

# Wealth Inequality and the Wealth of Cohorts\*

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Income inequality has increased sharply in the United States. As shown in Piketty and Saez (2003) the share of income going to the top 10 percent of tax filing units rose 10 percentage points, to 41.4 percent in 1998, from 31.5 percent of total income in 1970. As is clear from Figure 1, the bulk of this increase happened after 1982 and is driven largely by increases in the share of income going to tax-filing units in the top one percent of the income distribution. Clear evidence for similar, though somewhat less extreme, increases in income inequality come from tabulations of the Current Population Survey.<sup>1</sup>

Given that household saving rates appear to increase with income, increases in income inequality would seem to lead directly to increases in wealth inequality. Stock market gains in the 1990s would seem likely to further increase wealth inequality, since the distribution of stock ownership is heavily skewed to high income households.<sup>2</sup> Two phenomena, however, may have mitigated increases in wealth inequality. First, the housing market has been strong throughout the 1980s and 1990s and housing is the most widely-held significant asset. So strong house price appreciation may have increased household wealth uniformly, at least among homeowners. Second, stock market gains have been widely credited with raising consumption (the so-called “wealth effect”). If stock market gains were spent rather than saved, wealth inequality would be relatively unaffected by the stock market (while consumption inequality would have increased sharply in the 1990s).

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<sup>1</sup>See, for example, the evidence in Katz and Autor (1999).

<sup>2</sup>See Dynan, Skinner and Zeldes (2000) for evidence that saving rates increase with income. Between 1979 and 1998, the S&P500 index increased by a factor of 10, rising from 103.01 to 1085.5 (measured at the close of the last trading day of the calendar year). This is roughly the same percentage gain as occurred between 1941 through 1979. But stock market appreciation is likely to significantly affect only the wealthiest households. As discussed in Aizcorbe, Kennickell, and Moore (2003, particularly Table 6), at the beginning of the 1990s bull market, only 36.7 percent of the population had direct or indirect holdings of stock. The median value of these holdings (conditional on having stock) was \$13,000. Even for households in the top 10 percent of the income distribution, the median conditional holding of stock was only \$58,800.

My first objective in this paper is to present new evidence on the evolution of wealth inequality between 1962, when the first large-scale microdata survey of American's wealth holdings was conducted, and 2001, the date of the most recent wealth survey. As I discuss below, wealth inequality increased between 1962 and 1989. But authors have reached different conclusions about the record from 1989 to 1998. Wolff (2000), for example, writes "Wealth inequality continued to rise from 1989 to 1998, though at a slower pace than during the 1980s." Kennickell (2001) concludes his careful paper by writing "The most striking finding is that, despite large shifts in assets and liabilities of U.S. families over this period and quite large gains in the wealth of the very wealthiest families seen in the *Forbes* data, the Survey of Consumer Finances data show remarkably little change in the concentration of wealth below the *Forbes* 400 level."<sup>3</sup> I also briefly review evidence from earlier periods on wealth inequality that is drawn from estate tax returns.

My second objective in this paper is to illustrate how the wealth of typical families evolves by examining how the wealth of specific *cohorts* evolves. Some scholars use evidence about changes in the cross-sectional distribution of wealth to make inferences about the way wealth of typical families evolves. Wolff (2000) for example, examines repeated cross-sectional wealth data from the SCFs and concludes "There has been almost no trickle down of economic growth to the average family: almost all the growth in household income and wealth has accrued to the richest 20 percent. The finances of the average American family are more fragile in the late 1990s than in the late 1980s." Focusing on cohorts gives a different, and arguably more accurate, description of how the wealth of typical families evolves. In my analysis, I pay

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<sup>3</sup>Each year *Forbes* magazines attempts to identify the 400 richest Americans.

particular attention to how the wealth of the baby boom generation has evolved relative to their parents.

My focus on the evolution of wealth across cohorts leads me to be skeptical of the proposition that Americans are in more fragile financial shape in the late 1990s than they were a decade earlier. But, there still may be good reasons to be concerned about wealth inequality. I briefly discuss three of these in the third section of the paper, and mention them here. First, intergenerational transfers are positively correlated with wealth, and transfers from parents to children commonly help finance college attendance and first home purchases. Households with lower *levels* of wealth will make fewer of these transfers, hence their children may be less likely to own homes and attend college, all else being equal (as long as credit constraints affect college attendance). Increases in wealth *inequality* could also affect rates of home ownership and college attendance if high wealth households increase demand for housing and college, raising prices, and hence making it less likely that children from low-income families go to college or own houses.<sup>4</sup>

Second, families with unusually low levels of wealth may have problems maintaining living standards in retirement (absent high replacement rates from social security or pensions). To maximize well-being for a given amount of lifetime resources, households must have accurate expectations of future rates of return and wealth and earnings shocks. Changes in wealth *inequality* might affect living standards to the extent outcomes are inconsistent with expectations.

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<sup>4</sup>Household wealth may be positively correlated with the well-being of younger children. A direct channel might occur, for example, from the ability of wealth to preserve consumption when incomes fall unexpectedly, mitigating any potential “scarring” effect on children from parental job loss.

Third, wealth, particularly very high wealth, is almost surely related to political access and power. As wealth inequality increases, the views of those in the top portions of the wealth distribution may get amplified in the political process.

### **I. Wealth Inequality from 1963 to 2001, With Comparisons to Earlier Years**

The analyses in this paper rely primarily on the Surveys of Consumer Finances (SCFs) as well as their predecessor survey, the 1962 Survey of Financial Characteristics of Consumers. The SCFs are triennial surveys of the balance sheet, pension, income, and other demographic characteristics of U.S. families that began in 1983.<sup>5</sup> Additional details on the SCFs are given in Aizcorbe, Kennickell, and Moore (2003) and their citations. The 1962 Survey was the first large-scale household wealth survey conducted in the U.S. and is described in Projector (1964).

Net worth, the focus of my paper, is defined broadly and includes housing assets less liabilities, business assets less liabilities, checking and saving accounts, stocks, bonds, mutual funds, retirement accounts, certificates of deposits, the cash value of whole life insurance, and other assets, less credit card debt and other liabilities. It excludes defined benefit pension wealth, defined contribution pension wealth held outside 401(k)s, social security wealth, consumer durables, and future earnings. The concept of wealth is similar (and in some cases identical) to those used by other studies of wealth and wealth inequality.

#### Percentile Shares of Wealth Over Time

Figure 2 plots the evolution of net worth shares for several percentiles of the net worth distribution. It shows, for example, that households in the bottom quarter of the net worth distribution (indicated by square markers) never hold more than 0.3 percent of total net worth.

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<sup>5</sup>We do not include the 1986 survey because it was conducted by telephone, rather than face-to-face, and the data are suspected of being less accurate than the other surveys.

Households in the bottom 90 percent of the wealth distribution own a gradually falling share of the nation's net worth: in 1962 they held 36.5 percent of net worth. By 2001 they held 30.4 percent. Roughly equal changes occurred in the 21-year period between 1962 and 1983, and the 18-year period between 1983 and 2001.

The changes in the share of wealth held by the bottom 90 percent of the net worth distribution were driven by changes in the wealth share held by the top 5 percent. The circle markers in Figure 2 show the top 5 percent held 51.6 percent of net worth in 1962. By 2001, the top 5 percent held 57.4 percent. This increase in inequality seems to have occurred gradually throughout the period examined. Changes in distribution in the top 2.0, 1.0 and 0.5 percentiles of the wealth distribution appear to have a different pattern. Only minor changes occurred between 1962 and 1992 in the wealth shares of the top two percent. Wealth concentration appeared to increase sharply between 1992 and 1995 – the share held by the top 1 percent of the net worth distribution jumped from 30.0 to 35.3 percent, although the concentration of wealth then diminished somewhat between 1995 and 2001.

The numbers in Figures 2 are very close to those reported in Kennickell (2001) for 1989, 1992, 1995, and 1998.<sup>6</sup> The similarity with Kennickell is useful validation, since, as the designer of the SCF surveys, he is arguably their most expert user. It is also important to emphasize all statistics from the SCF are subject to imputation and sampling variation (which can be calculated in the 1989 to 2001 SCFs). I have not calculated appropriate standard errors, so the trends described here are, at this point, only suggestive.

The Figure 2 numbers differ sharply from Wolff (2003, Table 10-2; and 2000, Table 2). In

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<sup>6</sup>The largest differences (focusing on households in the top 10, 1, and 0.5 percentiles) are 0.6 percentage points. Most differences are 0.2 percentage points or less.

general, Wolff reports that a much larger share of total net worth goes to households in the top 1 percent of the net worth distribution than does Kennickell (2001) and than found in my calculations. The discrepancies are enormous for this type of work. In 1989, for example, Wolff claims 37.4 percent of wealth is held by the top 1 percent, while unadjusted SCF data imply the share is 30 percent.<sup>7</sup>

Wolff adjusts the SCF data by proportionally changing selected asset and liability categories based on differences between SCF aggregates and aggregates from the household sector Flow of Funds accounts.<sup>8</sup> These adjustments are problematic. The main issue is that it is difficult to match asset and liability categories in the SCFs and household sector Flow of Funds. For example, the household sector Flow of Funds includes nonprofit institutions, whose asset and liability holdings must be netted out when comparing data to households. Antoniewicz (2000) provides a careful comparison of the 1989-1998 SCFs and the household sector Flow of Funds. She emphasizes that the household sector Flow of Funds does not provide a natural benchmark since it is computed as a residual from the other Flow of Funds sectors. Nevertheless, she finds the two data sources are “quite close” in 1989 and 1992 and they move apart thereafter (Wolff makes no adjustments to the 1998 data). Even if some adjustments to the SCF were warranted, proportional adjustments implicitly assume there is uniform percentage underreporting of the adjusted items. Nothing suggests that misreporting takes this pattern (see Kennickell, 2001 for further discussion of these issues). Consequently, the remainder of this paper will focus on

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<sup>7</sup>The smallest discrepancy between Wolff’s calculations and mine (for the top 10, top 5, and top 1 percent of the net worth distribution) are still a sizeable 1.8 percentage points. Discrepancies in 1989-1995 range from 3.5 percentage points to 7.4 percentage points.

<sup>8</sup>He also adjusts sample weights in 1992.

unadjusted tabulations from the SCFs.

### The Level of Net Worth Over Time

Figure 3 shows the evolution of net worth in levels, in 2001 dollars. It is clear that the 25<sup>th</sup> percentile household in the economy has very little net worth. The 25<sup>th</sup> percentile marker is indistinguishable from the horizontal axis and rises to \$12,566 in 2001 from \$4,431 in 1962 (in 2001 dollars). Growth of net worth was slow but fairly steady at the median (50<sup>th</sup> percentile) of the wealth distribution, rising to \$85,134 in 2001 from \$35,273 (in 2001 dollars) in 1962, which is an increase of real net worth of 2.3 percent per year. This seemingly slow accumulation of non-pension wealth has led some to question whether Americans are accumulating enough wealth to maintain living standards in retirement. I turn briefly to this question in Section 3.

Wealth for the remaining percentiles of the distribution, the 90<sup>th</sup>, 95<sup>th</sup>, 98<sup>th</sup>, 99<sup>th</sup>, and 99.5<sup>th</sup> show a consistent pattern, rising sharply between 1962 and 1989, falling between 1989 and 1995 (except at the very top of the distribution) and then increasing sharply between 1995 and 2001. The annual growth rate of real net worth in the 99.5<sup>th</sup> percentile was 3.7 percent in the 1962 to 2001 period. The growth rate was 3.2 percent to 4.1 percent for households in the 90<sup>th</sup> to 99<sup>th</sup> percentiles.

Figure 4 provides another perspective on the evolution of U.S. wealth inequality. Here I plot the ratio of net worth at a given percentile to net worth of the median (or 50<sup>th</sup> percentile) household. In 1962 the 75<sup>th</sup> percentile had 2.7 times the net worth of the median household. The 90<sup>th</sup> percentile household had 6.1 times, the 95<sup>th</sup> percentile had 9.8 times, and the 99<sup>th</sup> percentile had 35.8 times the net worth of the median household.

Between 1962 and 2001 there was little change at the 75<sup>th</sup> percentile (the ratio rose to 3.3



from 2.7). But the ratios of net worth at high net worth percentiles to the median increased sharply. The 95<sup>th</sup> percentile household had 15.3 times the net worth of the median household in 2001 (compared to 9.8 times in 1962). The 99<sup>th</sup> percentile household had 68.8 times the net worth of the median (compared to 35.8 in 1962). These figures suggest that increases in wealth inequality over this period were driven by the extreme upper end of the wealth distribution.

### Comparing Wealth and Income Inequality

Table 1 compares the evolution of income inequality using data from Piketty and Saez (2003, Table II) for income shares and the underlying data from Figure 2 for wealth. Two observations arise from Table 1. First, it shows the well-known fact that wealth is distributed much more unequally than income. The top 1 percent of the net worth distribution holds over 30 percent of total net worth. The top 1 percent of the income distribution never held more than 15 percent of total income.

Second, the time series pattern of wealth and income changes are provocative. Concentrate on the top decile shares. As noted by Piketty and Saez (see, particularly, page 31), the very sharp jump in the estimated income concentration between 1983 and 1989 is likely due in substantial part to changes in income reporting between the corporate and noncorporate sectors surrounding the 1986 tax reform. The 1986 reform reduced the top individual income tax rate below the top corporate income tax rate. That provided an incentive for some companies to alter their tax status from a C-corporation, whose income would not show up on individual income tax returns, to a subchapter S corporation (or partnership), where income will show up on individual income tax returns. Shifts in corporate form (see, for example, Gordon and Mackie-Mason, 1990) likely drive much of the sharp increase in income concentration reported between 1983

and 1989. A piece of evidence consistent with this conjecture is that roughly 4 of the 5 percentage point increase in the top 10 percentile share of income occurred in 1987 and 1988 – the phase-in year and first year the 1986 reform was fully implemented.

If the preceding argument is correct, as many as 4 percentage points of the increase in income concentration reported by Piketty and Saez (2003) for the top decile of earners may be a spurious reporting phenomenon. In this case, the relative increases in income and wealth inequality for the top deciles are nearly identical. Both increased roughly 5.5 percentage points between 1962 and 1998. The time patterns of both series show steady increases.

There is a similar 4 percentage point jump in the share of income accruing to the top 1 percent in the Piketty-Saez series in 1987 and 1988, which may simply be an income reporting response to the 1986 tax reform. If one makes the crude 4 percentage point adjustment for the income series, the 1962 to 1998 changes (2.3 percentage points for income and 2.5 percentage points for net worth) are also similar, though the time patterns of income and wealth changes for households (or tax-filing units in Piketty and Saez) differ.

### A Longer-Term Perspective

As mentioned earlier, the 1962 Survey of Consumer Financial Characteristics was the first household-level wealth survey conducted in the United States. Hence there is no way to compare the distribution of overall wealth inequality in the 1962 survey and later SCFs with the overall distribution of wealth in earlier years. Estate tax data enable longer-term comparisons of wealth concentration, at least for very high-wealth households subject to estate taxation.

Statistics from Piketty and Saez (2001) suggest that between 1916, the first year of the estate tax, through 1948, fewer than 2 percent of decedents over the age 24 filed estate tax

returns. Since 1949, between 2 and 10.8 percent of decedents older than 24 filed. Between 2.6 and 4.4 percent of decedents over 24 filed estate tax returns in the 1990s. Lampman (1959) was one of the earliest studies to use the “estate tax multiplier” technique to make inferences about the aggregate wealth holdings of people (or households) at the top of the wealth distribution from information contained on estate tax returns.<sup>9</sup> In brief, the approach multiplies the number (and wealth) of decedents in a group defined by age (and in some cases, gender) by the inverse of the mortality rate for the given group. This yields an estimate of the number of living persons and the amount of wealth held in that group. These estimates can be compared to estimates of the total adult population and total household wealth to generate estimates of the concentration of wealth.

There are at least two major complications that arise with the estate multiplier approach. First, in the words of Lampman, “The leading disadvantage of thus deriving wealth estimates from estate tax returns arises from the fact that the ‘sampling’ is done by death rather than by a random draw of living persons” (p. 380). If the wealthy have lower mortality rates (for a given age-sex group), the estate multiplier approach will overstate the concentration of wealth. A second concern is that wealthy households substantially reduce estate tax payments through estate planning. If the wealth reported on estate tax returns understate true holdings, the estate multiplier approach will understate the concentration of wealth.<sup>10</sup>

Figure 5 shows estimates of the concentration of wealth from Lampman (1959) and Smith and Franklin (1974) for selected years beginning in 1922 through 1969. The series are extended

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<sup>9</sup>Also see Johnson (1998) and Johnson and Woodburn (1994) for a nice discussion of issues that arise when trying to estimate wealth from federal estate tax returns.

<sup>10</sup>See Poterba (2000) for evidence that the estate multiplier approach provides useful information.

for recent years using data from the SCF. The Figure plots the wealth held by households in the top 0.5 percent of the population, which is the only group for which I can construct a consistent series. The approaches used by Lampman, the data points between 1922 and 1956, and Smith and Franklin, the data points between 1952 and 1969, differ somewhat. The one year of exact overlap suggests that the top 0.5 percent of wealth holders in 1953 hold 22.7 percent of the wealth (Lampman) or 22.0 percent of wealth (Smith and Franklin).<sup>11</sup> Similarly, Smith and Franklin's estimates imply 21.6 percent of wealth is held in the top 0.5 percent of the population while the 1962 Survey of Consumer Financial Characteristics implies that the top 0.5 percent of the population holds 24.5 percent of wealth.<sup>12</sup> These discrepancies highlight need for caution in comparing wealth concentration estimates that are developed with differing methodologies.

With the preceding caveats in mind, Figure 5 shows that wealth concentration was highest in 1929, just prior to the Depression. The Depression reduced the concentration of wealth, though as shown by Piketty and Saez (2003), it seemed to have little effect on the concentration of income. World War II had a profound effect on both the concentration of income and wealth. Income shares fell precipitously between 1940 and 1943. The share of wealth held by the top 0.5 percent fell sharply between 1939 to 1949, according to Lampman's calculations. The share of wealth held by the top 0.5 percent increased somewhat from its low point in 1949, but it remains considerably lower than its level prior to World War II.

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<sup>11</sup>Smith and Franklin (1974) note that they adjusted Lampman's estimate for 1953 to include an amount represented by decedents whose age was unspecified on estate tax returns.

<sup>12</sup>As noted above, estate tax avoidance would result in a downward bias in wealth concentration resulting from the estate tax multiplier approach. The 1962 wealth survey and the various SCFs undoubtedly have biases as well.

## II. The Evolution of Cohort Wealth

The patterns of wealth inequality described in the previous section – increased concentration at the very top of the distribution and very little change in wealth up to the 75<sup>th</sup> percentile of the wealth distribution – suggest to some that wealth has grown very little for typical American families. Wolff (2000), for example, writes “These results indicate rather dramatically that the growth in the economy during the period from 1983 to 1998 was concentrated in a surprisingly small part of the population – the top 20 percent and particularly the top one percent.”

This section of the paper examines how the wealth of *cohorts* of households evolved between 1963 and 2001. Statements about the evolution of financial well-being of representative families need to reflect the fact that people age and as they do, they accumulate wealth, at least until retirement.

The section is organized into two parts. First, I revisit an issue examined by the Congressional Budget Office (1993). They suggested that a simple way to assess the financial well-being of households is to compare their net worth to their parents’ at a similar age. The Congressional Budget Office (CBO) analysis looked specifically at the wealth of the baby boomers in 1989 and compared that to the wealth (and income) of their parents in 1962: it concluded that the baby boomers appeared to be comfortably meeting the living standard of their parents. The CBO analysis noted that the baby boom cohort was still only 25 to 43 in 1989, and hence conclusions about their likely living standards in retirement were quite speculative. Bernheim (1994) notes additional reasons to be skeptical of these conclusions: the baby boom generation also were experiencing slower real wage growth than their parents, declining defined benefit pension coverage, they appeared to have lower rates of private saving, and many

observers in the early 1990s questioned whether the housing market would remain strong. With the benefit of 12 more years of data (additional SCFs from 1989 to 2001), we revisit the comparison between the wealth of the baby boomers and their parents.

Second, the cohort analysis can be used to look at the wealth accumulated by different groups – white relative to nonwhite, and groups with different levels of education. These decompositions add perspective to the ways wealth changes have affected families in different socio-demographic groups.

### The Wealth of the Baby Boomers and Their Parents

The baby boom generation includes roughly 76 million people born between 1946 and 1964. The annual number of births reached a low point of about 2.3 million during the Depression but it jumped soon after the end of World War II. Figure 6 plots birth rates and the baby boomers. The birth rate per 1000 people exceeded 20 in every year of the baby boom. It exceeded 20 in only three other years (1942-1944).

The average maternal age at the time of birth during the middle of the baby boom (1955) was 26.3. Thus, I will assume the baby boomers' parents were born between 1920 and 1938. Table 2 compares the net worth of the boomers' parents who were ages 24 to 42 in 1962 to the net worth of the boomers in 1989 (who were ages 25 to 43 in 1989). I then show the change in net worth of the boomers' parents between 1962 and 1983 (the cohort ages to 45-63 from 24-42), and compare this to the change in net worth for the boomers between 1989 and 2001 (the cohort ages to 37-55 from 25-43). We expect the change in net worth for the boomers to be somewhat smaller than the change for the boomers' parents, simply because (due to data availability) 21 years elapse in the over-time comparison of the boomers' parents, and 12 years elapse in the

over-time comparison for the boomers.

The first row of Table 2 replicates calculations made in CBO (1993), which show the baby boomers have accumulated more wealth than their parents had at a comparable age. In 1989, the baby boomers had roughly twice the median and mean net worth than did their parents in 1962. Real incomes of the boomers in 1989 are higher (\$40,315 in 2001 dollars) than their parents' income at a similar age (\$32,044 in 2001 dollars), but the boomers still had significantly higher wealth-to-income ratios than did their parents.

The CBO emphasized the fact that the baby boomers in the 1989 net worth tabulations were only 25 to 43 years old, and hence had many years before they would retire. As noted in the introduction to this section, Bernheim (1994) raised several considerations that could cast doubt on the likelihood that the boomers would have greater wealth than their parents on the eve of retirement. The last two rows of Table 2 are consistent with at least some of Bernheim's conjectures.

Median wealth of the baby boomers in 2001 was nearly identical to the median wealth of their parents in 1983. But the boomers had higher income (\$53,020 in 2001 dollars) than did their parents (\$41,455 in 2001 dollars), so they had significantly lower wealth-to-income ratios. Of course, the figures shown in the second row reflect 21 years of accumulation for the boomers' parents and only 12 years for the boomers. At the same time, the boomers' figures include the very strong period of stock market growth between 1998 and 2001. Given the available data, there are three nine-year periods where I can examine the median wealth accumulated by households age 37-55. Between 1983 to 1992, the median increase was \$34,585; between 1989 and 1998, the median increase was \$23,498. Finally, between 1992 and 2001, the median

increase was \$74,156. If either of the first two periods are representative of the future, the median wealth-to-income ratios for the baby boomers on the eve of retirement (age 46 to 64) will be similar or slightly lower than the levels of their parents.<sup>13</sup>

Thus, despite starting with more wealth than their parents at a similar age, I expect the wealth-to-income ratios of the baby boomers to be similar to the ratios of their parents when they were the same age, on or near the edge of retirement. Absent extremes in economic and stock market outcomes in coming years, it appears that the median baby boom household will have somewhat more net worth (on the order of 20 to 30 percent more), and nearly identical wealth-to-income ratios as their parents. There is no evidence that the baby boom generation is doing *worse* than their parents at comparable ages. The evidence in Table 2 also shows the wealth gains of typical (the median) baby boom household in the 1990s appear to be similar to the gains in earlier decades and are substantial. These figures are inconsistent with the idea that living standards did not increase for typical families in the 1990s.

There are several qualifications that accompany the preceding discussion. First, the SCFs do not capture wealth from defined benefit (DB) pensions. Because DB pension coverage has fallen over time, the wealth of boomers relative to their parents will be a little worse than suggested by Table 2. But the DB pension wealth holdings of the *median* household is likely fairly small, so the bias will not be too large.<sup>14</sup> Second, there is uncertainty about future events that will affect the financial well-being of baby boomers in retirement. These include the

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<sup>13</sup>I think it is unlikely that the exceptionally strong economic and stock market performance that occurred from 1992 through 2001 will be repeated.

<sup>14</sup>At any time, roughly half of all workers are covered by a pension (not necessarily a DB pension). Roughly two-thirds of all workers retire with some pension entitlement.



evolution of home prices, the stability of future social security benefits, and the performance of the stock market and the economy between now and when the boomers retire. Third, comparing baby boomers with their parents at comparable ages provides a simple benchmark for discussing the evolution of wealth across generations, but it is not clear how the “parental standard” relates to optimal behavior. The baby boomers’ parents may have accumulated too much, too little, or exactly the right amount of resources to maintain living standards in retirement. But to the extent they accumulated too little, the fact that their children have similar wealth-to-income ratios and somewhat greater net worth in levels, at least at the median, is of little comfort.

### The evolution of cohort wealth

The same type of comparisons I made between the baby boomers and their parents can be done with other population cohorts. In Figure 7 I show the evolution of wealth for two population cohorts: households who are age 25 to 39, and households who are age 40 to 54. My wealth data span nearly four decades. This allows me to plot the evolution of median net worth for three cohorts of young households: those who were 25 to 39 in 1962, those who were 25 to 39 in 1983 (there is no SCF-like survey conducted in the 1970s), and those who were 25 to 39 in 1992. I also plot the evolution of median net worth for 3 older cohorts: those who were 40 to 54 in 1962, 1983, and 1992.

The age bands I have chosen are broad due to sample size considerations (particularly in subsequent Figures where I disaggregate by education and race). In each figure, I plot the median net worth for the middle age in the given age band (for example, households age 40 to 54 are plotted as if they were 47 years old). The figures show the evolution of median net worth for the *same sets of households over time*, since (aside from mortality, immigration and emigration)

we know households that are 25 to 39 in 1962 (as defined by the head's age) will be 46 to 60 in 1983, 52 to 66 in 1989, and so on until their final observation as 64 to 78 year olds in 2001. I follow the other cohorts similarly. Clearly I have fewer observations for cohorts that begin in 1983 (who are followed to 2001) and 1992 (who are also followed to 2001) than I do for the cohorts that begin in 1962.

There are three noteworthy aspects of Figure 7. First, the cohort defined as 40 to 54 in 1962 (the line marked by “x” in the lower right portion of the figure) has significantly lower net worth than the other cohorts. Individuals in this cohort were children or young adults during the Depression and were young adults during World War II. Opportunities for human capital acquisition and wealth accumulation were more limited for this cohort than they were for subsequent cohorts. Second, median net worth grows steadily for each cohort.<sup>15</sup> The patterns shown here and in the baby boomers tabulations are difficult to reconcile with assertions that living standards for typical Americans are declining. Third, each successive cohort ends up with somewhat more wealth after the last period of observation (in 2001) than the cohort before it. To see this, at each of the six endpoints for the cohort, the highest marker is for the youngest of the cohorts that are examined (read straight down, which holds age constant). This suggests that net worth (in levels) is growing across cohorts, though the pattern appears to be heavily influenced by the strong economic and stock market performance between 1998 and 2001.

Figures 8 and 9 repeat the same analyses, splitting the samples into households whose heads have college degrees (Figure 8) and households whose heads do not (Figure 9). The y-axis

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<sup>15</sup>These cohort analyses show little evidence of late-in-life wealth decumulation (or “hump shaped”) wealth patterns. One important factor affecting cohort analyses at older ages is that less wealthy households likely die (and hence leave the sample) in greater numbers than do more wealthy households. Differential mortality by wealth will mask cohort evidence of decumulation.

scales of the two Figures differ substantially: the highest median net worth of the non-college sample is \$122,605 while the highest for the college sample is \$585,000. Given the widely differing levels and growth of the two groups, I use different scales.

The breakouts by education suggest the disadvantage faced by the (“bottom right”) cohort (those who were children and young adults in the Depression and entered that labor market during World War II) is largely confined to those without a college degree. While college graduates in the Depression cohort started with less net worth than later college graduate cohorts, they reached retirement with similar amounts of net worth.

There is significant accumulation occurring in both Figures 8 (for households with college degrees) and 9 (for households without college degrees) as households age, though households without college degrees start from a very low base. I also find it striking how closely distributed median net worth is across cohorts at a given age. While this is at best suggestive, if households are making severe, systematic mistakes in retirement planning, the mistakes appear to be happening consistently across cohorts. I think it is more likely that the typical households in each cohort are accumulating resources in a way to maintain comfortable retirement living standards. This conjecture receives a much more rigorous analysis in work I have currently underway with Ananth Seshadri and Surachai Khittrakun.

It is also striking that the very strong economic and stock market performance between 1998 and 2001 is evident only in Figure 8, which is restricted to those with college degrees. And I emphasize the uptick in 2001 is not solely or even primarily a stock-market phenomenon. Consider, for example, the cohort that was 25 to 39 in 1962. In 1998 their median housing equity was \$108,500 and stock-market wealth (stocks, stock mutual funds, and DC pensions)

was \$75,950. In 2001, these had grown to \$160,000 and \$119,000. Similar patterns hold (and more dramatically) for the young cohort (25 to 39) defined in 1983 and 1992. The typical American's balance sheet is still tied more closely to housing markets than stock markets.

The last two Figures of this section present the evolution of cohort net worth for whites and all other racial and ethnic groups (combined, due to small sample sizes). Figure 10 (for whites) shows the patterns described previously. The Depression cohort has significantly lower levels of net worth than other cohorts. There is steady increase in net worth over the life cycle. Median net worth appears to be growing over time, though much of the effect appears to be driven by strong economic and stock market performance between 1998 and 2001.

The patterns for non-whites shown in Figure 11 are disturbing.<sup>16</sup> Median net worth across cohorts is extremely low – in many cases less than half the medians that are shown in Figure 9, for cohorts with less than a college degree. Moreover, particularly for the 25 to 39 year old cohorts, there is very little increase in net worth over time. The only (slightly) heartening result is that for the older cohorts (40 to 54), starting net worth appears to be increasing each cohort. But the levels are still strikingly low.

### **III. Concluding Thoughts**

I show several things in this paper. First, wealth inequality in the U.S. has increased. Between 1962 and 2001 the ratio of net worth between the 95<sup>th</sup> and 50<sup>th</sup> percentiles of the net worth distribution increased to 15.3 from 9.8. The ratio of net worth between the 99<sup>th</sup> and 50<sup>th</sup> percentiles of the net worth distribution increased to 68.8 from 35.8. Second, it appears that the evolution of wealth inequality, particularly for the top 10 percent of the net worth distribution, is

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<sup>16</sup>See Scholz and Levine (2002) for a survey of Black-White wealth inequality.

similar to changes in income inequality documented in Piketty and Saez (2003). This suggests that similar factors may be behind trends in both series. Third, the share of wealth held by the top 0.5 percent of the wealth distribution reached its peak in 1929 and fell sharply between 1939 and 1949. It has increased somewhat since 1949, but it remains considerably lower than its level prior to World War II.

While wealth inequality has increased in the U.S., it is clear that net worth increases as the typical family ages. One way of addressing the well-being of American households is to compare their net worth to that of their parents at the same age. While the baby boom generation has not yet reached retirement age, my best guess is, with typical economic and stock market performance, that the median baby boomer will have 20 to 30 percent more net worth than their parents at comparable ages, and similar wealth-to-income ratios. There is no evidence that the baby boomers are doing worse than their parents at comparable ages.

The more general cohort comparisons show that net worth increases substantially for households as they age. In light of this evidence, Wolff's assertion that typical households have not experienced growth in wealth and that the finances of the average American family are more fragile in the late 1990s than in the late 1980s, is wrong. The evidence also shows that the housing market, not the stock market, remains the most important factor affecting the evolution of household wealth.

I can only speculate on the factors driving changes in wealth inequality, but I find the long trend of increasing inequality and the similarity of the patterns with the Piketty and Saez (2001, 2003) series on income inequality to be suggestive. Given the long-run patterns and the importance of housing wealth in household portfolios, I think stock market performance plays a

somewhat smaller role than some suggest (see, for example, Smith, 1999). Piketty and Saez (2003) suggest the Depression and World War II had a profound effect on labor market institutions and on social norms regarding inequality. The income tax evolved and top marginal tax rates exceeded 80 percent. The safety net also expanded sharply. Wealth and income inequality appeared to fall in the immediate post-war period. Since the 1970s, top marginal tax rates have fallen sharply (for part of the period, under 30 percent). Executive pay has increased sharply, presumably reflecting, in the words of Piketty and Saez, “changing social norms regarding inequality and the acceptance of very high wages.” Of course, I have not offered an explanation of how such norms develop or evolve.

### Why Should We Care About Wealth Inequality?

#### *Educational Attainment*

The relationship between wealth inequality, family wealth levels, and educational attainment is important but not well understood. Transfers from parents to children commonly help finance college attendance. Households with lower *levels* of wealth will make fewer of these transfers, hence their children may be less likely to attend college, all else being equal (as long as credit constraints affect college attendance). Increases in wealth *inequality* could also affect rates of college attendance if high wealth households increase demand for housing and college, raising prices, and hence making it less likely that children from low-income families go to college or own houses. Because educational attainment is highly correlated with economic success, the extent to which wealth inequality either implies or causes unequal opportunities in education has direct welfare implications as well as potential policy prescriptions.

One model suggests that family wealth levels should not affect educational attainment: if

capital markets are perfect, students (or their parents) should choose an optimal level of education, unconstrained by current family wealth or income. However, the presence of borrowing constraints will negatively affect college attendance for those for whom the constraints are more likely to bind: students from low-income or low-wealth families.

There is in fact a well-documented correlation between family income and college attendance, and, although not measured empirically, a similar relationship between family wealth and college attendance is presumed to exist as well. Ellwood and Kane (2000) report postsecondary experiences of a 1992 high school graduating class: they find that 40 percent of students from the lowest income quartile pursue no further education, compared with 10 percent of students from the highest income quartile; while 28 percent of the low-income students enter a 4-year college within 20 months, this compares with 66 percent of students from the highest income quartile. Carnevale and Rose (2003) rank students by a scale of socioeconomic status (SES), which may be a better proxy for wealth than parental income alone, since it combines parental income, education, and occupations. They find that of students enrolled at the 146 most selective colleges, 74 percent came from the highest SES quartile, while only 3 percent came from families in the lowest quartile.<sup>17</sup>

The positive correlation between income or wealth and college attendance is suggestive of the presence of credit constraints. Several studies test this hypothesis more explicitly by examining the effects on enrollment of specific changes or across-state differences in tuition and aid policies. Although these studies vary by time frame, they typically find that an increase of \$1,000 in the direct costs of attending college tends to decrease the likelihood of enrollment by 4

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<sup>17</sup>See Carnevale and Rose (2003), Table 1.1, page 69.

to 5 percentage points.<sup>18</sup> This responsiveness to financial incentives suggests that credit constraints are relevant for the college-entry decision.

However, there is an ongoing debate over the extent to which credit constraints affect college attendance. Cameron and Heckman (2001), for example, find that while family background and income appear to explain much of minority-white schooling gaps, the inclusion of an ability measure (the AFQT) causes the effect of family income to be “substantially weakened,” particularly for later schooling transitions. They conclude that, “Family income matters, but it has its greatest influence on forming the ability and college readiness of children and not in financing college education,” (page 492). As potential evidence against the importance of borrowing constraints, Kane (1995) cites the lack of enrollment response among low-income students to the introduction of the Pell Grant program in 1973, a federal, means-tested grant program.

Despite the possibility that educational borrowing constraints do not exist (or are mild), an extensive literature finds that parents’ wealth and education are important determinants of whether children go to college, even if we condition on relevant characteristics of children and families.<sup>19</sup> One valuable feature of a model of educational transfers, then, would be an economic explanation for the importance of the affluence of one’s family in determining educational outcomes absent binding educational borrowing constraints.

In work with Meta Brown, we develop an analytic model that provides a simple economic

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<sup>18</sup> See, for example, Kane (1994), Kane (1995), and Dynarski (2000).

<sup>19</sup> Keane and Wolpin (2001) find that education-contingent transfers increase with parents’ education, and significantly increase children’s educational attainment. In one recent example, Turley (2003) finds in data from the National Education Longitudinal Survey (NELS) that children with at least one parent who is a college graduate are two to five times as likely to apply to college than children whose parents are not college graduates, controlling for differences in either achievement test scores or grades.



explanation for the importance of parents' wealth and socioeconomic status to children's educational decisions in the absence of meaningful borrowing constraints in education. Based on the results of our analytic model and following Turley (2003), we intend to examine the relationship between parents' socioeconomic positions and children's decisions to attend college, conditioning on the extensive amount of information on children's ability in the Wisconsin Longitudinal Study and in the Health and Retirement Study. We expect this work to help develop rigorous, model-based explanations for the link between wealth inequality and college enrollment.

### *Retirement Income Security*

Recent papers document economically substantial changes in consumption around retirement, which could be consistent with inadequate retirement preparation. But other interpretations, such as leisure-consumption complementarities, could explain the empirical findings.

Engen, Gale and Uccello (1999) compare *distributions* of wealth-income ratios in the Health and Retirement Study (HRS) and the Survey of Consumer Finances with simulated optimal distributions and find, for the most plausible parameter values of their life-cycle simulation model, that the distributions are similar except at the tails. But this work also leaves open the broad question of the adequacy of retirement preparation. Each HRS household has an optimal wealth-income ratio given the Engen *et al.* model, but the fact that distributions match does not necessarily imply that each household is achieving its target. Moreover, they focus only on married couples where the husband works at least 20 hours per week, excluding, for example, more than 30 percent of the HRS sample that consists of single-person households.

In this project my coauthors (Ananth Seshadri and Surachai Khitatrakun) and I develop a dynamic, stochastic life-cycle simulation model to calculate target optimal wealth-to-income ratios for each household in the HRS. The underlying data make use of complete earnings histories for a significant portion of the sample. We compare, household-by-household, observed wealth-to-income ratios to simulated optimal ratios for a variety of underlying parameter values of the model. These calculations provide an objective benchmark for addressing the adequacy of retirement preparation.

We also compare the variation in observed to optimal wealth-to-income ratios and consumption replacement rates to household characteristics and to households' subjective views about financial preparation for retirement, based on a set of novel HRS questions. The work highlights the characteristics of households likely to face sharp reductions in consumption standards in retirement and provides new evidence on the magnitudes of shortcomings in wealth accumulation for specific segments of the population. Changing inequality may be a factor helping to explain the patterns, since it may alter household expectations about future earnings and interest rates, which in turn will affect consumption and saving decision of households.

#### *Political Power and Access*

Wealth, particularly very high wealth, is almost surely related to political access and power. As wealth inequality increases, the views of those in the top portions of the wealth distribution may get amplified in the political process. This point, substituting income for wealth, has been extensively examined in the political science literatures on interest groups, lobbying, and participation in America. Important contributions include work of Verba, Schlozman, and Brady (*Voice and Equality*) and Rosenstone and Hansen, (*Mobilization, Participation, and Democracy*

in America). Though difficult to do, additional work relating wealth to these issues might be valuable.

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Table 1: Concentration of Income and Wealth, 1962 to 2001				
	Piketty and Saez estimates of income shares		SFC data on wealth shares	
	Top 10 percent	Top 1 percent	Top 10 percent	Top 1 percent
1962	32.0	8.3	63.5	31.6
1983	33.7	8.6	66.4	31.5
1989	38.5 <sup>1</sup>	12.6 <sup>1</sup>	67.1	30.0
1992	39.8	13.5	66.8	30.0
1995	40.2	13.3	68.3	35.3
1998	41.4	14.6	69.0	34.1
2001	not available	not available	69.7	32.3

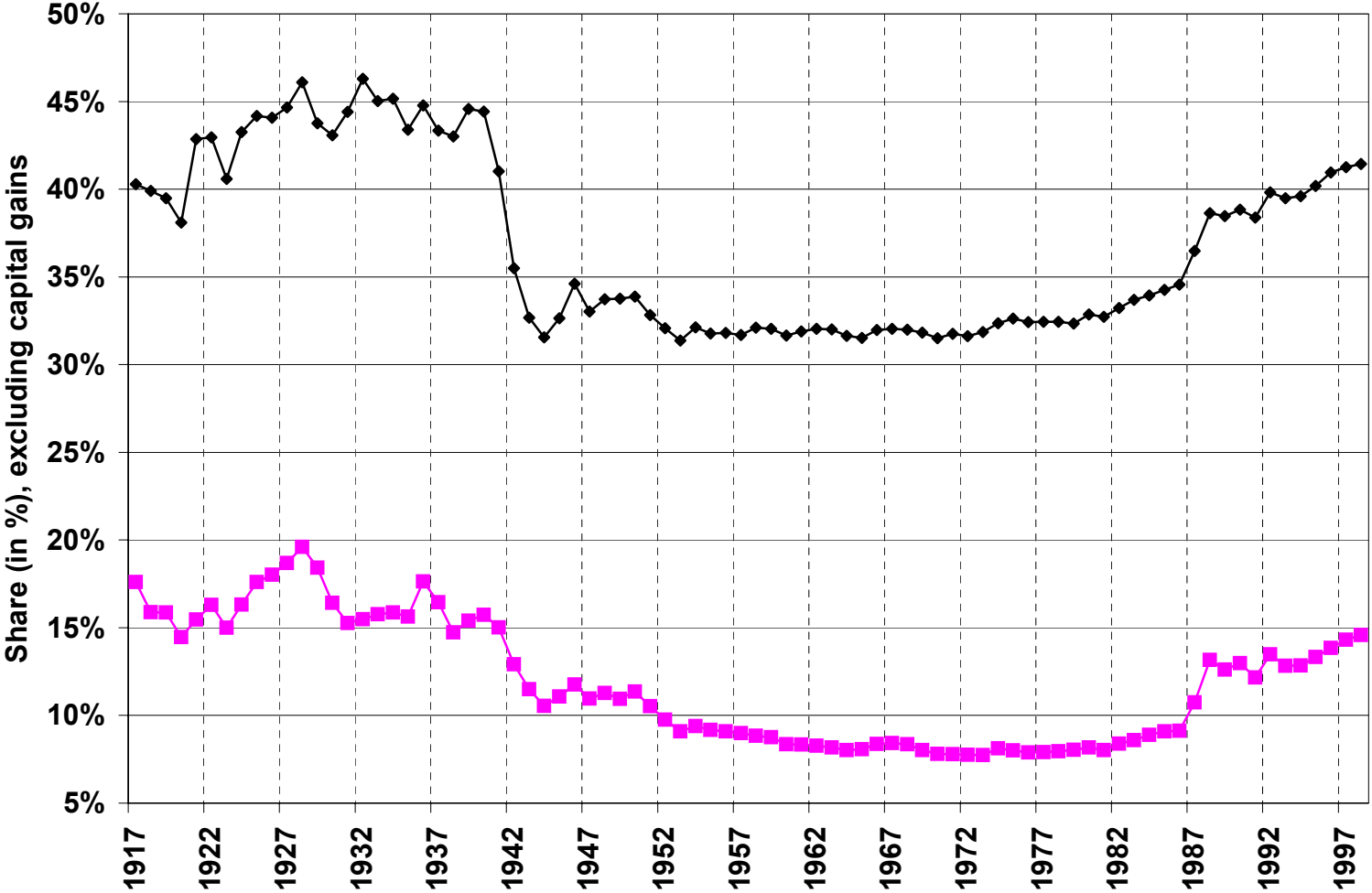
Source: Piketty and Saez (2003) and author's calculations from the 1962 Survey of Consumer Financial Characteristics and the 1983, 1989, 1992, 1995, 1998 and 2001 Surveys of Consumer Finances.

<sup>1</sup> As noted in the text, the jump in income shares between 1983 and 1989 occurred almost completely in 1987 and 1988, the two transition years following the 1986 Tax Reform. Roughly 4 percentage points of the change in income concentration could be due to reporting (and not real) changes related to businesses converting their organizational form from C-corporations to S-corporations or partnerships.

Table 2: Median and Mean (in parentheses) Net Worth of Baby Boomers and Their Parents, in 2001 dollars						
Boomers' Parents				Boomers		
Age	Net Worth	Median Wealth-to-Income Ratio		Age	Net Worth	Median Wealth-to-Income Ratio
24 to 42 (1962 SFC)	\$17,304 (\$61,518)	0.54		25 to 43 (1989 SCF)	34,268 (136,263)	0.85
45 to 63 (1983 SCF)	106,540 (314,465)	2.57		37 to 55 (2001 SCF)	104,450 (395,609)	1.97
Change in Net Worth (21 years)	89,236 (252,947)			Change in Net Worth (12 years)	70,182 (259,346)	

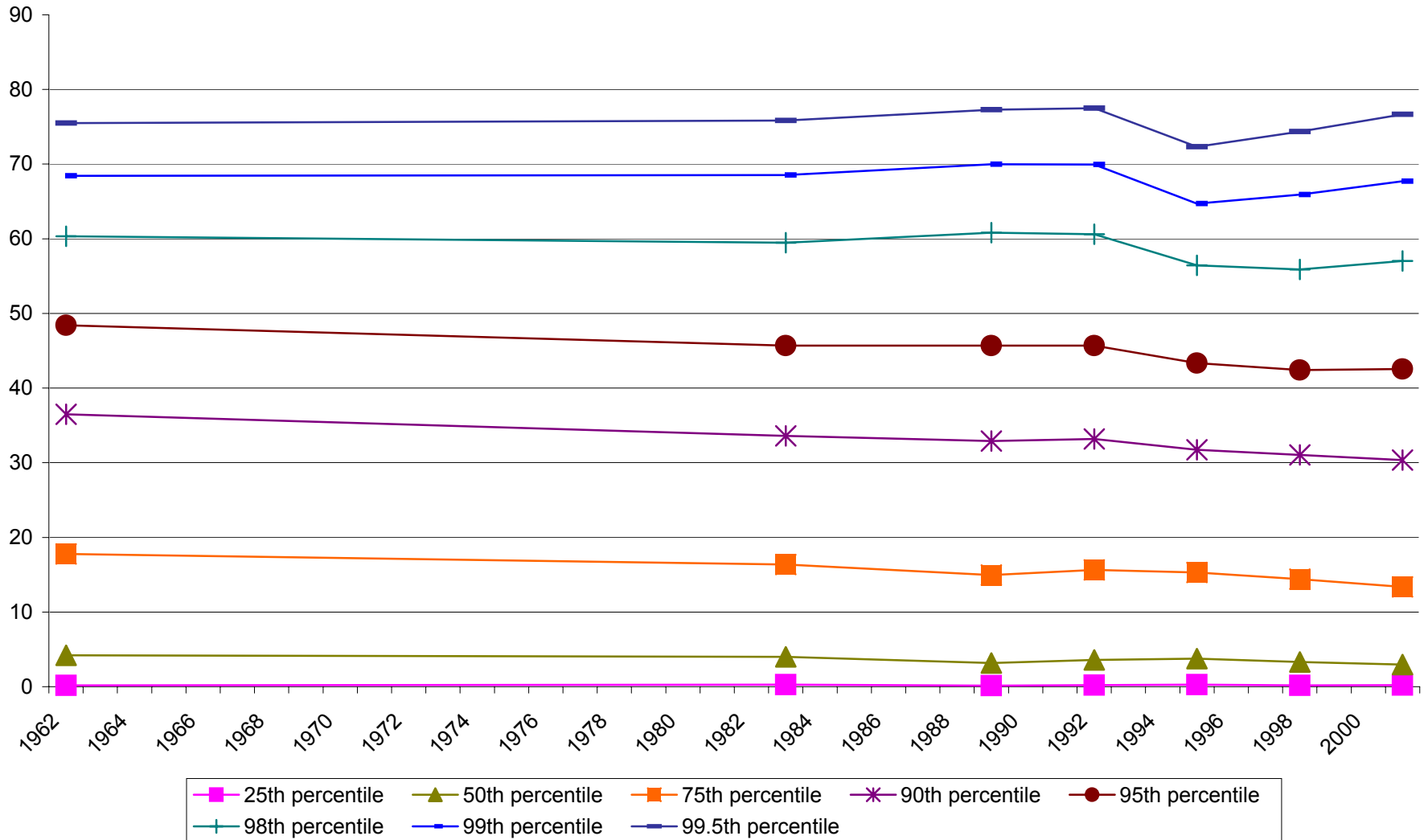


Figure 1: The top one and ten percentile income shares in the U.S., 1917-1998



Source: Piketty and Saex (2001, 2003) based on income tax returns (table A1, col. P90-100 and col. P99-100, in Piketty and Saez, 2001)

**Figure 2: Percent Share of Total Net Worth Held by Households Below the Specified Net Worth Fractile, SCF Data**



**Figure 3: Net Worth at Each Fractile of the Net Worth Distribution, 1962-2001 SCFS, 2001 dollars**

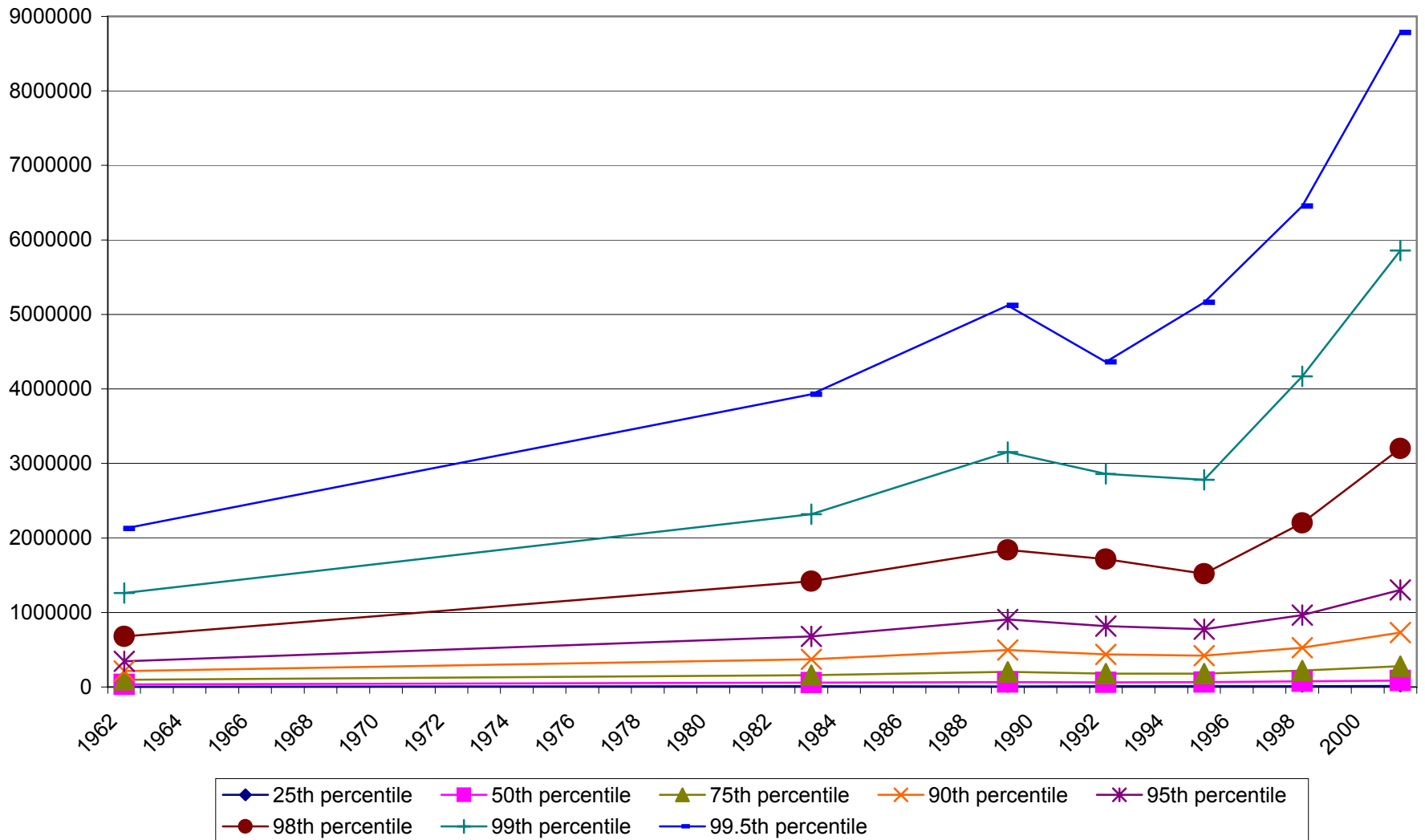
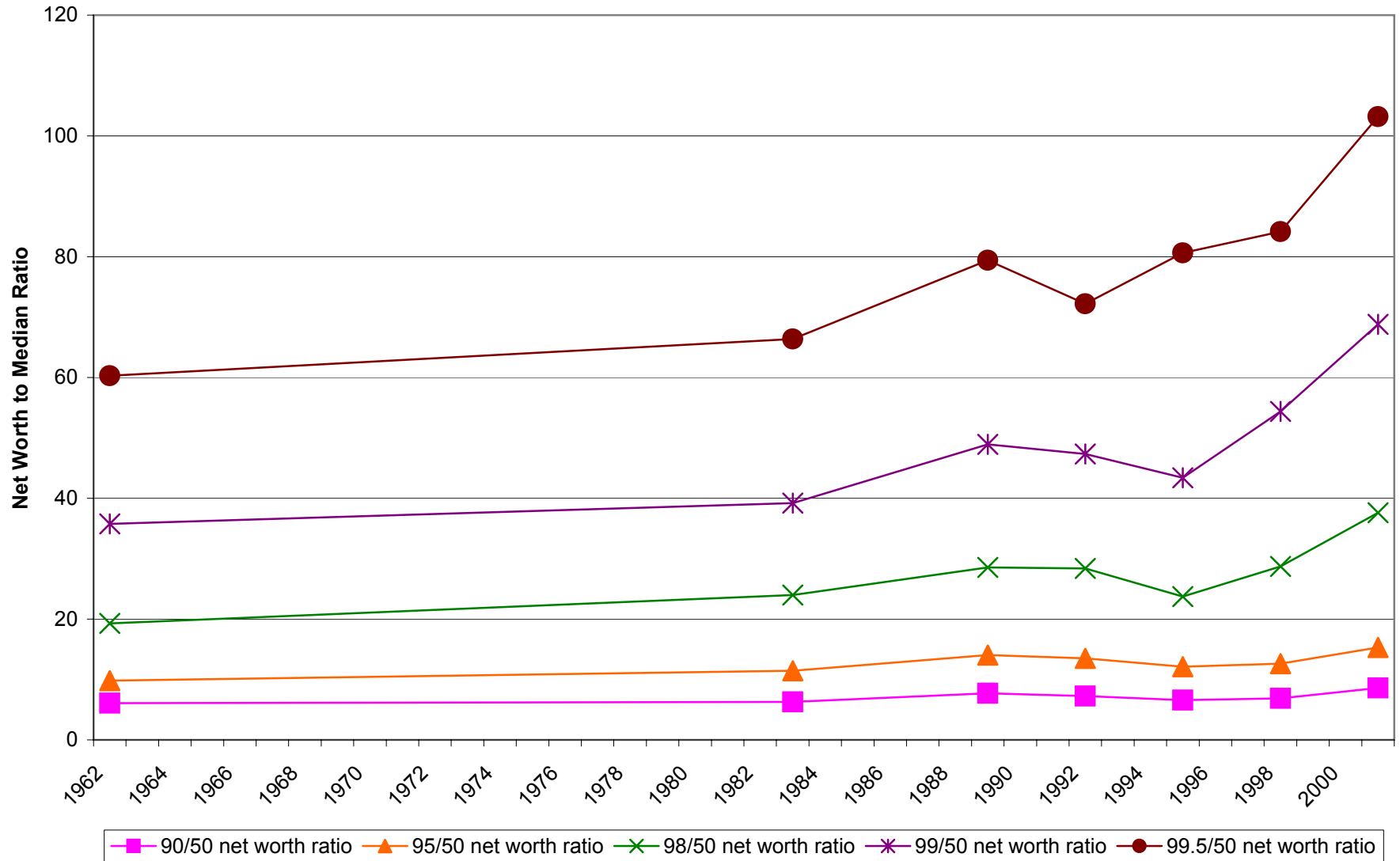


Figure 4: Net Worth Ratios Relative the Median, 1962-2001, SCF Data



**Figure 5: Wealth Shares Held by Persons in the Top 0.5 Percent of the Net Worth Distribution: Estimates from Lampman (1959), Smith and Frankin (1974), and the SCFs**

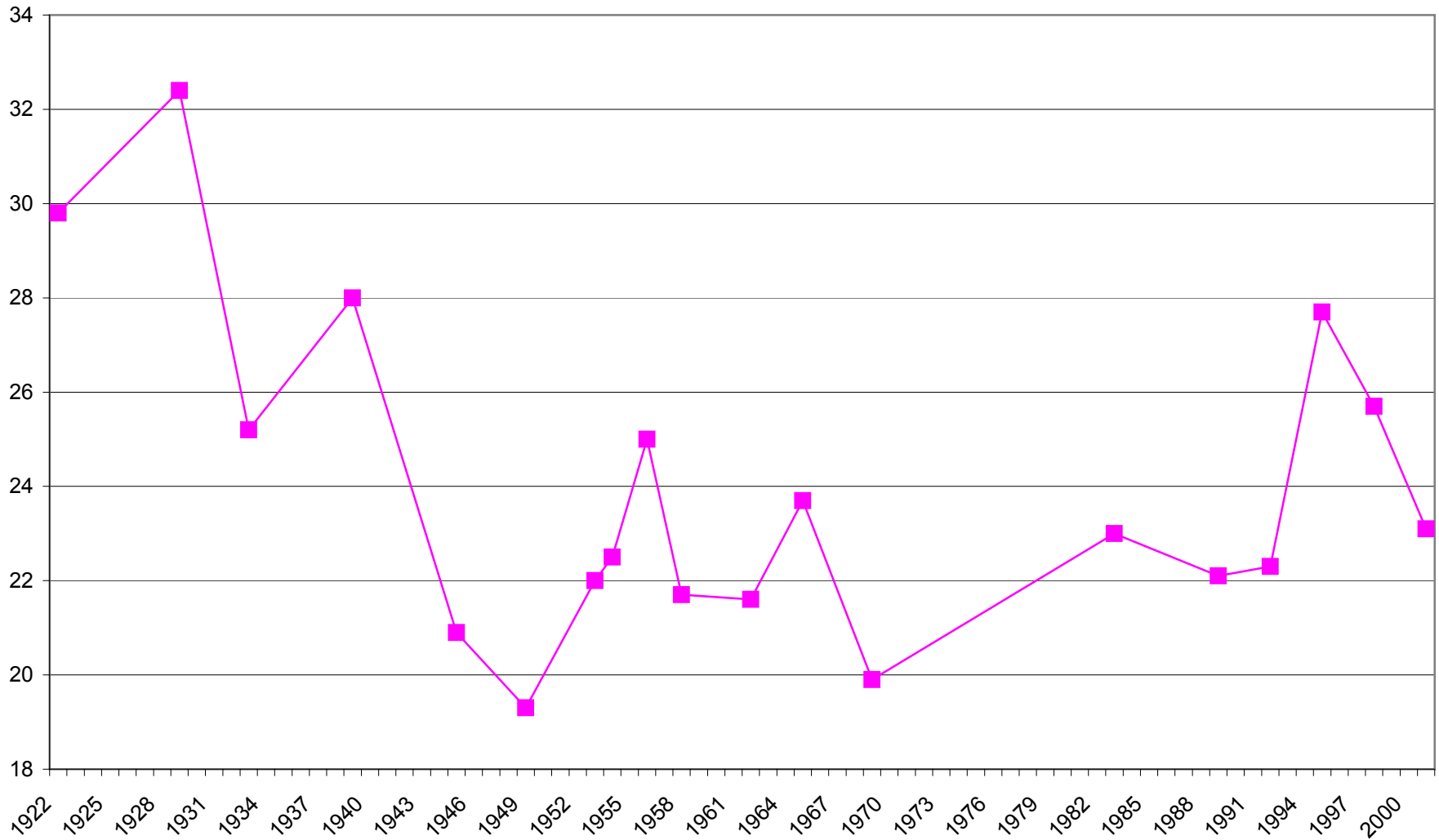


Figure 6: Live Births (in 1000s) and Live Births per 1000 People, 1933-2001

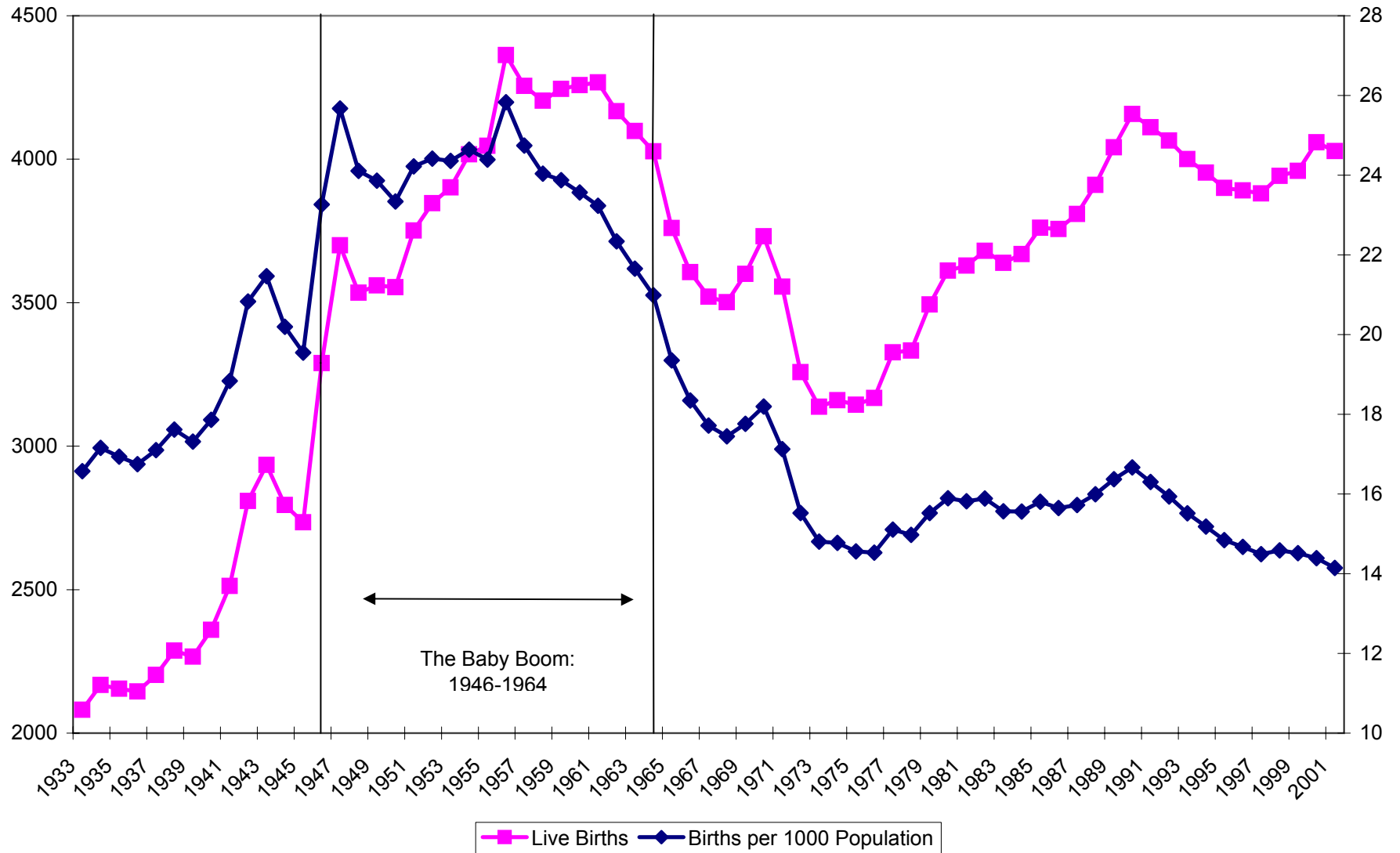


Figure 7: Median Net Worth of Cohorts, Full Population (2001 dollars)

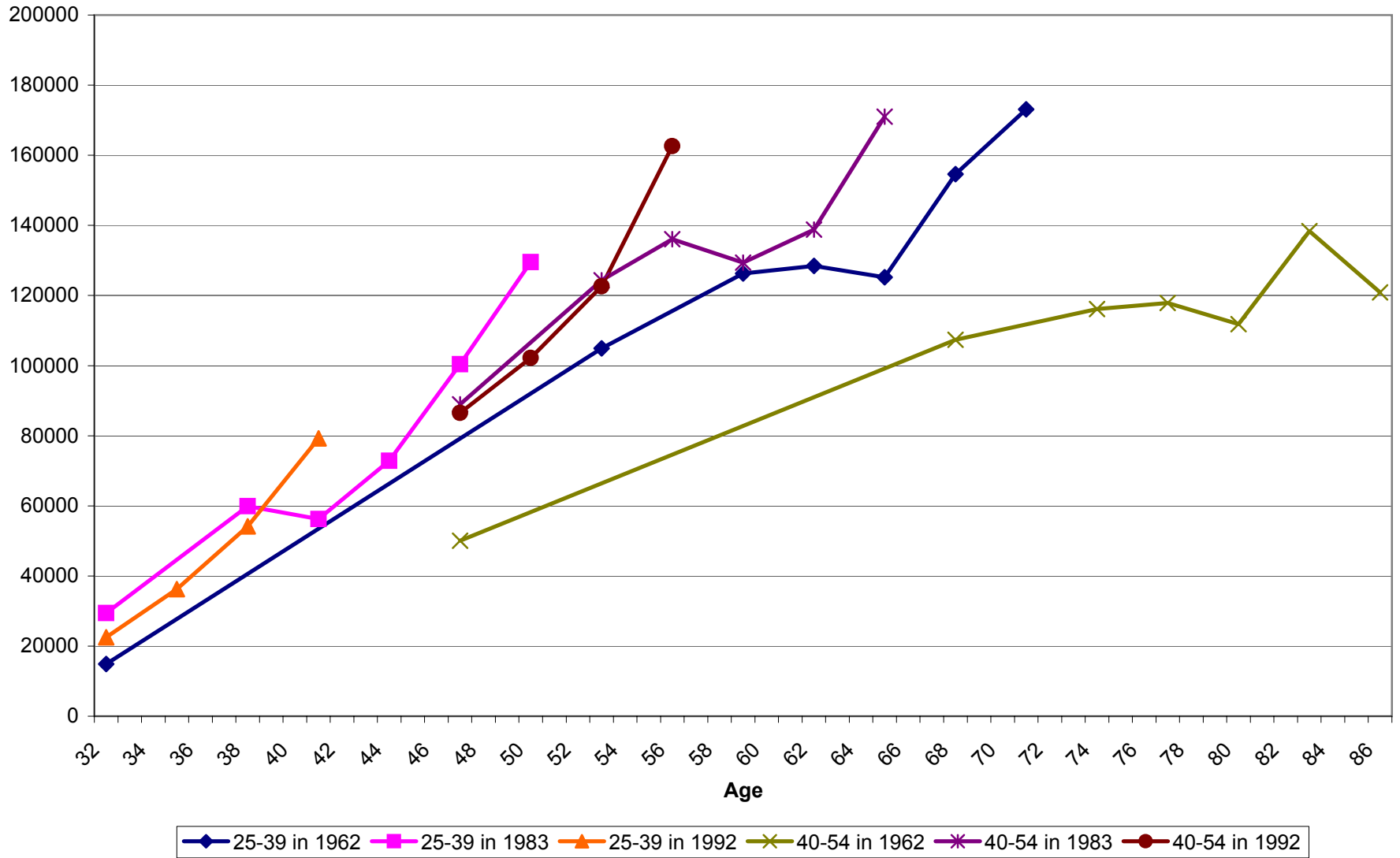
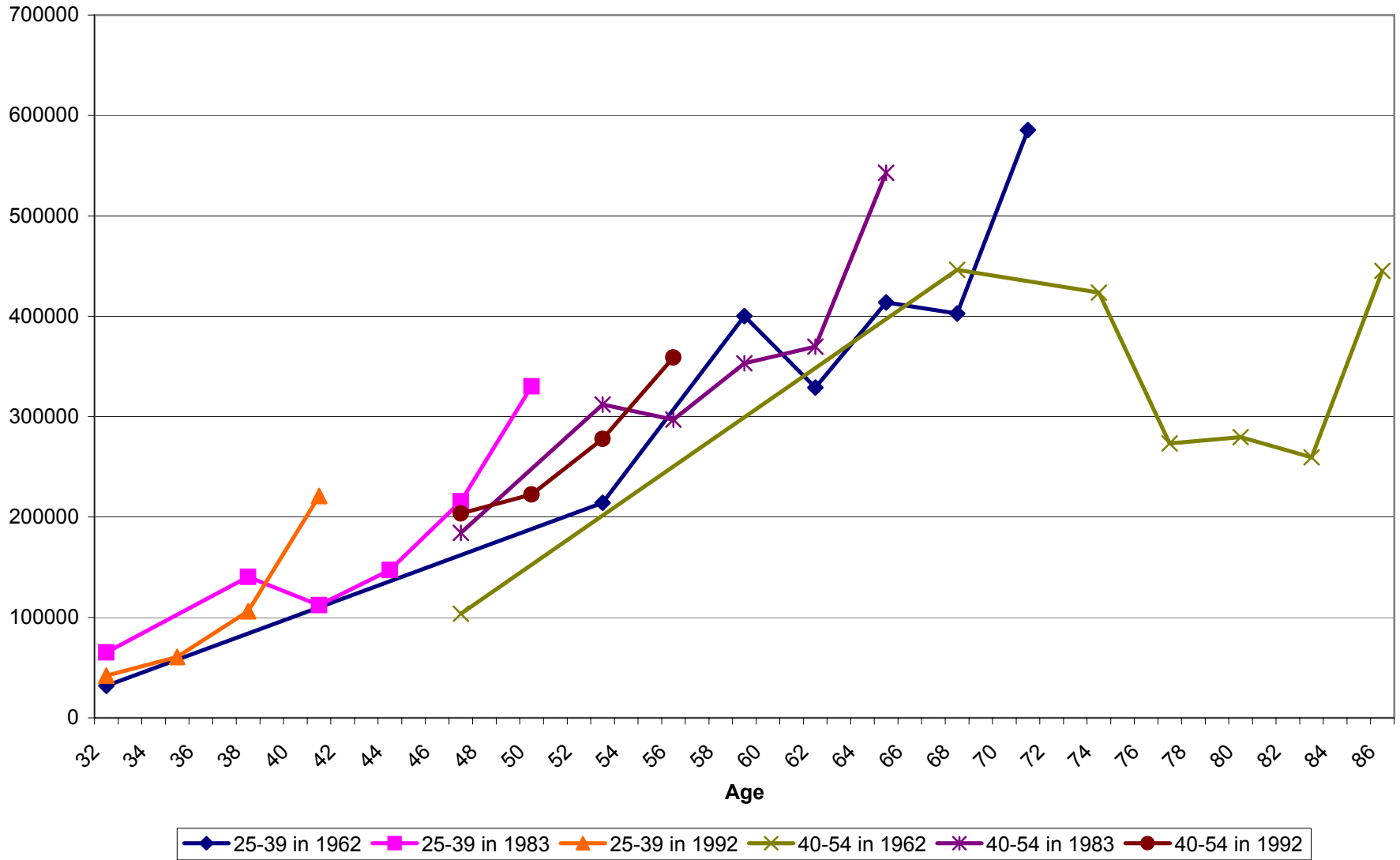


Figure 8: Median Net Worth of Cohorts, College Degree (2001 dollars)





**Figure 9: Median Net Worth of Cohorts, Less Than College Degree (2001 dollars)**

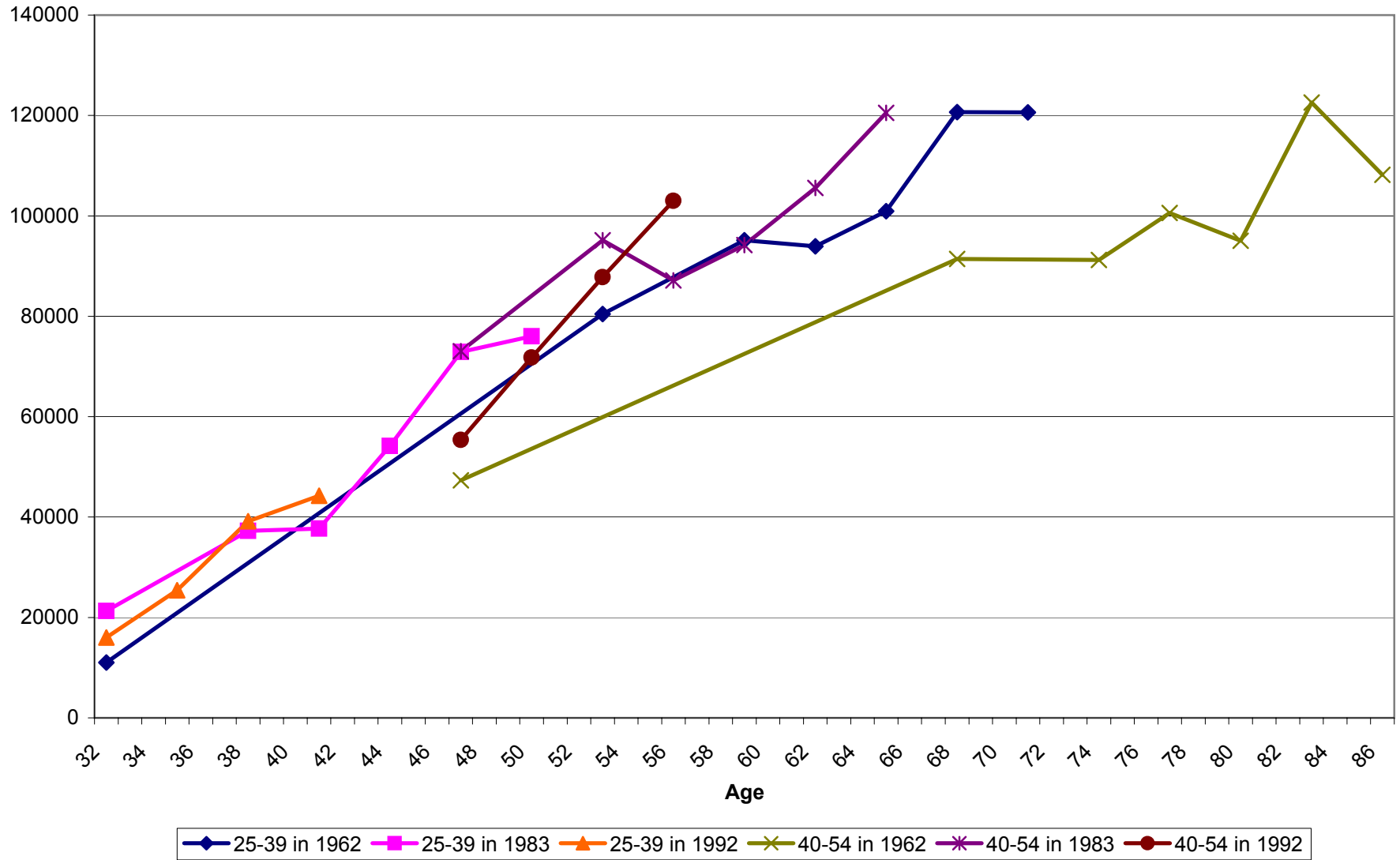


Figure 10: Median Net Worth of Cohorts, Whites (in 2001 dollars)

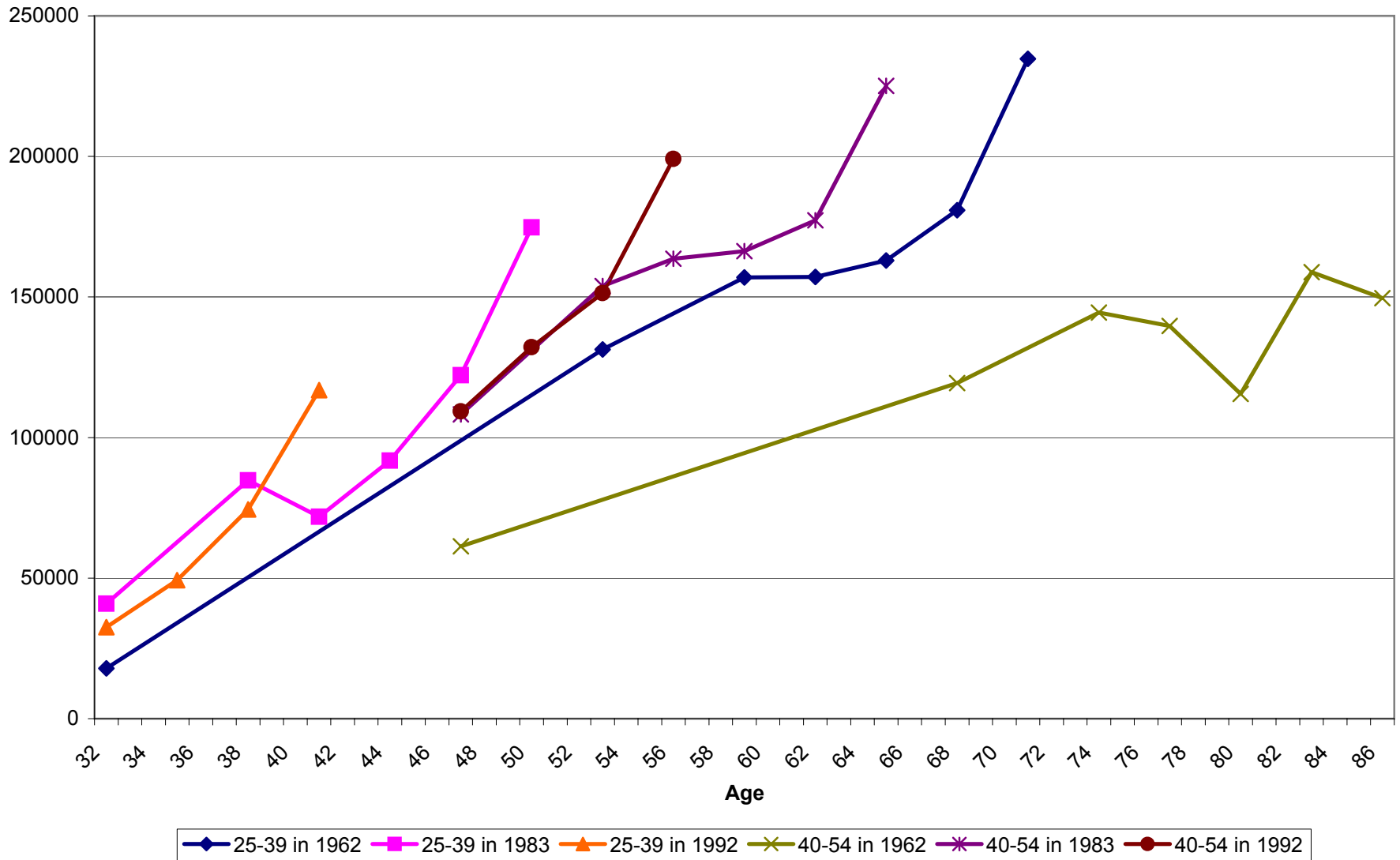


Figure 11: Median Net Worth of Cohorts, Nonwhite (in 2001 dollars)

