# HOUSEHOLD SAVING AND PORTFOLIO CHANGE: EVIDENCE FROM THE 1983–89 SCF PANEL

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There are few sources of high-quality data on the dynamics of wealth accumulation. This paper uses newly available data from the 1983–89 panel of the *Survey of Consumer Finances* to examine household saving and portfolio change over the 1980s. Our main findings are as follows. First, median household wealth rose modestly over the period. Second, while overall wealth inequality increased, households in the top 1 percent of the wealth distribution in 1983 saw their share of total wealth decline, probably reflecting turnover among the very wealthy. Third, although age, income, and initial wealth had significant effects in regressions on household saving, a large part of the variation in saving was unexplained. Finally, there were clear life-cycle patterns in the portfolios of assets and liabilities held by households, with younger households acquiring homes, businesses and all types of debts, and older households divesting themselves of these assets and debts.

## I. INTRODUCTION

This paper uses data from the 1983–89 panel of the *Survey of Consumer Finances* to examine household saving and portfolio change over the 1980s. This survey provides unique information for studying these issues. There are very few sources of high-quality data on the dynamics of wealth accumulation. Some of the major household surveys provide valuable information on the savings behavior of typical households—for example, the *Survey of Income and Program Participation* (SIPP) and the 1984 and 1989 waves of the *Panel Survey of Income Dynamics* (PSID). However, these surveys are not specifically intended to measure wealth, and provide little detail on changes in the composition of household portfolios over time. Some recent panel studies have begun collecting detailed data on household wealth, notably the *Health and Retirement Survey* (HRS) and *Asset and Health Dynamics Among the Oldest Old* (AHEAD). However, the samples are confined to households in particular age ranges, and thus provide only limited insights into the ways in which savings behavior may change over the life cycle. Moreover, because there is evidence that survey non-response is correlated with wealth (Kennickell and McManus, 1994), estimates of many important wealth characteristics will be biased unless specific measures can be taken to adjust for such non-response.

The *Survey of Consumer Finances* (SCF) collects detailed information on households' assets, liabilities, income and other characteristics, and has a special sample designed specifically to support wealth estimation. The main goal of the SCF is to provide accurate cross-sectional information on households' financial

situations. However, a subset of the households who were interviewed for the 1983 SCF were reinterviewed in 1989, providing an opportunity for studying the dynamics of wealth accumulation with a nationally representative sample.

The 1983–89 period is interesting for several reasons. First, various legal changes encouraged the growth of tax-deferred savings vehicles such as Individual Retirement Accounts (IRAs) and 401(k)-type retirement accounts. While such accounts came to represent a sizable share of households' financial assets, it is unclear whether the growth represented higher saving by households, or simply a shift of savings into tax-deferred forms (Poterba, Venti and Wise, 1996; Engen, Gale and Scholz, 1996). Second, household debt rose substantially over the 1980s, while tax changes eliminated deductions for non-mortgage interest payments (Canner, Kennickell and Luckett, 1995; Maki, 1995). Third, real wages were virtually flat for those with high school education or less, but they rose considerably for workers with college educations (Levy and Murnane, 1992). Fourth, overall stock prices rose substantially over the period, despite a sharp decline during the stock market crash of October 1987. Finally, although median wealth increased over the 1980s, there appeared to be a substantial increase in the inequality of the distribution of household wealth (Kennickell and Woodburn, 1992; Wolff, 1994).

This paper is organized as follows. Section II discusses the background, sample and methodology of the 1983–89 SCF panel. Section III uses the data to describe changes in income and wealth over the period, while Section IV analyzes changes in the distribution of wealth. Section V contains regression analyses of the determinants of household saving. Section VI analyzes changes in the composition of households' portfolios. The final section summarizes and concludes.

## II. BACKGROUND, SAMPLE AND METHODOLOGY

*Background.* The current series of SCFs has been conducted every three years since 1983, under the sponsorship of the Federal Reserve Board with the cooperation of Statistics of Income (SOI) Division of the Internal Revenue Service. To represent accurately the full distribution of household wealth, the 1983 SCF had a dual-frame sample design (see Avery, Elliehausen and Kennickell, 1988, for details). The first part consisted of a standard multi-stage area-probability (AP) sample, intended to provide good coverage of assets and liabilities that are broadly distributed in the population, such as vehicles and mortgages. The second part was a list sample drawn from a file of taxpayers maintained by SOI, using a procedure that oversampled households with relatively high incomes.[1] The list sample considerably improves the precision of estimates of assets and liabilities that are held by relatively wealthy households, such as stocks and bonds.[2]

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[1] The SOI file is maintained for research purposes only. To be included in the 1983 SCF, potential list respondents were asked to return a postcard if they were willing to be interviewed. Only about 10 percent of potential respondents returned cards. Since the 1989 SCF, list sample cases have been asked to return the card only if they did not want to be interviewed, and unsurprisingly, the response rate improved.

[2] See Avery, Elliehausen and Kennickell, 1988, and Curtin, Juster and Morgan, 1989, for comparisons of the 1983 SCF with other sources of data on household wealth.

Altogether, the sample interviewed for the 1983 SCF included 4,103 households, of whom 438 came from the list sample. In addition, the information from the tax file provided a way to make systematic non-response adjustments, mitigating the problem of bias due to differential non-response.

*Panel sample.* The 1989 SCF had a complex sample design intended to provide both cross-section and panel data.[3] The panel part of the survey was based on a subsample of the respondents to the 1983 SCF. If a person living at one of a subset of AP addresses was a respondent to the 1983 SCF, or was the spouse or partner of that person, an attempt was made to obtain an interview. A subsample of original AP respondents who had moved was also pursued.[4] Efforts were made to secure interviews with all list sample respondents. Divorced, widowed and separated spouses of list sample respondents were also eligible to be included in the panel. In total, 1,479 households—including 361 list sample cases—were reinterviewed in 1989.

*Panel weights.* The panel sample is clearly not representative, due to the original sample design, the design of the follow-up, and differential non-response. To take these factors into account, panel weights were developed. The calculation of the weights involved three steps.[5] First, the weight from the 1983 cross-section SCF was adjusted for the systematic part of the panel sample selection. A second adjustment accounted for differential non-response based on a number of financial and demographic characteristics of respondents. A third problem was that panel households were generally wealthier in 1983 than the comparable age cohort in the full 1983 cross-section, and this difference widened in 1989. To offset potential bias caused by this problem, the weights were post-stratified to 1983 income, 1983 homeownership, 1989 age, and 1983 and 1989 net worth categories, using information from the 1983 and 1989 cross-sections.

*Editing and imputation.* Survey data on wealth typically contain a fair amount of missing or incomplete information. Some survey respondents are unable or unwilling to report details of their financial situations. Sometimes respondents' answers are recorded or processed with error. Traditionally, the SCF has addressed these problems through systematic data editing and statistical imputation of missing data values. There is an immense amount of information in the 1983 and 1989 surveys that might be used to edit the data, as well as some information from a brief 1986 reinterview.[6] To keep the editing and imputation manageable, the information used was limited in certain ways (see Kennickell and McManus, 1994, for details). First, rather than use all of the detailed information in the 1983 SCF, variables summarizing holdings of the main types of assets and

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[3]Briefly, the 1989 survey consisted of three parts: (1) a completely new cross-section sample, with list and AP components, (2) list sample respondents to the 1983 survey, who had only panel representation in 1989, and (3) a subsample of the names and addresses of 1983 AP cases (see text). There was also a small additional sample to account for new construction. For details, see Heeringa, Connor and Woodburn, 1994, and Kennickell and McManus, 1994.

[4]Among AP households, all households with heads over age 45 in 1983 were followed, but only 25 percent of younger movers.

[5]See Kennickell and Woodburn, 1996, for details.

[6]In 1986, some 2,822 of the households from the 1983 SCF were reinterviewed by phone, and asked to provide summary information on their assets and liabilities. Analysis of the 1986 data suggested that holdings are reported much less accurately when information is collected in summary form (Avery and Kennickell, 1991).

liabilities in 1983 were used instead (for example, the total amount owed on installment loans, rather than loan-by-loan amounts). Second, questions asked in 1989 about *changes* in assets or liabilities between 1983 and 1989 were not used in editing or imputation, because this information was too often inconsistent with the information on current holdings reported in each survey (Kennickell and Starr-McCluer, 1997). Finally, the data from the 1986 reinterview were used only for minor editing.

The missing values in the panel data were imputed, using the multiple imputation technique developed for the SCF (Kennickell, 1991). This method preserves the first and second moments of the data and allows estimation of the uncertainty of the imputations. The imputed values in the panel data may differ from those in the cross-section data, because the panel imputations condition on information from both the 1983 and 1989 interviews.

*Changes in household composition.* Of the 1,479 households in the panel sample, 299 (20.2 percent) underwent a major change in composition—namely marriage, divorce, separation, or the death of a spouse—during the 1983–89 period. While for some purposes it may seem reasonable to exclude such households from the analysis, the prevalence of changes in composition suggests that excluding them could misrepresent the extent of wealth and income mobility in the population. Thus, in much of the analysis that follows, we show results for both the full panel sample and the smaller sample of 1,180 more stable households.

In numbers reported for the full panel sample, some adjustments were made for households that changed composition. If the respondent went from single to married over the period, we assumed that the new spouse had 1983 wealth and income equal to that of the original respondent. If the respondent separated or divorced over the period and did not remarry, we assumed that the spouse took out of the household one-half of the income and wealth reported in 1983. For other cases—namely death of a spouse, marriages that began and ended within the 1983–89 period, or divorce and remarriage within the period—we left 1983 income and wealth unadjusted. We also tried a number of alternative adjustments, with little qualitative effect on results (see Avery and Kennickell, 1991, for some elaboration of these issues).

*Representativeness of the data.* It is important to emphasize the nature of the population included in the panel sample. The sample design specifically excluded households with heads under the age of 22 in 1983. Since many people below this age are in college or the military, or live with their families, the independent households with heads who were under 22 in 1983 would not represent very well the group of households with heads who were under 28 five years later.[7] Also, the panel does not include individuals who immigrated to the U.S. during the 1983–89 period, unless they became a part of an existing sample household.[8] Perhaps most importantly, the panel consists of people who were systematically

[7]The cut-off age of 22 is somewhat arbitrary, since some fraction of every age group may be temporarily in an institution or living as a secondary household member. However, the fraction declines substantially after the early 20s. A small number of under-28 households appear in the panel sample, because the sample design followed both halves of couples that separated since 1983.

[8]Additionally, some respondents may have died between 1983 and 1989. A response code indicates cases for which this fact is known.

sampled from the respondents to the 1983 cross-section, who could be located in 1989 and who were willing to be reinterviewed. Adjustments to weights can remove the effects of systematic selection and part of the implicit selection induced by the other observable factors. However, the ability to find and reinterview households may also depend on unobservable factors, such as employment or marital stability, or financial success, which may well be correlated with changes in wealth.[9]

## III. Changes in the Incomes and Net Worth of Individual Households, 1983–89

Since income is an important determinant of wealth, it is useful to begin with a description of changes in real household income for the panel sample over the period. Table 1 shows mean and median income in 1983 and 1989 in terms of a number of household characteristics.[10] All values are expressed in 1989 dollars, using the Consumer Price Index. The sample weights are used in all descriptive statistics in this paper. In the full panel sample, mean income rose from $36,700 in 1983 to $38,600 in 1989, while the median increased slightly from $25,700 to $26,300. Among the subset of stable households (defined above), the mean rose from $34,900 to $38,300, while the median edged up from $25,600 to $26,200. The modest growth in incomes reflects the aging of the panel, especially the movement of younger households into full-time work.

When trends in mean and median incomes are analyzed by household characteristics, there are few qualitative differences between the full panel sample and stable households. When households are grouped by their 1983 incomes, mean income increased for all groups except the group with incomes between $50,000 and $100,000, for whom mean income declined. Median income rose somewhat for the groups with incomes below $50,000, while declining for those with incomes above that level. The decline in median income among households in the upper-income brackets mostly reflects shifts into retirement or reductions in work hours by older households in these groups.

Consistent with the tendency for labor income to rise into middle age, mean and median income rose over the period for households headed by persons below age 45. For other age groups, changes were more mixed, with median income declining for all groups headed by persons age 55 and over. In terms of education, mean and median income declined for households headed by a person without a high school degree, while increasing for households in which the head was a high school or college graduate. This is consistent with evidence of rising returns to education over the 1980s (Levy and Murnane, 1992). When households are grouped by their 1983 net worth, mean income increased most strongly for the bottom and top groups. However, median income rose for households in the

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[9]There are other reasons that statistics computed using the panel data may differ from comparable estimates using the cross-section data. Since the panel is smaller than either of the two cross-sections, it provides less efficient estimates of population statistics. Also, the panel data are imputed using a broader set of conditioning variables.

[10]The SCF income measure comes from the question, "In [the preceding calendar year], how much was the total income you (and your family living here) received from all sources, before taxes and other deductions were made?" All income values have been converted to 1989 dollars.

TABLE 1

MEAN AND MEDIAN INCOME, BY SELECTED HOUSEHOLD CHARACTERISTICS, 1983 AND 1989

| | Full Panel Sample | | | | | Stable Households | | | | |
| | | Th. of '89 dollars | | | | | Th. of '89 dollars | | | |
| | Share of HHs | Mean income | | Median income | | Share of HHs | Mean income | | Median income | |
| | | 1983 | 1989 | 1983 | 1989 | | 1983 | 1989 | 1983 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| All households | 100.0 | 36.7 | 38.6 | 25.7 | 26.3 | 100.0 | 34.9 | 38.3 | 25.6 | 26.2 |
| *By '83 income ('89 $)* | | | | | | | | | | |
| Below $10,000 | 16.3 | 6.6 | 11.4 | 6.7 | 7.8 | 17.1 | 6.2 | 10.4 | 6.2 | 6.9 |
| $10,000 24,999 | 32.7 | 18.5 | 22.3 | 17.3 | 18.9 | 32.2 | 17.1 | 20.3 | 16.8 | 17.8 |
| $25,000 49,999 | 32.4 | 39.5 | 42.2 | 36.0 | 36.7 | 30.7 | 35.5 | 41.5 | 34.7 | 36.7 |
| $50,000 99,999 | 15.5 | 66.9 | 58.0 | 61.0 | 56.6 | 16.3 | 64.2 | 61.5 | 61.0 | 58.5 |
| $100,000 + | 3.2 | 202.7 | 214.8 | 133.6 | 110.1 | 3.7 | 186.2 | 193.3 | 129.5 | 110.1 |
| *By '83 age of head (yrs)* | | | | | | | | | | |
| Under 35 | 33.1 | 31.0 | 39.0 | 23.1 | 29.3 | 29.2 | 26.9 | 37.6 | 22.3 | 28.3 |
| 35 44 | 19.7 | 46.1 | 47.0 | 36.0 | 38.7 | 19.6 | 42.7 | 46.8 | 34.7 | 36.7 |
| 45 54 | 16.2 | 43.5 | 45.8 | 33.4 | 33.5 | 18.4 | 41.3 | 46.3 | 33.4 | 34.4 |
| 55 65 | 15.8 | 38.6 | 30.9 | 23.4 | 16.8 | 16.6 | 39.7 | 33.9 | 24.8 | 17.2 |
| 65 74 | 11.6 | 30.7 | 30.7 | 17.8 | 13.6 | 12.3 | 31.1 | 28.2 | 17.7 | 13.9 |
| 75 and over | 3.7 | 19.5 | 15.9 | 13.4 | 10.7 | 3.9 | 17.5 | 14.5 | 12.4 | 9.9 |
| *By education of head* | | | | | | | | | | |
| Below high school | 26.8 | 20.7 | 16.9 | 14.2 | 12.6 | 28.4 | 18.6 | 16.9 | 14.0 | 12.6 |
| High school diploma | 48.8 | 34.2 | 36.1 | 26.0 | 28.3 | 46.7 | 32.3 | 35.1 | 26.1 | 28.3 |
| College degree | 24.4 | 59.5 | 67.4 | 45.0 | 46.1 | 24.9 | 58.4 | 68.8 | 45.0 | 46.1 |
| *By '83 net worth* | | | | | | | | | | |
| Bottom 25 percent | 25.0 | 18.0 | 21.2 | 13.6 | 19.6 | 25.0 | 16.1 | 19.4 | 13.1 | 16.8 |
| 25–49 percent | 25.0 | 27.6 | 29.7 | 21.6 | 26.2 | 25.0 | 25.4 | 28.3 | 21.4 | 24.1 |
| 50 74 percent | 25.0 | 34.9 | 36.8 | 30.8 | 30.4 | 25.0 | 34.0 | 36.9 | 30.3 | 31.4 |
| 75–89 percent | 15.0 | 49.1 | 43.5 | 42.4 | 36.7 | 15.0 | 44.7 | 43.8 | 39.8 | 34.6 |
| Top 10 percent | 10.0 | 92.4 | 101.0 | 55.6 | 43.0 | 10.0 | 93.2 | 105.7 | 62.3 | 54.1 |

lower two quartiles of the wealth distribution, but declined for households in other groups. The rise in income for low-wealth households is largely due to the strong income growth of young households in this group.

Table 2 shows how mean and median net worth changed for the panel sample between 1983 and 1989. Net worth is defined as the sum of a household's financial and non-financial assets, minus all of its debts. In the full panel sample, mean net worth increased from $148,300 in 1983 to $187,600 in 1989, while median net worth rose from $42,900 to $56,600. Among stable households, mean net worth increased from $153,900 in 1983 to $204,400 in 1989, while median net worth rose from $50,500 to $60,100.[11]

Whether one considers the full panel sample or stable households only, the rise in mean net worth occurred across all income, age, education, and wealth groups. Mean net worth increased strikingly in the bottom half of the 1983 wealth distribution. This largely reflects developments among younger households in the group, many of whom began the period with negligible wealth but had accumulated some by the end. Increases in median net worth were also broadly distributed, but with some significant exceptions. Median net worth declined for both the 55–

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[11]The changes in mean and median net worth are consistent with cross-section evidence (Kennickell and Shack-Marquez, 1992). This is not surprising, given the use of data from the SCF cross-sections in the development of the panel weights.

TABLE 2

MEAN AND MEDIAN NET WORTH, BY HOUSEHOLD CHARACTERISTICS,
THOUSANDS OF 1989 DOLLARS, 1983–89

| | Full Panel Sample | | | | Stable Households | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean net worth | | Median net worth | | Mean net worth | | Median net worth | |
| | 1983 | 1989 | 1983 | 1989 | 1983 | 1989 | 1983 | 1989 |
| All households | 148.3 | 187.6 | 42.9 | 56.6 | 153.9 | 204.4 | 50.5 | 60.1 |
| *By '83 income ('89 $)* | | | | | | | | |
| Below $10,000 | 26.6 | 28.1 | 4.8 | 7.3 | 25.7 | 24.8 | 5.0 | 4.9 |
| $10,000–24,999 | 60.5 | 63.6 | 22.2 | 33.1 | 60.2 | 61.5 | 26.6 | 36.1 |
| $25,000–49,999 | 121.9 | 146.8 | 59.6 | 91.7 | 124.7 | 156.7 | 65.3 | 101.9 |
| $50,000–99,999 | 201.8 | 297.9 | 115.0 | 166.3 | 211.1 | 336.4 | 118.3 | 195.4 |
| $100,000+ | 1685.1 | 2163.3 | 715.4 | 954.4 | 1531.9 | 2067.3 | 713.1 | 953.4 |
| *By '83 age of head (years)* | | | | | | | | |
| Under 35 | 58.5 | 77.6 | 10.8 | 30.5 | 52.2 | 79.3 | 13.5 | 32.5 |
| 35–44 | 132.4 | 172.1 | 48.9 | 73.7 | 138.1 | 191.4 | 59.4 | 84.6 |
| 45–54 | 187.7 | 268.0 | 71.1 | 89.3 | 181.6 | 256.8 | 68.5 | 89.1 |
| 55–64 | 238.1 | 275.5 | 69.6 | 63.6 | 252.7 | 306.2 | 77.1 | 68.1 |
| 65–74 | 255.4 | 295.4 | 78.0 | 81.9 | 256.2 | 325.0 | 78.0 | 86.5 |
| 75 and over | 143.6 | 190.0 | 62.4 | 50.9 | 121.4 | 147.6 | 53.8 | 44.5 |
| *By education of head* | | | | | | | | |
| Below high school | 69.2 | 71.6 | 24.5 | 29.9 | 69.4 | 74.3 | 24.8 | 32.4 |
| High school diploma | 128.6 | 149.8 | 38.3 | 54.8 | 135.2 | 170.9 | 48.9 | 60.1 |
| College degree | 274.6 | 391.0 | 91.8 | 128.6 | 285.4 | 416.2 | 94.0 | 140.2 |
| *By '83 net worth* | | | | | | | | |
| Bottom 25 percent | 1.0 | 16.7 | 1.1 | 3.8 | 1.6 | 17.3 | 1.4 | 3.8 |
| 25–49 percent | 20.9 | 53.2 | 19.1 | 31.7 | 26.0 | 53.7 | 24.5 | 35.1 |
| 50–74 percent | 76.4 | 130.1 | 76.2 | 95.0 | 81.5 | 136.1 | 79.2 | 101.9 |
| 75–89 percent | 177.1 | 229.0 | 172.7 | 174.5 | 178.4 | 245.5 | 172.3 | 188.4 |
| Top 10 percent | 969.2 | 1031.2 | 491.5 | 383.0 | 997.0 | 1156.6 | 502.3 | 488.2 |

64 and the 75-and-over age groups, as well as the top decile of the 1983 net worth distribution. Increases in median net worth were particularly noteworthy for households headed by persons with college degrees.

Table 3 shows mean and median changes in net worth between 1983 and 1989, in columns (1) and (2) respectively. By mathematical identity, the mean changes exactly parallel the differences in the mean levels given in Table 2. Discussing first the results for the full panel sample, on average, households' net worth rose by $39,400 over the period. The median change of $7,400 was much lower than the mean change, and also much lower than the change in the overall median ($13,700). While median changes in net worth ranged between $9,000 and $16,000 for households in the under-55 age groups, median changes were negligible for households in older age groups. Households in the top 10 percent of the 1983 wealth distribution saw a median change in net worth of −$107,600, largely due to declining values of this group's business and real estate holdings (see below). Results are qualitatively similar for stable households, although the wealth changes are considerably higher for households with incomes of $50,000 and above, and the median reduction in wealth is smaller for households in the top 10 percent of the 1983 wealth distribution.

To provide a sense of each group's contribution to total household saving, columns (3) and (4) show each group's share of the total change in net worth and their share of households, respectively. Most results are qualitatively similar

TABLE 3

MEAN AND MEDIAN CHANGE IN NET WORTH AND DISTRIBUTION OF TOTAL CHANGE,
BY HOUSEHOLD CHARACTERISTICS, 1983–89

| | Full Panel Sample | | | | Stable Households | | | |
|---|---|---|---|---|---|---|---|---|
| | Change in new worth (th '89 $) | | Group's share of: | | Change in net worth (th '89 $) | | Group's share of: | |
| | Mean | Median | Change in total net worth | No. of HHs | Mean | Median | Change in total net worth | No. of HHs |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| All households | 39.4 | 7.4 | 100.0 | 100.0 | 50.6 | 8.4 | 100.0 | 100.0 |
| By '83 income ( '89 $) | | | | | | | | |
| Below $10,000 | 1.5 | 0.1 | 0.6 | 16.3 | −0.9 | 0.0 | −0.3 | 17.1 |
| $10,000–24,999 | 3.1 | 2.7 | 2.6 | 32.7 | 1.3 | 2.8 | 0.8 | 32.2 |
| 25,000 49,999 | 24.9 | 20.6 | 20.4 | 32.4 | 31.9 | 21.0 | 19.4 | 30.7 |
| $50,000–99,999 | 96.1 | 43.6 | 37.9 | 15.5 | 125.3 | 53.2 | 40.5 | 16.3 |
| $100,000+ | 478.2 | 157.8 | 38.5 | 3.2 | 535.4 | 179.3 | 39.6 | 3.7 |
| By '83 age of head (yrs) | | | | | | | | |
| Below 35 | 19.1 | 9.2 | 16.1 | 33.1 | 27.1 | 10.4 | 15.7 | 29.2 |
| 35 44 | 39.6 | 15.8 | 19.8 | 19.7 | 53.3 | 14.2 | 20.7 | 19.6 |
| 45 54 | 80.3 | 14.4 | 33.0 | 16.2 | 75.2 | 16.1 | 27.3 | 18.4 |
| 55 64 | 37.4 | 0.3 | 15.0 | 15.8 | 53.6 | 1.0 | 17.5 | 16.6 |
| 65–74 | 40.0 | −0.7 | 11.8 | 11.6 | 68.8 | 0.2 | 16.8 | 12.3 |
| 75 and over | 46.5 | −0.9 | 4.3 | 3.7 | 26.1 | −0.4 | 2.0 | 3.9 |
| By education of head | | | | | | | | |
| Below high school | 2.4 | 0.2 | 1.7 | 26.8 | 4.9 | 0.9 | 2.7 | 28.4 |
| High school diploma | 21.2 | 8.4 | 26.2 | 48.8 | 35.7 | 9.2 | 33.0 | 46.7 |
| College degree | 116.4 | 28.6 | 72.1 | 24.4 | 130.8 | 28.7 | 64.3 | 24.9 |
| By '83 net worth | | | | | | | | |
| Bottom 25 percent | 15.6 | 2.5 | 9.9 | 25.0 | 12.7 | 2.0 | 7.7 | 25.0 |
| 25 49 percent | 32.2 | 13.8 | 20.4 | 25.0 | 27.7 | 14.3 | 13.8 | 25.0 |
| 50–74 percent | 53.6 | 19.1 | 34.1 | 25.0 | 54.6 | 18.9 | 27.0 | 25.0 |
| 75–89 percent | 51.8 | 1.1 | 19.8 | 15.0 | 67.2 | 20.2 | 20.0 | 15.0 |
| Top 10 percent | 62.1 | −107.6 | 15.8 | 10.0 | 159.7 | −51.3 | 31.6 | 10.0 |

for the full panel sample and the subset of stable households. In both cases, households with incomes of $50,000 and above contributed over 75 percent of total saving, although they represented less than 20 percent of all households. Households with college-educated heads also accounted for a disproportionate share of saving, as did those with heads in the 45–54 age range.

However, there are some notable differences between the full sample and stable households in saving contributions by wealth groups. In the full panel sample, households in the third quartile of the 1983 wealth distribution accounted for over one-third of total saving, while households in the top 10 percent accounted for 15.8 percent. Among stable households, there was a much greater concentration of saving in the upper tail of the 1983 wealth distribution, with the top 10 percent responsible for 31.6 percent of total saving. The lower saving concentration in the full panel sample is mostly due to a small number of wealthy households (27) where the respondent or spouse died over the period; among such cases, median wealth declined substantially, possibly due to bequests. While the small number of cases makes it inadvisable to make too much of this finding, the figures suggest a need for caution in the analysis of saving concentration, since

results are sensitive to the treatment of households that have changed in composition.[12]

## IV. Changes in the Distribution of Net Worth

Previous research using cross-section data has documented an increase in the concentration of wealth over the 1980s (see Kennickell and Woodburn, 1992; Wolff, 1994 and 1995). Some analysts take the trend to imply that those who were wealthy at the outset of the period had become even wealthier by the end. However, this interpretation may or may not be correct: concentration could rise either because initially wealthy households tended to become wealthier, or because households who became wealthy amassed very high levels of wealth. It is not possible to distinguish between these two stories without information on the wealth changes of individual households.

Table 4 presents information from the SCF panel on changes in the distribution of net worth by selected household characteristics. Since there are few qualitative differences between the full panel sample and the subset of stable households, we discuss only the results for the full panel sample. By 1983 age and income, the distribution of net worth was fairly stable between 1983 and 1989. In both years, more than a third of total net worth was held by the 3.2 percent of households with 1983 incomes above $100,000, while over 45 percent of total net worth was held by the 31.1 percent of households with heads age 55 and older in 1983. In contrast, the share of wealth held by households with college-educated heads rose over the period, from 45.2 percent in 1983 to 50.8 percent in 1989.

When households are grouped by their position in the 1983 wealth distribution, the share of wealth held by households in the bottom half of the 1983 distribution rose from 3.7 percent to 9.3 percent, while the share held by the top 1 percent declined from 30.2 percent in 1983 to 25.5 percent in 1989. These shifts reflect some developments already mentioned: the start of wealth accumulation by younger households in low wealth groups, and the declining business and real estate values among households in the high wealth groups.

At first glance, these shifts may seem to be at odds with other evidence that wealth inequality rose over the 1983–89 period. As shown in Table 5, some part of the apparent discrepancy results from analyzing wealth shares in terms of households' initial, rather than current, wealth. In terms of initial wealth, the share of 1989 wealth held by households in the top 1 percent of the wealth distribution in 1983 declined over the period. However, in terms of current wealth, the share of 1989 wealth held by households in the top 1 percent in 1989 was slightly higher than the share of 1983 wealth held by households in the top 1

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[12]Results may also depend on the survey period. Using the 1983–86 SCF and adjustments similar to those we make for the full panel sample, Avery and Kennickell, 1991, attributed 24.1 percent of total saving to households in the top 10 percent of the wealth distribution. The fact that our comparable estimate—15.8 percent for the full 1983–89 panel sample—is lower likely results from several factors, including further aging of the panel, differing questionnaires, and differential changes in the values of assets held by wealthy households over the two survey periods.

TABLE 4

DISTRIBUTION OF NET WORTH, BY HOUSEHOLD CHARACTERISTICS, 1983 AND 1989

| | Full Panel Sample | | | Stable Households | | |
|---|---|---|---|---|---|---|
| | Group's share of aggregate net worth | | Group's share of all HHs | Group's share of aggregate net worth | | Group's share of all HHs |
| | 1983 | 1989 | all HHs | 1983 | 1989 | all HHs |
| All households | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *By '83 income ('89 $)* | | | | | | |
| Below $10,000 | 2.9 | 2.4 | 16.3 | 2.8 | 2.1 | 17.1 |
| $10,000–24,999 | 13.3 | 11.1 | 32.7 | 12.6 | 9.7 | 32.2 |
| $25,000–49,999 | 26.6 | 25.3 | 32.4 | 24.9 | 23.5 | 30.7 |
| $50,000–99,999 | 21.1 | 24.6 | 15.5 | 22.4 | 26.9 | 16.3 |
| $100,000+ | 36.0 | 36.5 | 3.2 | 37.3 | 37.8 | 3.7 |
| *By '83 age of head (yrs)* | | | | | | |
| Below 35 | 13.1 | 13.7 | 33.1 | 9.9 | 11.3 | 29.2 |
| 35–44 | 17.6 | 18.1 | 19.7 | 17.6 | 18.4 | 19.6 |
| 45–54 | 20.5 | 23.1 | 16.2 | 21.7 | 23.1 | 18.4 |
| 55–64 | 25.4 | 23.2 | 15.8 | 27.2 | 24.8 | 16.6 |
| 65–74 | 19.9 | 18.2 | 11.6 | 20.5 | 19.6 | 12.3 |
| 75 and over | 3.5 | 3.7 | 3.7 | 3.1 | 2.8 | 3.9 |
| *By education of head* | | | | | | |
| Below high school | 12.5 | 10.2 | 26.8 | 12.8 | 10.3 | 28.4 |
| High school diploma | 42.3 | 38.9 | 48.8 | 41.0 | 39.0 | 46.7 |
| College degree | 45.2 | 50.8 | 24.4 | 46.1 | 50.6 | 24.9 |
| *By '83 net worth* | | | | | | |
| Bottom 25 percent | 0.2 | 2.2 | 25.0 | 0.3 | 2.1 | 25.0 |
| 25–49.9 percent | 3.5 | 7.1 | 25.0 | 4.3 | 6.6 | 25.0 |
| 50–74.9 percent | 12.9 | 17.4 | 25.0 | 13.2 | 16.6 | 25.0 |
| 75–89.9 percent | 18.0 | 18.3 | 15.0 | 17.4 | 18.1 | 15.0 |
| 90–94.9 percent | 12.4 | 9.5 | 5.0 | 11.5 | 8.6 | 5.0 |
| 95–98.9 percent | 22.8 | 20.1 | 4.0 | 24.2 | 23.9 | 4.0 |
| Top 1 percent | 30.2 | 25.5 | 1.0 | 29.1 | 24.0 | 1.0 |

percent in 1983—31.6 percent in 1989, vs. 30.2 percent in 1983.[13] In other words, while the wealth share of initially wealthy households declined over the period, households who became wealthy amassed relatively high levels of wealth. This clearly suggests a need for caution in using cross-section data to draw inferences about changes in wealth of individual households.

The SCF panel can also be used to look directly at the shifts of individual households within the wealth distribution.[14] Table 6 presents a transition matrix, showing where households fell in the 1989 wealth distribution relative to their position in 1983. The data suggest a fair amount of persistence in the distribution of net worth over the period. Focusing first on figures for the full panel sample, of the households in the lowest quartile of the wealth distribution in 1983, 67.2

[13]Using the SCF cross-section data for households in the panel age range, the share of wealth held by the top 1 percent rose from 31.6 percent in 1983 to 33.1 percent in 1989. Conceivably, the more modest increase for the panel may reflect attrition not fully accounted for in the panel weights, for example, underrepresentation of cases with extreme changes in wealth.

[14]While the method of computing the panel weights might seem to impose the changes in wealth over the period, only the proportion of households in 1983 and 1989 wealth categories are imposed, not the frequency of transitions among wealth categories.

## TABLE 5

### Share of Aggregate Net Worth, by Net Worth Percentile

| Net worth percentile | Full Panel Sample | | | Stable Households | | |
|---|---|---|---|---|---|---|
| | '83 share, based on '83 percentile | '89 share, based on '83 percentile | '89 share, based on '89 percentile | '83 share, based on '83 percentile | '89 share, based on '83 percentile | '89 share, based on '89 percentile |
| Bottom 25 percent | 0.2 | 2.2 | 0.3 | 0.3 | 2.1 | 0.4 |
| 25–49.9 percent | 3.5 | 7.1 | 4.3 | 4.3 | 6.6 | 4.4 |
| 50–74.9 percent | 12.9 | 17.4 | 12.7 | 13.2 | 16.6 | 12.7 |
| 75–89.9 percent | 18.0 | 18.3 | 17.7 | 17.4 | 18.1 | 17.5 |
| 90–94.9 percent | 12.4 | 9.5 | 11.4 | 11.5 | 8.6 | 11.3 |
| Top 2–5 percent | 22.8 | 20.1 | 21.9 | 24.2 | 23.9 | 23.4 |
| Top 1 percent | 30.2 | 25.5 | 31.6 | 29.1 | 24.0 | 30.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

percent were still in the lowest quartile in 1989; another 24.5 percent had moved into the second quartile; and only 8.3 percent shifted into the top half. Of those in the top 1 percent in 1983, 58.9 percent were still there in 1989; another 25.1 percent were still in the top 2 to 5 percent; and only 16.0 percent had moved down below that. There was somewhat more downward mobility among households originally in the top 2 to 5 percent; of these, 31.8 percent were no longer in the top 10 percent of the wealth distribution in 1989. This evidence of turnover among the very wealthy is consistent with direct evidence; for example, of the people on the Forbes 400 list of the nation's wealthiest people in 1994, two-thirds were not on the list ten years earlier (Alger, Noer and Wolfe, 1994, p. 100).

Figures for stable households are similar to those for the full panel sample, although they show somewhat more persistence in status in the bottom quartile of the wealth distribution and somewhat less for the top 1 percent. Overall, the panel data suggest considerable stability in wealth rankings: for example, the Spearman correlation coefficient between 1983 and 1989 wealth was above 0.90 for both the full panel sample and for stable households. Nonetheless, it should be noted that persistence could be overstated if large changes in wealth are underrepresented in the panel in a way not addressed through the panel weights.

## V. Factors Explaining Household Saving

Recent research examines the relative importance of life cycle factors and precautionary motives in explaining household saving (Carroll, 1992; Hubbard, Skinner and Zeldes, 1995; Attanasio and Browning, 1995). The desire to leave a bequest may also be involved (Kotlikoff and Summers, 1981). While most recent research uses consumption data and the Euler equation approach to investigate saving behavior (see Deaton, 1992), saving could also be examined using data on first differences in wealth. This latter approach is potentially less informative for two reasons. First, whereas consumption data permit estimation of structural models, there are not well-established ways to recover behavioral parameters from data on first differences in wealth. Second, while the determinants of wealth changes are nonetheless interesting, wealth levels are quite likely to be measured

TABLE 6

MOVEMENTS OF HOUSEHOLDS WITHIN THE WEALTH DISTRIBUTION, 1983 AND 1989

*Full panel sample*

| 1983 wealth percentile | 1989 Wealth Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bottom 25 | 25–49 | 50–74 | 75–89 | 90–94 | Top 2–5 | Top 1 | Total |
| Bottom 25 | 67.2 | 24.5 | 6.4 | 1.8 | 0.1 | 0.0 | 0.0 | 100.0 |
| 25–49 | 24.6 | 49.9 | 19.2 | 3.7 | 1.9 | 0.7 | 0.0 | 100.0 |
| 50–74 | 6.7 | 18.6 | 46.8 | 22.5 | 3.9 | 1.6 | 0.0 | 100.0 |
| 75–89 | 1.4 | 8.0 | 33.6 | 41.1 | 11.4 | 4.3 | 0.2 | 100.0 |
| 90–94 | 2.6 | 9.4 | 21.6 | 27.3 | 22.8 | 16.0 | 0.3 | 100.0 |
| Top 2–5 | 0.0 | 3.8 | 18.5 | 9.5 | 16.4 | 42.5 | 9.3 | 100.0 |
| Top 1 percent | 0.0 | 3.0 | 2.4 | 6.1 | 4.5 | 25.1 | 58.9 | 100.0 |
| Total | 25.0 | 25.0 | 25.0 | 15.0 | 5.0 | 4.0 | 1.0 | 100.0 |

*Stable households*

| 1983 wealth percentile | 1989 Wealth Percentile | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bottom 25 | 25–49 | 50–74 | 75–89 | 90–94 | Top 2–5 | Top 1 | Total |
| Bottom 25 | 71.3 | 21.9 | 4.9 | 1.8 | 0.1 | 0.0 | 0.0 | 100.0 |
| 25–49 | 20.7 | 53.7 | 20.1 | 4.5 | 0.4 | 0.1 | 0.0 | 100.0 |
| 50–74 | 7.6 | 17.0 | 48.9 | 21.5 | 4.0 | 1.1 | 0.0 | 100.0 |
| 75–89 | 0.9 | 8.1 | 34.6 | 40.3 | 12.1 | 3.8 | 0.2 | 100.0 |
| 90–94 | 1.5 | 11.2 | 17.7 | 28.9 | 24.9 | 15.8 | 0.1 | 100.0 |
| Top 2–5 | 0.0 | 0.6 | 9.5 | 9.3 | 20.5 | 49.5 | 10.6 | 100.0 |
| Top 1 percent | 0.0 | 3.9 | 3.0 | 7.7 | 5.8 | 28.2 | 51.4 | 100.0 |
| Total | 25.0 | 25.0 | 25.0 | 15.0 | 5.0 | 4.0 | 1.0 | 100.0 |

with error, so first differencing may exaggerate the amount of variability in saving. Thus, for example, using data from the 1983–86 SCF and a comprehensive list of explanatory variables, Avery and Kennickell, 1991, are only able to explain 7 to 8 percent of the measured variation in saving.

This section uses the 1983–89 data to estimate reduced form models of household saving, measured as first differences in wealth. The data provide a unique opportunity to relate changes in wealth in the 1983 period to changes in households' income, health and other circumstances. Moreover, the surveys' detailed questions on assets and liabilities, along with the careful cleaning and editing of the data, are likely to make problems with measurement error less influential than they might be in other surveys. The explanatory variables used in the regressions (see Table 7 for details) include the log of 1983 income; a measure of 1983–89 income growth; the age, education and race of the household head; 1983 wealth percentile; several variables indicating household composition and changes therein; indicators of events occurring between 1983 and 1989 that might be expected to affect wealth (a residential move, inheritance, deterioration in health, and expected or unexpected retirement); and a self-described measure of whether the household saves regularly. The dependent variable is the absolute change in the household's net worth between 1983 and 1989, expressed in 1989 dollars.[15]

[15] An earlier version of this paper used alternative measures of saving, including the percentage change in wealth and an estimated saving rate, with few qualitative differences in results (Kennickell and Starr-McCluer, 1996).

TABLE 7

| Variable | Definition |
|---|---|
| CHNW | Change in net worth, 1983–89, in 1989 dollars |
| INC<10 | Dummy variable for 1983 income below $10K |
| INC10–25 | $10–24.9K |
| INC25 50 | $25 49.9K (omitted) |
| INC50 100 | $50 99.9K |
| INC>100 | $100K and above |
| PCHINC | Change in income, 1983–89, divided by average income 1983 and 1989 |
| AGE<35 | Dummy variable for head under age 35 in 1983 |
| AGE35 44 | 35–44 |
| AGE45–54 | 45 54 (omitted) |
| AGE55–64 | 55 64 |
| AGE65–74 | 65–74 |
| AGE>75 | 75 and over |
| EDUC | Education of head (in years) |
| NONWHITE | Dummy variable for head nonwhite or Hispanic |
| NW<25 | Dummy variable for 1983 net worth in bottom 25% of weighted distribution |
| NW25–49 | 25–49% |
| NW50 74 | 50–74% (omitted) |
| NW75 89 | 75 89% |
| NW90–100 | Top 10% |
| ALLMAR | Dummy variable for head married to the same person, 1983–89 |
| GOTWID | Widowed, 1983 89 |
| GOTMAR | Got married, 1983–89 |
| CHMAR | Other change in marital status, 1983–89 |
| UNMAR | Unmarried, 1983–89 (omitted) |
| KIDS83 | Number of children of head and spouse living in the household, 1983 |
| CHKIDS | Change in number of children living in the household, 1983 89 |
| IAS83 | Number of adults in the household beside head, spouse and children |
| CHIAS | Change in number of adults, 1983–89 |
| MOVED | =1 if moved between 1983 and 1989 (0 otherwise) |
| INHERIT | =1 if received an inheritance or trust between 1983 and 1989 |
| HEALDO | =1 if head's health was good/excellent in 1983, fair/poor in 1989 |
| RETEXP | =1 if head retired between 1983 and 1989, expected to in 1983 |
| RETUNEXP | =1 if head retired between 1983 and 1989, did not expect to in 1983 |
| SAVREG | =1 if save regularly by putting money aside each month (1989) |
| MAJMET | =1 if family lives in major metropolitan area |
| NONMET | =1 if family lives in nonmetropolitan area |
| LIST | =1 if case was in list sample in 1983 |
| _cons | Constant |

Since this variable is highly skewed, it is important to use regression techniques that are not overly sensitive to influential observations. Thus, we use median and robust regression to estimate the determinants of observed wealth changes.[16]

Table 8 presents regression results for both the full panel sample and the subset of stable households. Most results are qualitatively similar across specifications and across samples. Saving over the 1983–89 period was greater for households with higher levels of 1983 income, other things being equal. A positive relationship between 1983–89 saving and 1983 income also occurs in regressions (not shown) using relative measures of saving, such as the percentage change in

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[16] The robust method is that of Rousseuw-Leroy, as implemented in Stata 4.0.

TABLE 8

REGRESSION ANALYSIS OF CHANGE IN NET WORTH, 1983–89

| | Full panel sample | | | | Stable households | | | |
|---|---|---|---|---|---|---|---|---|
| | Median | | Robust | | Median | | Robust | |
| INC < 10 | −49471* | (13720) | −37347* | (13236) | −61101* | (11257) | −54569* | (16205) |
| INC10 25 | −29030* | (8796) | −26368* | (8352) | −31981* | (7081) | −33907† | (10103) |
| INC50 100 | 38964* | (9347) | 25183* | (8827) | 65765* | (7498) | 47477* | (10614) |
| INC > 100 | 241913* | (13556) | 75615* | (12806) | 311044* | (10979) | 160375* | (15490) |
| PCHINC | 54197* | (5089) | 31331* | (4800) | 59355* | (4145) | 46868* | (5847) |
| AGE < 35 | −28186* | (10358) | −20227* | (9869) | −33651* | (8302) | −22265† | (11808) |
| AGE35 44 | −29844* | (9069) | −17834* | (8596) | −32813* | (7237) | −26480* | (10270) |
| AGE55 64 | −687 | (8814) | −8005 | (8311) | −4735 | (6764) | −3710 | (9661) |
| AGE65 74 | 11085 | (9984) | 1439 | (9464) | 21345* | (7805) | 8128 | (11090) |
| AGE > 75 | 118409 | (14025) | −7524 | (13238) | 23226* | (10875) | −694 | (15659) |
| EDUC | 354 | (1143) | 946 | (1097) | −38 | (913) | 226 | (1303) |
| NONWHITE | 2262 | (7946) | −11638 | (7555) | −510 | (6613) | −11529 | (9459) |
| NW < 25 | 13851 | (11496) | 11244 | (10978) | 14600 | (9231) | 12215 | (13332) |
| NW25 49 | 13960 | (9131) | 7056 | (8726) | 7792 | (7272) | 5761 | (10352) |
| NW75 89 | −17670† | (9792) | −25863* | (9254) | −19212* | (7714) | −19801† | (10913) |
| NW90 100 | −96518* | (11040) | −162777* | (10409) | −68647* | (8573) | −129050* | (12142) |
| ALLMAR | 12685 | (8421) | 14781† | (8030) | −2352 | (6252) | −1386 | (8923) |
| GOTDIV | −10655 | (14486) | −10091 | (13676) | — | | — | |
| GOTWID | 4649 | (11457) | 2054 | (10888) | — | | — | |
| GOTMAR | −76808* | (15767) | −27678† | (15001) | — | | — | |
| CHMAR | −21154 | (18660) | −25899 | (17740) | — | | — | |
| KIDS83 | 2805 | (3271) | −1835 | (3123) | 7422* | (2601) | 2087 | (3733) |
| CHKIDS | −703 | (4513) | 2156 | (4338) | 2275 | (3899) | 9187 | (5607) |
| IAS83 | 4824 | (8914) | −7042 | (8703) | 7258 | (6722) | −4255 | (9973) |
| CHIAS | 783 | (10759) | −8083 | (10334) | 6649 | (8481) | 1486 | (12578) |
| MOVED | 5084 | (7748) | −9461 | (7315) | 7733 | (6217) | −8999 | (8844) |
| INHERIT | 34494* | (7980) | 23914* | (7544) | 39243* | (6316) | 24043* | (8957) |
| HEALDO | −1569 | (8923) | −4587 | (8508) | −6231 | (7135) | −3830 | (10183) |
| RETEXP | 2490 | (9818) | 16608† | (9263) | 469 | (7288) | 12333 | (10463) |
| RETUNEXP | 198 | (15782) | −17324 | (14924) | 22627† | (12381) | −13164 | (17807) |
| SAVREG | 11052† | (6202) | 18375* | (5861) | 4691 | (4838) | 16535* | (6854) |
| MAJMET | 10585 | (7113) | 20410* | (6719) | 12737* | (5553) | 14560† | (7877) |
| NONMET | −3818 | (8137) | −9143 | (7758) | 1938 | (6468) | −7291 | (9211) |
| LIST | 708935* | (12383) | 735885* | (11622) | 753328* | (9624) | 619148* | (13564) |
| cons | 21160 | (19580) | 28273 | (18726) | 27557† | (15332) | 44993* | (21958) |
| Pseudo-R2 | 0.04 | | | | 0.06 | | | |
| F statistic | | | 21.77 | | | | 338.83 | |
| Prob > F | | | 0.0000 | | | | 0.0000 | |
| No. obs. | | 1,479 | | 1,479 | | 1,180 | | 1,180 |

* Significant at 5 percent level.
† Significant at 10 percent level.
*Note*: Standard errors in parentheses. See previous table for variable definitions.

wealth or estimated saving rate.[17] Saving also rose with the amount of income growth over the 1983–89 period. Standard theory would predict that, among households with similar current income, those expecting high income growth would consume more (save less) than those expecting income to stagnate or decline (Campbell, 1987). While our positive result might seem to contradict this view, it relates to actual, not expected, income growth, and so reflects both anticipated and unanticipated changes that occurred over the period.

As might be expected on life cycle grounds, saving was significantly lower among households in the 35–44 and 45–54 age brackets, compared to households

[17]This is broadly consistent with Dynan, Skinner and Zeldes, 1996, who document a tendency for high-income households to save at relatively high rates.

in the 55–64 age bracket (the omitted age group). The education and race of the household head had few significant effects on saving, after controlling for income, initial wealth and other factors. Having 1983 wealth in the top 10 percent was associated with significantly lower saving in all specifications.[18] Perhaps not surprisingly, households receiving an inheritance in the 1983–89 period had significantly higher levels of saving than others. In the full panel sample, the variables indicating changes in household composition had few significant effects on saving.[19]

Despite the significance of many coefficients in the saving regressions, the models explain only a small part of the variation in saving in the panel sample. The pseudo-R-squareds for the median regressions are around 0.05. The R-squareds from comparable OLS regressions are of similar magnitudes. (There is no straightforward goodness-of-fit measure for the robust regressions). Two factors may account for the low explanatory power of the regression models. First, even if problems with the measurement error are smaller in the 1983–89 panel than in other panel data sets, the level of noise in the wealth data may still be substantial. In this sense, the analysis of the 1983–89 SCF panel would tend to confirm concerns about the quality of saving measures obtained from first differencing wealth. Second, the explanatory variables included in the regressions, while comprehensive, may measure only some of the shocks and sources of heterogeneity affecting household saving over the period. This suggests the need to take seriously the possibility of considerable heterogeneity in factors underlying saving decisions, including uncertainty about income, health, and lifespan, and variation in risk and time preferences.

## VI. CHANGES IN HOUSEHOLD PORTFOLIOS, 1983–89

In addition to changes in the level of wealth, the panel data also provide information on changes in its composition over time. Data on portfolio changes are valuable for several reasons. They may shed light on the question of how actively households manage their assets and liabilities. They provide information relevant to the question of whether tax incentives for saving have the intended effect of increasing saving, or just encourage portfolio restructuring to exploit tax breaks. They may also provide a basis for exploring dynamic relationships between assets, debt and income. Nonetheless, the investigation of these issues has been limited by the lack of panel data on household portfolios.

Table 9 presents some basic information on changes in the composition of household portfolios over the 1983–89 period. The analysis is confined to stable households, since there is only limited information for households that have changed in composition. In both years, about 90 percent of the sample households had some type of financial asset. Mean and median holdings of financial assets rose substantially over the period, largely in the form of increased holdings in

[18]When the percentage change in net worth is used as the dependent variable, having 1983 wealth in the bottom half of the distribution had a positive effect on saving, *ceteris paribus* (see Kennickell and Starr-McCluer, 1996).

[19]This is in contrast to Smith, 1995, who documents a strong relationship between marriage and wealth, using the Health and Retirement Survey.

TABLE 9

TABLE 9

THE COMPOSITION OF HOUSEHOLD WEALTH, 1983-89

| | Share of Households Having the Asset or Debt (percent) | | Median Amount, Among Households Having the Asset or Debt (th. '89 dollars) | |
|---|---|---|---|---|
| | 1983 | 1989 | 1983 | 1989 |
| Financial assets | 90.5 | 90.8 | 6.3 | 11.2 |
| Liquid assets[1] | 87.7 | 87.9 | 2.1 | 2.3 |
| Stocks, bonds, mutual funds and trusts | 21.9 | 22.8 | 7.5 | 12.0 |
| Retirement accounts[2] | 22.2 | 36.1 | 5.0 | 13.0 |
| Other financial[3] | 53.6 | 56.8 | 3.9 | 5.7 |
| Nonfinancial assets | 90.6 | 93.1 | 57.9 | 67.3 |
| Primary residence | 63.1 | 69.2 | 62.3 | 65.0 |
| Business and real estate interests | 28.0 | 31.7 | 62.2 | 45.0 |
| Vehicles | 86.1 | 87.0 | 5.3 | 6.7 |
| Other nonfinancial[4] | 10.3 | 22.3 | 3.7 | 8.0 |
| Debts | 75.1 | 73.4 | 11.8 | 19.8 |
| Mortgage | 39.5 | 41.6 | 25.0 | 30.0 |
| Installment loans[5] | 48.0 | 49.7 | 2.8 | 5.3 |
| Credit card debt | 39.0 | 39.3 | 0.6 | 1.0 |
| Other debts[6] | 28.4 | 18.9 | 3.0 | 6.5 |

[1] "Liquid assets" include checking, saving, and money market accounts, and call accounts at brokerages.

[2] "Retirement accounts" include Individual Retirement Accounts, Keogh accounts, and 401(k)-type accounts.

[3] "Other financial" includes certificates of deposit, savings bonds, and cash value life insurance.

[4] "Other nonfinancial" includes art, antiques, precious metals, and other valuable assets.

[5] "Installment loans" include vehicle loans, home improvement loans, and loans for consumer durables.

[6] "Other debts" include loans for investment real estate, lines of credit, and miscellaneous other debts.

retirement accounts. The share of households owning non-financial assets rose from 90.6 percent in 1983 to 93.1 percent in 1989. Much of this increase is associated with an increase in home ownership among younger households in the panel. The share of households with debts declined slightly from 75.1 percent in 1983 to 73.4 percent in 1989, as older households paid off their debts (see below). Mean and median amounts of debt rose considerably over the period, with the median rising from $11,800 in 1983 to $19,800 in 1989.

A finding of general interest concerns the distinct life-cycle patterns in changes in household portfolios. Table 10 shows shares of households that had an asset or debt in 1989 but not in 1983, and those having the asset or debt in 1983 but not 1989, by the 1983 age of the household head. Perhaps not surprisingly, the share of households becoming home owners over the 1983-89 period was highest among households where the head was under 35 in 1983. Correspondingly, the share of households acquiring mortgages was also highest in this group. The under-35 group also had relatively high acquisitions of vehicles, installment debt, and credit card debt. In contrast, acquisitions of stocks, bonds, and mutual funds

TABLE 10

CHANGES IN OWNERSHIP OF SELECTED ASSETS AND DEBTS (stable households only)

| Item | Share of Households Having the Item in 1989 but not 1983, by Age of Household Head in 1983 | | | | | | Share of Households Having the Item in 1983 but not 1989, by Age of Household Head in 1983 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under 35 | 35–44 | 45–54 | 55–64 | 65 74 | 75+ | Under 35 | 35–44 | 45–54 | 55 64 | 65 74 | 75+ |
| Liquid assets | 7.2 | 4.3 | 2.2 | 5.6 | 6.2 | 4.1 | 3.6 | 8.6 | 5.8 | 3.2 | 4.4 | 0.0 |
| Stocks, bonds, mutual funds | 5.5 | 16.1 | 13.8 | 9.7 | 4.3 | 2.6 | 7.3 | 8.0 | 7.6 | 7.2 | 7.3 | 3.6 |
| Retirement accounts | 24.7 | 22.8 | 20.6 | 12.2 | 2.2 | 2.6 | 5.8 | 2.7 | 5.9 | 6.1 | 2.5 | 0.2 |
| Primary residence | 27.2 | 7.9 | 4.7 | 2.9 | 0.0 | 5.4 | 4.7 | 9.9 | 7.8 | 3.1 | 3.0 | 10.2 |
| Business or real estate | 11.1 | 16.9 | 11.7 | 6.8 | 4.6 | 4.4 | 6.9 | 4.8 | 8.7 | 13.1 | 12.2 | 5.2 |
| Vehicle | 15.1 | 0.8 | 2.7 | 3.3 | 3.3 | 1.4 | 0.4 | 3.3 | 2.1 | 5.9 | 10.7 | 17.8 |
| Mortgage debt | 24.9 | 8.6 | 7.9 | 5.7 | 1.4 | 0.0 | 7.3 | 18.0 | 17.6 | 11.9 | 6.6 | 5.7 |
| Installment debt | 22.6 | 18.8 | 18.0 | 10.1 | 6.3 | 10.8 | 11.6 | 19.3 | 17.0 | 16.7 | 9.8 | 1.8 |
| Credit card debt | 28.9 | 9.9 | 12.5 | 6.5 | 8.4 | 3.7 | 13.7 | 14.4 | 15.9 | 14.1 | 8.6 | 4.7 |

*Note*: See Table 9 for definitions.

were most common in the 35–54 age ranges, probably due to a tendency to diversify as savings rise, as well as an association between age and knowledge of financial opportunities (King and Leape, 1987). Acquisitions of businesses and investment real estate were highest in the 35–44 age group. Retirement accounts—including both individual and 401(k) type accounts—were acquired by households throughout the 35–54 ranges, no doubt in response to tax changes that favored such accounts (Engen, Gale and Scholz, 1996; Poterba, Venti and Wise, 1996).

While transitions out of home ownership were quite uncommon for households with heads between the ages of 45 and 74, the rate rose for households in the 75-and-over age range.[20] Similarly, households in the older age groups were most likely to divest themselves of vehicles without acquiring new ones. The outflow from ownership of business and real estate interests was relatively high for households in the 55–74 age groups, presumably because of a tendency to reduce business involvement around the time of retirement. In contrast, the shares of households paying off mortgage debt were greatest in the middle of the life cycle, in the 35–54 age ranges. Transitions out of installment and credit card debt were also relatively high in the 35–54 age groups; some of these transitions may have been prompted by tax changes during this period, limiting the deductibility of interest payments on consumer debt (Maki, 1995).

## VII. SUMMARY AND CONCLUSIONS

This paper analyzed saving and portfolio changes using the 1983–89 panel of the SCF, and had four major findings. First, there was a modest increase in median wealth over the period, partly reflecting the aging of the panel sample. Second, while overall wealth inequality rose over the period, households in the

[20]Expressing the rate conditional on home ownership, almost 20 percent of older households who owned homes in 1983 no longer owned homes in 1989.

top 1 percent of the wealth distribution in 1983 saw their share of total wealth decline between 1983 and 1989. Third, regression analysis showed significant effects of age, income and initial wealth on saving over the 1983–89 period, as standard models of saving behavior would predict. However, the analysis still left a large part of total variation in saving unexplained. This may be due to measurement error in wealth, as well as incomplete measurement of the myriad of factors that explain saving behavior. Finally, there are some clear life-cycle patterns in the portfolios of assets and liabilities held by households, with younger households acquiring homes, businesses and all types of debts, and older households divesting themselves of these assets and liabilities.

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