understand the changing distributions of income and wealth across families in various age groups, this section describes trends in family income and family wealth measured at the 20th and 80th percentiles of each distribution over time. We break the sample into two groups according to the race or ethnicity of the family head to provide more clarity. We find the same basic age-related trends among both whites and Asians as a group and among African-Americans and Hispanics of any race as a second group, whether measured at the 20th or the 80th percentile of income or wealth.

We caution the reader to remember throughout this discussion that comparisons at the 20th, 50th (median), or 80th percentiles refer to changes over time in particular points in statistical distributions, not to individual families. A better way to characterize changes over time, in our view, is to construct quasi-panels (see Sections III and IV). This means we follow groups of families identified by demographic characteristics— including age, educational attainment, and race or ethnicity—and describe the statistical characteristics of those groups over time with medians and means. Another approach is to track birth-year cohorts over time (see Section V). Nonetheless, changes in points on the

income and wealth distributions themselves are of some interest given widespread discussion of issues related to growing income and wealth inequality within the entire population.

i. Income and wealth at the 20th percentile of their distributions.[11]

Table 3 displays family income measured at the 20th percentile of the distribution of all families and for families grouped by race or ethnicity in each of the four age ranges we have been considering. Table 4 shows net worth at the 20th percentile of its distribution in an analogous way based on the demographic dimensions of race or ethnicity and age.

Qualitatively, the patterns in Tables 3 and 4 reflecting relatively low-income and low-wealth families are virtually identical to those identified at the medians of overall income and wealth distributions. In particular, income peaks in middle age; net worth peaks in the younger-old age group; income growth and net-worth changes between 2007 and 2010 generally were more favorable among the older groups than among the middle-aged and young groups; and long-run changes in family income and net worth (1989-2010) were strongest among older age groups, especially the younger-old group. Furthermore, cumulative changes between 1989 and 2010 in both income and wealth measures were positive and significant in almost all older groups, while cumulative changes were essentially zero or negative more often than not among the young and middle-aged groups. In sum, the income and wealth trends during both the recent downturn and over a longer horizon generally favored older age groups, even when considering the 20th percentiles of their respective distributions.

ii. Income and wealth at the 80th percentiles of income and wealth distributions.[12]

Tables 5 and 6 report income and wealth observed at the 80th percentiles of various distributions. Among all families of all ages, family income at the 80th percentile of the 2010 distribution ($94,535) was about 7.6 percent lower than the corresponding 80th-percentile income in 2007 ($102,353), almost exactly the same percentage difference as at the median and a slightly larger decline than at the 20th percentile, which was 5.7 percent (see Tables 5, 1, and 3 in that order). Net worth at the 80th percentile of the 2010 distribution among all families of all ages ($415,700) was 20.2 percent lower than the 80th percentile of the 2007 distribution ($520,698; Table 6), a somewhat milder decline than the 39.2-percent and 44.0-percent declines observed at the median (Table 2) and at the 20th percentiles (Table 4), respectively. Thus, among all families of all ages, the *ex post* relatively better-off families

[11] The 20th percentile of a distribution is the observation below which 20 percent of all observations fall when ranked from low to high on a single variable—in this discussion, either family income or family net worth.
[12] The observation at the 80th percentile of a distribution is greater than 80 percent of all observations when ranked from low to high on a particular variable.

represented by the 80th-percentile observations fared about as well as *ex post* median and relatively poor families in terms of income and somewhat better in terms of wealth.

Longer-term trends (1989-2010) among groupings of families sorted by race or ethnicity and by age are consistent with patterns already discussed for both income and wealth. The families that fell at the 80th percentiles and were older generally appeared to have increased their incomes and wealth more by 2010 than had families at the 80th percentiles in young and middle-aged groups. The long-term improvements in 80th-percentile incomes and wealth were even more notable among older African-Americans and Hispanics than among older whites and Asians.

IV. Trends in median family income and wealth grouped by age, race or ethnicity, and educational attainment

Age of the family head is a powerful predictor of income and wealth, as is race or ethnicity. Educational attainment is another important and relatively stable determinant of income and wealth—stable both in the sense that, once it is determined early in life, a person's educational attainment rarely if ever changes subsequently; and in the sense that higher levels of educational attainment are consistently associated with higher levels of income and wealth.

In this section, we use age, educational attainment, and race or ethnicity of the family head to create a set of mutually exclusive groups of families in a quasi-panel framework to explore the economic and financial diversity of the population over time. In particular, we classify each family in each survey year according to its age (young; middle-aged; younger old; or older old), educational attainment (less than high school; high-school grad; or 2- or 4-year college grad), and race or ethnicity (white or Asian; vs. African-American or Hispanic), resulting in 24 unique groups (see Table 7 for a summary of the demographic criteria used to create the quasi-panel framework). Unsurprisingly, we find vast differences in the levels of income and wealth across disaggregated groups of families as well as in how the financial crisis and recession affected them.

A. Median family incomes disaggregated by age, education, and race or ethnicity

The decline in real median family income between 2007 and 2010 across the entire population was a substantial 7.7 percent (Table 1). Yet, almost half of the demographically defined groups we analyze (11 out of 24) experienced an increase in median incomes between 2007 and 2010, despite the overall decline. Over the longer 1989-2010 span, the median family income increased by 4.0 percent. Nonetheless, almost half of the groups (10 of 24 groups) experienced a decline during this period. Thus, it is important to isolate key demographic determinants of income trends.

As it turns out, median incomes were just about equally likely to decline over both short-term (2007-10) and long-term (1989-2010) horizons among different education groups and across race or ethnicity groups. What stands out is that the older groups of any education level or race or ethnicity were much less likely to experience declines in median incomes than were young and middle-aged groups. In particular, 10 of the 12 young or middle-aged groups had lower median incomes in 2010 than in 2007, while only three of 12 older groups had declines.[13] Over the longer period, seven of 12 young or middle-aged but only three of 12 older groups experienced declines.

i. Median family incomes of whites and Asians

Groups comprising whites and Asians were just as likely to experience declines in median family income between 2007 and 2010 as were groups of African-Americans and Hispanics (seven of 12 vs. six of 12). This was true despite the fact that every white or Asian group had higher median income in 2007 than its black or Hispanic counterpart matched by age and educational attainment. Over the longer time period (1989-2010), whites and Asians actually were more likely to experience a decline than blacks or Hispanics (seven of 12 vs. three of 12).

Figure 13 shows median family incomes among white or Asian families with less than a high-school education, broken out by the age of the family head. Long-term stagnation or outright decline is evident among all age groups with the exception of the younger-old families. The median income among families in the 62-69 age range was 11 percent higher in 2010 than it had been in 1989, vs. declines ranging from 9 to 33 percent in the other age groups.

Figure 14 displays median income trends among white or Asian families with high-school degrees or the equivalent. The short-term and long-term patterns are remarkably similar—over both horizons, the two older group medians increased while the two younger group medians declined. The median younger-old family income increased 24 percent between 1989 and 2010, surpassing the absolute level of median income of young families by the end of the sample period.

The four white or Asian college-grad groups shown in Figure 15 (young white or Asian college grads, middle-aged white or Asian college grads, etc.) are important both because each of them is numerically large and because each of them has significantly higher income and wealth than any of their respective age-matched groups. The large sample sizes mean that our statistical estimates are more precise than in other groups. The facts that these groups have high mean and median income and wealth, combined with their large numbers, imply that these groups receive a substantial portion of the economy's total income and control a large fraction of total wealth. Indeed, the families represented in

[13] The 12 older groups include six younger-old and six older-old groups.

Figure 15 together owned about 71 percent of all wealth in 2010, despite representing only 32 percent of families. Thus, trends among these groups will have disproportionate significance for the overall economy.

Two key life-course effects on median family income are clearly evident among white or Asian college graduates in Figure 15. First, income rises until middle age and then declines.[14] Second, the younger-old group has experienced stronger growth of income than any other group over both short-term and long-term horizons. In particular, the median family income among the younger-old white or Asian college-graduate population was 13 percent higher in 2010 than it was in 2007, despite the overall 7.7-percent decline. The median family income in this group was 14 percent higher in 2010 than in 1989, vs. the population median increase of 4 percent. The other three white or Asian college-grad groups (young, middle-aged, and older old) all experienced declines in median income between 2007 and 2010, and all but the middle-aged experienced declines over the longer 1989-2010 period. The cumulative strength of family income among younger-old (62-69 years old) white or Asian college graduates resulted in this group matching the median income of middle-aged white or Asian college graduates by 2010. Their median family income levels of $96,568 were the highest among all 24 demographically defined groups in the population.

ii. Median family incomes of African-Americans and Hispanics

As noted above, the median family income among each of the 12 black or Hispanic groups was lower than its age- and education-matched white or Asian counterpart in 2010 and in almost every case in earlier years of the sample, as well. Hence, race or ethnicity appears to be an important factor determining income levels that is independent of age and educational attainment. This may be due to current discrimination or the legacy of past discrimination in housing, education, labor or credit markets.

Nonetheless, short- and long-term trends in the median incomes of black or Hispanic groups have been at least as strong as those among white and Asian groups, generally speaking. Half of black or Hispanic groups had lower median incomes in 2010 than in 2007, about the same as for whites and Asians. Over the longer term, however, only three of 12 black or Hispanic groups had declines in median income while seven of 12 white or Asian group medians declined.

Figure 16 displays the median incomes of black or Hispanic families with less than high-school education, broken out by age of the family head. Perhaps surprisingly given their low levels—indeed, the lowest among all groups—, the long-term (1989-2010) increases in median incomes among all four black or Hispanic high-school drop-out groups were large, ranging from 21 percent for young families up

[14] Recall Figure 1.

to 73 percent for middle-aged families. The short-term (2007-10) changes also generally were much more favorable than the overall 7.7-percent decline. Of course, we cannot rule out measurement error because the sample sizes are small. Nonetheless, these results are encouraging in part because even young and middle-aged group medians appeared to rise strongly over a long period. Younger-old and older-old groups shared in these income gains, albeit from very low levels.

The median-income trends for most black or Hispanic high-school grads also were encouraging over the longer term, if not during 2007-10 (see Figure 17). Excepting the middle-aged group, all other black or Hispanic high-school graduate groups had higher median incomes in 2010 than in 1989; and the increases were significant.

The experience of black or Hispanic college-graduate median income was much more mixed than for minority groups with less education. Figure 18 shows that younger-old and older-old black or Hispanic college grads fared quite well both in the 2007-10 and the 1989-2010 periods. Although potential measurement error warrants caution, it appears that older black or Hispanic college grads experienced unusually strong median-income growth. Young and middle-aged median family incomes, on the other hand, declined much more than population medians over both shorter and longer horizons. The 2007-10 declines were 19 and 14 percent, respectively, versus an overall decline of 7.7 percent; while the 1989-2010 declines were 8 and 13 percent, respectively, versus an overall increase of 4 percent.

B. Median family net worth disaggregated by age, education, and race or ethnicity

As shown in Tables 2, 4, and 6 and in Figures 1, 2, 3, 7, 8, 11, and 12, median and mean net-worth measures declined between 2007 and 2010 across the entire population and among most families sorted by the single dimensions of age, wealth or race. In this section, we illustrate trends in median family net worth across our 24 groups defined by four age categories, three educational-attainment levels, and two race or ethnicity groups. As with median family income, we find that age is the dominant factor associated with greater dispersion of wealth over time.

i. Median family wealth of whites and Asians

Figures 19, 20, and 21 display the median net worth over time among white or Asian families across four age groups in each of three educational-attainment categories. In each figure, the two older groups' medians are higher than those of middle-aged and younger groups throughout most or all of the 1989-2010 period. Moreover, the cumulative change in median wealth generally is larger for older groups. In particular:

- The median net worth of the two older family groups among white or Asian high-school drop-outs was 52 percent (younger old) and 7 percent (older old) lower in 2010 than in 1989, versus declines of 67 and 65 percent among middle-aged and young white or Asian high-school drop-outs, respectively (Figure 19);
- The median net worth of the two older family groups among white or Asian high-school grads was 8 percent lower (younger old) and 10 percent higher (older old) in 2010 than in 1989, versus declines of 35 and 36 percent among middle-aged and young white or Asian high-school grads, respectively (Figure 20); and
- The median net worth of the two older family groups among white or Asian college grads was 14 percent lower (younger old) and 23 percent higher (older old) in 2010 than in 1989, versus a decline of 35 percent among young white or Asian college grads and an increase of 26 percent among middle-aged white or Asian college grads (Figure 21).

Because the share of all families that is older, white or Asian, and college-educated has increased over time and because these families have accumulated wealth more consistently than other groups, their share in total wealth has increased greatly in recent years and decades. Based on Survey of Consumer Finances data through 2010 and our estimates for 2013, the share of total wealth owned by older (62 or more) white or Asian families with 2- or 4-year college degrees increased from nine percent in 1989, to 14 percent in 2007, 21 percent in 2010, and about 23 percent in early 2013.[15] These families represented 4, 6, 8, and 9 percent of all families in those years.

ii. Median family wealth of African-Americans and Hispanics

Figures 22, 23, and 24 chart the evolution of median net worth among black or Hispanic family groups over time. The sample sizes are small and the point estimates thus less precise, but the same age-related patterns described above appear in these groups, too. To smooth out some of the volatility in the early-wave estimates (when sample sizes were particularly small), Table 8 averages values in the first four waves (1989, 1992, 1995 and 1998). Table 8 combines all families with heads 62 or older into a single group, as well.

With two exceptions—young families with less than high school over the longer horizon and young families with high-school degrees over the longer horizon—all ten remaining young or middle-aged black or Hispanic family groups experienced declines in median wealth over both short- and long-term horizons. For example, the median wealth of middle-aged black or Hispanic college-degree headed families was 50.8 percent lower in 2010 than it was in 2007, and was 0.6 percent lower in 2010 than it

[15] The estimates for Q1.2013 are described in Norris (2013), based on our unpublished estimates.

was on average during the 1989-98 period. Among young college-degree headed African-Americans or Hispanics, median wealth was 33.2 percent lower in 2010 than in 2007, and was 41.5 percent lower in 2010 than during the 1989-98 period.

Meanwhile, the median wealth among older families (defined here as 62 years old or more) generally was higher in 2010 than either 2007 or the average of 1989-1998. The only exception was older black or Hispanic college-grad-headed families. The decline in the median for this group between 2007 and 2010 was large, -45.1 percent. Nonetheless, the older black or Hispanic college-grad family median wealth was significantly higher in 2010 than it was on average during the 1989-98 period, and the median for this group remained far above that for any other group in Table 8.

V. Cohort analysis

To this point, we have focused on the economic and financial conditions of families in fixed age groups—the young, middle-aged, younger old, and older old—observed across eight waves of the Survey of Consumer Finances. The fixed age-group, or life-cycle, framework highlights effects that operate on all or most families in a certain age range, whenever they reach it. The underlying assumption is that the stage of life itself is more important than what has come before in a family's experience before it reached that age.

Cohort analysis is an alternative analytical framework that considers the possibility that certain groups of families born at one point in time may experience a life-cycle stage differently than other groups born in different years. By following through time various cohorts of families defined by their year of birth, we may be able to identify unique aspects of their life courses that are not strictly life-cycle regularities. In this section, we track the median family income and median wealth of a century of American families—that is, all birth-year cohorts from 1893 to 1992—across the eight waves of the survey, 1989 to 2010.

To see why this is important, suppose we only used a life-cycle framework with fixed age groups. We might observe favorable trends in family income and wealth among older families and mistakenly conclude that the mere fact of reaching a certain age confers unchanging economic and financial advantages when, in fact, what we are observing is unique to cohorts of families experiencing older age during the years we observe them. The latter interpretation is, in fact, what we conclude. Without a cohort analysis, we would be unlikely to uncover it in a limited dataset such as the Survey of Consumer Finances, which spans only 21 years.

The first section below graphically illustrates the life-course perspective that tracks the median wealth of individual cohorts over time. The second section presents regression results that reveal a striking set of cohort effects operating on median family income and median wealth. These results suggest that the experiences of current older Americans may not be representative of the experiences of Baby Boomers (born 1946-64), members of Generation X (born 1965-80), or later-born cohorts as they move into and through older age.

A. Tracking the wealth of successive cohorts

Before applying regression analysis to the income and wealth data, we illustrate wealth accumulation by different birth-year cohorts during the parts of their life courses we observe in the surveys. A cohort is defined here as all families born in a three-year period, such as 1958-60; for ease of reference, we refer to a three-year cohort by the middle year, such as the 1959 cohort. To reduce visual clutter, each of four figures displays five or six cohorts separated by 12 years in each successive case. This means that each "interior" cohort (i.e., ones that do not "spill over" the edges of the figure, preventing us from observing them) overlaps its neighboring cohort at four different ages. For example, the 1959 cohort (members of which were born in 1958, 1959, or 1960, and were 52, 51, or 50 years old in 2010) overlaps the 1947 cohort when 1959 and 1947 cohort members were (on average) 42, 45, 48 and 51 years old. The 1959 cohort overlaps the 1971 cohort when all members of both cohorts were (on average) 30, 33, 36, and 39 years old. Figures 25-28 together illustrate the evolution of median wealth among all 22 three-year birth-year cohorts between 1917 and 1980, reflecting, in turn, all family heads born between 1916 and 1981.

Figure 25 displays the median inflation-adjusted family wealth of six cohorts observed as many as eight times at three-year intervals. The vertical scale is logarithmic in order to allow easier comparisons of percent changes or percent differences in the vertical dimension.[16] The three-year birth-year cohorts are centered on 1917, 1929, 1941, 1953, 1965, and 1977. The 1917 cohort, for example, was observed at age 72 (on average) in 1989, at age 75 in 1992, at age 78 in 1995, and so on. We begin to observe the 1977 cohort at an average age of 21 in 1998, at age 24 in 2001, at age 27 in 2004, and so on.

Viewed as a whole, the six cohorts in Figure 25 trace out a clear life-cycle pattern of wealth accumulation. Wealth typically begins at a very low level in the early 20s, rising at a decreasing percentage rate until at least the 50s. The behavior of median wealth at very advanced ages probably

[16] In a semi-logarithmic chart such as this, equal vertical distances anywhere in the chart represent equal percent changes or differences.

reflects survivorship bias; that is, members of wealthier families are likely to live longer than members of poor families, skewing the observed median upward. Otherwise, we would expect a declining trend as older families decumulate assets.

It is important to distinguish between pure time effects and cohort effects. A pure time effect leaves a distinctive impression on every cohort, no matter where it is in its life course. A cohort effect is unique to a group born at a given time and "travels" with the cohort through time.

A pure time effect from the recent financial crisis is visible in the right-most observation in most of the cohorts pictured in Figure 25. Widespread and significant wealth losses between 2007 and 2010 resulted in declines in the last observation of median wealth of all pictured cohorts except the 1917 and 1929 cohorts (but recall the points about survivorship bias among the oldest families and the resilience of older families' income and wealth to the crisis). The decline was particularly sharp for the 1977 cohort, as indicated by the steeply negative slope of the line segment representing the change in the 1977 cohort's median wealth between 2007 and 2010, when the average family head was 30 and 33 years old, respectively. Moreover, at that stage in their lives, the typical family in their early 30s would have expected to achieve a significant wealth gain, rather than a loss. The vertical difference between where the median 1977-cohort family's wealth ended up in 2010 ($16,210) and where the median wealth among 1965-cohort families actually was when they were 33 years old in 1998 ($45,994) gives some indication of the damage done to young families by the financial crisis. The actual figure for the 1977 cohort at age 33 was some 65 percent below where we might have expected it to be based on the experience of the 1965 cohort, had there been no financial crisis.

Figure 26 depicts the median wealth of cohorts centered on 1920, 1932, 1944, 1956, 1968, and 1980. This figure displays cohort effects very clearly (as well as the 2010 time effect). Beginning with a comparison of the 1920 and 1932 cohorts, the four overlapping ages—69, 72, 75, and 78—show the later-born cohort to have greater median wealth than the earlier-born cohort at every age. Comparing the 1932 and 1944 cohorts, the same pattern is visible—the later-born cohort had a higher median level of wealth at each overlapping age (57, 60, 63, and 66). Moving further to the left in the figure, the same basic pattern (i.e., the later-born cohort is richer) appears in each successive cohort comparison with two notable discrepancies. First, the 2010 wealth declines were so significant for the 1956 and 1968 cohorts that their previous wealth advantages over the earlier-born comparison cohort was lost. Second, the 1980 cohort's median wealth fell consistently short of the 1968 cohort's median, even before the crisis. Given the expected significant increase in median wealth between age 27 and age 30

in the absence of a crisis, the near stagnation of median wealth represents a significant blow to the 1980 cohort.

On the basis of Figures 25 and 26, we conclude that:

- There is a significant negative time effect associated with the 2007-10 period, but it did not affect all cohorts equally;
- There appears to be a positive cohort effect throughout most of the 20th century in which successive cohorts were wealthier than earlier-born cohorts;
- The 2010 time effect may have neutralized or even reversed the positive cohort effect for some mid- or late-century cohorts; and
- The most recent cohorts observed at younger ages may not have shared in the long-term pattern of rising wealth in successive cohorts, even before the crisis.

Figures 27 and 28 provide more cohort comparisons to complete the presentation of all family heads born between 1916 and 1981. Successive cohorts in each case are chosen at 12-year intervals. The conclusions drawn from Figures 25 and 26 apply to these figures, also. There appears to be a tendency for median wealth to increase across successive cohorts; the 2010 wealth decline was severe enough to wipe out the positive cohort effect in many—especially later-born—cohorts; and the youngest cohorts may not have been much or any richer than their earlier-born counterparts, even before the crisis.

B. **Regression evidence: Are there cohort effects in family income or wealth?**

The visual evidence in Figures 25-28 suggested important cohort and time effects in family net worth but we would like to be more precise. Is there a consistent increase in wealth across successive cohorts or does it end or reverse at some point? How significant are time effects—not just in 2010, but in other years? The prevalence of key factors driving income and wealth, including age, educational attainment, and race or ethnicity, are changing over time in the population—how do we control for those effects? Do any birth-year cohorts stand out from the others? Regression analysis helps us sort out and quantify these and other factors.

i. Cohort effects in family income.

We first look for birth-year cohort effects in family income, which, if they exist, could help explain patterns in wealth accumulation. Table 9 contains estimation results from a regression of family income on demographic, idiosyncratic, birth-year cohort, and time variables. We have over 35,000 observations across the eight survey waves and the fit of the pooled regression model is good, with an R-squared of 46 percent and many co-efficients estimated with high levels of statistical significance.

We regress the logarithm of family income in a given year on a cubic function of age to control for life-cycle effects; on standardized (i.e., de-meaned by demographic profile) measures of marital status, family size, saving behavior, and health status to isolate potentially important idiosyncratic factors important for wealth accumulation; on education and race or ethnicity indicator variables to capture the effects of human capital and potential legacies of discrimination, respectively; on year dummies to capture time effects during the year of observation; and, of primary interest, on a large set of birth-year cohort indicator variables.

We construct five-year cohorts beginning with families born between 1893 and 1897, referring to this as the 1895 cohort. Each successive five-year cohort (through 1990) is compared to the 1940 cohort, which is an omitted indicator variable. We omit the 1940 cohort both because it is near the middle of the sample of birth years and because it turns out to be a good example of families born at a particular time enjoying an unusually favorable cohort effect.

Estimates of the co-efficients on demographic and idiosyncratic variables reported in Table 9 generally are highly significant with the expected signs. Family income rises with the age of the family head, but at a decreasing rate. The significant co-efficient estimate on the age-cubed variable indicates that the age-income relationship is complex, most likely encompassing both life-cycle and survivorship effects, among others.

Idiosyncratic factors that are reliably associated with higher family income include being married, having more children than average, regularly saving money, and enjoying above-average health. Higher levels of educational attainment are very strongly predictive of higher income as is being white. Being African-American predicts lower income, holding all other factors constant. There is no reliably estimated distinction between the family incomes of Hispanics of any race and Asians (the excluded category), holding all else constant.

Time dummies for the 1989-2010 sample dates generally were not significant, although income was statistically significantly higher in 2007 than it was in 1989. Inflation-adjusted family income in 2010 was significantly lower than it was in 1989, holding all else constant. This reflects the very severe recent recession.

Figure 29 shows the marginal effect of birth year on a family's inflation-adjusted income, holding constant all the variables described above; Table 9 provides the corresponding co-efficient estimates and t-values. If there are no birth-year cohort effects determining family income after controlling for a host of other factors, all of the parameter estimates will be statistically

indistinguishable from zero. Co-efficient estimates that are statistically significantly different from zero at the 10-percent level are shown as solid bars; those that are not statistically sufficient are hollow.

The birth-year cohort variables showed no statistically significant income differences between families born in the five years centered in 1940 (the reference group) and those born during either the 1895, 1900, or 1905 cohorts, once other factors were taken into account. It may be that there are cohort effects but the small number of people in the sample who were born before 1908 leads to imprecise estimates; or there may be no such effects. Survivorship bias also may be important, because those born before 1908 and still alive when the surveys were conducted may be unrepresentative of the entire original cohorts. Thus, insignificant estimates of birth-year cohort effects for those born before 1908 do not concern us unduly.

Families headed by someone born in all cohorts between 1910 and 1930, however, did have statistically significantly lower incomes than families born in the 1940 cohort even after controlling for a number of demographic, idiosyncratic, and time effects. The estimated magnitudes of difference—increasing monotonically from a 33-percent lower level among the 1910 cohort to a 10-percent lower level among the 1930 cohort—are consistent with a generally rising level of family income across successive birth-year cohorts as overall standards of living increase. This alone might help explain higher wealth among later-born generations, which we investigate below.

In terms of family income as reported in Table 9, families headed by someone born in the 1935, 1940, or 1945 cohorts—i.e., between 1933 and 1947—were statistically indistinguishable from each other. However, beginning with the 1950 cohort—including families headed by someone born between 1948 and 1952—successive cohorts through 1970 (born 1968-72) had statistically significantly *lower* incomes than those of the 1940 cohort, controlling for many important factors. The estimated magnitudes are economically significant, too—between 16 and 27 percent lower than the 1940 cohort. Moreover, all remaining five-year cohorts beginning in 1975 had estimated income shortfalls of about 20 percent; however, these effects were not measured precisely. The fading of a negative cohort effect after 1970 may be due to a true diminution of the effect or it may be due to relatively small sample sizes and high variability among younger families' incomes.

The cohort effects in family income revealed in Table 9 are striking. Incomes rise strongly and consistently beginning with the 1910 cohort through about the 1935 cohort, even after holding constant a number of key determinants of income like age, education, race or ethnicity, and idiosyncratic factors like family structure, saving behavior, and health status. Incomes are similar among the 1935, 1940, and 1945 cohorts, controlling for other factors; then incomes drop abruptly beginning with the 1950 cohort.

Compared to the 1940 cohort, there is strong evidence of a 16- to 27-percent income shortfall in all cohorts between 1950 and 1970 (born between 1948 and 1972)—approximately the Baby-Boom era. There is suggestive evidence that the shortfall has continued through at least the 1990 cohort, but more data and the passing of time will be required to know for sure.

ii. Cohort effects in family wealth.

Given the evidence in Table 9 and Figure 29 that there are important cohort effects in family income—strongly increasing for successive cohorts between 1910 and 1930, little changed between the 1935 and 1945 cohorts, then significantly lower for the 1950 cohort through at least 1970—it would not be surprising to find similar effects in family wealth. After all, unusually high incomes for the 1935, 1940, and 1945 cohorts might have supported higher saving rates than among earlier- and later-born cohorts.

Tables 10 and 11 report the results of two model specifications that do, indeed, show strong evidence of cohort effects that lifted the wealth of families born in the 1930s and 1940s above that of families born before or after, holding constant many factors that determine wealth. Thus, it would be very misleading to observe the experience of currently living older families and assume that the trends they are experiencing will carry over to later-born generations when they, in turn, become old.

Log specification. Table 10 reports the results of a specification very similar to that in Table 9, but with the logarithm of wealth as the dependent variable instead of the logarithm of family income. To eliminate the possibility that high or low wealth may be due to very high or very low income of individual families in a given year, we add an explanatory variable designed to capture idiosyncratic income risk. Measured as the difference between the square root of a family's income in a given year and the square root of the average income of all families with the same demographic profile, this variable dampens the effects of statistical outliers.

As was the case in the model of income, we find that demographic and idiosyncratic variables are highly statistically significant with the expected signs in predicting wealth. Unusually high family income in a given year does predict higher wealth in that year. Wealth increases with age but in a non-linear way. Family heads that are married, that have more than the average number of children, that save money, and that enjoy better-than-average health all tend to have higher wealth. Higher levels of educational attainment are very strongly predictive of higher wealth. White families have higher wealth than Asian families, while Hispanics of any race and African-American families have lower wealth than Asian and white families. The year dummies suggest that wealth was significantly higher in 2007 than in

1989, holding all else constant, and wealth was significantly lower in 2010 than in 1989, all else held constant.

Results for the birth-year cohort variables in predicting log wealth are qualitatively similar to those described for the income regression (see Table 10; no figure is provided for this regression). The model can say little about the wealth levels of families born in the 1895 and 1900 five-year cohorts compared to the 1940 cohort; the sample sizes are small and there may be survivorship biases at work. Beginning with the 1905 cohort, however, a very large and statistically significant shortfall of wealth—estimated at about 50 percent of the wealth level of the 1940 cohort—diminishes as we look across successive cohorts born in the first third of the 20th century. The differences in wealth between the 1935, 1940, and 1945 cohorts are small and statistically indistinguishable from zero. Beginning with the 1950 cohort and running through 1975, the estimated wealth shortfalls compared to the 1940 cohort are at least eight percent, although the estimates are not statistically significant at conventional levels.

Inverse hyperbolic sign (IHS) specification. The logarithmic specification in Table 10 requires us to drop all observations that include zero or negative values of net worth. About 8½ percent of all family-year observations thus were dropped. These families are more likely to be young or middle-aged, so eliminating them may be one reason why we did not find statistically significant birth-year cohort effects for wealth among Baby Boomers and Gen-Xers when we did find these effects for income.

An alternative transformation of net worth—the inverse hyperbolic sine (IHS) function—allows us to include zero or negative wealth observations while retaining a similar interpretation of results to the log model.[17] The model estimated with the IHS transformation of net worth includes 3,013 more observations than the log model and captures information contained in the observations of families with zero or negative reported net worth.

After applying the Halversen-Palmqvist transformation to co-efficient estimates of indicator variables, Table 11 reports results for an identical set of independent variables used in the log specification reported in Table 10. Figure 30 illustrates our estimates of the marginal effects of birth-year cohort on a family's wealth, holding constant demographic, idiosyncratic, and time effects. The solid bars in the figure are statistically significant at the 10-percent level while the hollow bars are not.

The IHS model in Table 11 improves the model's overall fit compared to the log specification, raising the R-squared slightly. More importantly, it provides much stronger evidence for significant birth-year cohort effects in wealth accumulation than the log specification did.

[17] See Pence (2006) and Gale and Pence (2006) for extensive discussion and application of the inverse hyperbolic sine transformation to balance-sheet data.

If anything, we now find even stronger birth-year cohort effects on family wealth than on income during the first third of the 20th century. The wealth of families in the 1905, 1910, and 1915 cohorts is estimated to be 43 to 46 percent lower than the wealth of families in the 1940 cohort, holding all else constant. The largest cohort effect on income—in the 1910 cohort—was only negative 33 percent (see Table 9). We find that cohorts from 1910 through 1935 enjoy successively lower shortfalls in wealth, although even the 1935 cohort has about 10 percent lower wealth than the 1940 cohort. Recall that we found no statistical difference between the 1935 and 1940 cohorts in the income and the log of wealth regressions.

We cannot distinguish between the 1940 and 1945 cohorts, as in both previous regressions. Moreover, the IHS wealth specification also fails to distinguish between the 1940 cohort and the 1950, 1955, and 1960 cohorts. The latter three cohorts all were found to have statistically significantly lower income than the 1940 cohort. Nonetheless, the 1950, 1955, and 1960 cohorts all are estimated to have between 10 and 18 percent lower wealth, holding all constant (albeit estimated imprecisely).

Compared to the log specification for wealth, the IHS co-efficient estimates and t-statistics for all birth-year cohort indicator variables between 1950 and 1990 increase in absolute value (i.e., become more negative between 1950 and 1985 and more positive in 1990). Estimates for the 1965, 1970, 1975, 1980, and 1990 cohorts become statistically significant at the 10-percent level. Thus, the IHS specification looks much more like the income results for Baby Boomers and Gen-Xers. The estimated wealth shortfall for families in the 1970, 1975, and 1980 cohorts is about 40 percent, roughly twice the estimated income shortfall. The very large and significant positive wealth effect for the 1990 cohort is striking, but must be taken with a grain of salt since these individuals and families are few in number and observed only in the most recent surveys at very young ages.

iii. Why did the rising income and wealth trends end? Will they resume?

Our regression results strongly support the hypothesis that rising levels of income and wealth *holding constant demographic characteristics like educational attainment* during the first several decades of the 20th century came to an end at some time around mid-century. One possible explanation is that the arrival of the Baby Boomers somehow disrupted the process of rising standards of living for given demographic characteristics. Another possibility is that the ends of the Great Depression and World War II were associated with social, political, and economic changes that favored generations born before the Baby Boomers. We only speculate on underlying causes here and leave deeper investigations for future research.

An obvious place to start is with relative cohort sizes. The idea is that relatively small cohorts may have attracted "scarcity premiums" in labor, housing, and financial markets while relatively large cohorts paid "crowding penalties" in those markets. Figure 31 displays the number of babies (under one year old) in the United States between 1896 and 2015 (the latter years derived from Census projections). The striking 20-percent decline in the number of infants between 1925 and 1937 likely reflects the massive disruption of the Great Depression as well as the slowdown in the population's natural growth rate after earlier high immigration rates declined. Even after the infant population began to rise again in the late 1930s, it was not until 1945 that the size of this population reached the level of 20 years earlier. Thus, these very small birth-year cohorts well may have been favored later in life in the form of relatively higher earnings, lower house prices, stronger growth in financial-asset prices, etc.

As the recovery of the infant population proceeded in the 1940s, it was transformed into the baby boom. Peaking in the early 1960s, the infant population doubled in little more than two decades. Given trends in births both before and after, it appears now that the baby boom was an historical aberration, rather than a return to an old trend or transition to a new trend. Indeed, the "baby bust" that commenced in the early 1960s appears to have taken the infant population back toward its new longer-term trend. Hence, it is plausible that Baby Boomers may have suffered from crowding in labor, housing, and financial markets. This may have resulted in unfavorable developments in income and wealth accumulation.

Another possible set of explanations of the apparent end of rising levels of income and wealth for a given set of demographic factors relates to changes in economic growth and social policies. Post-World War II economic growth was very rapid and the value of housing and financial assets increased strongly. People born in the first half of the 20th century simply may have been in the right place at the right time, rather than attracting any special advantages related to their absolute numbers. A related channel of causation is the post-war expansion of the safety net, especially for retired people. The steadily increasing generosity of Social Security as well as the creation of Medicare in the 1960s and, 40 years later, a significant expansion in the form of the Medicare drug benefit greatly increased the resources being directed to adults reaching retirement age in the 1990s and 2000s.

Will the favorable income and wealth trends observed among today's older adults resume at some point? We cannot know for sure, but it appears unlikely to us that Baby Boomers—who are just now entering retirement in large numbers—will enjoy incomes and wealth for given demographic characteristics as favorable as that enjoyed by pre-boomers. First, the Baby Boomers already have

significantly lower demographically-adjusted incomes and wealth, as we documented above. There is little time to make up these shortfalls, and even less reason to believe that social policies will be changed to assist them. Second, it appears more likely that redistribution toward older adults will be reduced, rather than increased to make up any putative shortfall.

As for cohorts born after the Baby Boomers, our evidence points to very little change from the trends experienced by the Baby Boomers. That is, we would not expect a significant increase in the level of income or wealth for a given set of demographic characteristics. Only the passage of time and the accumulation of more data will allow us to be more confident about our predictions.

VI. Conclusions

The income and wealth of the typical older adult generally has held up better than those of young and middle-aged families, both during the recent financial crisis and recession and over a two-decade span reaching back to 1989. One important factor appears to be lower susceptibility among older families to economic and financial turbulence, both recently and in previous downturns. Underlying their greater resilience, older families rely more heavily on more stable sources of income, such as Social Security and pension wealth, while their balance sheets are less risky due to greater asset diversification, less leverage, and more liquid-asset holdings.

Another important factor underlying the favorable income and wealth trends observed in currently older age ranges appears to be significantly increasing birth-year cohort effects for people born in the first half of the 20th century. This means that, for a given set of demographic characteristics such as educational attainment, a family enjoyed higher income and wealth, the later the family head was born in the first half of the century. After about 1950, however, families actually received lower incomes and accumulated less wealth for a given set of demographic characteristics. For reasons we do not fully understand, there is little evidence that this deterioration for people born in the second half of the 20th century has ended, let alone reversed itself.

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Table 1

Median Inflation-Adjusted Family Income by Age Group

	Median family income (2010 dollars, deflated by CPI-U-RS)			Difference in respective medians (percent)	
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$43,985	$49,561	$45,743	4.0%	-7.7%
Young (under 40)	42,226	45,251	39,644	-6.1	-12.4
Middle-aged (40-61)	58,061	64,644	56,924	-2.0	-11.9
Younger old (62-69)	31,669	45,251	50,825	60.5	12.3
Older old (70 and older)	24,632	27,258	31,512	27.9	15.6

Source: Federal Reserve Board, Survey of Consumer Finances

Table 2

Median Inflation-Adjusted Net Worth by Age Group

	Median family net worth (2010 dollars, deflated by CPI-U-RS)			Difference in respective medians (percent)	
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$79,374	$126,539	$77,000	-3.0%	-39.2%
Young (under 40)	18,553	20,671	12,900	-30.5	-37.6
Middle-aged (40-61)	142,353	189,148	108,00	-24.1	-42.9
Younger old (62-69)	134,493	271,507	234,000	74.0	-13.8
Older old (70 and older)	141,678	222,108	209,290	47.7	-5.8

Source: Federal Reserve Board, Survey of Consumer Finances

Table 3

Inflation-Adjusted Family Income by Age Group at the 20th Percentile of the Distribution

	Family income at 20th percentile of distrib-ution (2010 dollars, deflated by CPI-U-RS)			Difference in values at 20th percentile (percent)	
All families					
	1989	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$17,594	$21,548	$20,330	15.6%	-5.7%
Whites and Asians					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$21,113	$23,703	$23,380	10.7%	-1.4%
Young (under 40)	21,113	26,935	21,143	0.1	-21.5
Middle-aged (40-61)	36,596	32,322	29,275	-20.0	-9.4
Younger old (62-69)	17,594	23,487	24,599	39.8	4.7
Older old (70 and older)	14,075	15,084	17,281	22.8	14.6
African-Americans and Hispanics of any race					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$8,797	$15,084	$15,248	73.3%	1.1%
Young (under 40)	10,556	15,084	15,248	44.4	1.1
Middle-aged (40-61)	9,149	19,178	18,297	100.0	-4.6
Younger old (62-69)	7,038	15,946	16,264	131.1	2.0
Older old (70 and older)	7,038	8,425	11,995	70.4	42.4

Source: Federal Reserve Board, Survey of Consumer Finances

Table 4

Inflation-Adjusted Net Worth by Age Group at the 20th Percentile of the Distribution

	Family net worth at 20th percentile of distribution (2010 dollars, deflated by CPI-U-RS)			Difference in values at 20th percentile (percent)	
All families					
	1989	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$3,711	$7,680	$4,300	15.9%	-44.0%
Whites and Asians					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$13,325	$16,491	$8,800	-34.0%	-46.6%
Young (under 40)	1,741	2,079	-570	-132.7	-127.4
Middle-aged (40-61)	47,459	40,711	18,376	-61.3	-54.9
Younger old (62-69)	43,516	71,684	54,004	24.1	-24.7
Older old (70 and older)	43,381	69,673	60,848	40.3	-12.7
African-Americans and Hispanics of any race					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	-	$221	-	Not meaningful	-100.0%
Young (under 40)	-128	-	-236	Not meaningful	Not meaningful
Middle-aged (40-61)	-	1,619	890	Not meaningful	-45.0
Younger old (62-69)	-	5,810	6,972	Not meaningful	20.0
Older old (70 and older)	877	3,357	830	-5.4	-75.3

Source: Federal Reserve Board, Survey of Consumer Finances

Table 5

Inflation-Adjusted Family Income by Age Group at the 80th Percentile of the Distribution

	Family income at 80th percentile of distrib-ution (2010 dollars, deflated by CPI-U-RS)			Difference in values at 80th percentile (percent)	
All families					
	1989	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$87,971	$102,353	$94,535	7.5%	-7.6%
Whites and Asians					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$95,008	$112,050	$106,733	12.3%	-4.7%
Young (under 40)	88,322	97,182	84,573	4.2	-13.0
Middle-aged (40-61)	116,825	136,830	132,959	13.8	-2.8
Younger old (62-69)	80,229	110,111	126,413	57.6	14.8
Older old (70 and older)	54,190	61,455	62,515	15.4	1.7
African-Americans and Hispanics of any race					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$56,301	$72,186	$63,023	11.9%	-12.7%
Young (under 40)	53,134	64,213	57,941	9.0	-9.8
Middle-aged (40-61)	67,209	91,795	69,936	4.1	-23.8
Younger old (62-69)	33,781	78,650	60,584	79.3	-23.0
Older old (70 and older)	26,391	26,935	48,508	83.8	80.1

Source: Federal Reserve Board, Survey of Consumer Finances

Table 6

Inflation-Adjusted Net Worth by Age Group at the 80th Percentile of the Distribution

	Family net worth at 80th percentile of distribution (2010 dollars, deflated by CPI-U-RS)			Difference in values at 20th percentile (percent)	
All families					
	1989	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$318,945	$520,698	$ 415,700	30.3%	-20.2%
Whites and Asians					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$377,438	$615,618	$544,740	44.3%	-11.5%
Young (under 40)	176,130	210,829	114,634	-34.9	-45.6
Middle-aged (40-61)	496,593	717,452	651,368	31.2	-9.2
Younger old (62-69)	725,224	1,057,678	1,200,168	65.5	13.5
Older old (70 and older)	456,636	686,566	690,682	51.3	0.6
African-Americans and Hispanics of any race					
Age of family head	**1989**	**2007**	**2010**	**1989-2010**	**2007-10**
All ages	$77,383	$208,489	$119,400	54.3%	-42.7%
Young (under 40)	38,840	61,773	38,350	-1.3	-37.9
Middle-aged (40-61)	138,281	305,056	149,312	8.0	-51.1
Younger old (62-69)	102,153	691,168	267,700	162.1	-61.3
Older old (70 and older)	81,024	151,027	255,796	215.7	69.4

Source: Federal Reserve Board, Survey of Consumer Finances

Table 7

Demographic Dimensions and Categories Used in Creating Family Groups

Demographic dimension	Categories
Age of family head	Young: Less than 40 years old
	Middle-aged: At least 40 but less than 62 years old
	Younger old: At least 62 but less than 70 years old
	Older old: 70 or more years old
Educational attainment of family head	Less than high-school degree
	High-school degree or General Equivalency Degree
	Two- or four-year college degree
Race or ethnicity of survey respondent	Non-Hispanic white or Asian
	African-American, black, or Hispanic of any race

Table 8

Median Inflation-Adjusted Net Worth of African-American or Hispanic Families

	Median family net worth (2010 dollars, deflated by CPI-U-RS)			Difference in respective medians (percent)	
Age of family head	**Average of 1989, 1992, 1995, and 1998 medians**	**2007**	**2010**	**[Average of (1989-1998 medians)] to 2010**	**2007-10**
Less than high-school degree					
Young (under 40)	$1,111	$5,448	$3,830	244.8%	-29.7%
Middle-aged (40-61)	13,406	17,915	11,300	-15.7	-36.9
All old (62 and older)	21,337	32,478	47,750	123.8	47.0
High-school grad or GED					
Young (under 40)	$4,553	$6,642	$6,020	32.2%	-9.4%
Middle-aged (40-61)	40,992	55,967	22,350	-45.5	-60.1
All old (62 and older)	60,378	91,284	110,800	83.5	21.4
2- or 4-year college degree					
Young (under 40)	$15,567	$13,620	$9,100	-41.5%	-33.2%
Middle-aged (40-61)	110,362	223,051	109,700	-0.6	-50.8
All old (62 and older)	141,878	352,440	193,650	36.5	-45.1

Source: Federal Reserve Board, Survey of Consumer Finances

Table 9

Pooled Regression of Logarithm of Family Income on Demographic, Idiosyncratic, Birth-Year Cohort, and Time Variables

- **Dependent variable is logarithm of inflation-adjusted family income in year t, excluding all non-positive observations.**
- **Sample years are 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010.**
- **Co-efficients are expressed as decimal fractions; for example, the value -0.195 for "Birth-year 1958-62 indicator" means negative 19.5 percent.**

Variable	Beta	T-Stat
Intercept	7.432	25.12
Age in years	0.170	13.17
Age squared	-0.002	-8.61
Age cubed	0.000	4.64
Standardized marital status	0.458	67.16
Standardized number of children	0.060	8.97
Standardized saving indicator	0.198	28.64
Standardized health status	0.491	30.19
High-school drop-out indicator	-1.419	-60.71
High-school grad or GED indicator	-1.037	-62.65
Some college indicator	-0.697	-35.96
College graduate (omitted)		
White indicator	0.282	8.27
African-American or Black indicator	-0.165	-4.18
Hispanic of any race indicator	-0.043	-1.02
Asian or other (omitted)		
Birth year 1893-97 indicator	-0.131	-0.20
Birth year 1898-1902 indicator	0.022	0.08
Birth year 1903-07 indicator	-0.080	-0.41
Birth year 1908-12 indicator	-0.329	-2.13
Birth year 1913-17 indicator	-0.219	-1.72
Birth year 1918-22 indicator	-0.189	-1.85
Birth year 1923-27 indicator	-0.136	-1.73
Birth year 1928-32 indicator	-0.098	-1.66
Birth year 1933-37 indicator	-0.016	-0.39
Birth year 1938-42 (omitted)		
Birth year 1943-47 indicator	-0.027	-0.70
Birth year 1948-52 indicator	-0.185	-3.39
Birth year 1953-57 indicator	-0.162	-2.18
Birth year 1958-62 indicator	-0.195	-2.04
Birth year 1963-67 indicator	-0.226	-1.92
Birth year 1968-72 indicator	-0.271	-1.94

Birth year 1973-77 indicator	-0.192	-1.18
Birth year 1978-82 indicator	-0.179	-0.97
Birth year 1983-87 indicator	-0.214	-1.02
Birth year 1988-92 indicator	-0.224	-0.91
Year 1989 (omitted)		
Year 1992 indicator	-0.034	-1.05
Year 1995 indicator	-0.027	-0.67
Year 1998 indicator	0.019	0.39
Year 2001 indicator	0.148	2.42
Year 2004 indicator	0.177	2.42
Year 2007 indicator	0.266	3.10
Year 2010 indicator	-0.091	-0.92
R Squared of first regression	0.46	
Observations	35,245	

Table 10

Pooled Regression of Logarithm of Net Worth on Demographic, Idiosyncratic, Birth-Year Cohort, and Time Variables

▪ **Dependent variable is logarithm of inflation-adjusted net worth, excluding all non-positive observations**		
Dependent Variable = LOG(Net Worth)		
Variable	**Beta**	**T-Stat**
Intercept	7.867	17.19
Standardized Square Root Income (By Demographic)	1.058	96.41
Age in years	0.108	5.35
Age squared	0.001	1.40
Age cubed	0.000	-4.77
Standardized marital status	0.413	39.25
Standardized number of children	0.059	5.87
Standardized saving indicator	0.276	25.22
Standardized health status	0.579	24.42
High-school drop-out indicator	-2.695	-75.59
High-school grad or GED indicator	-1.755	-70.38
Some college indicator	-1.372	-48.53
College graduate (omitted)		
White indicator	0.305	5.96
African-American or Black indicator	-1.104	-17.37
Hispanic of any race indicator	-0.838	-12.70
Asian or other (omitted)		
Birth year 1893-97 indicator	-0.118	-0.13
Birth year 1898-1902 indicator	0.008	0.02
Birth year 1903-07 indicator	-0.507	-1.74
Birth year 1908-12 indicator	-0.502	-2.19
Birth year 1913-17 indicator	-0.447	-2.40
Birth year 1918-22 indicator	-0.290	-1.93
Birth year 1923-27 indicator	-0.263	-2.27
Birth year 1928-32 indicator	-0.172	-2.00
Birth year 1933-37 indicator	-0.063	-1.05
Birth year 1938-42 (omitted)		
Birth year 1943-47 indicator	0.024	0.43
Birth year 1948-52 indicator	-0.081	-0.98
Birth year 1953-57 indicator	-0.103	-0.91
Birth year 1958-62 indicator	-0.108	-0.76
Birth year 1963-67 indicator	-0.221	-1.26
Birth year 1968-72 indicator	-0.286	-1.36
Birth year 1973-77 indicator	-0.182	-0.75
Birth year 1978-82 indicator	-0.065	-0.24

Birth year 1983-87 indicator	-0.054	-0.17
Birth year 1988-92 indicator	0.649	1.71
Year 1989 (omitted)		
Year 1992 indicator	-0.036	-0.74
Year 1995 indicator	0.035	0.60
Year 1998 indicator	0.016	0.22
Year 2001 indicator	0.122	1.32
Year 2004 indicator	0.116	1.05
Year 2007 indicator	0.242	1.88
Year 2010 indicator	-0.417	-2.83
R Squared of first Regression	0.641	
Observations	32,501	

Table 11

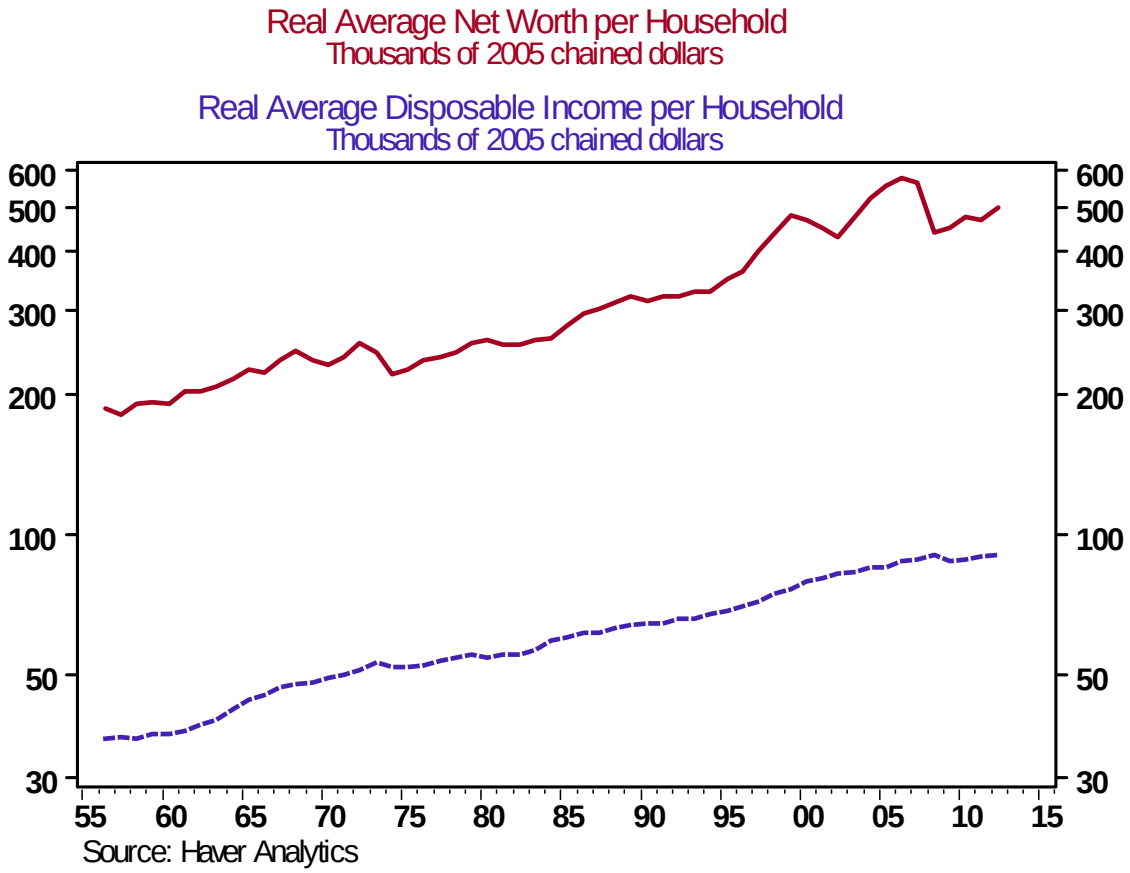
Pooled Regression of Transformed Net Worth on Demographic, Idiosyncratic, Birth-Year Cohort, and Time Variables

- **Dependent variable is inflation-adjusted net worth after applying the inverse hyperbolic-sine transformation: ASINH(Net Worth*Theta)/Theta**
- **Theta = 0.0001**
- **Estimates shown for co-efficients for indicator variables are expressed after applying the Halversen-Palmqvist transformation (100 * [exp(theta * beta) - 1])**
- **Interpretation of co-efficients for indicator variables is analogous to the log specification; for example, the value -0.175 for "Birth-year 1958-62 indicator" means negative 17.5 percent.**

Variable	Beta	T-Stat
Intercept	9,211.16	2.17
Standardized Square Root Income (By Demographic)	10,302.76	96.52
Age in years	209.93	1.13
Age squared	19.55	5.78
Age cubed	(0.18)	-8.69
Standardized marital status	3,835.15	38.84
Standardized number of children	828.88	8.75
Standardized saving indicator	2,937.74	29.02
Standardized health status	5,972.67	26.39
High-school drop-out indicator	-0.901	-70.02
High-school grad or GED indicator	-0.791	-65.22
Some college indicator	-0.736	-49.23
College graduate (omitted)		
White indicator	0.313	5.72
African-American or Black indicator	-0.585	-15.83
Hispanic of any race indicator	-0.494	-11.38
Asian or other (omitted)		
Birth year 1893-97 indicator	0.032	0.03
Birth year 1898-1902 indicator	-0.097	-0.25
Birth year 1903-07 indicator	-0.451	-2.15
Birth year 1908-12 indicator	-0.463	-2.86
Birth year 1913-17 indicator	-0.428	-3.14
Birth year 1918-22 indicator	-0.327	-2.75
Birth year 1923-27 indicator	-0.295	-3.15
Birth year 1928-32 indicator	-0.198	-2.66
Birth year 1933-37 indicator	-0.098	-1.77
Birth year 1938-42 (omitted)		
Birth year 1943-47 indicator	0.004	0.07
Birth year 1948-52 indicator	-0.103	-1.41

Birth year 1953-57 indicator	-0.123	-1.25
Birth year 1958-62 indicator	-0.175	-1.43
Birth year 1963-67 indicator	-0.282	-2.01
Birth year 1968-72 indicator	-0.428	-2.83
Birth year 1973-77 indicator	-0.408	-2.29
Birth year 1978-82 indicator	-0.395	-1.92
Birth year 1983-87 indicator	-0.263	-1.02
Birth year 1988-92 indicator	0.953	1.93
Year 1989 (omitted)		
Year 1992 indicator	-0.017	-0.38
Year 1995 indicator	0.024	0.41
Year 1998 indicator	0.009	0.13
Year 2001 indicator	0.176	1.86
Year 2004 indicator	0.140	1.25
Year 2007 indicator	0.282	2.03
Year 2010 indicator	-0.392	-3.56
R Squared of first regression	0.642	
Observations	35,514	
Scaling Parameter, theta	0.0001	

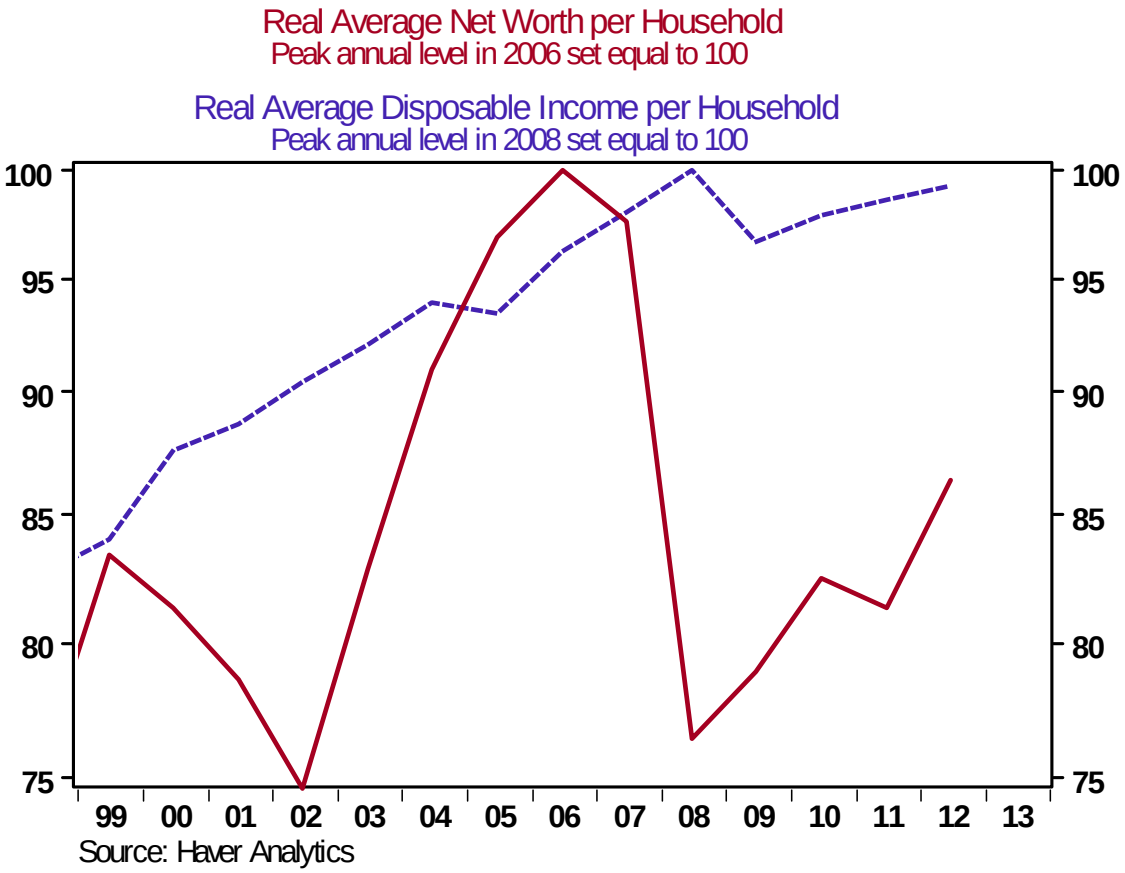
Figure 1



Sources: Federal Reserve Board, Bureau of the Census, Bureau of Economic Analysis

Solid line is net worth; dashed line is income.

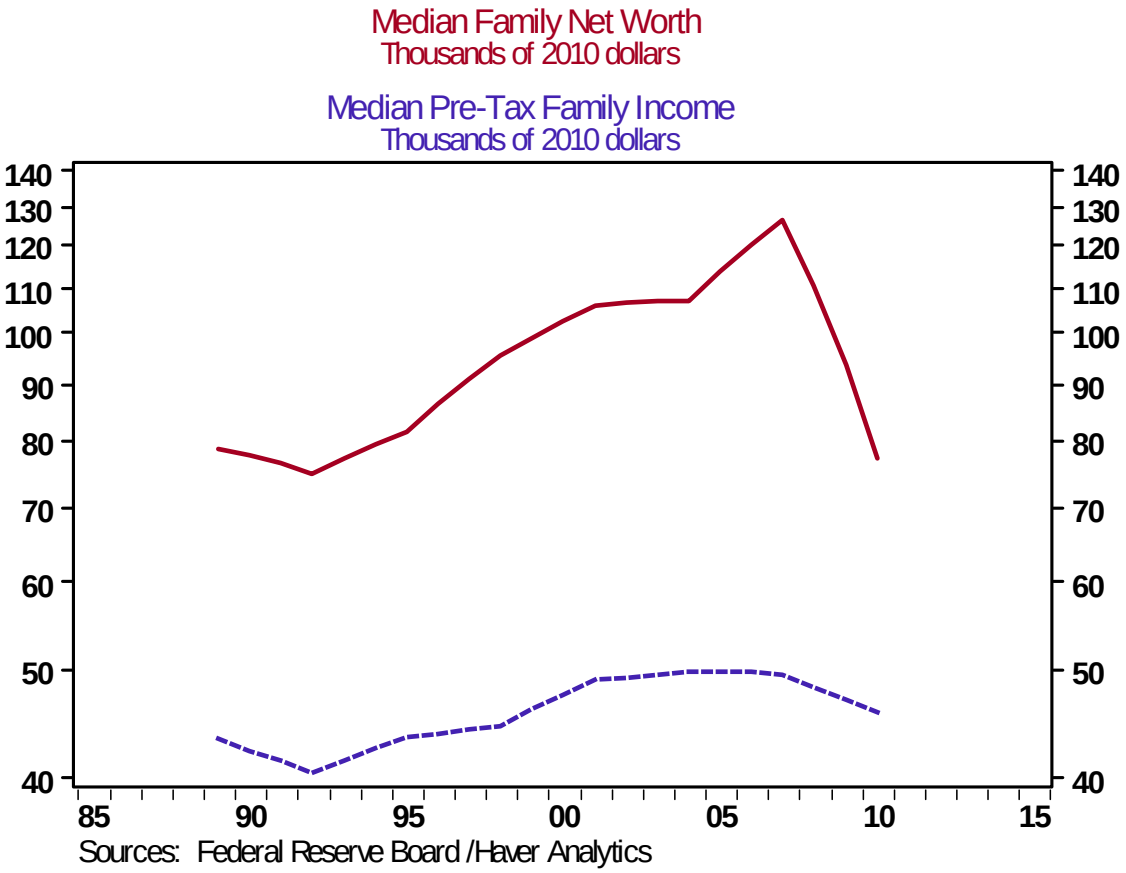
Figure 2



Sources: Federal Reserve Board, Bureau of the Census, Bureau of Economic Analysis

Solid line is net worth; dashed line is income.

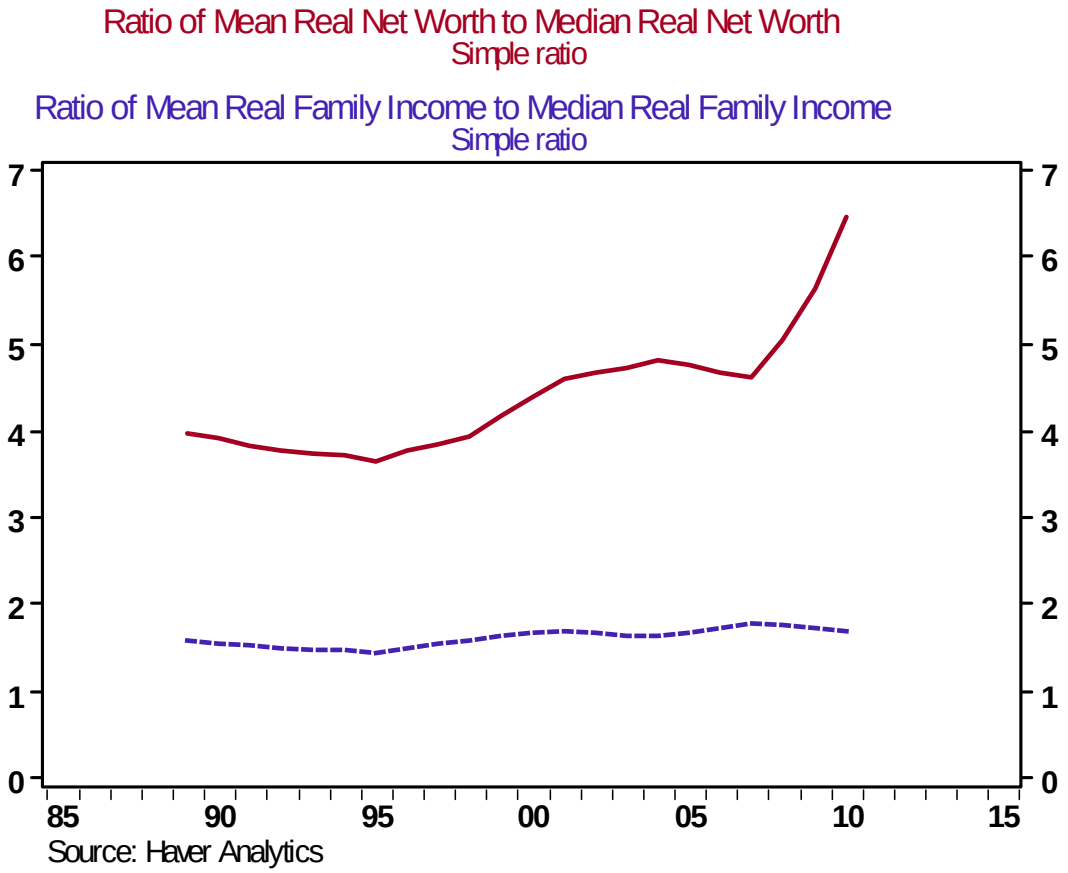
Figure 3



Sources: Federal Reserve Board, Bureau of Labor Statistics

Solid line is net worth; dashed line is income.

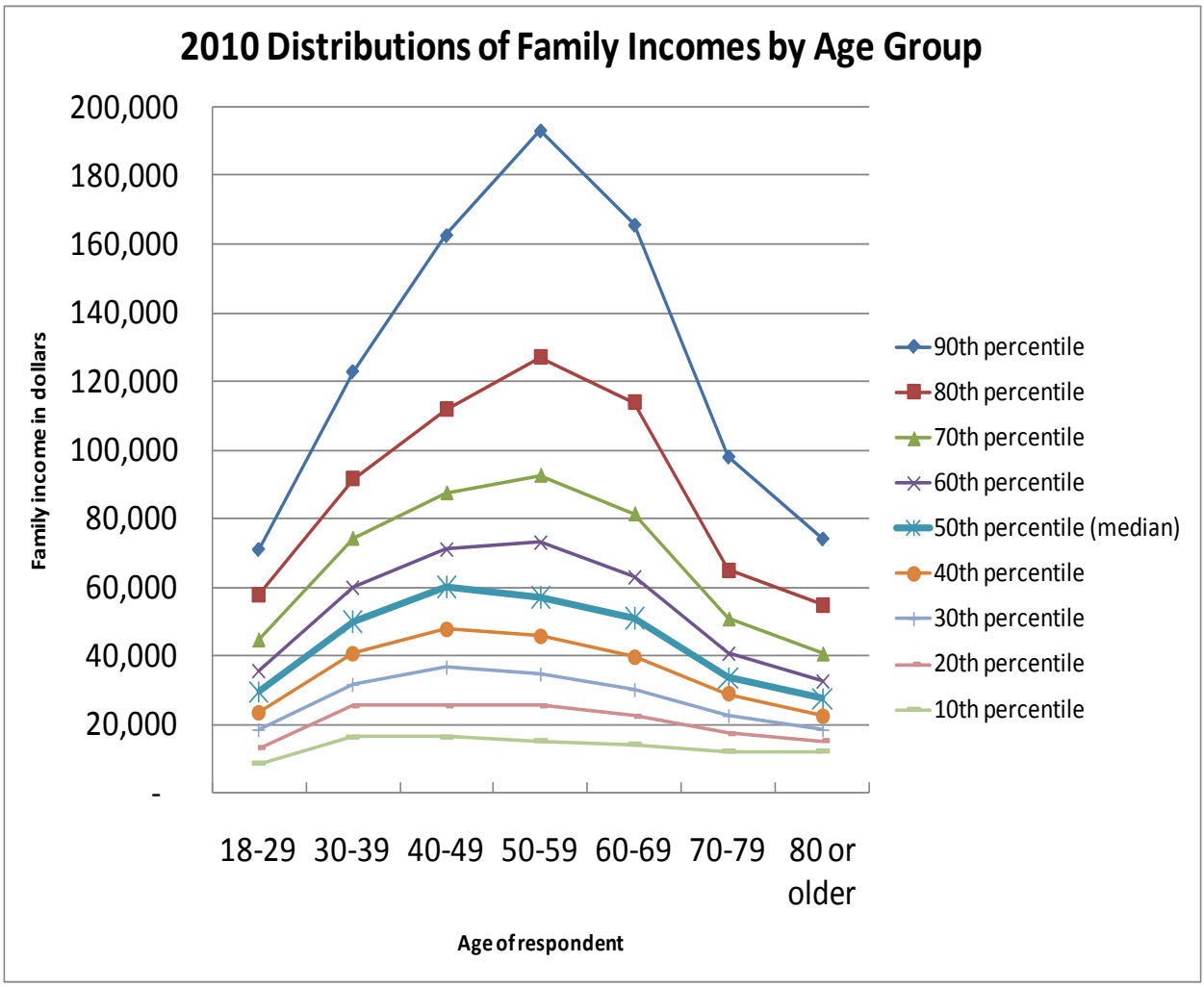
Figure 4



Sources: Federal Reserve Board, Bureau of Labor Statistics

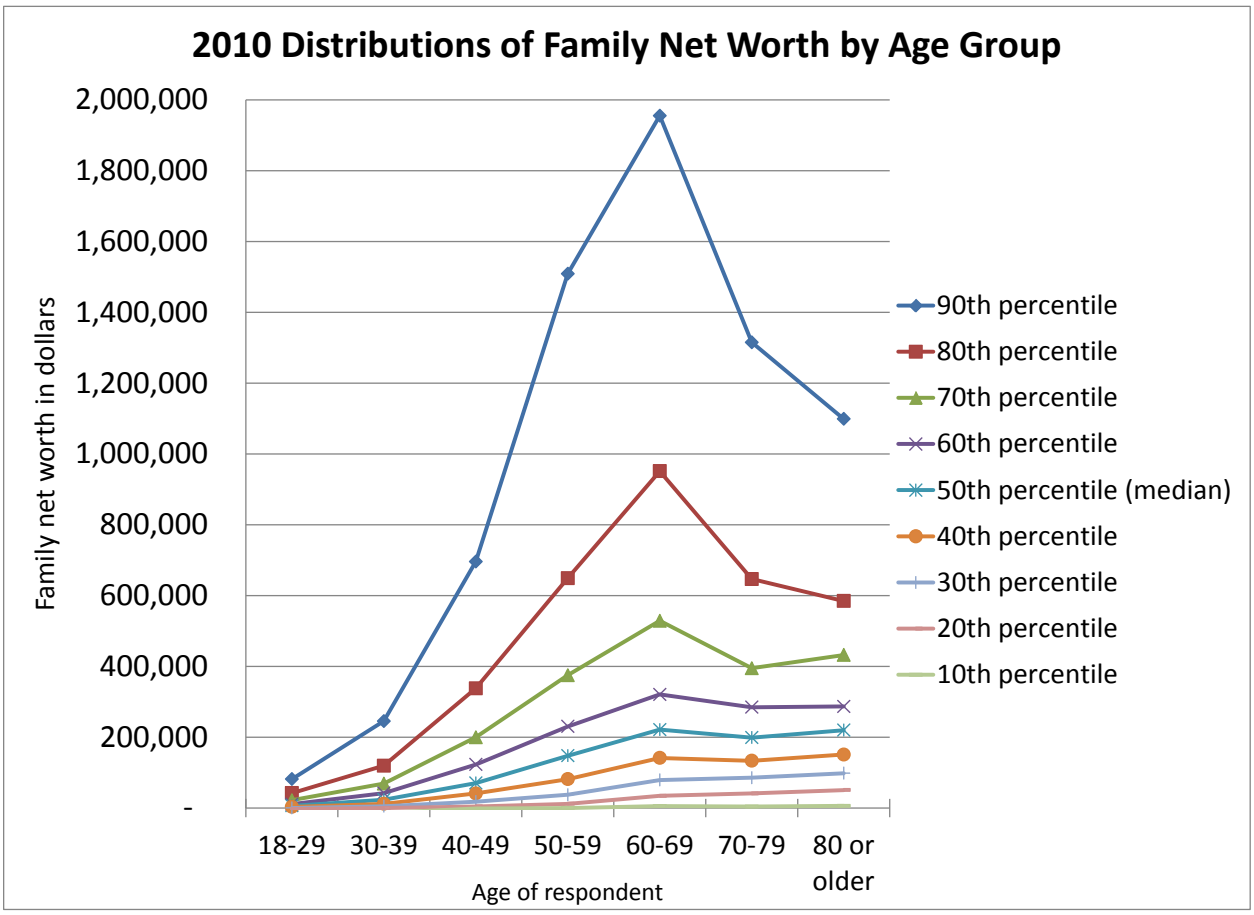
Solid line is net worth; dashed line is income.

Figure 5



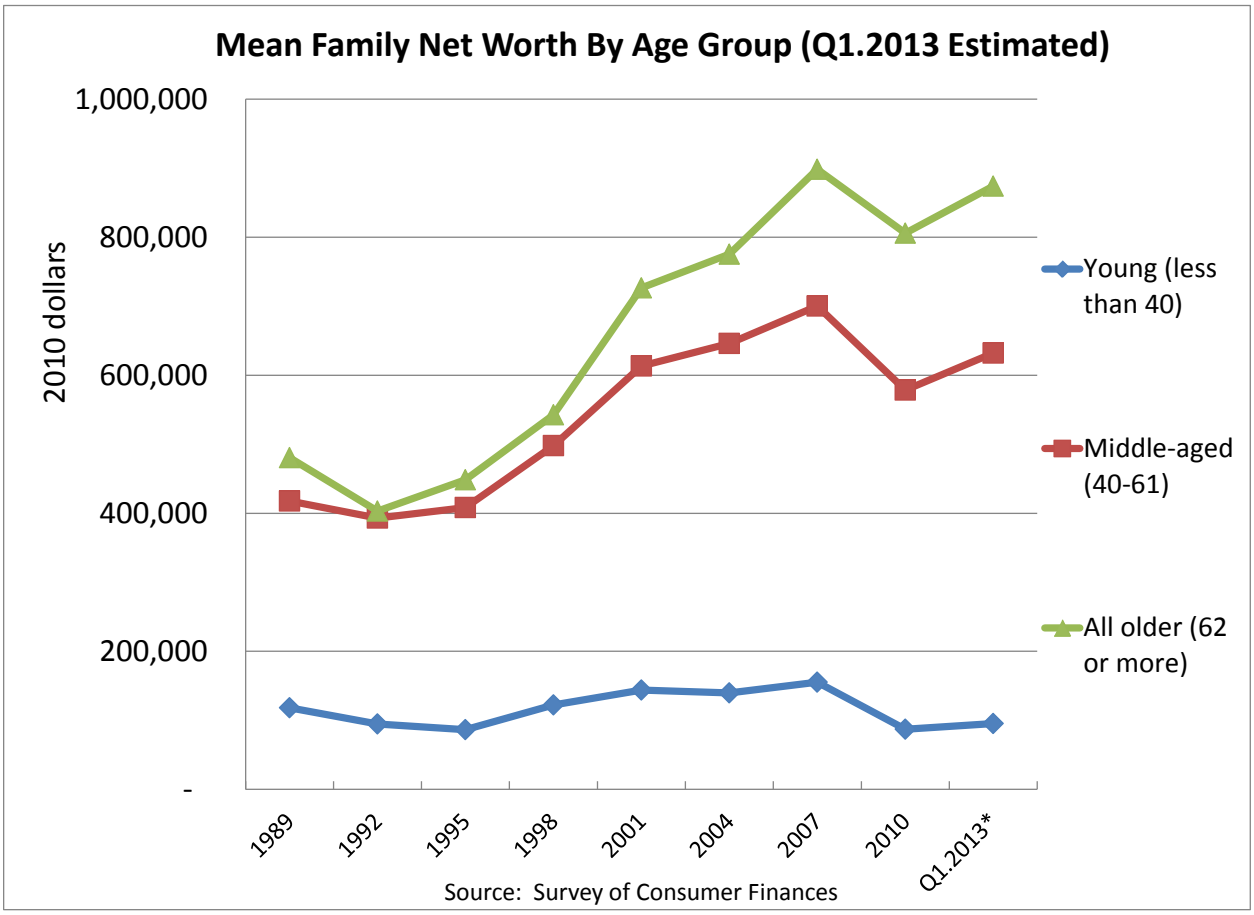
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 6



Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 7

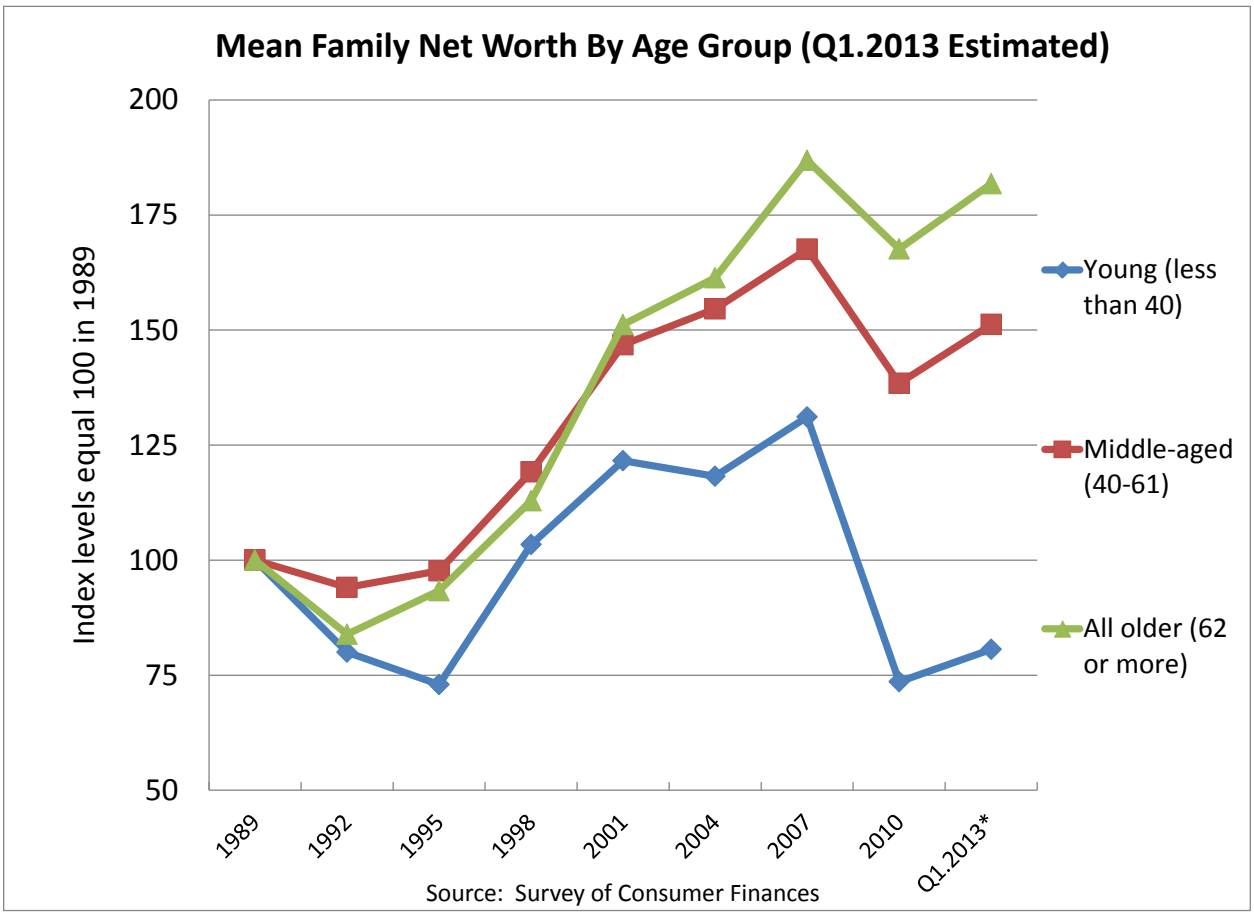


Sources: Federal Reserve Board, Bureau of Labor Statistics

*Estimates for Q1.2013 are based on the following sources and our own assumptions:

Federal Reserve Board, Survey of Consumer Finances
Federal Reserve Board, Financial Accounts of the United States (formerly the Flow of Funds Accounts)
Federal Reserve Bank of New York, Equifax Consumer-Credit Panel
Bureau of the Census, Current Housing Reports
Bureau of the Census, Current Population Survey
Bureau of Labor Statistics, Consumer Price Index, Research Series

Figure 8



Sources: Federal Reserve Board, Bureau of Labor Statistics

*Estimates for Q1.2013 are based on the following sources and our own assumptions:

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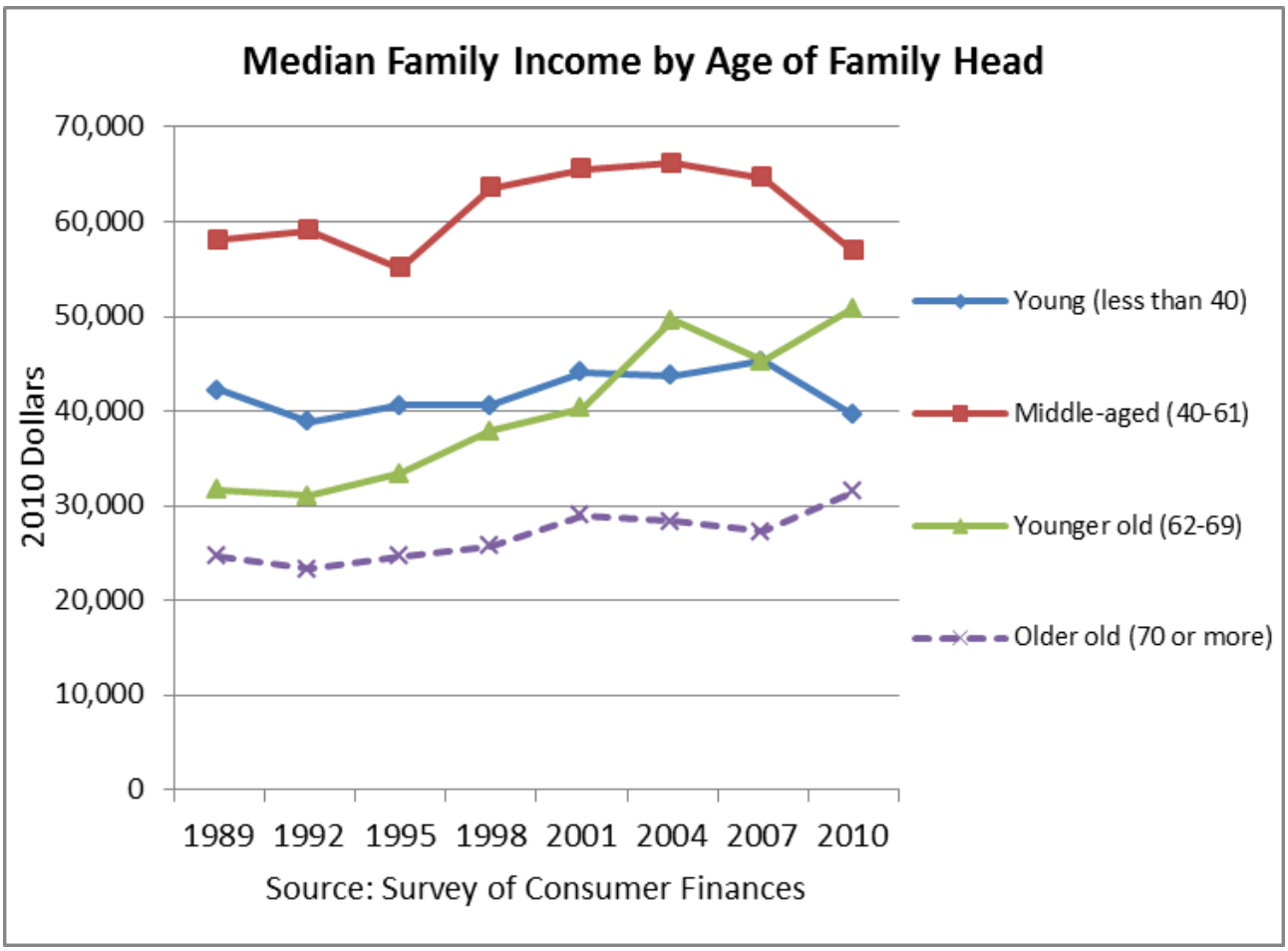
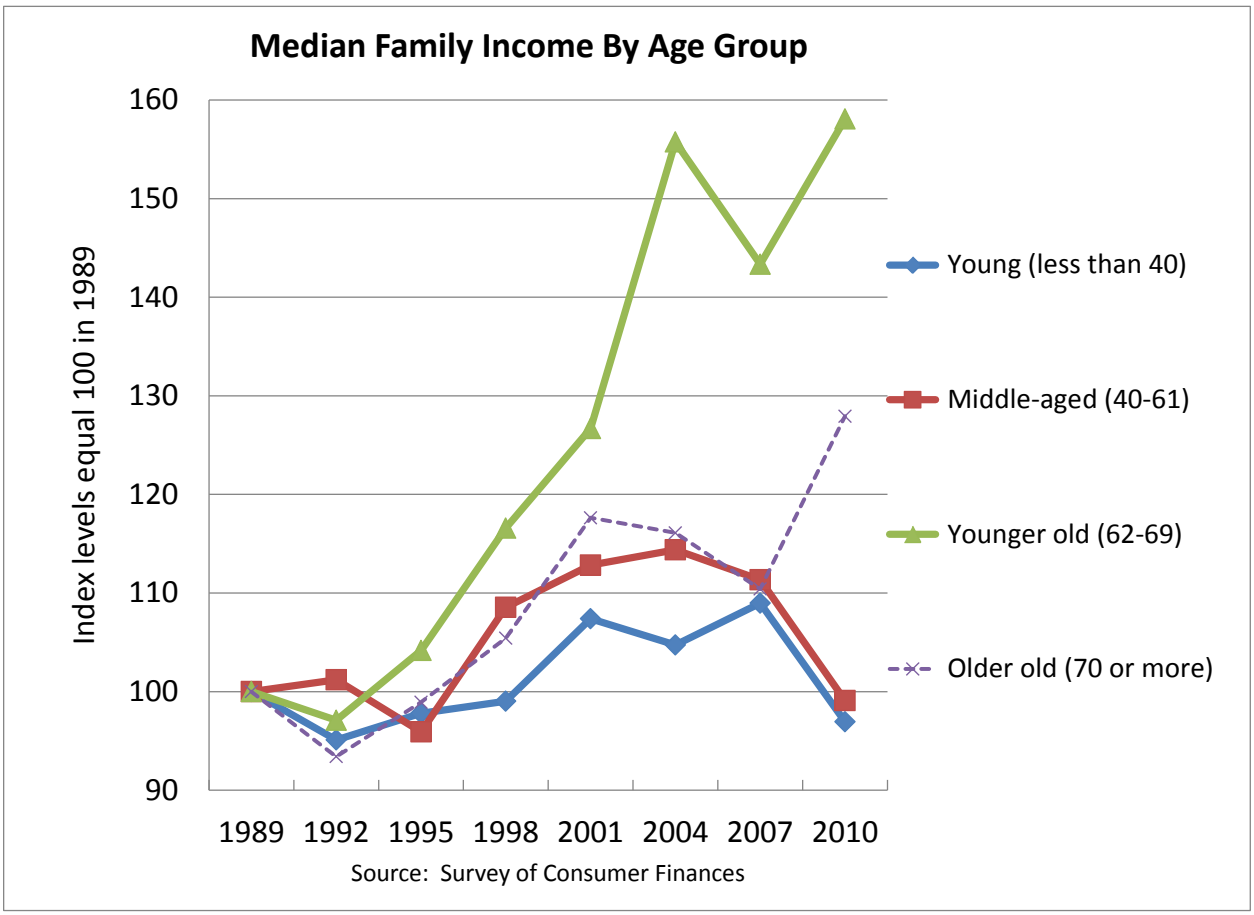
Bureau of the Census, Current Population Survey
Bureau of Labor Statistics, Consumer Price Index, Research Series

Figure 9



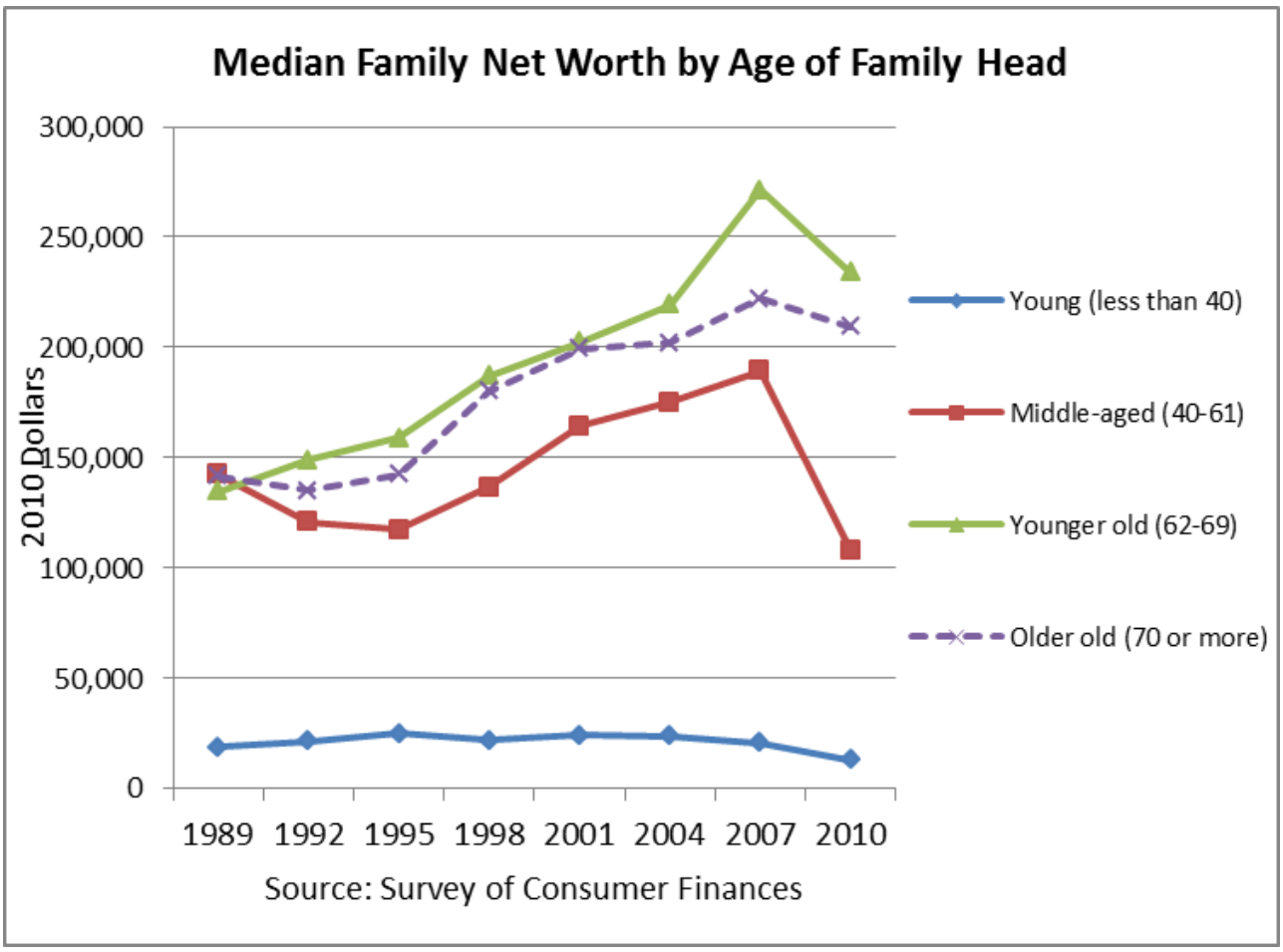
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 10



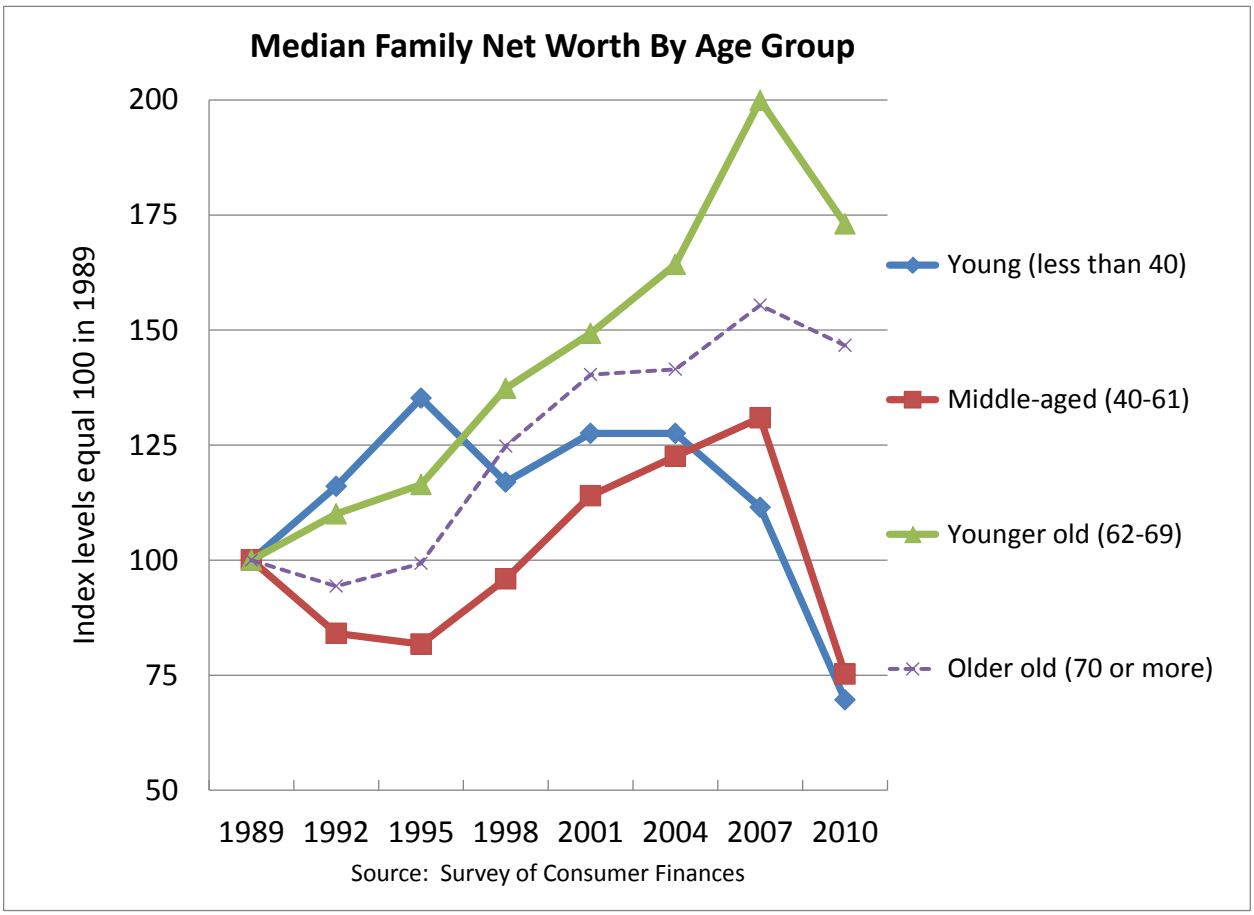
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 11



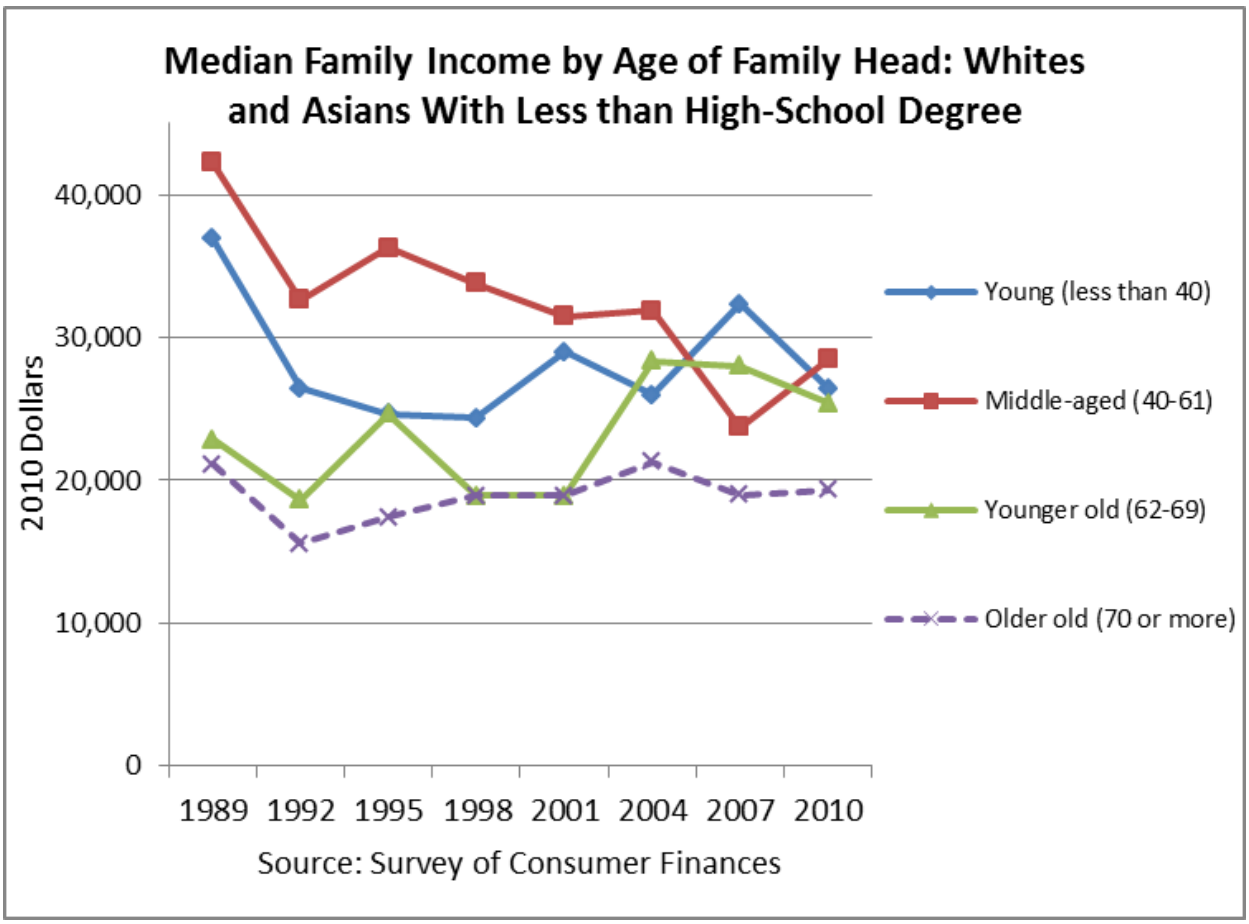
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 12



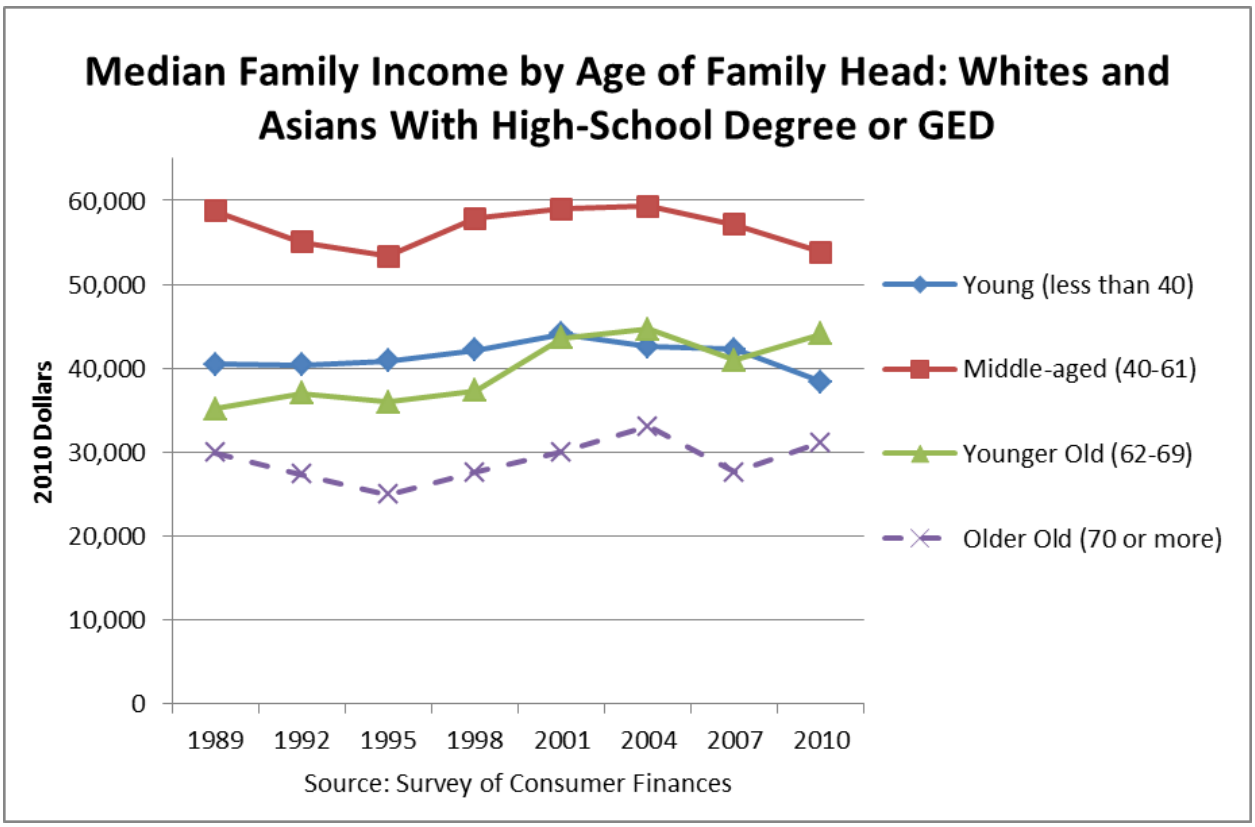
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 13



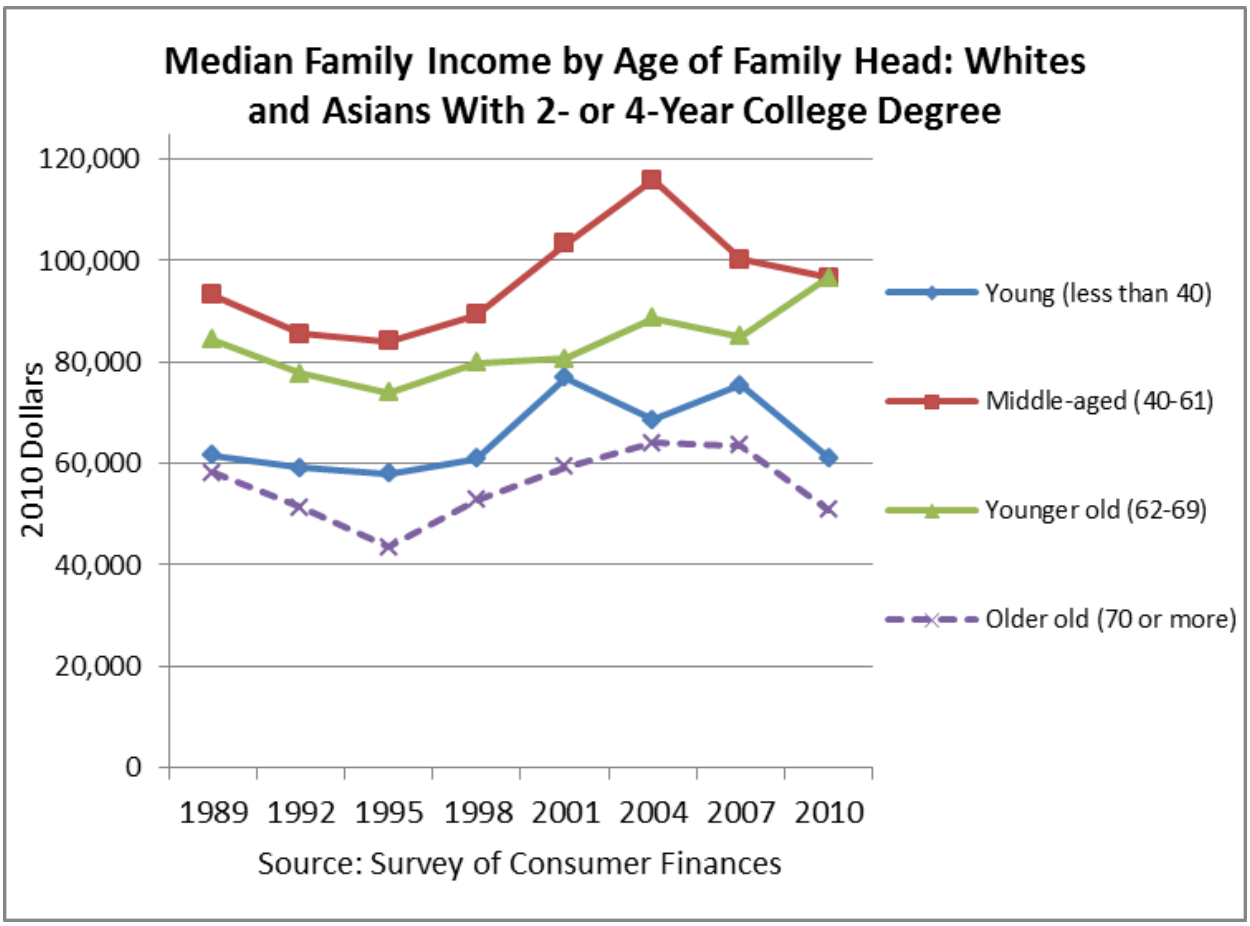
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 14



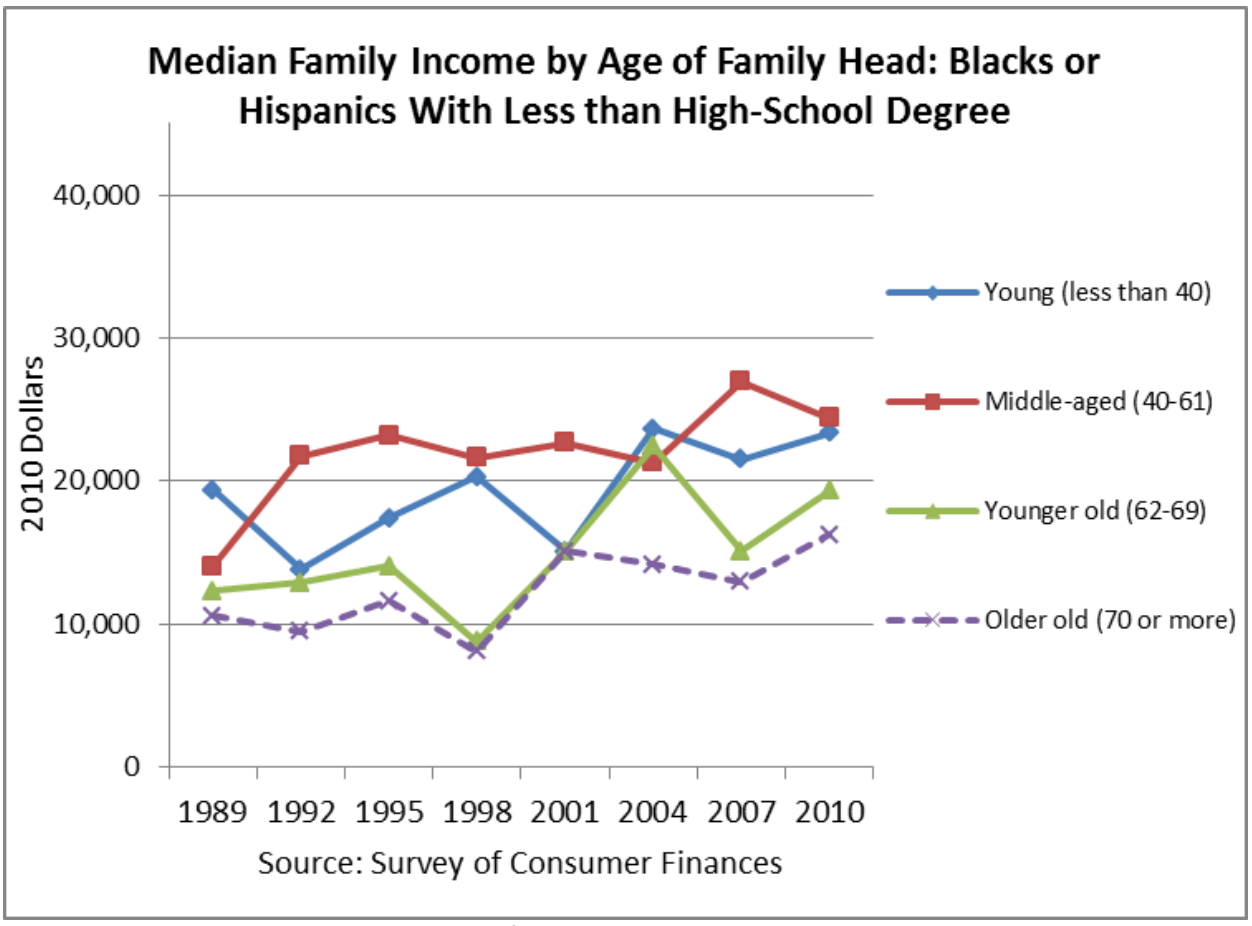
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 15



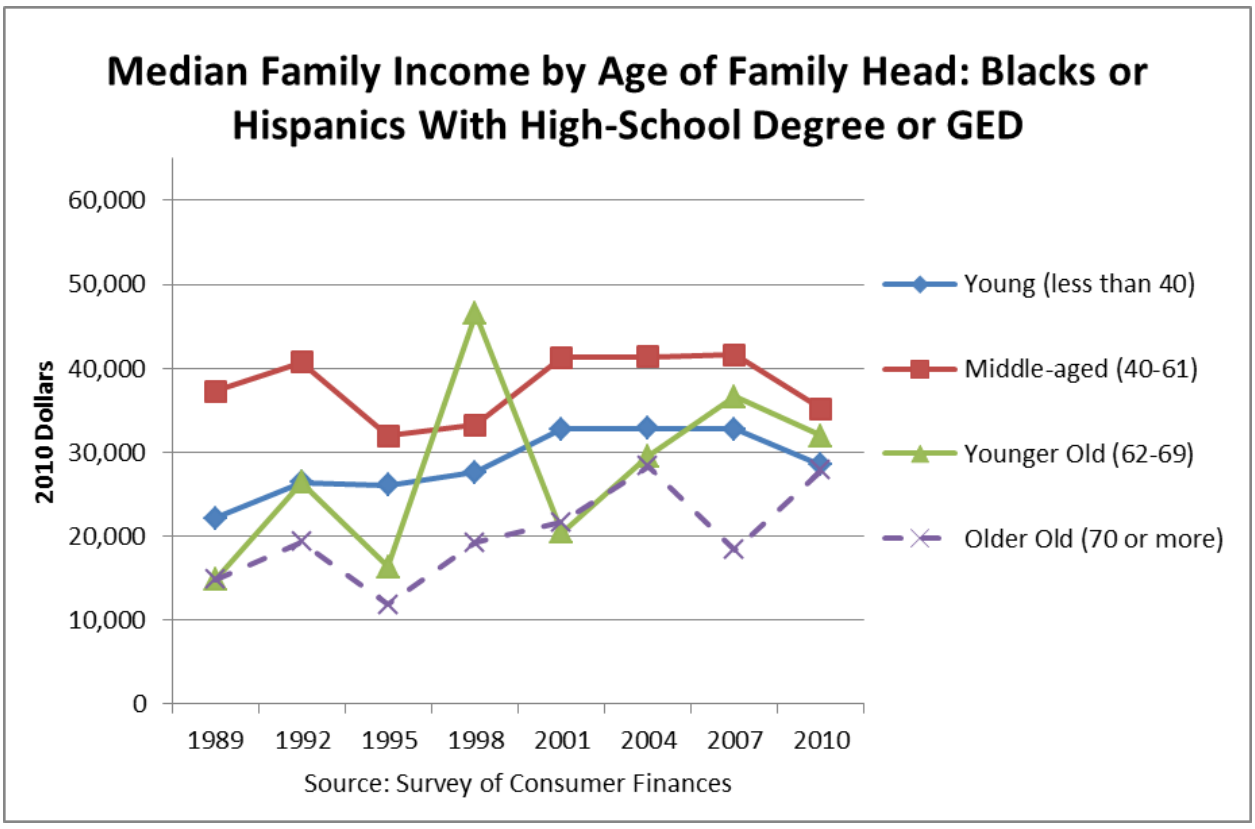
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 16



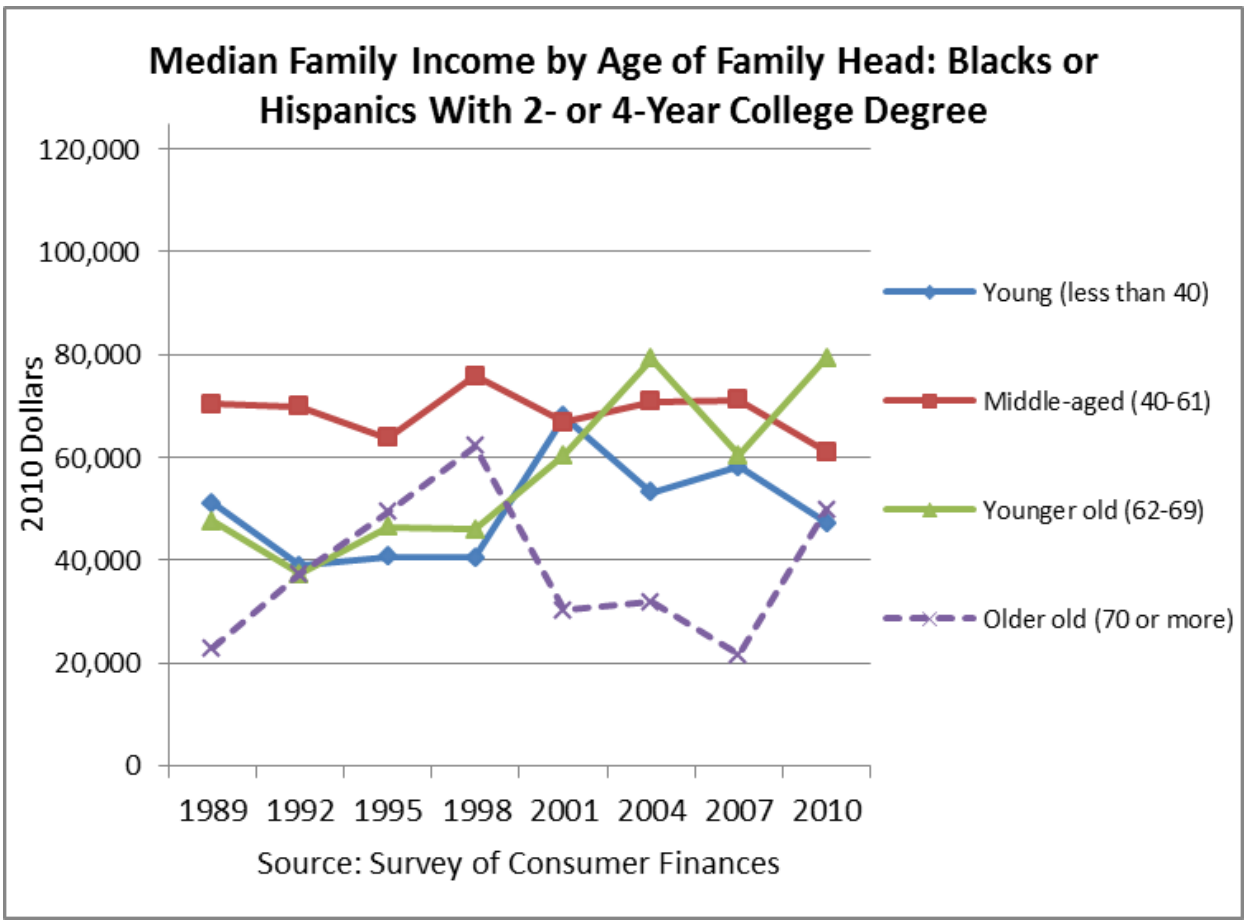
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 17



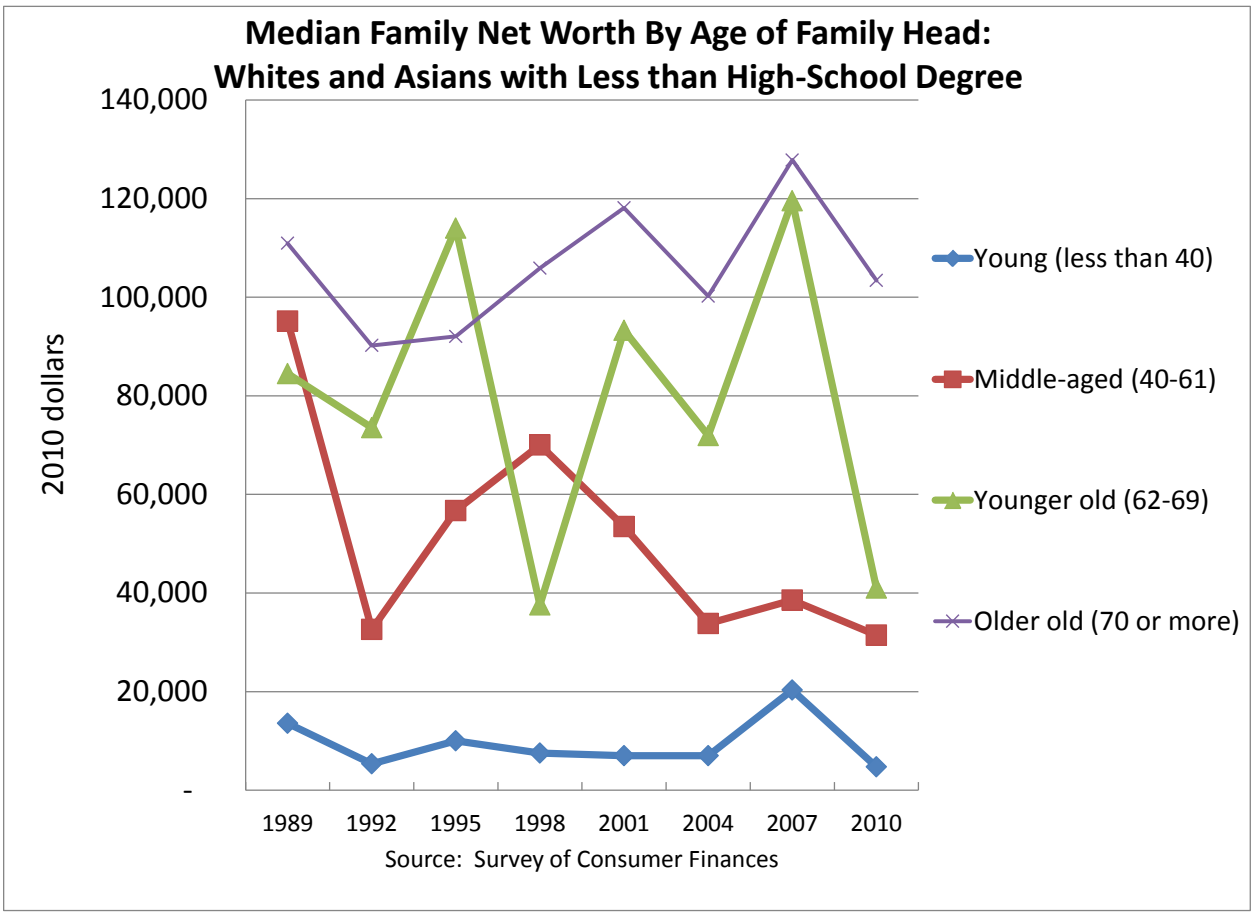
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 18



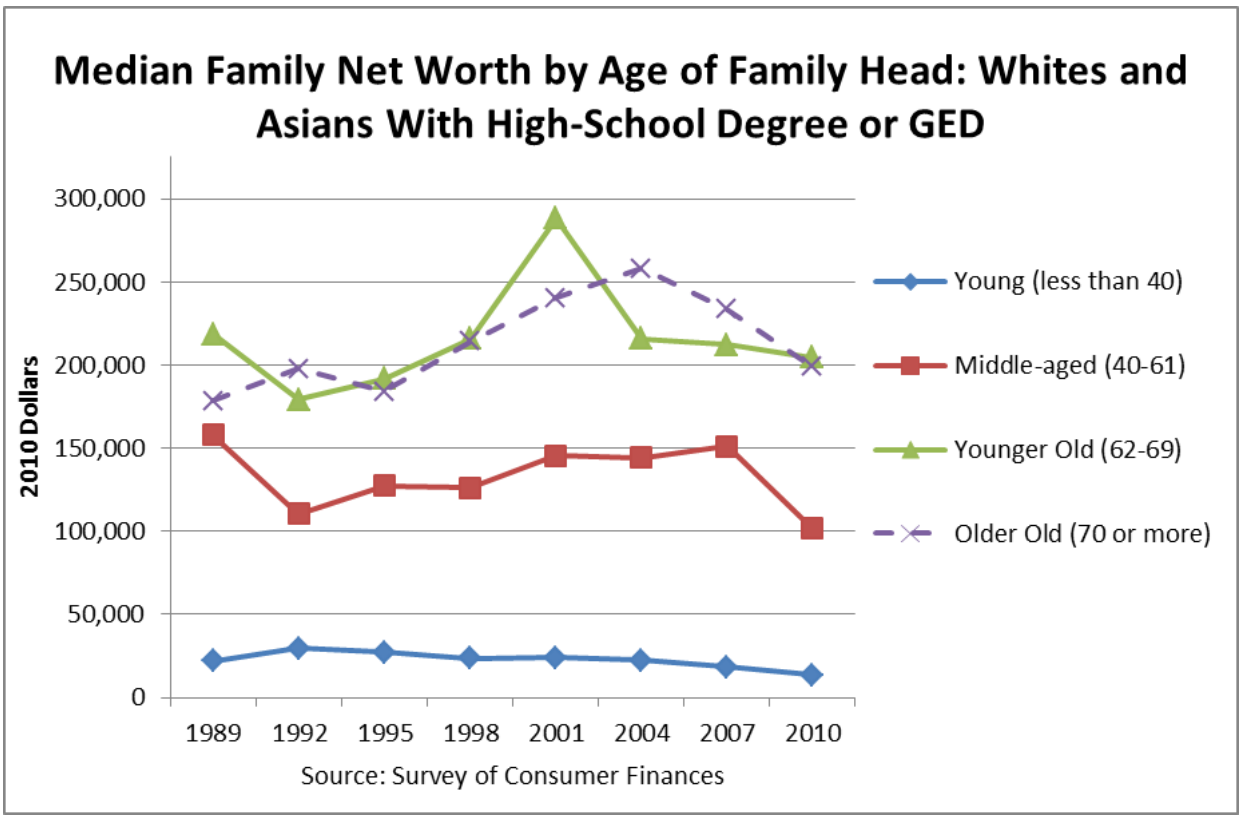
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 19



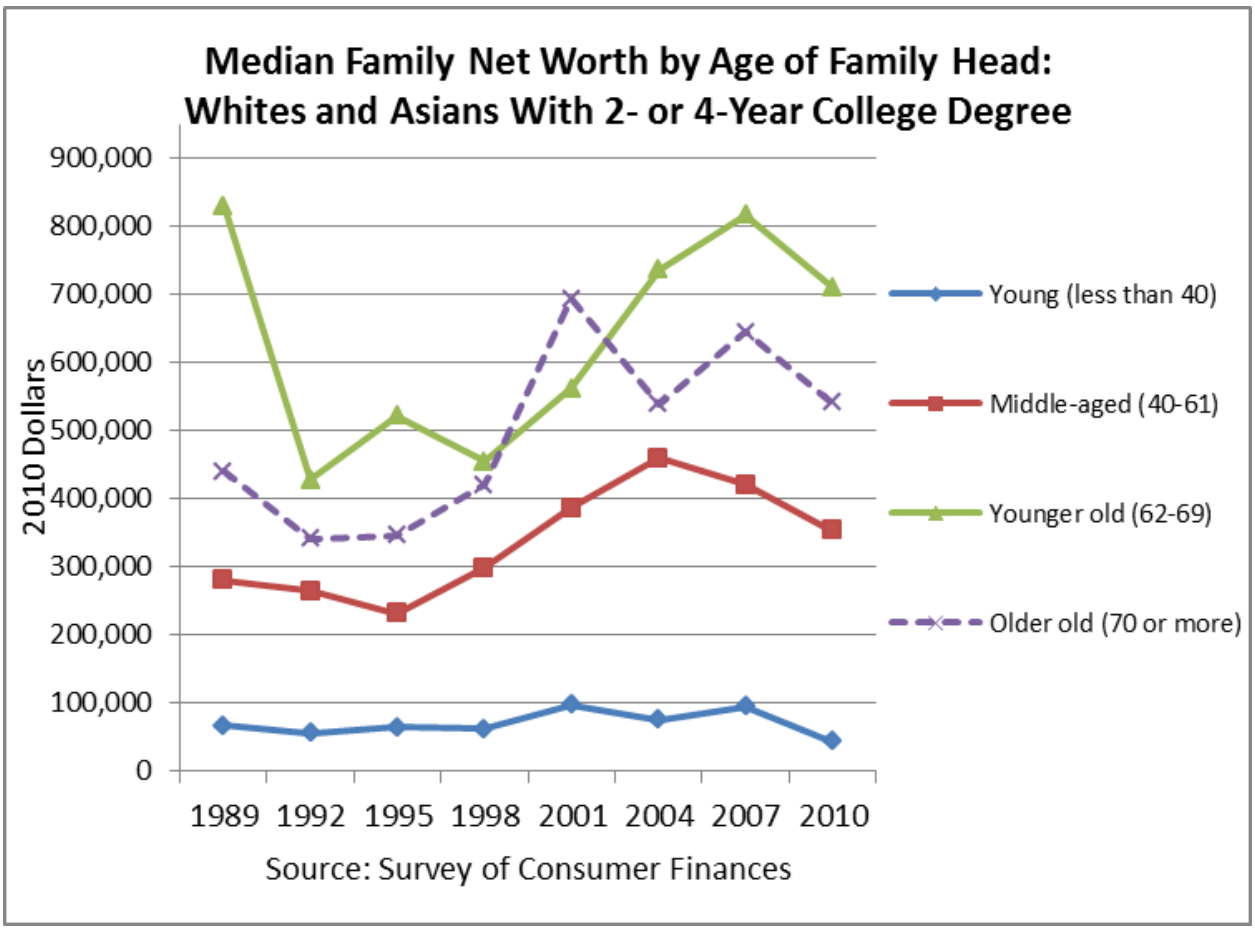
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 20



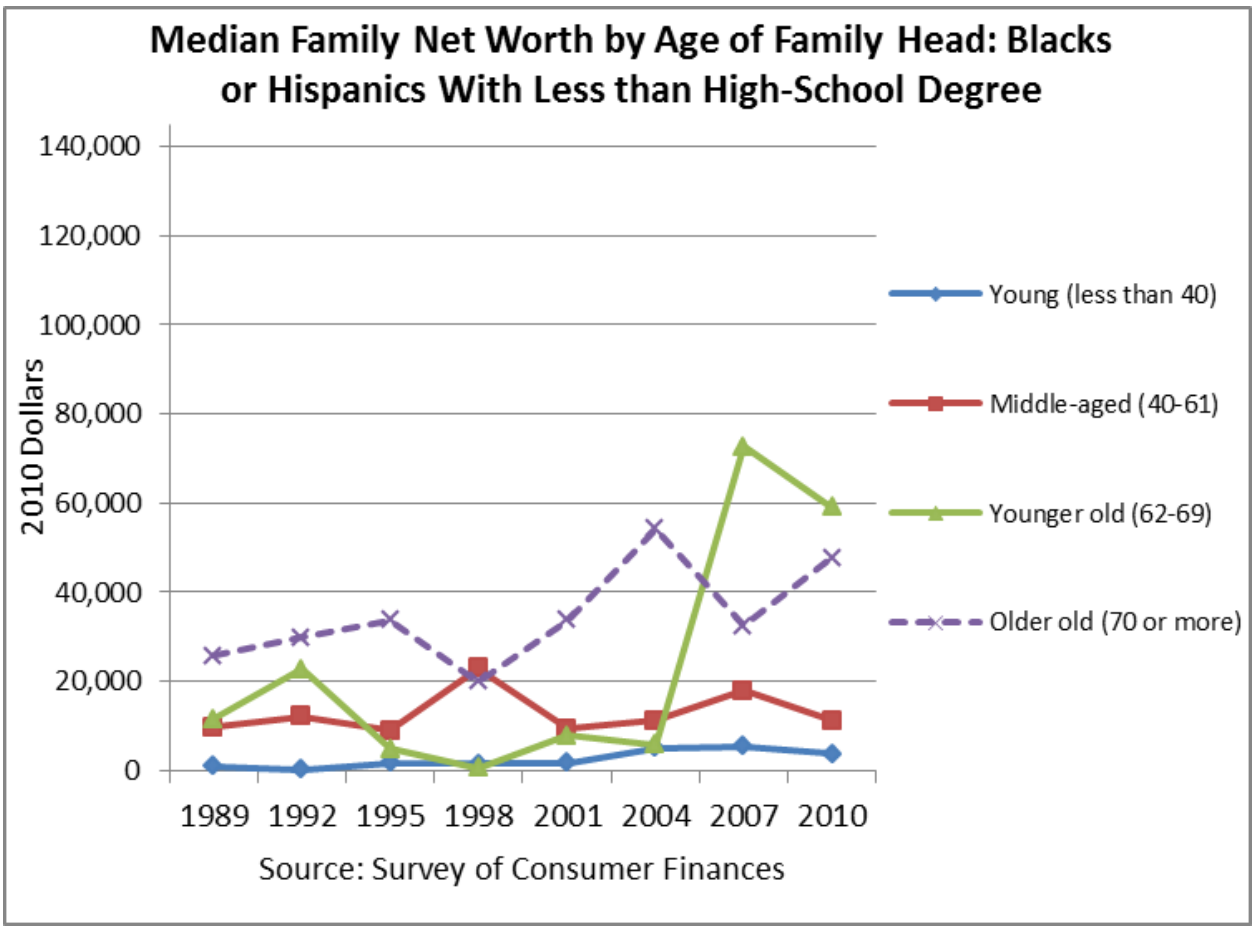
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 21



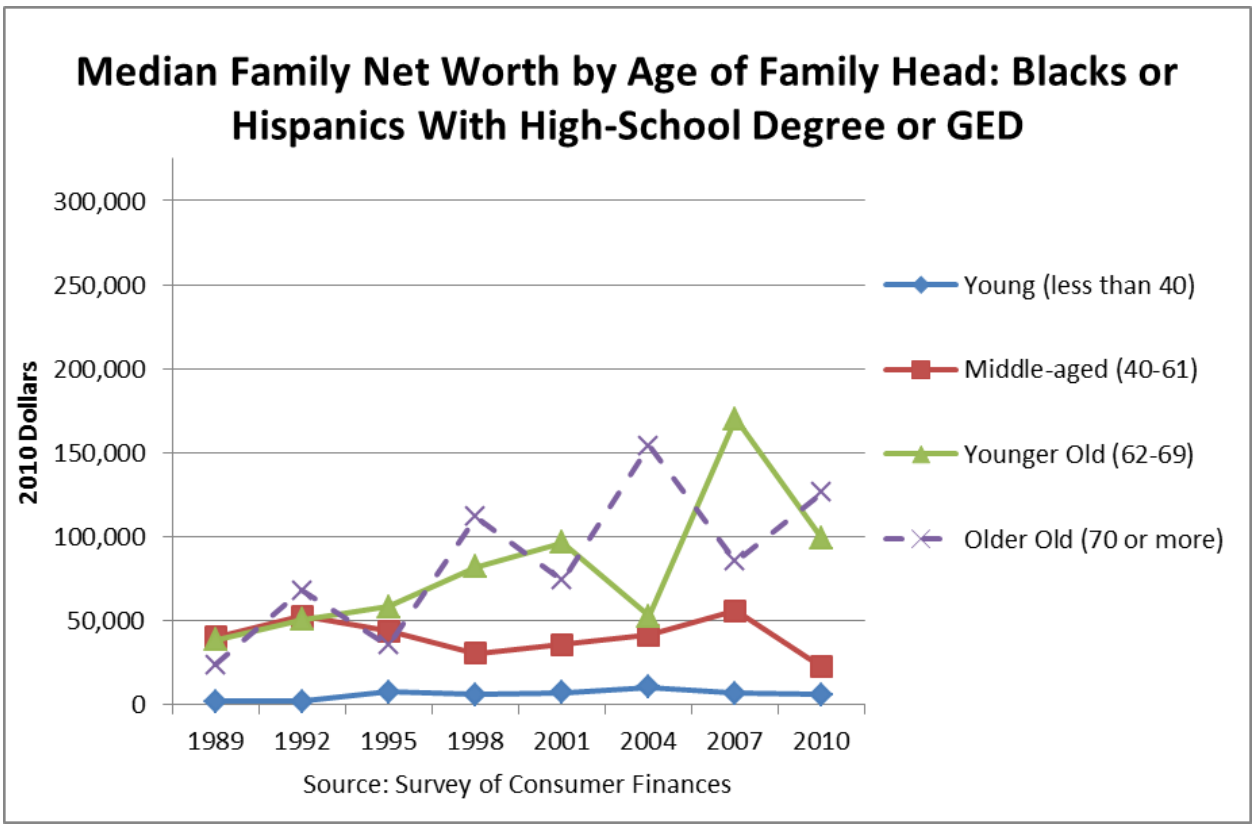
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 22



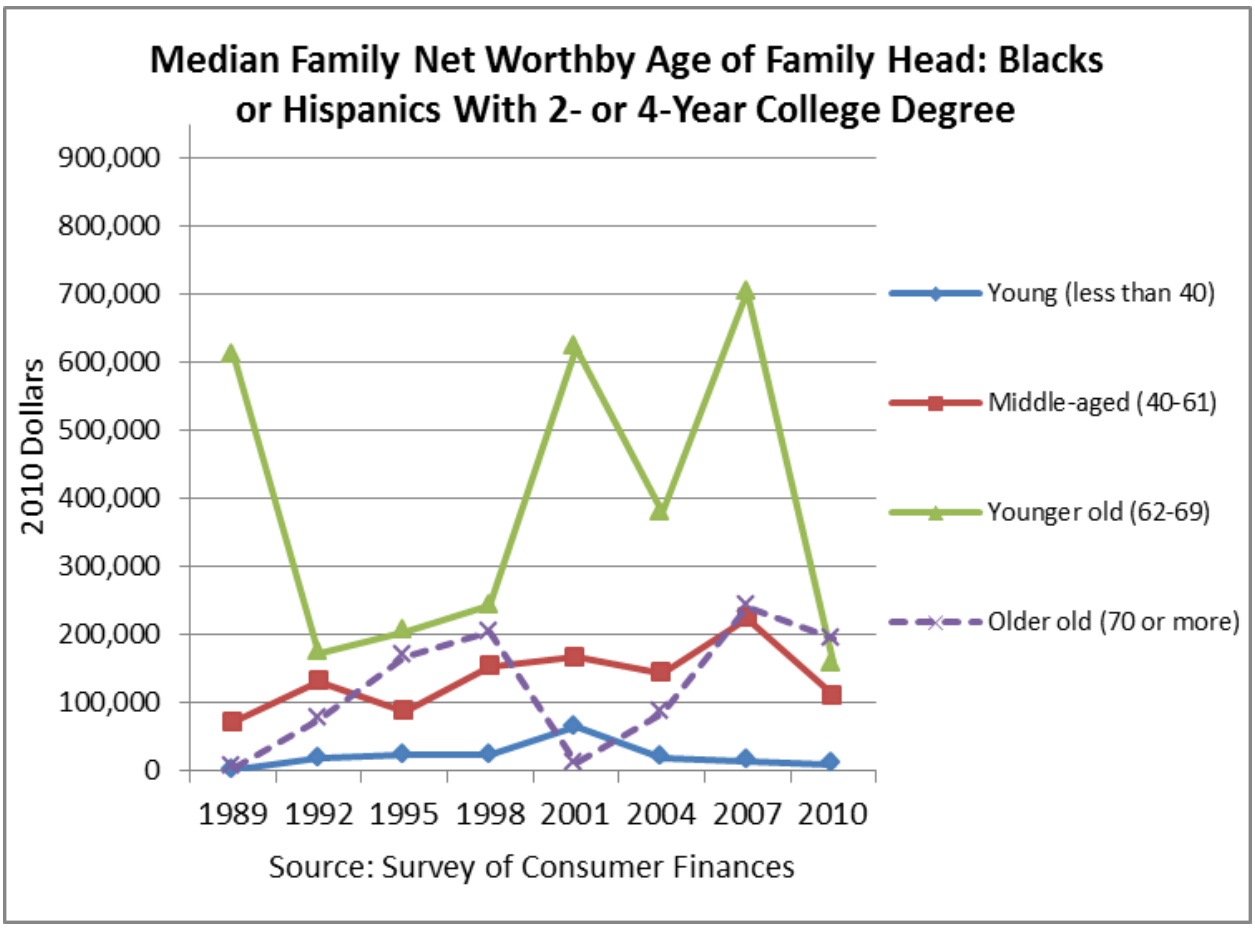
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 23



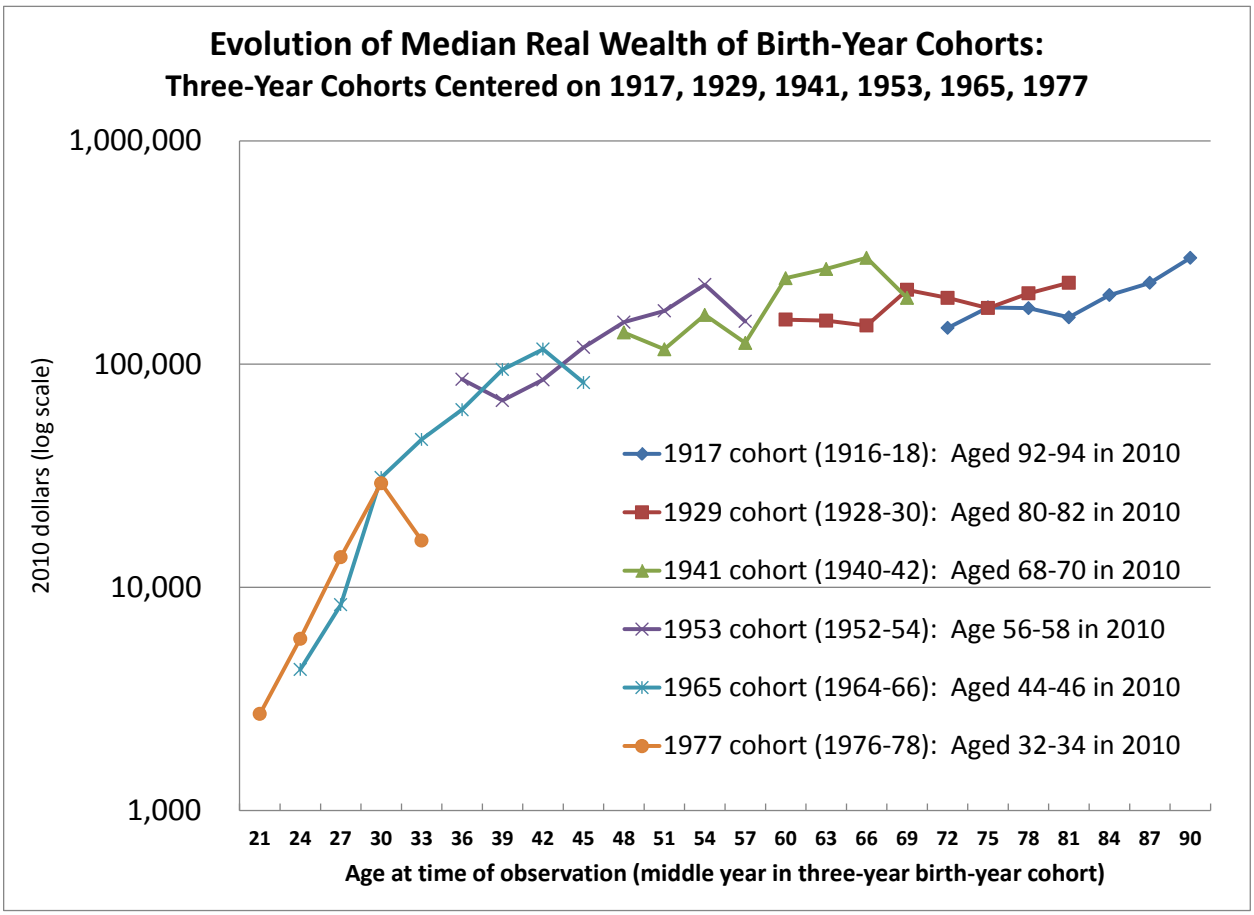
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 24



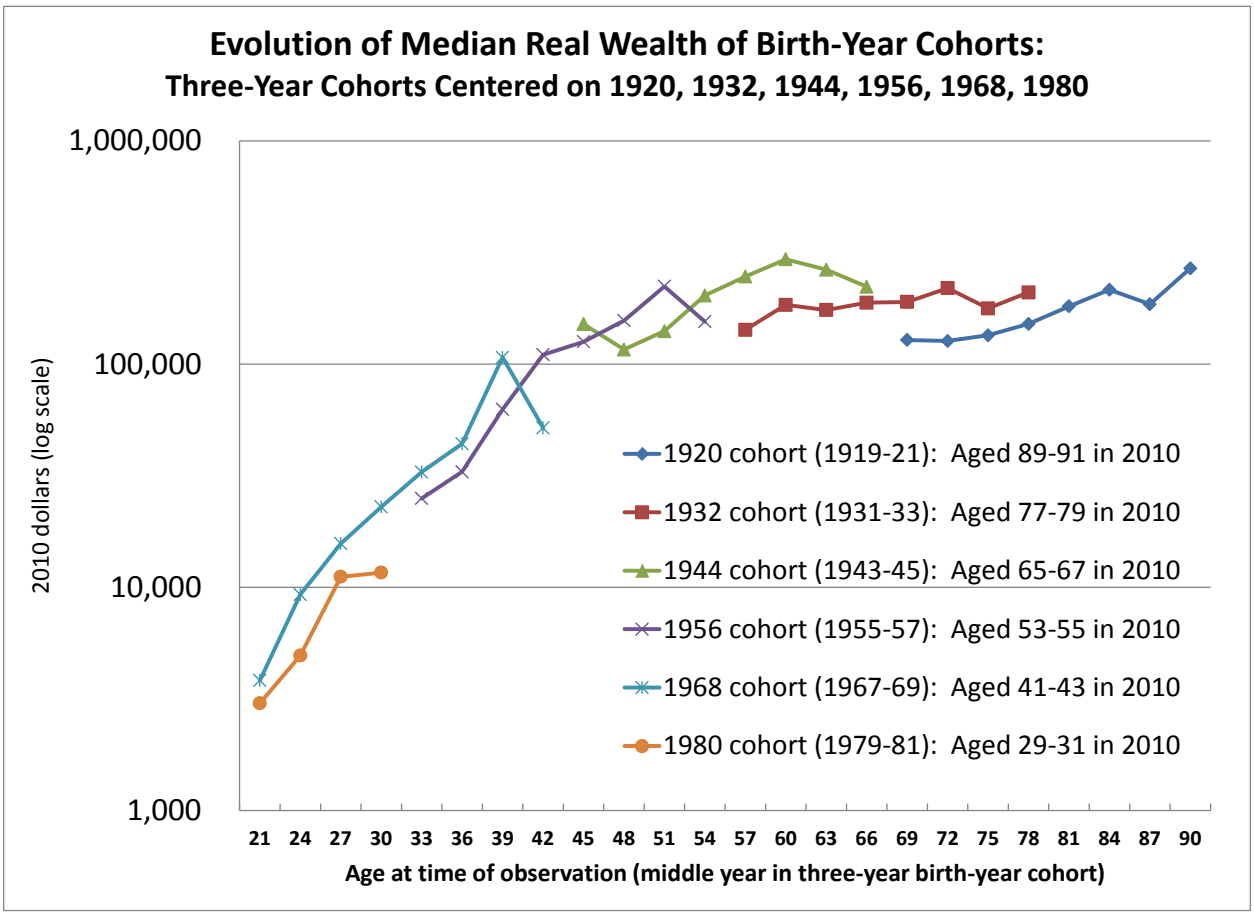
Sources: Federal Reserve Board, Bureau of Labor Statistics

Figure 25



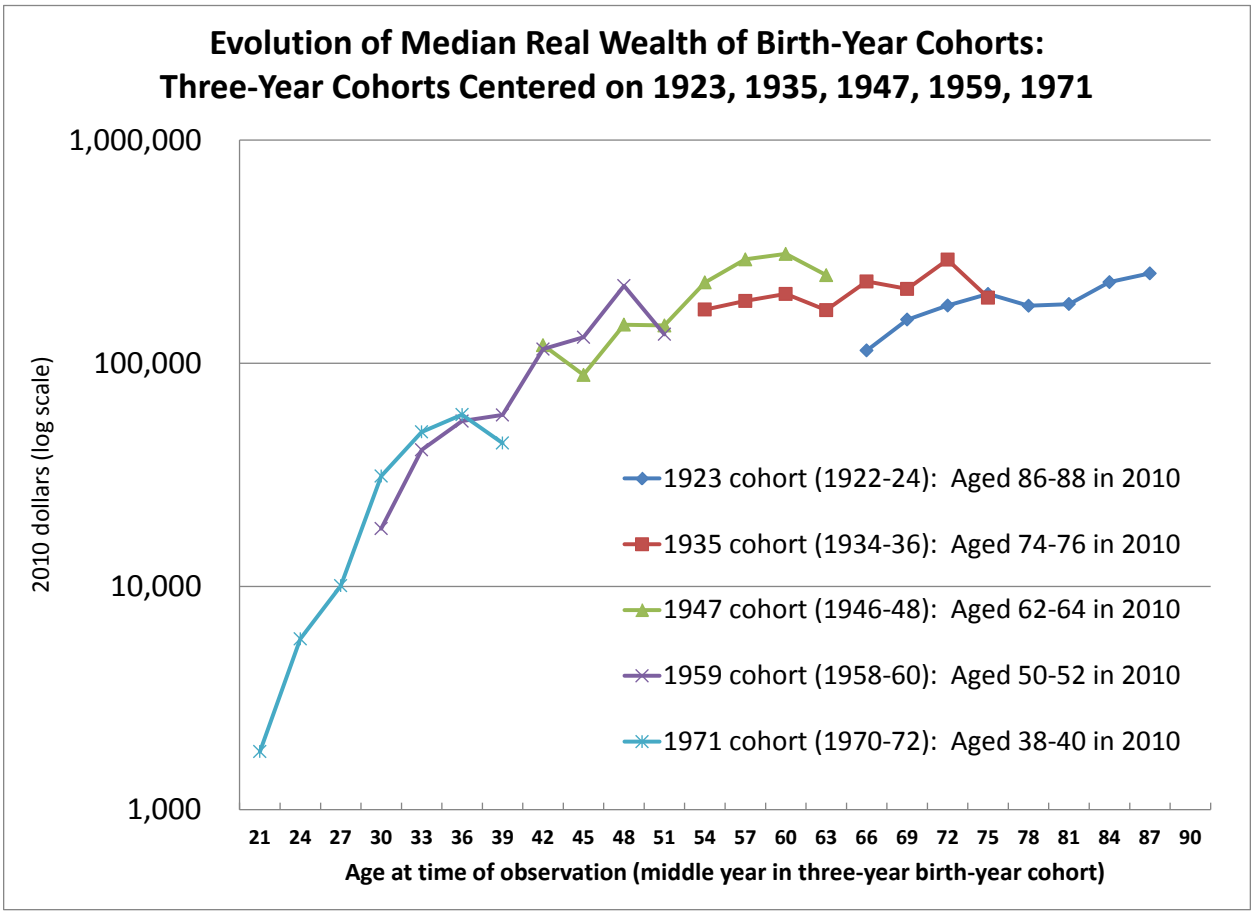
Source: Federal Reserve Board

Figure 26



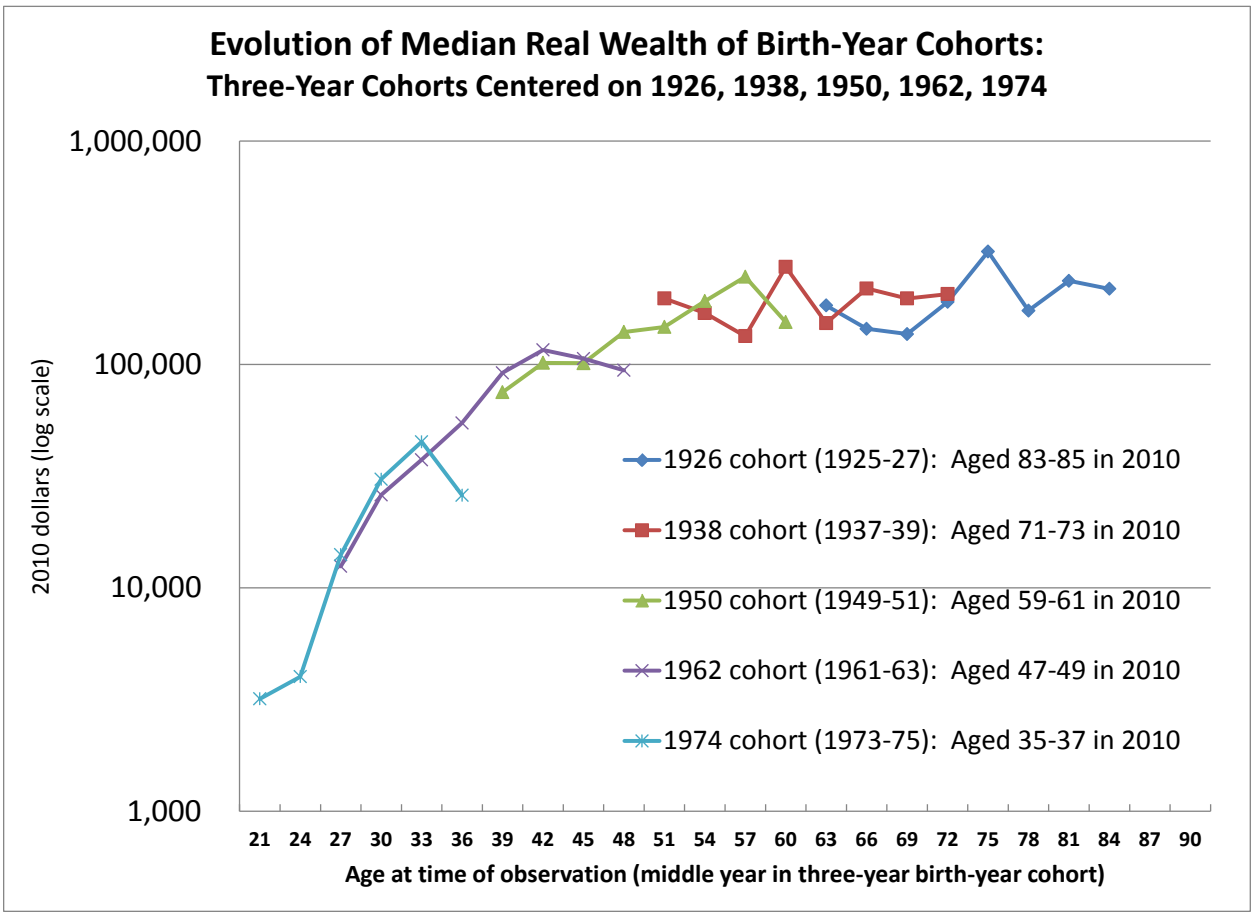
Source: Federal Reserve Board

Figure 27



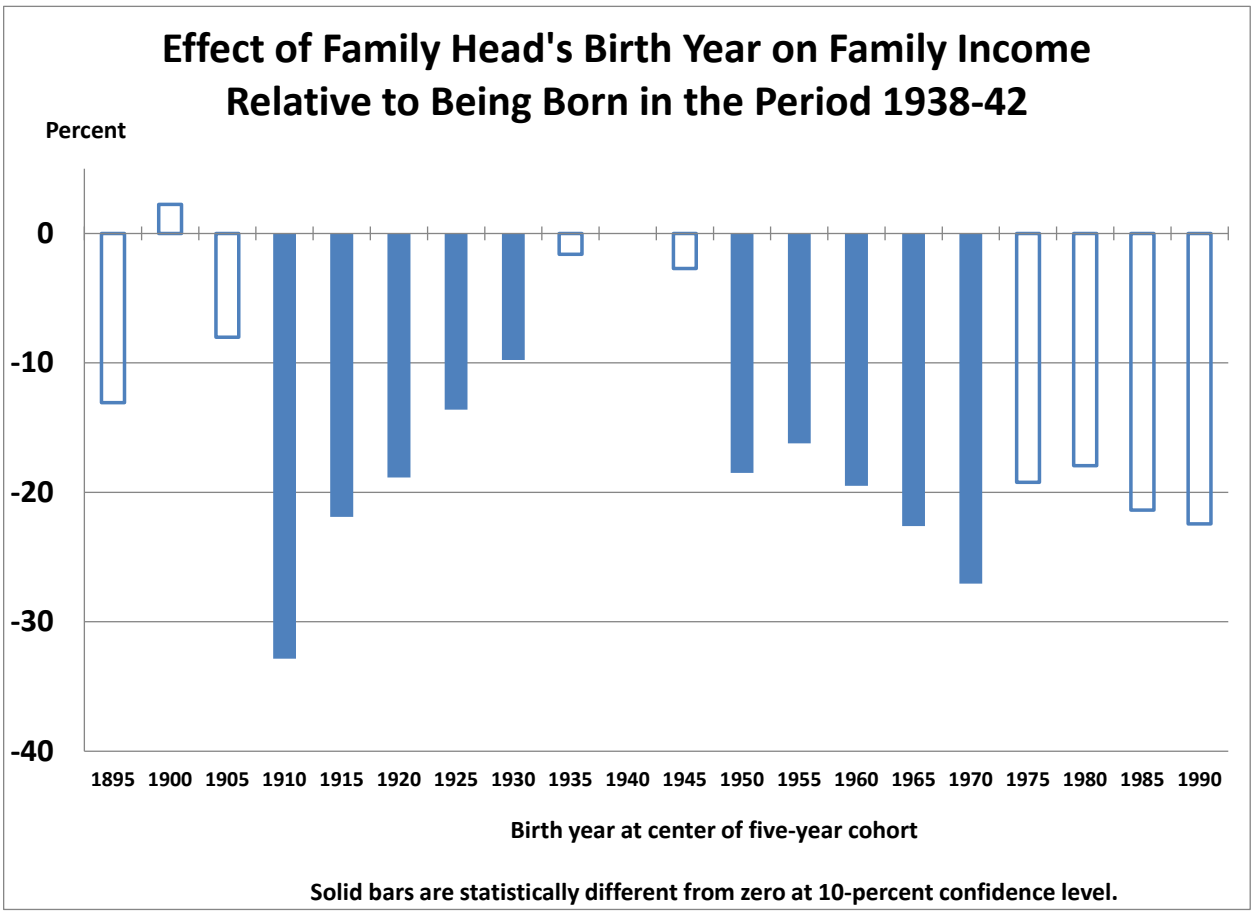
Source: Federal Reserve Board

Figure 28



Source: Federal Reserve Board

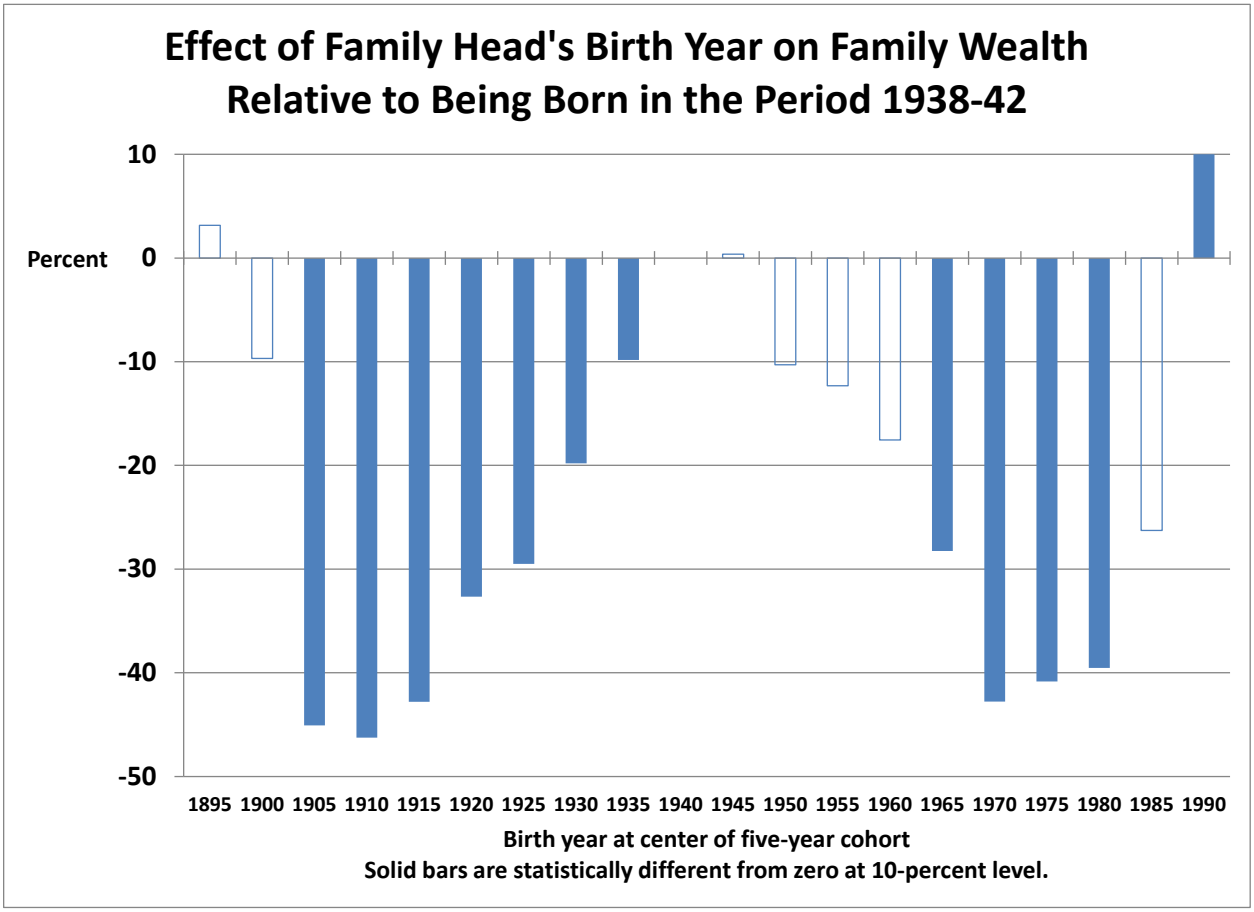
Figure 29



Co-efficients represent the estimated percent difference in income of a family in a five-year birth-year cohort centered around the given year compared to the cohort of families with heads born in the five-year cohort centered around 1940.

Sources: Federal Reserve Board

Figure 30

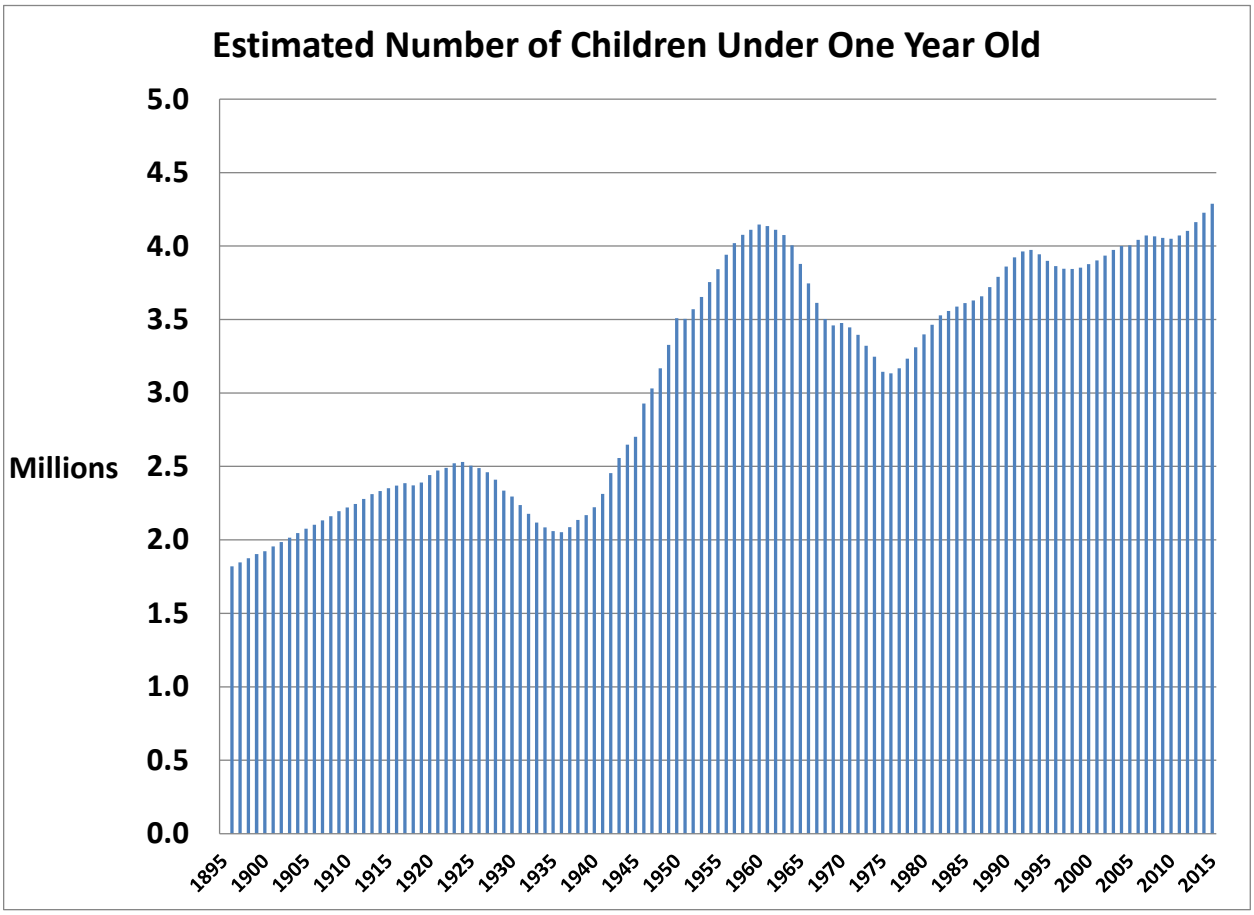


Co-efficients represent the estimated percent difference in wealth of a family in a five-year birth-year cohort centered around the given year compared to the cohort of families with heads born in the five-year cohort centered around 1940.

The co-efficients are transformed as suggested by Halvorsen and Palmquist (1980).

Sources: Federal Reserve Board

Figure 31



Source: Census Bureau and own estimates.