

Is the Equalizing Effect of Retirement Wealth Wearing Off?

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1. Introduction

While almost all the attention of the media is riveted on the Social Security system, the devolution of the private pension system has received surprisingly little attention. Indeed, one of the most dramatic changes in the retirement income system has been the replacement of many traditional Defined Benefit (DB) pension plans with Defined Contribution (DC) pensions. Moreover, retirement wealth is often viewed as the great equalizer, offsetting the inequality in standard household net worth. The main focus of the paper is to analyze the effects of this substitution on the overall distribution of household wealth.

The work of Poterba, Venti, and Wise (1998) suggests that the transition from DB to DC type plans increased pension wealth dramatically. My results, reported below, also confirm that **mean** pension wealth rose strongly between 1983 and 1998. However, **median** pension wealth actually declined over this period, and pension wealth inequality grew sharply as well.

A related issue that will be covered in this paper regards the distributional effects of Social Security wealth. Feldstein (1976), in a seminal paper on this subject found that the inclusion of Social Security wealth led to a sharp reduction in overall wealth inequality. I also find the same effect. However, my results show that median Social Security wealth declined over the period from 1983 to 1998, and its equalizing effect dissipated over these years.

The results of this paper also clear up several "puzzles" encountered in my 2001 paper. I was surprised by three developments in the 1990s. First, the share of total household wealth held by the richest one percent of households increased only a bit between 1989 and 1998, and the Gini coefficient for total household wealth actually declined slightly. I expected both the share of the top one percent and the Gini coefficient to have increased a lot more.

The reason is that in previous work (see Wolff, 2002) I identified two factors that seem to underlay much of the change in the share of wealth held by the top one percent. The first is the change in underlying income inequality and the second is the change in the ratio of stock prices to

housing prices. In a simple regression of the share of the top one percent on these two factors, both variables proved statistically significant and the goodness of the fit of the equation was quite high.¹ Over the period from 1989 to 1998, income inequality, as measured by the share of the top five percent increased by 2.8 percentage points, and the ratio of share prices to housing prices surged by a factor of 2.5. Extrapolating on the basis of the regression estimates, I would have expected a **9.9** percentage point increase in the share of the top one percent between 1989 and 1998, compared to its actual gain of 0.7 percentage points.

Second, the inequality of financial wealth, defined as net worth less net equity in owner-occupied housing, showed a fairly pronounced decline between 1989 and 1998. On the basis of previous analysis, I expected financial wealth inequality to have risen over this period as well. Third, median financial wealth grew quite robustly between 1989 and 1998 and, in particular, much faster than either median income or median net worth. On the basis of its trend in the 1980s, I would have anticipated a much more modest rise.

The next section of the paper (Section 2) provides a review of the pertinent literature on this subject. Section 3 describes the data sources and Section 4 develops the accounting framework used in the analysis. Section 5 shows time trends in standard measures of household wealth over the 1983-1998 period. Sections 6 and 7 investigate changes in pension wealth and Social Security

¹ A regression of a wealth inequality index, measured by the share of marketable wealth held by the top 1 percent of households (WLTH) on income inequality, measured by the share of income received by the top 5 percent of families (INC), and the ratio of stock prices (the Standard and Poor index) to housing prices (RATIO), with twenty-one data readings between 1922 and 1998, yields:

$$WLTH = 5.10 + 1.27 INC + 0.26 RATIO, R^2 = 0.64, N = 21$$

(0.9) (4.2) (2.5)

with t-ratios shown in parentheses. Both variables are statistically significant (INC at the 1 percent level and RATIO at the 5 percent level) and with the expected (positive) sign. Also, the fit is quite good, even for this simple model.

Sources are (A) Share of income of the top 5 percent: The basic data source is the Current Population Report series on shares of income held by families that runs from 1947 to 1998. The data are available on internet at the address: <http://www.census.gov/hhes/income/histinc>. The earlier data, from 1922 to 1949, are from Kuznets's (1953) series on the percentage share of total income received by the top percentiles of tax units. This series is benchmarked against the census figure for 1949. (B): Standard and Poor 500 Composite Stock Index: (1) From 1922 to 1969: US Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970*, Bicentennial Edition, Part I, Washington, DC, U.S. Government Printing Office, 1975, p. 1004. (2) From 1970 to 1998: U.S. Council of Economic Advisers, *Economic Report of the President, 2000*, Washington, DC, U.S. Government Printing Office, 2001, Table B-93, p. 406. (C) Median House Prices: (1) From 1922 to 1969: US Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970*, Bicentennial Edition, Part I, Washington, DC, U.S. Government Printing Office, 1975, Series N 259 & 261, p. 647. (2) From 1970 to 1998: U.S. Bureau of the Census. *Statistical Abstract of the United States, 1999*, 119th edition, Washington, D.C., U.S. Government Printing Office, 1999, Table No. 1203, p. 725] (C)

wealth, respectively, over this period. Section 8 presents summary measures on total (augmented) household wealth. Concluding remarks are made in Section 9.

2. Literature Review

Previous work has focused on one or a few of the aspects of the adequacy of retirement income or wealth. For instance, a number of papers have presented estimates of Social Security and/or pension wealth. The seminal paper on this topic is Martin Feldstein (1974), who introduced the concept of Social Security wealth and developed its methodology. His main interest was in the aggregate level of Social Security wealth and its effect on aggregate savings and retirement patterns. In a follow-up paper, Feldstein (1976) considered the effects of Social Security wealth on the overall distribution of wealth on the basis of the 1962 Survey of Financial Characteristics of Consumers (SFCC), a survey performed by the Federal Reserve Board of Washington. The paper found that the inclusion of Social Security wealth had a major effect on lowering the overall inequality of (total) household wealth.

Edward Wolff followed up Feldstein (1976) by examining the distributional implications of both Social Security and private pension wealth. These include Wolff (1987), which used the 1969 Measurement of Economic and Social Performance (MESP) database and was the first paper to add estimates of private pension wealth and examine their effects on the overall distribution of wealth. The paper showed that while Social Security wealth had a pronounced equalizing effect on the distribution of augmented wealth (the sum of marketable wealth and retirement wealth), pension wealth has a disequalizing effect on augmented wealth. The sum of Social Security and pension wealth has, on net, an equalizing effect on the distribution of augmented wealth. Wolff (1988) examined the implications of including both Social Security and pension wealth for estimating the life-cycle model of savings. Wolff (1992) addressed the methodological issues in estimating both Social Security and pension wealth. Wolff (1993a, and 1993b) extended the estimates of Social Security and pension wealth to the 1962 SFCC and the 1983 Survey of Consumer Finances (SCF). Chernick and Wolff (1996) examined the levels of Social Security benefits and Social Security wealth on the basis of the 1989 SCF by age group, lifetime earnings quintile, and family structure.

The most recent work on the effects of Social Security and pension wealth on the overall distribution of wealth is from Arthur Kennickell and Annika Sunden (1999), who base their study on the 1989 and 1992 SCF. They also find a net equalizing effect from the inclusion of these two forms of retirement wealth. Interestingly, they find that there is a negative effect of both defined benefit plan coverage and Social Security wealth on non-pension net worth but that the effects of defined contribution plans, such as 401(k) plans, is insignificant. As far as we are aware, there are no estimates of Social Security and pension wealth available from the 1998 Surveys of Consumer Finances.

Several papers have now used the Health and Retirement Survey (HRS). Alan Gustman, Olivia Mitchell, Andrew Samwick, and Thomas Steinmeier (1997) found that in 1992, pensions, Social Security, and health insurance accounted for half of the wealth held by all households aged 51 to 61 in the HRS; for 60% of total wealth of HRS households who are in wealth percentiles 45 to 55; and for 48% of wealth for those in the 90th to 95th wealth percentiles. In a follow-up study, Gustman and Steinmeier (1998) used data from the HRS to examine the composition and distribution of total wealth for a group of 51 to 61 years olds. They focused on the role of pensions in forming retirement wealth. They found that pension coverage is widespread, covering two thirds of households and accounting for one quarter of accumulated wealth on average. Social Security benefits accounted for another quarter of total wealth. They also reported that the ratio of wealth to lifetime earnings was the same for those individuals with pensions and for those without pensions. They concluded that pensions cause very limited displacement of other forms of wealth.

Several studies have documented changes in pension coverage in the United States, particularly the decline in DB pension coverage among workers over the last two decades. Laurence Kotlikoff and Daniel Smith (1983) provided one of the most comprehensive treatments of pension coverage and showed that the proportion of U.S. private-wage and salary workers covered by pensions more than doubled between 1950 and 1979. David Bloom and Richard Freeman (1992), using Current Population Surveys (CPS) for 1979 and 1988, were among the first to call attention to the decline in DB pension coverage. They reported that the percentage of all workers in age group 25-64 covered by these plans fell from 63 to 57% over this period. Among male workers in this age group, the share covered dropped from 70 to 61%, while among females in the same age group, the share remained almost constant, at 53%. Other studies include William Even

and David Macpherson (1994a, 1994b, 1994c, and 1994d). The 1994c study showed a particularly pronounced drop in DB pension coverage among workers with low levels of education; and Even and Macpherson (1994d), showed a convergence in pension coverage rates among female and male workers between 1979 and 1998.

A related topic of interest is whether DC pension plans have substituted for DB-type plans. Leslie Popke (1999), using employer data (5500 filings) for 1992, found that, indeed, 401(k) and other DC plans have substituted for terminated DB plans and that offering a DC plan raises the chance of a termination in DB coverage. On the other hand, James Poterba, Steven Venti, and David Wise (1998), using HRS data for 1993, found that the growth of 401(k) plans did not substitute for other forms of household wealth and, in fact, raised household net worth relative to what it would have been without these plans.

Several studies have looked at the overall economic status of the elderly. Michael Hurd (1994) showed that the mean income of households aged 65 and over increased sharply between 1970 and 1975 but only moderately from 1975 to 1987. As a fraction of the overall mean household income, average elderly income rose from 54% in 1970 to 61% in 1975 and then to only 63% by 1987. James Smith (1997), using 1994 HRS data, found that median financial wealth among white households aged 70 and over was only \$15,600 and that among white households aged 51-61 was only \$23,400; and median financial wealth for black and Hispanic households in the two age groups was zero! Venti and Wise (1998), using HRS data for 1992, estimated a very high degree of wealth dispersion among persons aged 51-61, even after controlling for lifetime earnings.

A Department of Labor report issued in 2000 found that a large proportion of workers, especially low wage, part-time, and minority workers, were not covered by private pensions. The coverage rate of all private sector wage and salary workers was 44 percent in 1997. Coverage of part-time, temporary and low-wage workers was especially low. This appears to be ascribable to the proliferation of 401(k) plans and the frequent requirement of employee contributions to such plans. It also found important racial differences, with 47 percent of white workers participating but only 27 percent of Hispanics. Another important finding is that while 70 percent of unionized workers were covered by a pension plan, only 41 percent of non-unionized workers were covered.

Moreover, pension participation was found to be highly correlated with wages. While only 6 percent of workers earnings less than \$200 per week were involved in a pension plan, 76 percent of workers earning \$1,000 per week participated.

3. Data Sources and Methods

The data sources used for this study are the 1983, 1989, 1992, 1995, and 1998 Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board. Each survey consists of a core representative sample combined with a high-income supplement. The supplement is drawn from the Internal Revenue Service's Statistics of Income data file. For the 1983 SCF, for example, an income cut-off of \$100,000 of adjusted gross income is used as the criterion for inclusion in the supplemental sample. Individuals were randomly selected for the sample within pre-designated income strata. The advantage of the high-income supplement is that it provides a much "richer" sample of high income and therefore potentially very wealthy families. However, the presence of a high-income supplement creates some complications, because weights must be constructed to meld the high-income supplement with the core sample.²

The SCF has the advantage of providing exceptional detail on both assets and debt (several hundred questions are asked). Moreover, it provides considerable detail on both pension plans and Social Security contributions. The SCF also gives detailed information on expected pension and Social Security benefits for both husband and wife. For 1983, the Federal Reserve Board has also made its own calculations of the wealth equivalent value of both expected pension benefits and Social Security benefits and made these available in its Public Use sample. However, this has not been done for the other years.

The SCF also supplies alternative sets of weights. For the 1983 SCF, I have used the so-called "Full Sample 1983 Composite Weights" because this set of weights provides the closest correspondence between the national balance sheet totals derived from the sample and the those in the Federal Reserve Board Flow of Funds. For the same reason, results for the 1989 SCF are based on the average of SRC-Design-S1 series (X40131 in the database itself) and the SRC Designed Based weights (X40125); and results for the 1992, 1995, and 1998 SCF rely on the Designed-Base

² Three studies conducted by the Federal Reserve Board -- Kennickell and Woodburn (1992) for the 1989 SCF; Kennickell, McManus, and Woodburn (1996) for the 1992 SCF; and Kennickell and Woodburn (1999) for the 1995 SCF -- discuss some of the issues involved in developing these weights.

Weights (X42000) -- a partially design-based weight constructed on the basis of original selection probabilities and frame information and adjusted for nonresponse.³ In the case of the 1992 SCF, this set of weights produced major anomalies in the size distribution of income for 1991. As a result, I have modified the weights somewhat to conform to the size distribution of income as reported in the Internal Revenue Service's Statistics of Income (see Wolff, 2002, for details on the adjustments).

The Federal Reserve Board imputes information for missing items in the SCF. However, despite this procedure, there still remain discrepancies for several assets between the total balance sheet value computed from the survey sample and the Flow of Funds data. As a result, the results presented below are based on my adjustments to the original asset and liability values in the surveys. This takes the form of the alignment of asset and liability totals from the survey data to the corresponding national balance sheet totals. In most cases, this entails a proportional adjustment of reported values of balance sheet items in the survey data (see Wolff, 2001 for details).⁴ It should be noted that the alignment has very little effect on the measurement of wealth inequality -- both the Gini coefficient and the quantile shares. However, it is important to make these adjustments when comparing changes in mean wealth both overall and by asset type.

4. Accounting Framework

The principal wealth concept used here is marketable wealth (or net worth), which is defined as the current value of all marketable or fungible assets less the current value of debts. Net worth is thus the difference in value between total assets and total liabilities or debt. Total assets are defined as

³ The 1998 weights are actually partially Design-Based weights (X42001), which account for the systematic deviation from the CPS estimates of homeownership rates by racial and ethnic groups.

⁴ The adjustment factors by asset type and year are as follows:

	1983 SCF	1989 SCF	1992 SCF	1995 SCF
Checking Accounts	1.68			
Savings and Time Deposits	1.50			
All Deposits		1.37	1.32	
Financial Securities	1.20			
Stocks and Mutual Funds	1.06			
Trusts		1.66	1.41	1.45
Stocks and bonds				1.23
Non-Mortgage Debt	1.16			

No adjustments were made to other asset and debt components, or to the 1998 SCF.

the sum of: (1) the gross value of owner-occupied housing; (2) other real estate owned by the household; (3) cash and demand deposits; (4) time and savings deposits, certificates of deposit, and money market accounts; (5) government bonds, corporate bonds, foreign bonds, and other financial securities; (6) the cash surrender value of life insurance plans; (7) the current market value of Defined Contribution pension plans, including IRAs, Keogh, and 401(k) plans; (8) corporate stock and mutual funds; (9) net equity in unincorporated businesses; and (10) equity in trust funds. Total liabilities are the sum of: (1) mortgage debt, (2) consumer debt, including auto loans, and (3) other debt.

I use the symbol HDW to refer to standard net worth, because it indicates the "disposable" wealth that households have available. It should be stressed that the standard definition of net worth includes the market value of DC pension plans. We shall return to this point later on in the paper.

This measure reflects wealth as a store of value and therefore a source of potential consumption. The assumption is that this concept best reflects the level of well being associated with a family's holdings. Thus, only assets that can be readily converted to cash (that is, "fungible" ones) are included. As a result, consumer durables, such as automobiles, televisions, furniture, household appliances, and the like, are excluded here since these items are not easily marketed or their resale value typically far understates the value of their consumption services to the household.

I also use a more restricted concept of wealth, which I call "financial wealth." This is defined as net worth minus net equity in owner-occupied housing. Financial wealth is a more "liquid" concept than marketable wealth, since one's home is difficult to convert into cash in the short term. It thus reflects the resources that may be immediately available for consumption or various forms of investments.

A. Defined Benefit Pension Wealth and Social Security Wealth

The imputation of both pension and Social Security wealth involves a large number of steps, which is summarized below. Greater details can be found in the Appendix.

Pension Wealth: For retirees (r) the procedure is straightforward. Let PB be the pension benefit currently being received by the retiree. The SCF questionnaire indicates how many pension

plans each spouse is involved in and what the expected (or current) pension benefit is. The SCF questionnaire also indicates whether the pension benefits remain fixed in nominal terms over time for a particular beneficiary or is indexed for inflation. In the case of the former, the (gross) Defined Benefit pension wealth is given by:

$$(1a) \quad DB_r = \int_0 PB(1 - m_t)e^{-\delta t} dt$$

where m_t is the mortality rate at time t conditional on age, gender, and race; δ the nominal discount rate, for which the (nominal) 10-year treasury bill rate is used; and the integration runs from the current year to age 109). In the latter case,

$$(1b) \quad DB_r = \int_0 PB(1 - m_t)e^{-\delta^* t} dt$$

and δ^* is the real 10-year treasury bill rate, estimated as the current nominal rate less the Social Security Plan II-B assumption of 4.0 percent annual increase of the Consumer Price Index (CPI).

Among current workers (w) the procedure is somewhat more complex. The SCF provides detailed information on pension coverage among current workers, including the type of plan, the formula used to determine the benefit amount (for example, a fixed percentage of the average of the last five year's earnings), the retirement age when the benefits are effective, the likely retirement age of the worker, and vesting requirements. Information is provided not only for the current job (or jobs) of each spouse but for up to five past jobs as well. On the basis of the information provided in the SCF and on projected future earnings (see the Appendix for details), future expected pension benefits (EPB_w) are then projected to the year of retirement or the first year of eligibility for the pension. Then the present value of pension wealth for current workers (w) is given by:

$$(2) \quad DB_w = \int_{LR} EPB(1 - m_t)e^{-\delta t} dt$$

where RA is the expected age of retirement and $LR = A - RA$ is the number of years to retirement. As above, and the integration runs from the expected age of retirement to age 109.⁵

⁵ Technically speaking, the mortality rate m_t associated with the year of retirement is the probability of surviving from the current age to the age of retirement.

Social Security Wealth: For current Social Security beneficiaries (r), the procedure is again straightforward. Let SSB be the Social Security benefit currently being received by the retiree. Again, the SCF provides information for both husband and wife. Since Social Security benefits are indexed for inflation, (gross) Social Security wealth is given by:

$$(3) \quad SSW_r = \int_0^{\infty} SSB(1 - m_t)e^{-\delta^*t} dt$$

where it is assumed that the current social security rules remain in effect indefinitely.⁶

The imputation of Social Security wealth among current workers is based on the worker's projected earnings history estimated by regression equation (see the Appendix for details). The steps are briefly as follows, First, coverage is assigned based on whether the individual expects to receive Social Security benefits and on whether the individual was salaried or self-employed. Second, on the basis of the person's earnings history, the person's Average Indexed Monthly Earnings (AIME) is computed. Third, on the basis of existing rules, the person's Primary Insurance Amount (PIA) is derived from AIME. Fourth, Social Security wealth for current workers is given by

$$(4) \quad SSW_w = \int_{LR}^{\infty} PIA(1 - m_t)e^{-\delta^*t} dt .$$

As with pension wealth, the integration runs from the expected age of retirement to age 109.⁷

Estimates will be provided for the following components of household wealth:

$$(5) \quad HDW = HDWX + DC$$

where DC is the current market value of Defined Contribution pension plans and $HDWX$ is marketable household wealth excluding DC . HDW corresponds to marketable wealth or net worth. Total pension wealth, $PW<$ is given by:

$$(6) \quad PW = DC + DB$$

Retirement wealth RW is the sum of total pension wealth and social security wealth:

⁶ Separate imputations are performed for husband and wife and an adjustment in the Social Security benefit is made for the surviving spouse. See the Appendix for details.

⁷ As with pension wealth, the mortality rate m_t associated with the year of retirement is the probability of surviving from the current age to the age of retirement.

$$(7) \quad RW = PW + SSW$$

Augmented household wealth, AW, is then given by

$$(8) \quad AW = HDWX + RW.$$

5. Trends in Standard Measures of Household Wealth.

Perhaps, the most striking result from Table 1 is that median wealth was only 4 percent greater in 1998 than in 1989. After rising by 7 percent between 1983 and 1989, median wealth dipped by 17 percent from 1989 to 1995 and then rose by a robust 24 percent from 1995 to 1998. Mean wealth also showed a sharp increase from 1983 to 1989, by 15 percent, followed by a somewhat smaller gain of 11 percent from 1989 to 1998. The latter figure compares to a 4 percent gain in median wealth over the 1989-1998 period.⁸ However, like median wealth, mean wealth declined sharply from 1989 to 1995 before recovering in 1998.

The time pattern is very similar for household income, based on Current Population Survey (CPS) data (Panel C). Median household income, after surging by 11 percent between 1983 and 1989, increased by an anemic 2 percent from 1989 to 1998. Here, again, we see that median income fell rather sharply from 1989 to 1995 before recovering in 1998. Mean income climbed by 16 percent from 1983 to 1989 and another 8 percent in the ensuing nine years. It, too, fell between 1989 and 1992 but then recovered to its 1989 level by 1995.

In contrast, financial wealth shows a very different pattern (Panel B). Median financial wealth actually grew faster in the 1990s than in the 1980s. It rose by 18 percent between 1983 and 1989, then plummeted by 24 percent from 1989 to 1995, and then climbed by 51 percent between 1995 and 1998, for a net gain of 28 percent between 1989 and 1998. Mean financial wealth grew only slightly slower in the second time period. After increasing by 18 percent from 1983 to 1989, it declined by 8 percent between 1989 and 1995, and then jumped in 1998, for a net gain of 17 percent between 1989 and 1998.

As noted in the Introduction, I was surprised by the robust performance of financial wealth over the 1990s. However, looking at Panel C of Table 1 we see the important role played by DC pension wealth, which forms part of both net worth HDW and financial wealth. If DC pension

⁸ The time trend is very similar when the unadjusted asset values are used instead of my adjusted values and when the value of vehicles is included in net worth. Similar results can also be derived from the estimates provided by Kennickell and Woodburn (1999) for 1989 and 1998.

wealth is excluded from net worth, then median wealth actually declined sharply over the 1990s, by 17 percent, while mean wealth fell slightly, by one percent. The rapid accumulation of DC pension wealth thus helped maintain household savings over the 1990s. We shall return to this point later in the paper.

Table 2 shows trends in both wealth and income inequality. It is most useful to begin with the income trends (Panel C). Household income inequality, based on CPS data, increased between 1983 and 1989, with the share of the top five percent rising by 2.5 percentage points, while the share of the next fifteen percent and that of the bottom four quintiles all fell.⁹ The Gini coefficient rose from 0.414 to 0.431 over this period. Between 1989 and 1998, the share of the top five percent rose by another 2.8 percentage points while the next fifteen percent and the bottom four quintiles again lost ground, so that the Gini coefficient again increased, from 0.431 to 0.456. All told, according to the CPS figures, there was no abatement in the growth of inequality in the 1989-1998 period compared to 1983-1989.

The trends are different for wealth. As shown in Panel A, wealth inequality rose steeply between 1983 and 1989. The share of wealth held by the top 1 percent rose by 3.6 percentage points from 1983 to 1989, and the Gini coefficient increased from 0.80 to 0.83. However, between 1989 and 1998, the share of the top percentile grew by a more moderate 0.7 percentage points. The share of the next 9 percentiles fell by 0.4 percentage points and that of the bottom two quintiles grew by 0.9 percentage points, so that overall, the Gini coefficient actually fell from 0.83 to 0.82.

The trend is similar for the inequality of financial wealth. The share of the top one percent gained 4.0 percentage points and the Gini coefficient increased from 0.89 to 0.93 between 1983 and 1989. In the ensuing nine years, the share of the richest one percent grew by another 0.4 percentage points but the share of the next 19 percentiles declined, as did the share of the second quintile, and that of the bottom two quintiles grew by 1.3 percentage points, so that overall financial wealth inequality declined, with the Gini coefficient falling from 0.93 to 0.89.

However, when we now exclude DC pension wealth from net worth, we find that inequality in wealth actually rose over the 1990s (see Panel C). The share of the top one percent gained 2.5 percentage points and the share of the top quintile 1.4 percentage points between 1989 and 1998,

⁹ The CPS tabulations published by the U.S. Bureau of the Census do not include the income shares of the top percentile.

and the Gini coefficient rose by 0.007 points. Here, too, the accumulation of DC pension wealth helped to moderate wealth inequality over the 1990s.

Table 3 changes in the composition of household wealth. I begin with the overall portfolio composition of household wealth. In 1998, owner-occupied housing was the most important household asset in the breakdown shown in this breakdown, accounting for 29 percent of total assets. However, net home equity -- the value of the house minus any outstanding mortgage -- amounted to only 18 percent of total assets. Real estate, other than owner-occupied housing, comprised 10 percent, and business equity another 18 percent.

Liquid assets, including demand deposits, time deposits, money market funds, CDs, and the cash surrender value of life insurance made up 10 percent; pension accounts amounted to 12 percent; and bonds and other financial securities, corporate stock and mutual funds, and trust equity added up to 20 percent. Debt as a proportion of gross assets was 15 percent, and the debt-equity ratio (the ratio of total household debt to net worth) was 0.18.

There have been some notable changes over time in the composition of wealth. The most important from the standpoint of this paper is that DC pension accounts rose from 1.5 to 11.6 percent of total assets between 1983 and 1998, with almost the entire gain occurring after 1989. This increase almost exactly offset the decline in liquid assets, from 17.4 to 9.6 percent -- again, with almost all of the change occurring after 1989. Though there is no direct econometric evidence of substitution, the explosion in the use of various pension type accounts, like IRAs, 401(k) plans, and other thrift plans appears to have allowed households to substitute tax-free pension accounts for taxable savings deposits, rather than increasing overall family savings.

A second notable trend is the rising indebtedness of American families, with the debt-equity ratio, as noted above, leaping from 15.1 to 17.6 percent between 1983 and 1998. The principal source of these increases, contrary to popular wisdom, is not rising consumer debt, like credit card balances. In fact, non-mortgage debt as a fraction of total assets fell from 6.8 to 4.2 percent over the period from 1983 to 1998.

Rather, the primary source is rising mortgage debt, including home equity loans and second mortgages, which climbed from 6.3 to 10.7 percent of total assets. Indeed, mortgage debt as a share of the value of homeowner's property increased from 21 to 37 percent. Whereas the total market value of homes remained almost constant as a share of total assets over this period, net home equity plummeted from 24 to 19 percent of total assets. This occurred while, according to the SCF data,

the homeownership rate (the percent of households owning their own home) rose from 63.4 percent in 1983 to 66.3 percent in 1998. One implication is that families are now using tax-sheltered mortgages and home equity loans to finance normal consumption rather than consumer loans and other traditional forms of consumer debt.

A third important change is that the share of corporate equities and mutual funds in total assets, after falling from 9.0 to 6.9 percent between 1983 and 1989, grew steadily thereafter to 14.8 percent in 1998. This shift, in part, reflects the surge in stock prices during the 1990s. This result, in fact, does not even reflect the full extent of the growth in corporate stock holdings, because stocks are also indirectly held in mutual funds, pensions accounts, and trust funds. If these are included, then corporate stocks, both directly and indirectly owned by households, after falling slightly between 1983 and 1989, from 11.3 to 10.2 percent, more than doubled to 22.6 percent of total assets in 1998.¹⁰

Fourth, the proportion of total assets in the form of other (non-home) real estate fell off sharply, from 15 percent in 1983 to 10 percent in 1998, as did financial securities, from 4.2 to 1.8 percent. Business equity fell slightly as a share of gross wealth over this period. These declines were largely offset by a rise in the share of corporate stock in total assets, noted above, from 9.0 to 14.8 percent.

The tabulation in Table 3 provides a picture of the average holdings of all families in the economy, but there are marked class differences in how middle-class families and the rich invest their wealth. As shown in Table 4, the richest one percent of households (as ranked by wealth) invested almost 80 percent of their savings in investment real estate, businesses, corporate stock, and financial securities in 1998. Corporate stocks, either directly owned by the households or indirectly owned through mutual funds, trust accounts, or various pension accounts, comprised 29 percent by themselves. Housing accounted for only 8 percent of their wealth, liquid assets another 5 percent, and pension accounts 7 percent. Their ratio of debt to net worth was 3 percent and their ratio of debt to income was 49 percent.

Among the next richest 19 percent of U.S. households, housing comprised 29 percent of their total assets, liquid assets another 11 percent, and pension assets 15 percent. Forty-three

¹⁰ It should be noted that these figures do not include stocks held in pension funds run by corporations, banks, other financial institutions, and labor unions. Technically, these securities are directly owned by the institutions that administer them and therefore are not in the direct control of individuals.

percent of their assets took the form of investment assets -- real estate, business equity, stocks, and bonds -- and 24 percent was in the form of stocks directly or indirectly owned. Debt amounted to 13 percent of their net worth and 90 percent of their income.

In contrast, about 60 percent of the wealth of the middle three quintiles of households was invested in their own home in 1998. Another 24 percent went into monetary savings of one form or another and pension accounts. Together housing, liquid assets, and pension assets accounted for 84 percent of the total assets of the middle class. The remainder was about evenly split among non-home real estate, business equity, and various financial securities and corporate stock. Stocks directly or indirectly owned amounted to only 11 percent of their total assets. The ratio of debt to net worth was 51 percent, much higher than for the richest 20 percent, and their ratio of debt to income was 102 percent, also higher than the top quintile.

There is remarkable stability in the composition of wealth by wealth class between 1983 and 1998. The most notable change is a substitution of pension assets for liquid assets -- a transition that occurred for all three wealth classes. The share of stocks directly or indirectly owned in total assets increased by 8 percentage points among the richest one percent, by 15 percentage points among the next richest 19 percent and by 9 percentage points for the middle three quintiles.

6. Pension Wealth

Table 5 highlights trends in both mean and median pension wealth over the 1983-1998 period. The share of all households with DC pension accounts skyrocketed over the period, from 11 to 49 percent, or by 38 percentage points. The story is very similar for the three different age groups shown in Table 5: ages 46 and under, ages 47-64, and ages 65 and over. The proportion holding pension accounts advanced by 38 percentage points in age group 46 and under, by 48 percentage points among households in age group 47-64, and by 30 percentage points among elderly households. In 1998, about 60 percent of households in the age range of 47 to 64 held some form of DC account, compared to 32 percent of elderly households and 52 percent of younger households. Most of the gains occurred after 1989.

There were also huge increases in the average holdings of DC pension accounts. Among all households, the average value of these accounts increased ten-fold between 1983 and 1998, from \$3600 (in 1998 dollars) to \$48.8 thousand. Among age group 46 and under the increase was by a factor of 8.1 and among age group 47-64 the gain was by a factor of 8.4, while among elderly

households, the rise was by a factor of 18.3. Here, too, most of the growth occurred after 1989. In 1998, mean DC pension wealth was greatest among age group 47-64, at \$69.2 thousand, second highest among elderly households, at \$32.3 thousand, and lowest among the youngest age group, at \$21.4 thousand.

Opposite trends are apparent for Defined Benefit (DB) pension wealth. The share of all households with DB pension wealth fell by 17 percentage points between 1983 and 1998, from 53 to 35 percent (see Panel C). Among households in age group 47-64, the decline was even more precipitous -- by 27 percentage points, from 69 to 42 percent -- while among elderly households the proportion fell by 16 percentage points and among young households, by 7 percentage points. In 1998, while slightly over half of elderly households held some form of DB pension wealth, only 42 percent of households in age group 47-64 and only 25 percent among young households recorded DB entitlements. Most of the loss in coverage occurred during the 1989-98 period.

Similar trends are evident for the average value of DB pension wealth (see Panel D). Among all households, the mean value fell by 30 percent between 1983 and 1998, from \$51,000 (in 1998 dollars) to \$35,600. Losses were particularly marked for age group 47-64, who saw their mean DB pension wealth decline by 39 percent between 1983 and 1998, and for younger households, whose average DB wealth fell by 57 percent. However, the valuation of pension rights among younger workers has to be interpreted cautiously, since these are based on projected benefits in 20 to 40 years.¹¹ However, the average value of DB plans actually rose by 36 percent among elderly household over this period. In contrast to DC pensions, the average value of DB pension wealth was highest among elderly households -- \$75,900 in 1998 -- compared to \$52,700 among middle-aged households and only \$9,200 among young households.

We can now consider one of the issues raised in the Introduction: Has the spread of DC type pension plans adequately compensated for the decline in traditional DB pension coverage? The results indicate that the answer is "yes." Average pension wealth PW (the sum of DC and DB pensions) increased for all age groups between 1983 and 1998 (see Panel F). Among all households, the mean value of total pension wealth PW climbed by 33 percent. Among those in both age groups 46 and under and 47-64, the mean value increased by 29 percent, with all the

¹¹ Moreover, there is a large number of missing values for this age group in the 1983 SCF data.

growth occurring after 1989, while among elderly households the mean value jumped by 89 percent, with the gains about evenly split before and after 1989.

The percentage of all households covered by either a DC or a DB plan increased from 54.4 to 64.6 percent between 1983 and 1998 (see Panel E). Among the 47-64 age group, the proportion rose by 3.5 percentage points, to 73.7 percent in 1998, while among the elderly, the share fell by 3.0 percentage points, down to 64 percent in 1998. The biggest rise occurred among younger households, whose proportion surged from 35.6 to 60.0 percent. The share of households covered by pensions in 1998 was 74 percent among the middle-aged, compared to 64 percent among the elderly and 60 percent among the youngest age group.

The story is not quite as positive when we look at trends in median pension wealth (see Panels G and H). Among all households, median pension wealth PW more than doubled between 1983 and 1998, from \$4,500 to \$11,100. However, much of this is a result of increased pension coverage. When the sample is limited to those households with positive pension wealth, the median actually fell by 21 percent, from \$59,200 to \$47,000, over the period. The story is similar for young and middle-aged households. Among the former, median pension wealth increased from zero to \$4,000 over the period, while among young pension wealth holders, the median declined by 8 percent. Among the latter, the median gained by 3 percent, while among middle-aged households who hold pension wealth, the median fell by 3 percent. The pattern is different among the elderly. The overall median increased by 8 percent, while the median among elderly pension wealth holders climbed by 63 percent.

In Table 6, I investigate trends in the inequality of pension wealth. I use a standard Gini coefficient for this purpose. I again consider dispersion among all households within an age group and among pension holders only within the age group. Inequality of DC pension wealth fell over the period from 1983 to 1998. This occurred among all households and among DC pension holders alone and among all age groups except among elderly households who held DC pension accounts. The decline was fairly uniform both before and after 1989.

However, the level of inequality in DC pension wealth was still very high in 1998, even among DC account holders alone. The Gini coefficient among all DC pension account holders was 0.721 in 1998. This compares to a Gini coefficient for net worth of 0.822. Inequality among DC account holders within age group was almost as great as among all DC account holders. This result

accords with media accounts of a large divide in the value of 401(k) plans between executives and staff workers in large corporations (see, for example, Leonhardt, 2002).

In contrast, the dispersion in traditional DB pension wealth trended upward over the 1983-1998 period. Among all households, the Gini coefficient climbed from 0.766 to 0.857 and among DB pension wealth holders, it grew from 0.555 to 0.594. The majority of the increase in inequality took place before 1989 (among DB holders, inequality actually declined between 1989 and 1998). Among middle-aged households, DB pension wealth inequality climbed sharply among all households in this group (by 0.132) but rose very modestly among DB holders. Among the elderly, the Gini coefficients rose very strongly among all households in this group (by 0.110) and more modestly among DB holders alone (by 0.050). In contrast, DB wealth inequality remained steady among all young households and declined by 0.099 points among DB pension wealth holders in this group.

In terms of inequality level, DB wealth inequality was appreciably lower among elderly households than among young or middle-aged households. Moreover, DB pension wealth inequality was considerably lower among DB pension wealth holders than the inequality in DC pension accounts among holders of DC plans. Not surprisingly, the switchover from DB pension plans to DC pension plans has resulted in an upsurge in pension wealth inequality.

This trend is documented in Panels E and F of Table 6. Among all households, the Gini coefficient for total pension wealth PW rose by 0.034 from 0.749 to 0.782, while among pension wealth holders, the gains were even more striking, by 0.127, from 0.537 to 0.664. In this case, all the increase in pension wealth inequality took place before 1989 and inequality moderated after 1989 (except among middle-aged households) Pension wealth inequality grew among both middle-aged and elderly households, though it fell off among the younger households.

Figure 1 provides a look at the cumulative distribution of pension wealth among all households in 1983 and 1998. Because the percentage of households with positive pension wealth expanded over the period from 54.4 to 64.6, the 1983 cumulative distribution initially lies above the 1998 cumulative distribution. However, what is striking is that at a pension wealth level of \$50,000 (in 1998 dollars) the two distributions cross and the 1983 distribution overtakes the 1998 distribution after this point. In other words, despite the gains in the share of households with some pension wealth, a lot of these had very small amounts of pension wealth in 1998 (perhaps, an IRA of a few thousand dollars).

Table 7 (and Figure 2a) provide further details on the change in the distribution of pension wealth among all households over the 1983-1998 period. At lower percentile levels up to and including the median, there were large gains in pension wealth over the period, reflecting the increase in the share of households with any pension wealth. Between percentiles 60 and 90, the percentage increase in pension wealth ran from 14.7 to 18.7 percent. However, the percentage increase in pension wealth was 23.3 percent at the ninety-fifth percentile and an even more dramatic 43.0 percent at the ninety-ninth percentile. These results illustrate that the largest growth of pension wealth occurred at the top of the pension wealth distribution.

Results are even more dramatic for middle-aged households (Figure 2b) and elderly households (Figure 2c). Among the former, the share with positive pension wealth grew from 70.2 to 73.7 percent over the period, so that percentage gains in pension wealth were very high at lower percentiles. However, pension wealth at the fortieth percentile fell by a substantial 16 percent and pension wealth at percentiles 50 to 70 gained less than 3 percent. In contrast, percentage gains in pension wealth increased from 19 percent at percentile 80 to a striking 57 percent at percentile 99. The pattern is quite similar among elderly households. Pension wealth actually fell quite sharply at the fortieth percentile, by 51 percent. Percentage gains in pension wealth then rose monotonically by percentile, from 8 percent at the median to a huge 129 percent at the ninetieth percentile. The results rather convincingly display that the size distribution of pension wealth, particularly among middle-aged and elderly households, substantially widened over the years from 1983 to 1998.

Another cut at this issue is provided in Table 8 and Figures 3a-3c, which shows average pension wealth by net worth (HDW) percentile level instead of by pension wealth percentile.¹² However, the story is very similar, with gains in pension wealth splaying out by net worth percentile level. Among all households, the bottom 40 percentiles experienced a net decline in pension wealth over the period, ranging from 21 to 60 percent. At the median pension wealth grew by 8.7 percent – somewhat less than the 11.1 percent gain in median net worth over the period. Pension wealth growth was also modest at percentiles 60 and 70. However, things picked up after this point, with pension wealth climbing by 40 percent at percentile 80, 62 percent at percentile 90, and over 150 percent at percentiles 95 and 99.

¹² It should be noted that the net worth concept used here includes DC pension accounts, so that the two are not independent. However, I show pension wealth by net worth percentile because it is the most conventional category to use.

The pattern is very similar among middle-aged and elderly households, with gains at the upper percentile levels far outstripping gains at the middle percentiles. Among middle-aged households, pension wealth generally declined among the bottom **60 percentiles** of the net worth distribution. Indeed, pension wealth fell by a huge 23 percent at median net worth. Percentage gains in pension wealth here too rose almost monotonically with net worth level, from 25 percent at percentile 70 to 150 percent at percentile 99. Among elderly households pension wealth generally fell down among the bottom 30 percentiles but rose very strongly at the fortieth percentile (more than doubling) and at the median (increasing by more than half and by even more than median net worth). However, gains in pension wealth were even stronger at the upper percentile levels, with pension wealth growing by 138 percent at percentile 90, **296 percent** at percentile 95, and **250 percent** at percentile 99. The strong correlation between the growth in pension wealth and net worth percentile level had direct implications for changes in the inequality of augmented wealth (see Section 6 below.)

7. Social Security and Total Retirement Wealth

In contrast to pension wealth, mean social security wealth declined by 16 percent among all households between 1983 and 1998 (see Table 9). Social security wealth first fell during the years 1983 to 1989 and then rebounded from 1989 to 1998. The average value of social security wealth fell by 13 percent among middle-aged households between 1983 and 1998 and by 8 percent among the elderly, though it did rise by 22 percent among young households. Likewise, median social security wealth fell by 20 percent among all households. It too first declined from 1983 to 1989 and then recovered somewhat in the 1989-1998 period. Households in the 47-64 age bracket saw their median social security wealth decline by 19 percent over the full 1983-1998 period, while elderly households experienced a 8 percent decline. In contrast, young households saw their median social security wealth climb by 18 percent.

Social security wealth averaged \$98,600 in 1998. This compares to a mean net worth figure of \$270,300 and mean pension wealth of \$72,600. Median social security wealth in 1998 was \$82,700 – close to that of mean social security wealth. This suggests a normal or close to normal distribution of social security wealth. Moreover, median social security wealth was higher than median net worth (\$60,700) and median pension wealth (\$11,000). Mean and median social security wealth among middle-aged households were comparable to those among elderly

households and about two-thirds greater than that among young households. The smaller social security wealth among the young relative to the middle-aged largely reflects the greater discount factor applied to future social security benefits (the higher number of years left before retirement)

The inequality of social security wealth is much lower than that of net worth or pensions. In 1998, the Gini coefficient for social security wealth among all households was 0.39, compared to 0.82 for net worth and 0.78 for pension wealth. In this case, inequality in social security wealth fell over the 1983-1998 period, with the Gini coefficient falling from 0.46 to 0.39. The Gini coefficient actually declined very steeply from 1983 to 1989, by 0.11 points, and then trended upward by 0.04 points from 1989 to 1998. The Gini coefficient for social security wealth also fell sharply for both young and elderly households over the 1983-1998 period but declined slightly among middle-aged households.

More details on the distribution of social security wealth are provided in Tables 10 and Figures 4a-4c. At lower percentile levels, there were large gains in social security wealth between 1983 and 1998 among all households, reflecting the gain in social security coverage from 82 to 98 over the period. However, by the thirtieth percentile, social security wealth was down by 5 percent between 1983 and 1998, and from the fortieth percentile to the top, social security wealth was down by a fairly uniform 20 percent. The patterns are very similar for middle-aged and elderly households.

Total retirement wealth is the sum of DC pensions, DB pension wealth, and social security wealth. Among all households, mean retirement wealth was about the same in 1998 as in 1983 (see Panel D of Table 9). This reflected a steep drop in retirement wealth between 1983 and 1989 and an almost equal recovery between 1989 and 1998. Moreover, mean retirement wealth was actually up in each of the three age groups over the 1983-1998 period: by 24 percent among young households, by 4 percent among middle-aged ones, and by 21 percent among the elderly. In contrast, median retirement wealth among all households fell by 25 percent between 1983 and 1998 (see Panel E of Table 9). There was again a steep decline in median retirement wealth between 1983 and 1989 followed by a sizeable recovery between 1989 and 1998 but the net change was negative. Among young households, it was down by 10 percent over the 1983-1998 period and among middle-aged ones by 11 percent. However, median retirement wealth gained 4 percent among the elderly.

The inequality of retirement wealth lies between that of social security wealth on the one hand and both pension wealth and net worth on the other hand. In 1998, the Gini coefficient for retirement wealth among all households was 0.50, compared to 0.39 for social security wealth, 0.78 for pension wealth, and 0.82 for net worth. The main news here is a sharp rise in the inequality of retirement wealth over the 1983 to 1998 period. Among all households, the Gini coefficient increased by 0.066 points, among middle-aged households by 0.078 points, and among the elderly by 0.095 points. The only exception was young households, for whom the Gini coefficient declined by 0.078 points.¹³

Table 11 provides a breakdown of mean retirement wealth by wealth (net worth) class. It is apparent that there is a strong correlation between net worth and retirement wealth. Among all households aged 47 and over, mean retirement ranged from a low of \$105 thousand for the lowest wealth class to \$581 thousand for the top wealth class in 1998 -- almost a sixfold difference. Even more striking is the fact that mean retirement wealth declined among the five lowest wealth classes (up to a net worth of \$500,000) whereas it increased in the top two wealth classes. Indeed, it surged by 44 percent for the top wealth class (\$1,000,000 or more in net worth). Results are very similar for age groups 47-64 and 65 and over.

8. Augmented Wealth

Table 12 provides figures on the trend in both mean and median augmented wealth over the 1983 to 1998 period. We begin by recapitulating trends in net worth over the period. Among all households, mean net worth rose by 17 percent, while median net worth increased by 11 percent. If we next add pension wealth to net worth (actually, to HDWX), then the mean value was up by 16 percent, compared to 27 percent for net worth, and the median value was down by a very sharp 22 percent. Among middle-aged households, the mean value of the net worth plus pensions rose by 16 percent, compared to a 30 percent increase in net worth, whereas the median value of net worth plus pensions plummeted by 14 percent, compared to an 11 percent gain in net worth. Among elderly households, the mean value of the sum of the two components rose by 16 percent, compared

¹³ Here, again, some caution should be exercised with regard to retirement wealth figures for young households, particularly because of a large number of missing values in the 1983 data.

to a 12 percent rise in net worth, while the median grew by 26 percent, as opposed to a 43 percent increase in net worth.

If we next add social security wealth to net worth (actually, HDWX), we find much smaller increases in the mean value of the sum of the two in comparison to net worth both among all households as well as among middle-aged and elderly households. The median value of the sum of net worth and social security wealth, on the other hand, was down 32 percent in 1998 compared to 1983 among all households and by 13 percent among middle-aged households, though it held steady among the elderly.

Augmented wealth is the sum of net worth, pension wealth, and social security wealth. It rose by only 6 percent over the 1983-1998 period among all households, compared to a 27 percent advance in net worth. Among middle-aged households, mean augmented wealth was up only 8 percent, compared to a 30 percent rise in net worth, while among the elderly the former rose by 10 percent, about the same amount as net worth. However, median augmented wealth plummeted by 34 percent among all households over the 1983-1998 period and by 16 percent among the middle-aged, though it did advance 8 percent among the elderly (though still much less than its 43 percent increase in median net worth).

Finally, in Table 13, we consider the effects of retirement wealth on overall wealth inequality. In 1998 the Gini coefficient for net worth was 0.822 among all households. Adding pension wealth to net worth results in a modest decline of the Gini coefficient of only 0.03 points, from 0.822 to 0.791. This is due to both the high level of pension wealth inequality in the population and the high correlation of pension wealth with marketable net worth. However, adding social security wealth to net worth results in a sizeable reduction in the Gini coefficient of 0.16 points, from 0.822 to 0.667. This reflects both the much lower level of inequality in social security wealth than in marketable wealth, as well as its relatively low (though positive) correlation with net worth. Finally, adding both pension wealth and social security wealth to net worth results in an only very modest further reduction of the Gini coefficient to 0.657. The main equalizing effect of retirement wealth comes from social security, not private pensions. Results are very similar for the three age groups.

However, looking over time, we find as our main result that the equalizing effect of retirement wealth has mitigated over the 1983-1998 period. Whereas the Gini coefficient for net worth advanced by 0.024 points over the 1983-1998 period among all households, the Gini

coefficient for the sum of net worth and pension wealth gained 0.045 points and that for the sum of net worth and social security wealth grew by 0.036 points, while the Gini coefficient for augmented wealth advanced by 0.067. The results are sharpest for middle-aged households. For them, the Gini coefficient for net worth increased by 0.031, that for net worth plus pensions by 0.073, that for the sum of net worth and social security wealth by 0.061, and that for augmented wealth by 0.080.

9. Conclusion

The 1980s and 1990s have witnessed the devolution of the traditional Defined Benefit pension system in favor of Defined Contribution pension coverage. In general, middle-aged and elderly Americans have seen marked improvements in both the mean and median levels of their marketable net worth over the period 1983 to 1998. On the other hand, traditional Defined Benefit pension coverage declined over the period from 1983 to 1998. The share of households in age group 47 and over covered by a DB plan fell by 22 percentage points, from 68% in 1983 to 46% in 1998. Mean DB pension wealth for age group 47 and over also decreased, from \$74,000 to \$63,000. Average DC pension wealth, on the other hand, skyrocketed for this age group. By 1998, about 60% of households in age groups 47 to 64 held some form of DC type pension plan, as did about 40% of households in age groups 65 and older.

The rise of DC pensions plans more than fully compensated for the loss of DB type pension plans over the 1983-1998 period in terms of average values. Mean total pension wealth (the sum of DB plus DC wealth) increased by 47% in real terms between 1983 and 1998 among households in age group 47 and over. The share of households aged 47 and over covered by either a DB or a DC pension plan also grew slightly over the period, from 68.9 to 69.5.

However, mean social security wealth for ages 47 and over fell over the period by 11%, from \$138,400 in 1983 to \$123,200 in 1998. Still, mean retirement wealth increased by 10% over the 1983-1998 period among households aged 47 and over. All told, mean augmented wealth grew by 9% among households in age group 47 and over, from \$555,800 in 1983 to \$604,600 in 1998.

However, the story looks somewhat different when we look at trends in median values. Among households in age group 47 and over, median retirement wealth showed a 7% decline, from \$184,200 in 1983 to \$171,600 in 1998. Median retirement wealth fell by 11% among age group 47-

64, though it did increase by 4% among the elderly. Moreover, among households in age group 47 and over, median net worth excluding DC pension plans grew by only 2% between 1983 and 1998. Indeed, among age group 47-64, it fell by 17% but rose by 34% among the elderly. Altogether, median augmented wealth fell by 9% among households aged 47 and over. Here, too, results differ greatly between the non-elderly and the elderly. Among those in age group 47-64, median augmented wealth plummeted by 16% between 1983 and 1998. Among the elderly, median augmented wealth increased by a modest 7% between 1983 and 1998.

Social security wealth continues to have a strong mitigating effect on overall wealth inequality, while private pension wealth has a very modest equalizing effect. However, pension wealth, social security wealth, and the sum of the two both have a weaker offsetting effect on wealth inequality in 1998 than in 1983. The results are particularly pronounced for households in age group 47 and over. Indeed, among the elderly, while the inequality of net worth declined over the 1983-1998 period, inequality in augmented wealth actually rose slightly.

In sum, I find that despite the proliferation of defined contribution plans at a time when the stock market experienced one of its longest bull runs in history, the well-being of the near-elderly and elderly did not improve generally. Indeed, median retirement wealth and median "augmented wealth" (the sum of traditional net worth and retirement wealth) actually deteriorated for middle-aged households over the 1983-1998 period, though both did improve somewhat among the elderly. This is true despite a large shift in the composition of private retirement wealth away from defined benefit (DB) plans toward defined contribution (DC) plans. Indeed, the devolution of the traditional pension system of the 1980s and 1990s has left many families unprepared to meet challenges of retirement. Despite the hype, switchover from DB to DC has not benefited average family -- it has hurt the average family instead.

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Appendix

Estimation of Pension and Social Security Wealth

I follow the methodology (with a few modifications indicated below for subsequent years) laid out in the 1983 Survey of Consumer Finances codebook. This allows consistency with the estimates of both pension and social security wealth already provided in the 1983 Survey of Consumer Finances. The computations of retirement wealth in 1983 followed the following steps:

A. Pension Wealth

Total gross pension wealth consists of two main components [fn: A third though minor component is also provided: pensions from other non-specified sources.]

1. (Gross) Present value of pensions from past jobs: The sum of the present value of past job pensions for head and spouse.
2. Gross present value of pensions from current jobs: The sum of the gross present value of current job non-thrift benefits for head and spouse. Expectations data used for calculations.

The procedure is as follows. Pension coverage is first ascertained for current jobs. There are five possible categories:

1. covered and vested, anticipates benefits.
2. covered but not vested yet, anticipates benefits.
3. covered but not vested yet, does not anticipate benefits.
4. not covered, anticipates will be. Age when expected to be covered is ascertained.
5. not covered, never will be.

For those who are covered by a pension plan or expect coverage, the person is asked how many distinct pensions plans he or she is covered by. For each plan, the age at which the pension benefits are expected to be given is then asked.

The actual expected annual retirement benefit is then determined by the following steps. First, the age at which the respondent will be vested in each plan is determined. Second, the age at which the respondent could retire with full benefits is ascertained. Third, the respondent was asked the nature of the formula used to determine the retirement benefits. There are six possibilities:

1. retirement formula based on age.
2. retirement formula based on years of service.
3. retirement formula based on meeting both age and years of service criteria.
4. retirement formula based on the sum of age and years of service.
5. retirement formula based on meeting either age or years of service criteria.

6. other combinations or formulas.

Fourth, the age at which the respondent could retire with some benefits was asked. The save six choices of the formula used was then given. Fifth, the age at which the respondent expected benefits to start was then asked.

Seventh, the expected retirement benefit was computed depending on the type of formula. This consists of three possibilities. (1) the annual pay in the final year of the job was computed. This variable, used in pension benefit calculations, is computed by projecting current pay to the year respondents say he/she will leave the job or retire. Wage growth is assumed to have three components: (i) occupation specific (adjusted for age) taken from the slopes in the CPS log-wage regressions (for high-income observations this is assumed to be zero); (ii) a Social Security Plan II-B assumption of 1.5% annual economy wide real wage growth; and (iii) a Social Security Plan II-B assumption of 4.0% inflation.

(2) In some cases, the respondent reported expected retirement benefits. This variable is the expected dollar retirement benefits in the first year of eligibility as answered by the respondent. For some observations the dollar amount was reported directly, but for others it was computed by multiplying reported benefits as a percentage times the calculated projected final wage. The variable is given as an annual amount except when a lump sum is expected (in which case the lump sum amount is given).

(3) In some cases, the respondent reported expected retirement benefits as a percent of final pay. This variable is the expected retirement benefits in the first year of eligibility as answered by the respondent, expressed as a percent of their projected wages in their final year of work. For some observations the percent was reported directly, but for others it was computed by dividing the reported dollar benefit by the calculated projected final wage.

Eighth, on the basis of the responses above, the present value of pension benefits from each current and past plan applicable to both head and spouse was then computed. This variable is measured assuming an annual (or lump sum) pension benefit as given above, starting in the year of first benefits. Benefits for that and each succeeding year are adjusted for the probability of death and are discounted back to 1983. Sex-based Social Security mortality tables are used to compute the probabilities of death (standard for each year). These are capped at 109 years. Spousal survival benefits are assumed to be opted for 75 percent the time and are randomly assigned when appropriate. Spousal survival benefits are also adjusted for death probabilities. Benefits are discounted at the 1983 long-term U.S. government bond rate of 10.85 percent.

Ninth, pension wealth was also computed for those individuals currently receiving pension benefits from past jobs. This was based on the following responses: (1) number of years receiving benefits and (2) amount of pension benefit pay received in 1982. For pensions already being received, the nominal value of the pension is assumed to be fixed, and is indexed to the year it started by the actual price changes observed as measured by the CPI. The present value of pension benefits from each job is then measured assuming an annual pension benefit as given starting in the year of first benefits (or 1983). Benefits for that and each succeeding year (adjusted for probability of receipt) are discounted back to 1983. Sex-based Social Security mortality tables are used to

compute the probabilities of dying each year and/or living to receive any benefits. These are capped at 109 years. Spousal survival benefits are assumed to be opted for 75 percent of the time and are randomly assigned when appropriate. Spouse mortality tables are also used. Benefits are discounted at the 1983 long-term U.S. Government bond rate of 10.85 percent.

B. Social Security Wealth

The gross present value of social security benefits is defined as: The sum of the gross present value of Social Security benefits for head and spouse. Social Security formula and current receipts used for calculations.

Among current Social Security benefit recipients, the steps are as follows: First, it was determined the kind of Social Security benefit received. The possibilities are:

1. retirement.
2. disability.
3. both retirement and disability.
4. other kind.

Second, the respondent was asked the number of years receiving Social Security benefits. Third, both head and spouse were asked the amount received in 1982.

Among future recipients, the steps are as follows. First, both head and spouse were asked to report the age at which they expected to receive Social Security benefits (zero if he or she does not expect benefits). Second, the age at which Social Security benefits were expected to start was asked. Third, the number of years until the start of Social Security benefits was determined. Fourth, the respondent was asked the total number of years on Social Security jobs to current date. If this was not answered, then an estimate of Social Security coverage was used, summing over current and the three possible past jobs. Fifth, an estimate of future years on Social Security jobs was computed from retirement years indicated by head and spouse.

Sixth, data on number of years on Social Security jobs, wage rates for each known job, estimates of retirement dates, and dates of starting benefits were used as inputs to Social Security formulas to compute benefits. Seventh, estimates of Social Security benefits were provided. A calculated value was based on current job wage. All persons were assumed to work continuously until their stated age of full-time retirement, and then part-time until their stated age of final retirement. All persons were assumed to retire no later than 72 or age + 1 if currently over 72. Persons not currently working and over 50 were assumed not to work again. Wages were calculated by projecting current wages by the same method used to calculate final wages. Wage growth was assumed to have three components: (1) occupation specific (adjusted for age) taken from the slopes in the CPS log-wage spline regressions; (2) a Social Security plan II-B assumption of 1.5 percent annual economy wide real wage growth; and (3) a Social Security plan II-B assumption of 4.0 percent inflation. Part-time years (if currently working full-time) were assigned wages equal to 1/2 the projected full-time wages or the maximum amount allowable for full benefit receipt allowed by Social Security, whichever was smaller.

Eighth, the Social Security AIME (Average Indexed Monthly Earnings) used as the basis of computing the Social Security benefit base. The variable is the average covered Social Security earnings per month (including zeros) for all years from 1951 or age 22 (which ever is later) to age 60. These are indexed by a Social Security wage index to the year respondent is 60. Years after 60 can be substituted at nominal value. The five lowest years are dropped before an average AIME is computed. These procedures are mimicked using the SCF data on job earnings and future retirement plans to estimate an AIME value. Past and current job wages are projected back (and forward) to estimate earnings for each known year of work. These projections assume within-occupation real wage adjustments as taken from the CPS regressions (see past/current job), and economy-wide productivity growth and inflation as occurred or is projected to occur under the Social Security plan II-B. Other years of unknown jobs are filled in with terms from the closest known job to fill in the total number of Social Security covered years. Wages are then capped at the actual or projected Social Security maximum and minimum coverage amounts. The AIME was then computed using actual or projected Social Security wage indices. The variable is currently estimated for all persons projected to have future Social Security benefits.

Ninth, the Social Security PIA (Primary Insurance Amount) on an annual basis is the basis of the calculation of Social Security benefits. It is computed from the AIME. In 1982 the monthly PIA was computed as 90 percent of the first \$254 of AIME plus 32 percent of the next \$1274 plus 15 percent of the amount above. Calculations here take account of legislatively planned changes in this formula. The PIA is currently computed for all non-receivers projected to have future Social Security benefits.

Tenth, the present value of Social Security benefits is then computed assuming an annual benefit as given by the PIA estimate and starting in the year of first benefits (or 1983). Benefits for that and each succeeding year (adjusted for probability of receipt) are discounted back to 1983. Sex-based Social Security mortality tables are used to compute the probabilities of dying each year and/or living to receive any benefits. These are capped at 109 years. Benefits are discounted at the 1983 long-term U.S. Government bond rate of 10.85 percent.

Eleventh, spousal benefits are also assumed at 50 percent of the primary benefit if a spouse is present. However, this variable will be zero if no spousal benefits are expected (such as when the individual's own benefits are larger than their spousal benefits). The age at which spousal benefits begin is estimated. Spouse mortality tables are also used for these calculations. The age at which widows benefits first could be drawn is also estimated. It is an estimate of the age at which the individual could start to receive Social Security widows benefits upon the death of their spouse. This variable will be zero if widows benefits could never be drawn. An adjustment is also made if it appeared that the recipient's benefits had been reduced because of work. Benefits are discounted at the 1983 long-term U.S. Government bond rate of 10.85 percent.

C. Modifications for years after 1983

A few changes were made in the procedures for computing both pension and social security wealth. First, the regression equations used to compute future earnings was modified as follows: Human capital earnings functions are estimated by gender, race, and schooling level. In particular, the sample is divided into 16 groups by the following characteristics: (i) white and Asian versus African-

American and Hispanic; (ii) male and female; and (iii) less than 12 years of schooling, 12 years of schooling, 13 to 15 years of schooling, and 16 or more years. For each group, an earnings equation is estimated as follows:

$$\text{Log}(E_i) = b_0 + b_1 \text{Log}(H_i) + b_2 X_i + b_3 X_i^2 + b_4 \text{SE}_i + \sum_j b_j \text{OCCUP}_{ij} + b_{10} \text{MAR}_i + b_{11} \text{AS}_i + \varepsilon_i,$$

where log is the natural logarithm; E_i is the current earnings of individual I ; H_i is annual hours worked in the current year; X_i is years of experience at current age (estimated as age minus years of schooling minus 5); SE_i is a dummy variable indicating whether the person is self-employed or working for someone else, OCCUP is a set of five dummy variables indicating occupation of employment ((a) professional and managerial; (b) technical, sales, or administrative support; (c) service; (d) craft, and (e) other blue-collar, with farming the omitted category); MAR is a dummy variable indicating whether the person is married or not married; AS is a dummy variable indicating whether the person is Asian or not (used only for regressions on the first racial category); and ε is a stochastic error term. Future earnings are projected on the basis of the regression coefficients.¹⁴

Second, the ten-year treasury bond rate prevailing for each individual year (1989, 1992, 1995, and 1998) was used as the discount factor.

Third, I have used mortality rates by age, gender, and race instead of by age and gender alone in the computation of the present value of both pensions and social security wealth.

Fourth, for consistency with 1983, I have continued to employ the Social Security Plan II-B assumption of 1.5 percent annual economy wide real wage growth, even though this seems too high in comparison with the actual post-1973 growth in annual earnings (which has averaged about 0.2 percent per year). I have also used the Social Security Plan II-B assumption of 4.0 percent annual inflation, even though this seems too high.

D. Questions on Work History

Following is a sample of questions on work history drawn from the 1989 SCF codebook that is used to calculate the earnings profile of both head and spouse and to calculate the AIME for each:

1. Including any periods of self-employment, the military, and your current job, since you were 18, how many years have you worked full-time for all or most of the year?
2. Not counting your current job, have you ever had a full-time job that lasted for three years or more?
3. I want to know about the longest such job you had. Did you work for someone else, were you self-employed, or what?

¹⁴ This implicitly assumes that deviations from the regression line in the current year are a result of a transitory component to current income only. This procedure follows the conventions of the 1983 SCF codebook.

4. When did you start working at that job?
5. When did you stop working at that job?
6. Since you were 18, have there been years when you only worked part-time for all or most of the year?
7. About how many years in total did you work part-time for all or most of the year?
8. Thinking now of the future, when do you expect to stop working full-time?
9. Do you expect to work part-time after that?
10. When do you expect to stop working altogether?

Table 1. Mean and Median Wealth and Income, 1983-1998

(In thousands, 1998 dollars)

	1983	1989	1992	1995	1998	Percent Change		
						1983-89	1989-98	1983-98
<u>A. Net Worth (HDW)</u>								
1. Median	54.6	58.4	49.9	48.8	60.7	7.0	3.8	11.1
2. Mean	212.6	243.6	236.8	218.8	270.3	14.6	11.0	27.1
<u>B. Financial Net Worth</u>								
1. Median	11.8	13.9	11.7	10.6	17.8	18.0	28.0	51.0
2. Mean	154.3	181.8	180.5	167.9	212.3	17.8	16.8	37.6
<u>C. Net Worth excluding DC Pension Accounts (HDWX)</u>								
1. Median	53.0	55.6	45.4	39.4	46.4	4.8	-16.6	-12.6
2. Mean	209.0	235.2	224.3	192.0	233.2	12.6	-0.9	11.6
<u>D. Income^b</u>								
1. Median	34.2	38.0	35.6	36.4	38.9	11.2	2.3	13.8
2. Mean	41.6	48.0	45.1	48.1	51.9	15.5	8.0	24.7

Note: own computations from the 1983, 1989, and 1998 Surveys of Consumer Finances. The 1983 weights are the Full Sample 1983 Composite Weights; and the 1989 weights are the average of the SRC-Design-S1 series (X40131) and the SRC designed based weights (X40125). The 1992 calculations are based on the Design-Based weights (X42000), with my adjustments (see Wolff, 1996). The 1995 weights are the Design-Based weights (X42000). The 1998 weights are partially Design-Based Weights (X42001), which account for the systematic deviations from CPS estimates of homeownership by racial/ethnic groups. The 1983, 1989, 1992, and 1995 asset and liability entries are aligned to national balance sheet totals (see Footnote 3).

a. Constant 1998 dollars.

b. Source for household income data: U.S. Census of the Bureau, Current Populations Surveys, available on the internet.

Table 2. The Size Distribution of Wealth and Income, 1983-1998

Year	Percentage Share of Wealth or Income Held by:									Gini Coefficient
	Top 1.0%	Next 4.0%	Next 5.0%	Next 10.0%	Top 20.0%	Next 20.0%	3rd 20.0%	Bottom 40.0%	All	
A. Net Worth (HDW)										
1983	33.8	22.3	12.1	13.1	81.3	12.6	5.2	0.9	100.0	0.799
1989	37.4	21.6	11.6	13.0	83.5	12.3	4.8	-0.7	100.0	0.832
1992	37.2	22.8	11.8	12.0	83.8	11.5	4.4	0.4	100.0	0.823
1995	38.5	21.8	11.5	12.1	83.9	11.4	4.5	0.2	100.0	0.828
1998	38.1	21.3	11.5	12.5	83.4	11.9	4.5	0.2	100.0	0.822
B. Financial Wealth										
1983	42.9	25.1	12.3	11.0	91.3	7.9	1.7	-0.9	100.0	0.893
1989	46.9	23.9	11.6	11.0	93.4	7.4	1.7	-2.5	100.0	0.926
1992	45.6	25.0	11.5	10.2	92.3	7.3	1.5	-1.1	100.0	0.903
1995	47.2	24.6	11.2	10.1	93.0	6.9	1.4	-1.3	100.0	0.914
1998	47.3	21.0	11.4	11.2	90.9	8.3	1.9	-1.1	100.0	0.893
C. Net Worth excluding DC Pension Accounts (HDWX)										
1983	33.9%	22.8%	12.0%	12.9%	81.7%	12.3%	5.2%	0.8%	100.0%	0.802
1989	35.6%	23.3%	11.9%	12.9%	83.7%	12.2%	4.8%	-0.7%	100.0%	0.835
1998	38.1%	23.7%	11.2%	12.1%	85.1%	11.1%	4.0%	-0.3%	100.0%	0.842
D. Income^a										
	[Top 5 Percent]		[Next 15 Percent]							
1983	----	16.4---	----	28.3---	44.7	24.7	16.5	14.1	100.0	0.414
1989	----	18.9---	----	27.9---	46.8	24.0	15.8	13.3	100.0	0.431
1992	----	18.6---	----	28.3---	46.9	24.2	15.8	13.2	100.0	0.434
1995	----	21.0---	----	27.7---	48.7	23.3	15.2	12.8	100.0	0.450
1998	----	21.7---	----	27.5---	49.2	23.2	15.0	12.5	100.0	0.456

Note: own computations from the 1983, 1989, 1992, 1995, and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. For the computation of percentile shares of net worth, households are ranked according to their net worth; for percentile shares of financial wealth, households are ranked according to their financial wealth; and for percentile shares of income, households are ranked according to their income.

a. Source for household income data: U.S. Census of the Bureau, Current Populations Surveys, available on the internet.

Table 3. Composition of Total Household Wealth, 1983, 1989 and 1998
(Percent of gross assets)

Component	1983	1989	1998
Principal residence (gross value)	30.1	30.2	29.0
Other real estate (gross value)	14.9	14.0	10.0
Unincorporated business equity ^a	18.8	17.2	17.7
Liquid assets ^b	17.4	17.5	9.6
Pension accounts ^c	1.5	2.9	11.6
Financial securities ^d	4.2	3.4	1.8
Corporate stock and mutual funds	9.0	6.9	14.8
Net equity in personal trusts	2.6	3.1	3.8
Miscellaneous assets ^e	1.3	4.9	1.8
Total	100.0	100.0	100.0
Debt on principal residence	6.3	8.6	10.7
All other debt ^f	6.8	6.4	4.2
Total debt	13.1	15.0	15.0
Memo:			
Debt / equity ratio	15.1	17.6	17.6
Net home equity / total assets	23.8	21.6	18.2
Principal residence debt / house value	20.9	28.6	37.0
Stocks, directly or indirectly owned / total assets ^g	11.3	10.2	22.6

Note: own computations from the 1983, 1989, and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details.

a. Net equity in unincorporated farm and non-farm businesses and closely-held corporations.

b. Checking accounts, savings accounts, time deposits, money market funds, certificates of deposits, and the cash surrender value of life insurance.

c. IRAs, Keogh plans, 401(k) plans, the accumulated value of defined contribution pension plans, and other retirement accounts.

d. Corporate bonds, government bonds, open-market paper, and

e. Gold and other precious metals, royalties, jewelry, antiques, furs, loans to friends and relatives, future contracts, and miscellaneous assets.

f. Mortgage debt on all real property except principal residence; credit card, installment, and other consumer debt.

g. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts.

Table 4. Composition of Household Wealth by Wealth Class, 1983 and 1998

(Percent of gross assets)

Component	<u>Top One Percent</u>		<u>Next 19 Percent</u>		<u>Middle 3 Quintiles</u>	
	1983	1998	1983	1998	1983	1998
Principal residence	8.1	7.8	29.1	28.8	61.6	59.8
Liquid assets (bank deposits, money market funds, and cash surrender value of life insurance)	8.5	5.0	21.4	11.3	21.4	11.8
Pension accounts	0.9	6.9	2.0	14.9	1.2	12.3
Corporate stock, financial securities, mutual funds, and personal trusts	29.5	31.6	13.0	20.0	3.1	5.5
Unincorporated business equity other real estate	52.0	46.9	32.8	23.2	11.4	8.8
Miscellaneous assets	1.0	1.8	1.6	1.8	1.3	1.8
Total assets	100.0	100.0	100.0	100.0	100.0	100.0
Memo:						
Debt / equity ratio	5.9	3.3	10.9	12.9	37.4	51.3
Debt / income ratio	86.8	49.4	72.8	90.2	66.9	101.6
Stocks, directly or indirectly owned / assets	21.2	28.7	9.1	24.1	2.4	11.2

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details.

a. Includes direct ownership of stock shares and indirect ownership through mutual funds, trusts, and IRAs, Keogh plans, 401(k) plans, and other retirement accounts

Table 5. Household Pension Wealth, 1983-1998

(In thousands, 1998 dollars)

	1983	1989	1998	Percentage (Point) Change ^a		
				1983-89	1989-98	1983-98
A. Percent of Households with DC Pension Accounts						
All Households	10.9	24.0	48.8	13.0	24.8	37.9
Ages 46 and under	13.7	31.2	52.0	17.5	20.8	38.3
Ages 47-64	11.9	28.3	59.7	16.4	31.4	47.8
Ages 65 and over	2.1	1.3	32.3	-0.8	31.0	30.2
B. Mean DC Pension Accounts						
All Households	3.6	8.3	37.0	131.1	345.5	929.6
Ages 46 and under	2.4	7.2	21.4	208.2	194.7	808.4
Ages 47-64	7.4	16.1	69.2	118.1	330.1	838.1
Ages 65 and over	1.7	1.8	32.3	6.6	1706.0	1826.0
C. Percent of Households with DB Pension Wealth						
All Households	52.6	49.0	35.3	-3.6	-13.7	-17.3
Ages 46 and under	32.6	40.3	25.1	7.7	-15.2	-7.5
Ages 47-64	68.9	61.0	42.4	-8.0	-18.6	-26.5
Ages 65 and over	66.2	56.4	50.4	-9.7	-6.1	-15.8
D. Mean DB Pension Wealth						
All Households	51.0	40.5	35.6	-20.7	-12.1	-30.2
Ages 46 and under	21.2	11.9	9.2	-44.1	-22.2	-56.5
Ages 47-64	87.0	70.9	52.7	-18.5	-25.7	-39.4
Ages 65 and over	55.7	75.3	75.9	35.2	0.9	36.3
E. Percent of Households with Pension Wealth PW = DC + DB						
All Households	54.4	60.5	64.6	6.0	4.2	10.2
Ages 46 and under	35.6	56.4	60.0	20.8	3.5	24.4
Ages 47-64	70.2	72.2	73.7	1.9	1.6	3.5
Ages 65 and over	66.9	56.6	64.0	-10.3	7.3	-3.0
F. Mean Pension Wealth PW = DC + DB						
All Households	54.6	48.8	72.6	-10.7	48.9	33.0
Ages 46 and under	23.6	19.1	30.6	-18.9	60.1	29.7
Ages 47-64	94.4	87.0	121.9	-7.8	40.1	29.1
Ages 65 and over	57.4	77.1	108.3	34.3	40.5	88.7
G. Median Pension Wealth PW: All Households in group						
All Households	4.5	4.8	11.1	5.8	132.0	145.5
Ages 46 and under	0.0	1.3	4.0	--	204.3	--
Ages 47-64	39.0	28.5	40.0	-26.9	40.4	2.6
Ages 65 and over	32.0	12.9	34.7	-59.8	168.9	8.2
H. Median Pension Wealth PW: Pension wealth holders only						
All Households	59.2	31.8	47.0	-46.3	47.9	-20.6
Ages 46 and under	24.6	12.5	22.7	-49.2	81.4	-7.7
Ages 47-64	82.8	66.4	80.0	-19.8	20.6	-3.3
Ages 65 and over	60.7	71.3	98.9	17.4	38.6	62.8

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household.

a. Percentage point change for Panels A, C, and E.

Table 6. Inequality of Pension Wealth, 1983-1998

(Gini coefficients)

	1983	1989	1998	Change		
				1983-89	1989-98	1983-98
A. DC Pension Accounts: All Households in group						
All Households	0.977	0.940	0.861	-0.038	-0.079	-0.116
Ages 46 and under	0.970	0.916	0.834	-0.054	-0.082	-0.136
Ages 47-64	0.968	0.923	0.826	-0.046	-0.097	-0.142
Ages 65 and over	0.993	0.995	0.904	0.002	-0.091	-0.089
B. DC Pension Accounts: DC account holders only						
All Households	0.792	0.750	0.721	-0.042	-0.029	-0.071
Ages 46 and under	0.778	0.731	0.680	-0.047	-0.050	-0.098
Ages 47-64	0.732	0.726	0.709	-0.005	-0.018	-0.023
Ages 65 and over	0.687	0.635	0.704	-0.053	0.069	0.017
C. DB Pension Wealth: All Households in group						
All Households	0.766	0.832	0.857	0.066	0.024	0.090
Ages 46 and under	0.885	0.855	0.886	-0.029	0.031	0.002
Ages 47-64	0.676	0.737	0.807	0.061	0.070	0.132
Ages 65 and over	0.645	0.767	0.755	0.123	-0.013	0.110
D. DB Pension Wealth: DB pension wealth holders only						
All Households	0.555	0.658	0.594	0.103	-0.064	0.040
Ages 46 and under	0.646	0.641	0.548	-0.005	-0.093	-0.099
Ages 47-64	0.530	0.569	0.546	0.039	-0.023	0.016
Ages 65 and over	0.463	0.588	0.513	0.125	-0.075	0.050
E. Pension Wealth PW: All Households in group						
All Households	0.749	0.805	0.782	0.056	-0.023	0.034
Ages 46 and under	0.881	0.820	0.780	-0.061	-0.040	-0.101
Ages 47-64	0.677	0.709	0.730	0.032	0.021	0.053
Ages 65 and over	0.646	0.767	0.732	0.120	-0.035	0.086
F. Pension Wealth PW: Pension wealth holders only						
All Households	0.537	0.678	0.664	0.140	-0.013	0.127
Ages 46 and under	0.664	0.681	0.636	0.017	-0.045	-0.028
Ages 47-64	0.539	0.597	0.634	0.058	0.037	0.095
Ages 65 and over	0.472	0.588	0.582	0.117	-0.007	0.110

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household.

Table 7. Pension Wealth PW by Pension Wealth Percentile, 1983 and 1998

(In thousands, 1998 dollars)

Percentile	All Households			Households, Ages 47-64			Households, Ages 65 and over		
	1983	1998	% Change 1983-1998	1983	1998	% Change 1983-1998	1983	1998	% Change 1983-1998
30	0.0	0.0	--	0.4	2.5	588.0	0.0	0.0	--
40	0.0	2.4	--	19.8	16.7	-15.8	14.2	7.0	-51.0
50	4.5	11.1	145.5	39.0	40.0	2.6	32.0	34.7	8.2
60	23.7	28.1	18.7	67.5	69.0	2.2	50.3	58.6	16.6
70	50.9	60.3	18.3	104.3	105.4	1.0	70.1	101.9	45.3
80	87.1	99.9	14.7	150.6	178.6	18.6	92.6	155.8	68.2
90	161.6	189.4	17.2	248.7	301.8	21.3	149.0	268.5	80.2
95	248.2	305.9	23.3	346.0	454.3	31.3	204.0	454.5	122.8
99	524.7	750.4	43.0	801.4	1,261.2	57.4	388.7	889.1	128.7
Memo:									
Mean	54.6	72.6	33.0	94.4	121.9	29.1	57.4	108.3	88.7

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household.

Table 8. Pension Wealth PW by Net Worth (HDW) Percentile, 1983 and 1998

(In thousands, 1998 dollars)

Percentile	All Households			Households, Ages 47-64			Households, Ages 65 and over		
	1983	% Change		1983	% Change		1983	% Change	
		1998	1983-1998		1998	1983-1998		1998	1983-1998
10	15.9	12.0	-24.6	43.5	23.6	-45.8	22.0	18.0	-18.0
20	21.7	11.2	-48.3	73.0	28.8	-60.5	36.8	37.3	1.4
30	31.5	12.5	-60.3	46.7	53.0	13.5	44.2	38.5	-12.8
40	33.5	26.4	-21.2	58.6	53.5	-8.8	40.3	82.9	105.9
50	42.4	46.1	8.7	72.5	55.5	-23.4	50.0	77.3	54.5
60	50.2	56.8	13.1	140.0	115.7	-17.3	68.1	77.9	14.5
70	65.1	66.4	2.0	125.5	157.2	25.3	85.7	128.3	49.7
80	85.1	118.9	39.7	112.6	188.6	67.4	66.2	118.6	79.3
90	94.4	152.9	62.0	132.7	273.4	106.0	98.6	234.9	138.2
95	108.6	276.7	154.7	168.2	459.7	173.4	80.5	318.9	296.3
99	186.1	503.6	170.6	313.4	782.2	149.6	174.8	611.2	249.7
Memo:									
Mean PW	54.6	72.6	33.0	94.4	121.9	29.1	57.4	108.3	88.7
Median PW	4.5	11.1	145.5	39.0	40.0	2.6	32.0	34.7	8.2
Mean NW	212.6	270.3	27.1	343.4	444.6	29.5	343.0	384.9	12.2
Median NW	54.6	60.7	11.1	99.7	110.4	10.8	93.8	133.7	42.5

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details.

Households are classified into age groups by the age of the head of household.

The mean value of PW is computed using five percentile bands around each percentile value.

Table 9. Household Social Security and Total Retirement Wealth, 1983-1998
(In thousands, 1998 dollars)

	1983	1989	1998	Change ^a		
				1983-89	1989-98	1983-98
A. Mean Social Security Wealth SSW						
All Households	117.1	86.8	98.6	-25.9	13.7	-15.8
Ages 46 and under	61.2	62.9	74.8	2.9	18.9	22.4
Ages 47-64	140.6	106.2	121.7	-24.5	14.6	-13.4
Ages 65 and over	135.6	122.7	125.0	-9.5	1.9	-7.8
B. Median Social Security Wealth SSW (All households in group)						
All Households	103.6	75.8	82.7	-26.8	9.1	-20.2
Ages 46 and under	56.2	57.0	66.4	1.4	16.5	18.2
Ages 47-64	133.5	102.0	108.6	-23.6	6.4	-18.7
Ages 65 and over	122.1	111.1	112.9	-9.0	1.7	-7.5
C. Inequality of Social Security Wealth (Gini Coefficient)						
All Households	0.455	0.343	0.385	-0.112	0.041	-0.070
Ages 46 and under	0.488	0.305	0.362	-0.182	0.056	-0.126
Ages 47-64	0.366	0.294	0.348	-0.072	0.054	-0.018
Ages 65 and over	0.461	0.302	0.371	-0.159	0.070	-0.090
D. Mean Retirement Wealth RW						
All Households	171.7	135.5	171.2	-21.1	26.3	-0.3
Ages 46 and under	84.7	82.0	105.4	-3.2	28.5	24.4
Ages 47-64	234.9	193.2	243.5	-17.8	26.1	3.7
Ages 65 and over	192.9	199.8	233.3	3.6	16.8	20.9
E. Median Retirement Wealth RW (All households in group)						
All Households	152.9	93.1	114.9	-39.1	23.4	-24.9
Ages 46 and under	87.7	64.6	79.0	-26.3	22.3	-9.9
Ages 47-64	196.8	140.6	175.2	-28.6	24.7	-11.0
Ages 65 and over	163.3	151.0	169.8	-7.5	12.5	4.0
F. Inequality of Retirement Wealth (Gini Coefficient)						
All Households	0.430	0.464	0.496	0.034	0.032	0.066
Ages 46 and under	0.507	0.388	0.428	-0.119	0.041	-0.078
Ages 47-64	0.390	0.431	0.468	0.041	0.037	0.078
Ages 65 and over	0.377	0.411	0.472	0.033	0.061	0.095

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household. Key: Retirement Wealth RW = PW + SSW.

a. Percentage point change for Panel A. Percentage change for Panels B, C, E, and F.

Table 10. Social Security Wealth SSW by Social Security Wealth Percentile, 1983 and 1998

(In thousands, 1998 dollars)

Percentile	All Households			Households, Ages 47-64			Households, Ages 65 and over		
	1983	1998	% Change 1983-1998	1983	1998	% Change 1983-1998	1983	1998	% Change 1983-1998
10	0.0	25.6	--	26.0	37.7	45.2	0.0	29.2	--
20	23.4	37.2	58.7	55.0	51.6	-6.2	0.0	50.0	--
30	54.4	52.0	-4.5	81.6	71.3	-12.7	68.8	70.6	2.5
40	80.9	67.7	-16.3	106.7	90.6	-15.1	94.2	89.4	-5.0
50	103.6	82.7	-20.2	133.5	108.6	-18.7	122.1	112.9	-7.5
60	126.9	99.0	-21.9	158.0	124.9	-20.9	145.3	135.7	-6.6
70	154.7	120.2	-22.3	187.8	142.0	-24.4	191.6	158.8	-17.1
80	198.0	148.3	-25.1	221.3	169.9	-23.2	237.0	191.4	-19.3
90	253.8	195.1	-23.1	262.6	236.4	-10.0	286.1	233.1	-18.5
95	292.8	236.4	-19.2	296.7	284.7	-4.1	344.7	281.6	-18.3
99	386.5	327.4	-15.3	376.8	359.0	-4.7	437.9	358.1	-18.2
Memo:									
Mean	117.1	98.6	-15.8	140.6	121.7	-13.4	135.6	125.0	-7.8

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household.

Table 11. Mean Retirement Wealth by Wealth Class, 1983, 1989, and 1998

(In thousands, 1998 dollars)

	1983	1989	1998	Percentage Change		
				1983-89	1989-98	1983-98
<u>All, Age 47 and over</u>						
Under \$25,000	126.2	94.0	105.2	-25.5%	11.9%	-16.7%
\$25,000-\$49,999	175.2	146.6	146.2	-16.4%	-0.2%	-16.6%
\$50,000-\$99,999	198.8	162.4	147.4	-18.3%	-9.3%	-25.9%
\$100,000-\$249,999	242.1	191.7	182.0	-20.8%	-5.1%	-24.8%
\$250,000-\$499,999	274.0	234.4	253.1	-14.4%	8.0%	-7.6%
\$500,000-\$999,999	302.1	316.6	304.6	4.8%	-3.8%	0.8%
\$1,000,000 or over	404.3	392.1	581.3	-3.0%	48.3%	43.8%
<u>Ages 47-64</u>						
Under \$25,000	131.8	79.9	107.5	-39.4%	34.6%	-18.4%
\$25,000-\$49,999	182.4	125.2	136.0	-31.4%	8.7%	-25.4%
\$50,000-\$99,999	206.3	155.1	166.0	-24.8%	7.0%	-19.6%
\$100,000-\$249,999	263.0	198.4	177.0	-24.6%	-10.8%	-32.7%
\$250,000-\$499,999	297.5	238.5	260.2	-19.8%	9.1%	-12.6%
\$500,000-\$999,999	335.7	306.3	298.0	-8.7%	-2.7%	-11.2%
\$1,000,000 or over	431.1	367.8	608.1	-14.7%	65.3%	41.1%
<u>Ages 65 and over</u>						
Under \$25,000	119.3	109.6	101.5	-8.2%	-7.4%	-15.0%
\$25,000-\$49,999	166.0	168.5	163.5	1.5%	-3.0%	-1.5%
\$50,000-\$99,999	187.2	169.3	120.6	-9.6%	-28.8%	-35.6%
\$100,000-\$249,999	208.9	182.6	187.2	-12.6%	2.5%	-10.4%
\$250,000-\$499,999	240.1	229.6	245.4	-4.4%	6.9%	2.2%
\$500,000-\$999,999	257.3	329.1	313.5	27.9%	-4.7%	21.9%
\$1,000,000 or over	362.0	426.7	542.2	17.9%	27.1%	49.8%

Source: author's computations from the 1983, 1989, and 1998 Survey of Consumer Finances. Households are classified by net worth (HDW) in 1998 dollars. Retirement wealth is defined as the sum of pension wealth, DB pension wealth, and social security wealth.

Table 12. Augmented Wealth, 1983-1998
(In thousands, 1998 dollars)

	1983	1989	1998	Percentage Point Change		
				1983-89	1989-98	1983-98
<u>A. Mean Net Worth (HDW)</u>						
All Households	212.6	243.6	270.3	14.6	11.0	27.1
Ages 46 and under	100.7	134.6	130.6	33.6	-3.0	29.7
Ages 47-64	343.4	375.0	444.6	9.2	18.6	29.5
Ages 65 and over	343.0	356.9	384.9	4.1	7.8	12.2
<u>B. Median Net Worth (HDW)</u>						
All Households	54.6	58.4	60.7	7.0	3.8	11.1
Ages 46 and under	24.2	21.9	20.3	-9.5	-7.3	-16.1
Ages 47-64	99.7	122.6	110.4	23.0	-9.9	10.8
Ages 65 and over	93.8	100.7	133.7	7.3	32.8	42.5
<u>C. Mean Net Worth Excluding DC Plus Pension Wealth (HDWX+PW)</u>						
All Households	263.6	284.0	305.8	7.7	7.7	16.0
Ages 46 and under	121.9	146.4	139.8	20.1	-4.5	14.7
Ages 47-64	430.4	445.9	497.3	3.6	11.5	15.6
Ages 65 and over	398.7	432.2	460.8	8.4	6.6	15.6
<u>D. Median Net Worth Excluding DC Plus Pension Wealth (HDWX+PW)</u>						
All Households	102.7	84.2	80.1	-18.0	-4.9	-22.0
Ages 46 and under	29.3	29.1	26.0	-0.5	-10.7	-11.2

Ages 47-64	188.1	175.2	162.8	-6.9	-7.1	-13.5
Ages 65 and over	145.9	156.5	183.6	7.3	17.3	25.9

E. Mean Net Worth Excluding DC Plus Social Security Wealth (HDWX+SSW)

All Households	326.1	322.0	331.8	-1.3	3.1	1.8
Ages 46 and under	159.5	190.3	184.1	19.3	-3.2	15.4
Ages 47-64	476.6	465.1	497.2	-2.4	6.9	4.3
Ages 65 and over	476.9	477.9	477.6	0.2	-0.1	0.2

F. Median Net Worth Excluding DC Plus Social Security Wealth (HDWX+SSW)

All Households	211.1	140.1	144.4	-33.7	3.1	-31.6
Ages 46 and under	122.3	84.8	89.6	-30.6	5.6	-26.7
Ages 47-64	249.5	223.2	217.2	-10.5	-2.7	-12.9
Ages 65 and over	248.1	237.1	249.1	-4.5	5.1	0.4

G. Mean Augmented Wealth

All Households	380.7	370.8	404.5	-2.6	9.1	6.2
Ages 46 and under	183.1	209.4	214.6	14.4	2.5	17.3
Ages 47-64	571.0	552.1	619.0	-3.3	12.1	8.4
Ages 65 and over	534.2	554.9	585.8	3.9	5.6	9.7

H. Median Augmented Wealth

All Households	268.4	168.0	178.6	-37.4	6.3	-33.5
Ages 46 and under	158.7	93.8	103.9	-40.9	10.8	-34.5
Ages 47-64	346.5	288.8	290.6	-16.6	0.6	-16.1
Ages 65 and over	287.3	284.7	308.9	-0.9	8.5	7.5

Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household. Key: Augmented Wealth AW = HDWX + PW + SSW.

Table 13. Inequality of Augmented Wealth, 1983-1998

(Gini coefficients)

	1983	1989	1998	Change		
				1983-89	1989-98	1983-98
<u>A. Net Worth excluding DC Pension Accounts (HDWX)</u>						
All Households	0.802	0.835	0.842	0.033	0.007	0.040
Ages 46 and under	0.801		0.902			0.101
Ages 47-64	0.762		0.817			0.055
Ages 65 and over	0.777		0.744			-0.033

<u>B. Net Worth (HDW)</u>				
All Households	0.799	0.832	0.822	0.024
Ages 46 and under	0.797		0.861	0.064
Ages 47-64	0.761		0.792	0.031
Ages 65 and over	0.778		0.743	-0.035
<u>C. Net Worth Plus Pension Wealth (HDWX+PW)</u>				
All Households	0.746		0.791	0.045
Ages 46 and under	0.793		0.836	0.043
Ages 47-64	0.681		0.753	0.073
Ages 65 and over	0.715		0.696	-0.020
<u>D. Net Worth Plus Social Security Wealth (HDWX+SSW)</u>				
All Households	0.631		0.667	0.036
Ages 46 and under	0.644		0.630	-0.014
Ages 47-64	0.600		0.662	0.061
Ages 65 and over	0.627		0.605	-0.022
<u>E. Augmented Wealth</u>				
All Households	0.590		0.657	0.067
Ages 46 and under	0.617		0.623	0.006
Ages 47-64	0.558		0.639	0.080
Ages 65 and over	0.586		0.591	0.005
<p>Note: own computations from the 1983 and 1998 Surveys of Consumer Finances. See Note to Table 1 for technical details. Households are classified into age groups by the age of the head of household. Key: Augmented Wealth AW = HDWX + PW + SSW.</p>				

Figure 1. The cumulative Distribution of Households by Pension Wealth Level, 1983 and 1998

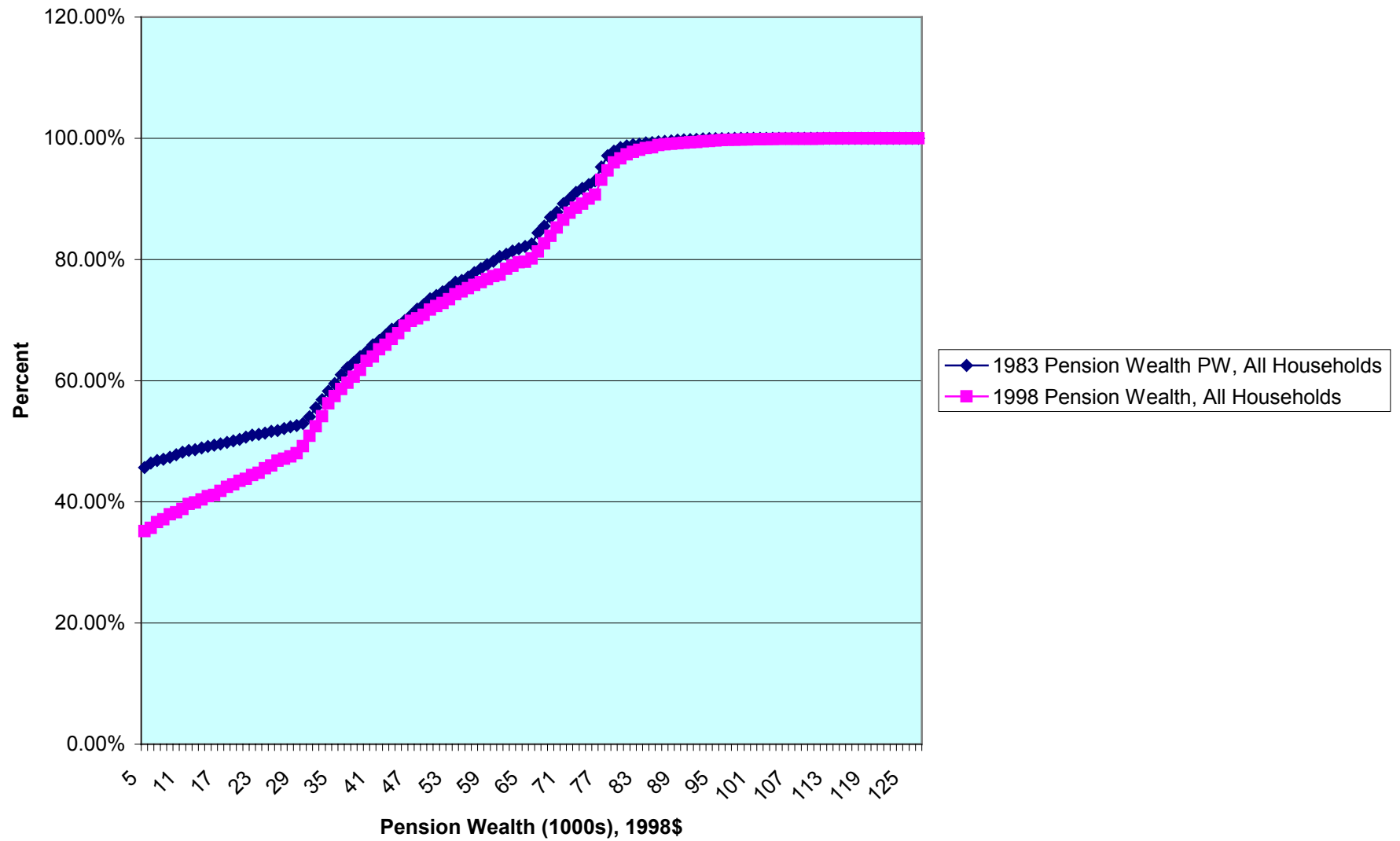


Figure 2a. Pension Wealth PW in 1998 Dollars by Pension Wealth Percentile, All Households, 1983 and 1998

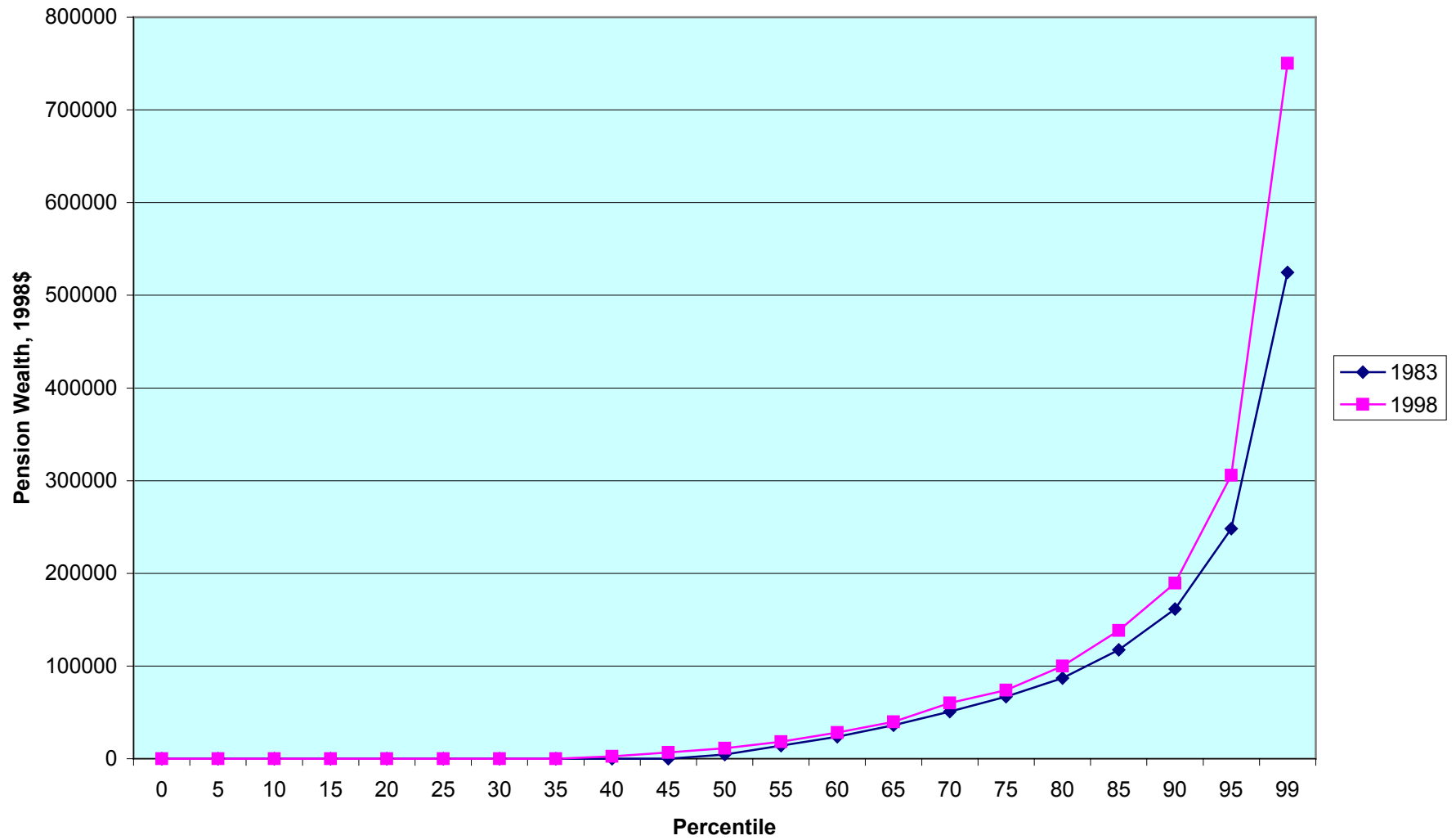


Figure 2b. Pension Wealth PW in 1998 Dollars by Pension Wealth Percentile, Ages 47-64, 1983 and 1998

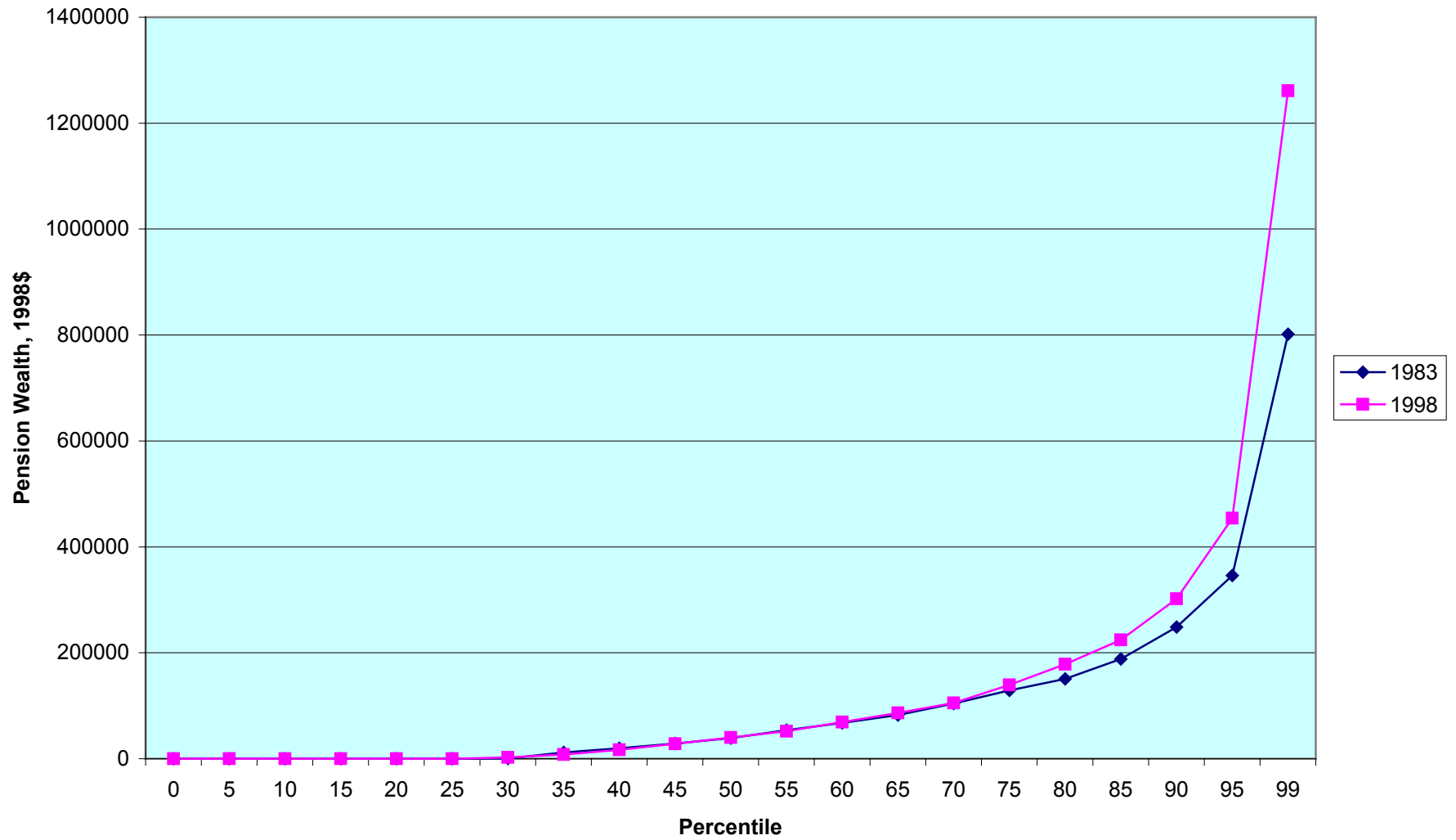


Figure 2c. Pension Wealth PW in 1998 Dollars by Pension Wealth Percentile, Ages 65 and Over, 1983 and 1998

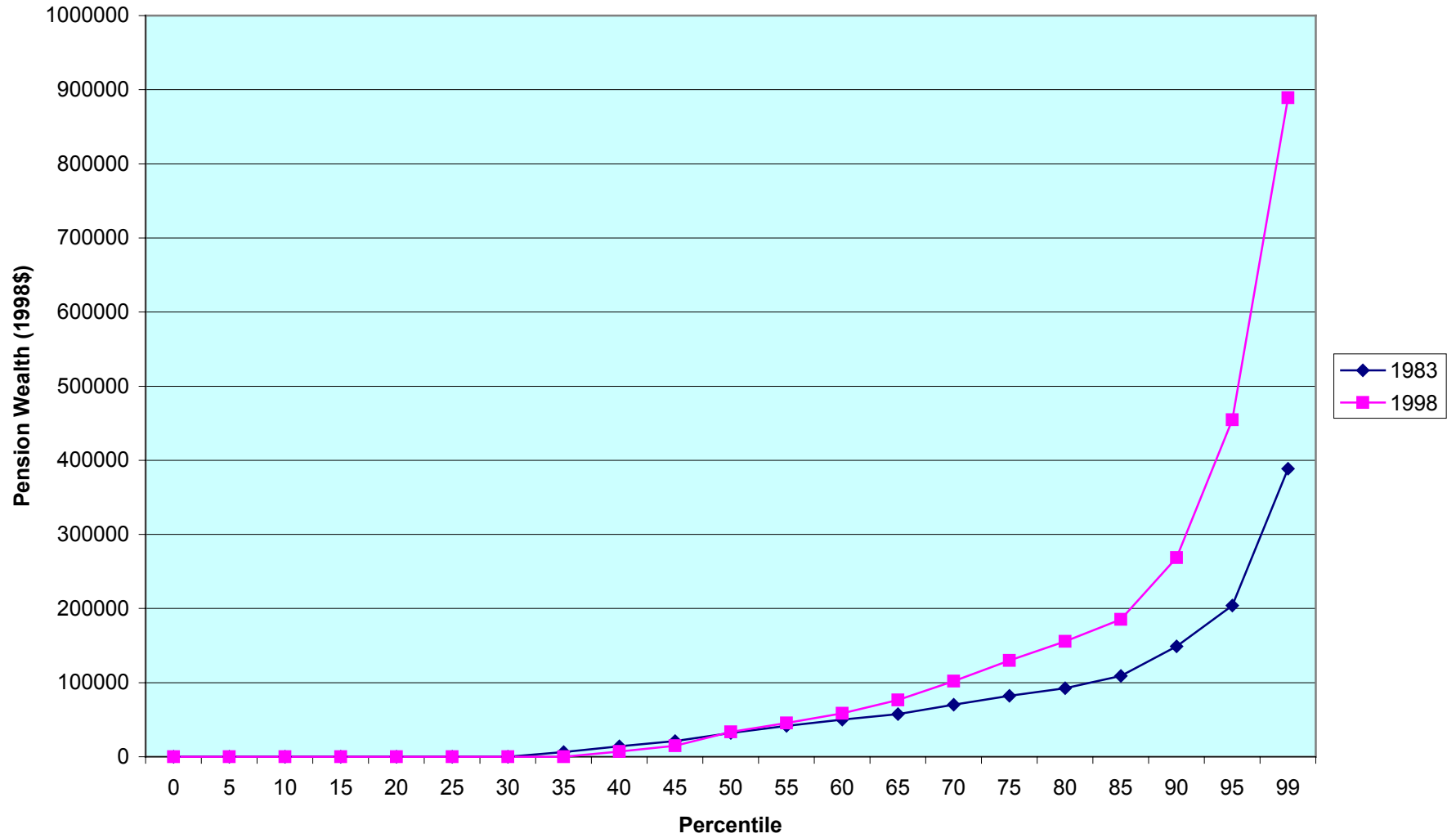


Figure 3a. Pension Wealth PW in 1998 Dollars by Net Worth Percentile, All Households, 1983 and 1998

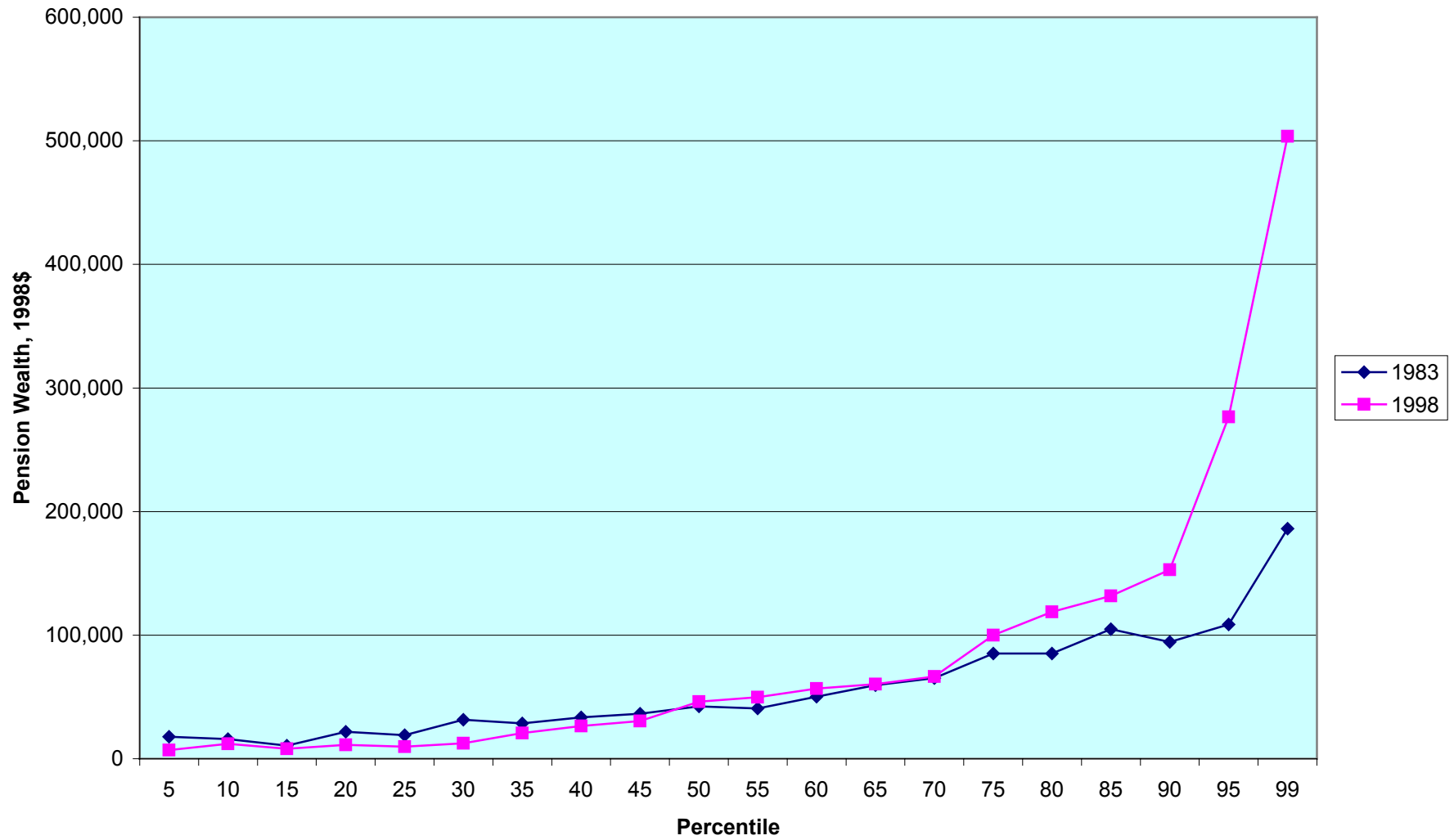


Figure 3b. Pension Wealth PW in 1998 Dollars by Net Worth Percentile, Ages 47-64, 1983 and 1998

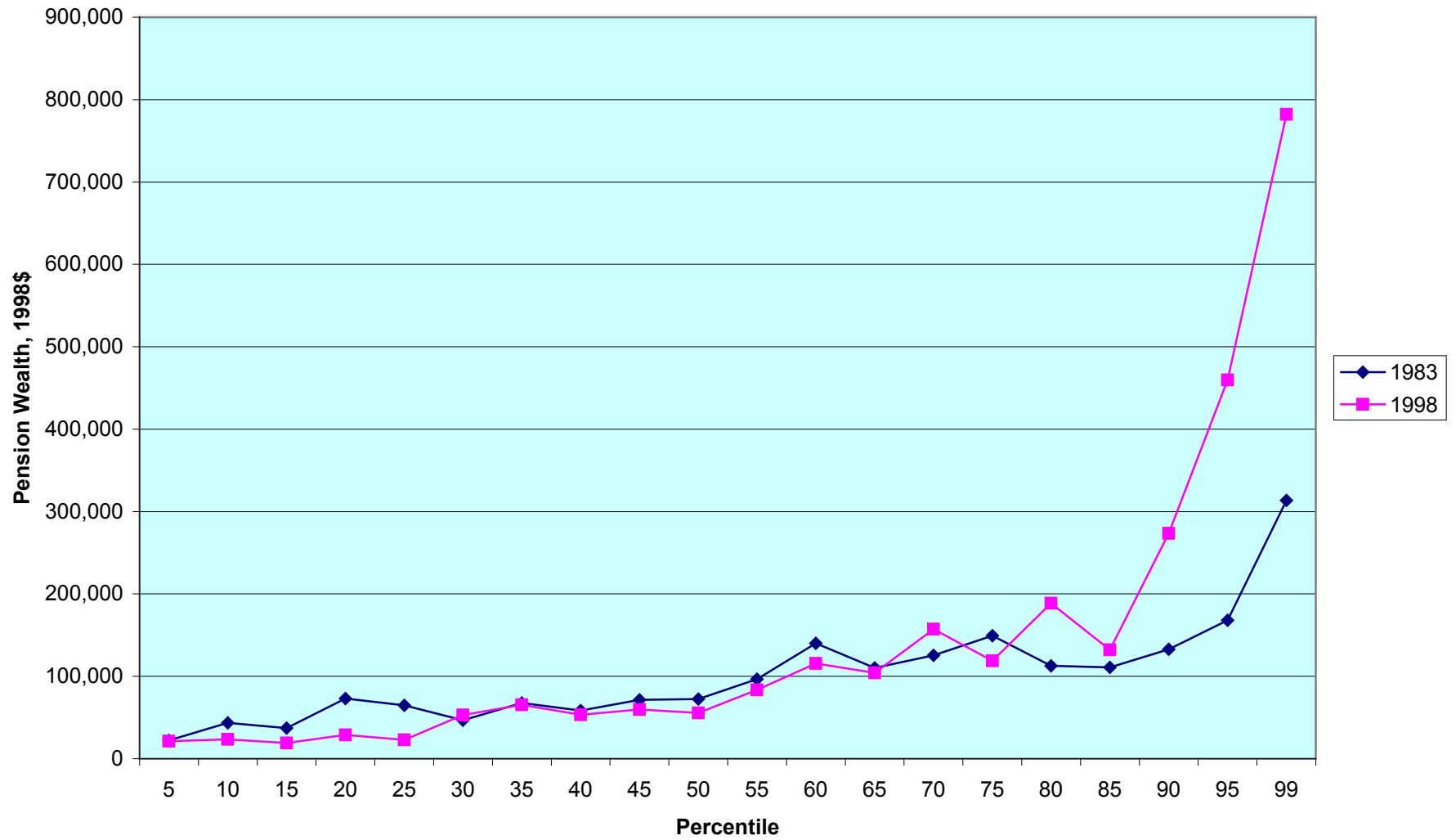


Figure 3c. Pension Wealth PW in 1998 Dollars by Net Worth Percentile, Ages 65 and Older, 1983 and 1998

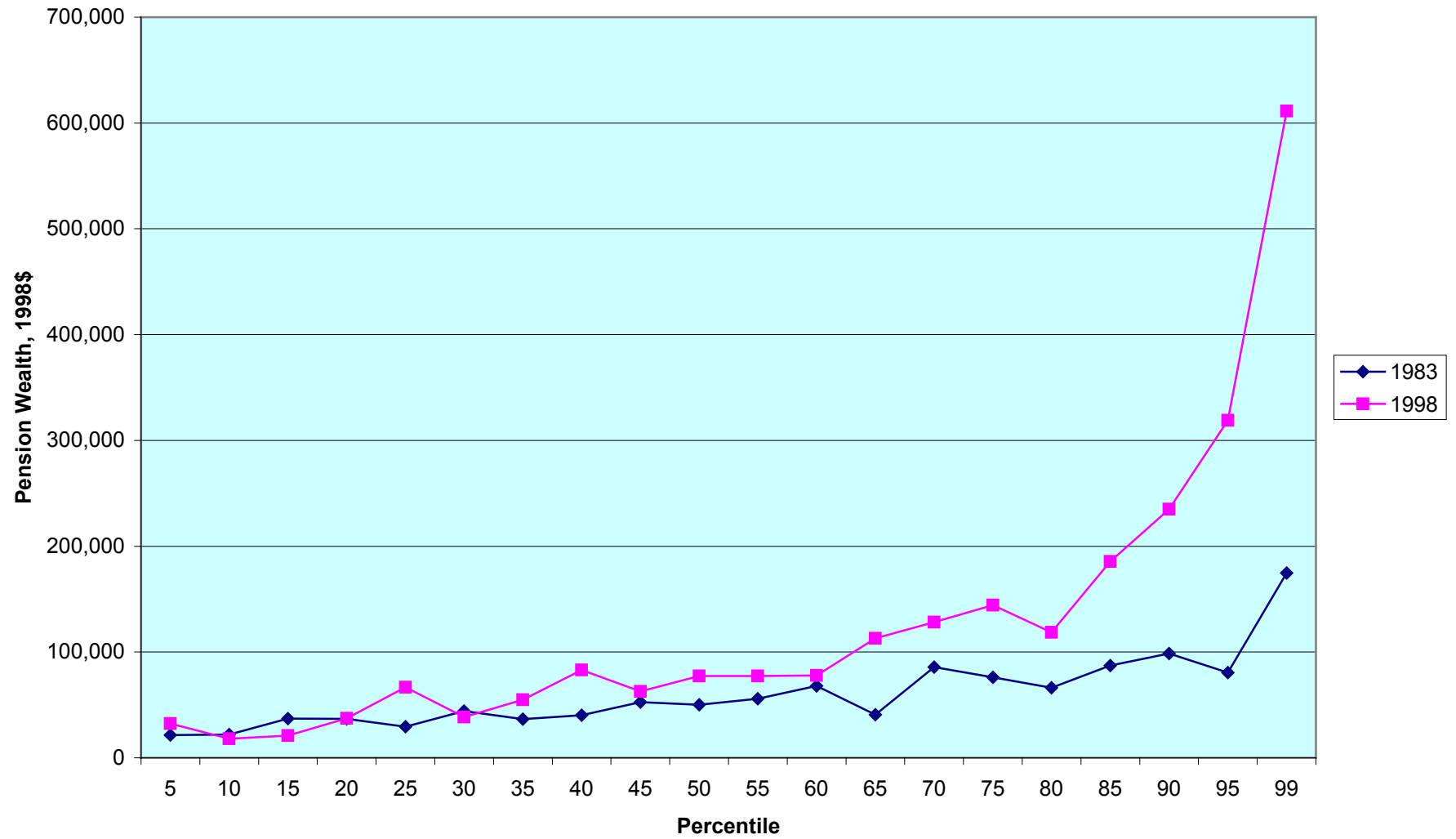


Figure 4a. Social Security Wealth SSW in 1998 Dollars by Social Security Wealth Percentile, All Households, 1983 and 1998

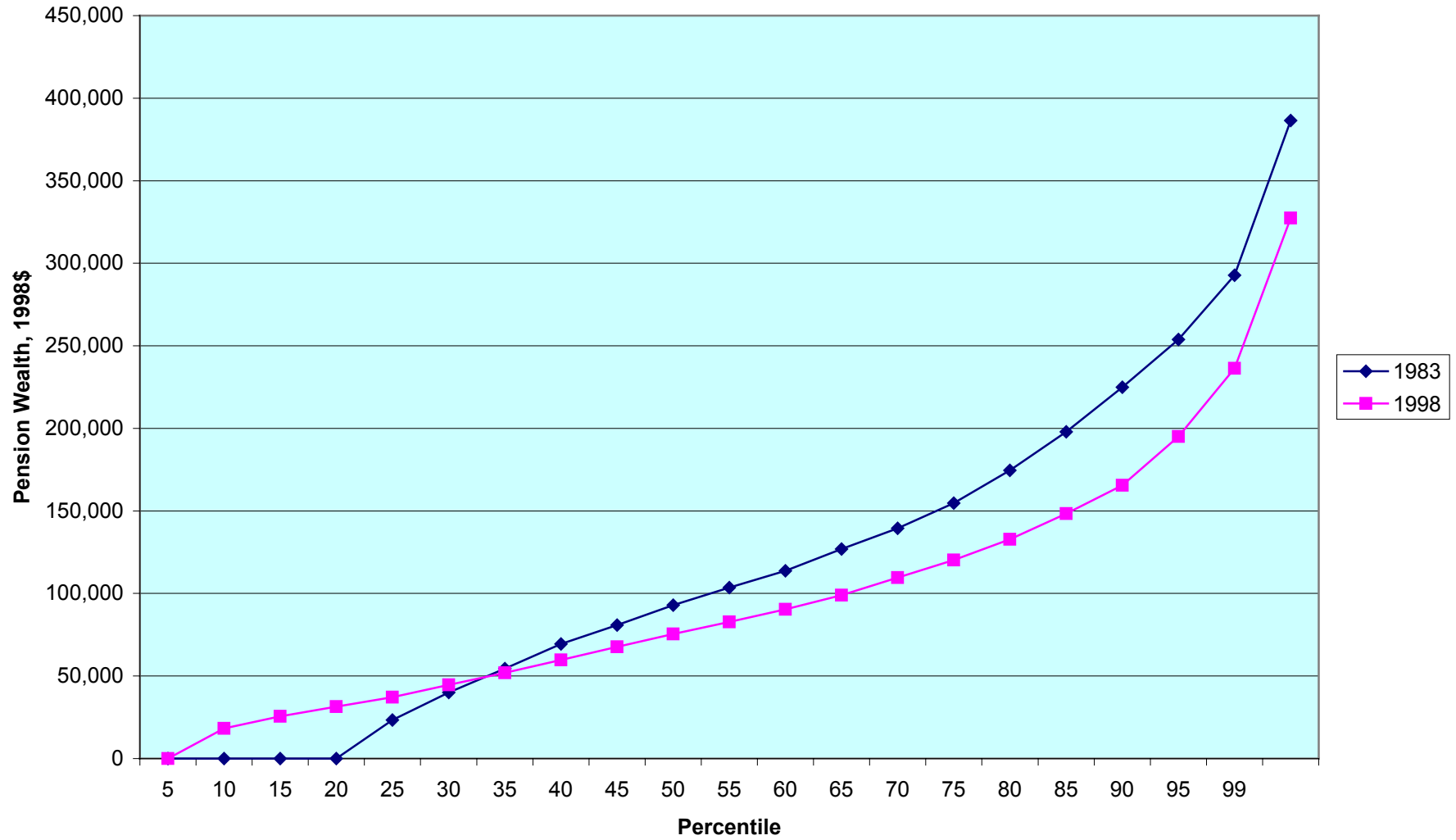


Figure 4b. Social Security Wealth SSW in 1998 Dollars by Social Security Wealth Percentile, Ages 47-64, 1983 and 1998

