

## Why Don't Americans Save?

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### *Abstract*

*This paper is a preliminary report on an examination of the decline in the household saving rate over the past two decades from both the macroeconomic and microeconomic perspectives. At the aggregate level, it is noteworthy that about 40 percent of the fall in the household saving rate is within the contractual retirement accounts, and that much of the drop in discretionary saving occurred prior to the sharp rise in equity and home values in the late 1990s. The paper also examines the magnitude of other potential explanations, such as the drop in inflation, capital gains on wealth and an alternative treatment of consumer durables as investment.*

*The microeconomic section explores the feasibility of using information from successive Surveys of Consumer Finances (SCF) to follow the wealth accumulation of specific age cohorts over the period of most dramatic change in the aggregate saving rate. For many components of wealth, the surveys are very similar to the corresponding aggregates of the flow of funds accounts (FFAs), but there are substantial discrepancies for corporate equities. The discrepancies in the nominal wealth are magnified when the two estimates are adjusted for capital gains, yielding substantially different estimates of household saving. The paper reports on some preliminary efforts to benchmark the SCF to the FFAs, using the distributional information of the SCF to provide an added dimension to the FFA data.*

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## Introduction

The U.S. household saving rate has undergone an astonishing collapse over the past two decades, falling from an average of ten percent of disposable income in the first half of the 1980s to two percent in 2000-2003. The drop is particularly surprising when viewed in the context of the large cohort of baby-boomers who should be well into their peak saving years. The sources of the reduced rate of saving, including issues of measurement, have generated considerable interest in the research literature.<sup>2</sup> A variety of explanations have been put forth, with the most prominent being an emphasis on large capital gains on the ownership of corporate equities and real estate. In addition, the easy availability of mortgage financing may have encouraged households to borrow against their increased home equity.

The causes of the reduced saving are of particular interest when we look ahead to rising future costs of providing for the consumption needs of an aging population. If the fall in the saving rates can be traced to the recent rise in the wealth-income ratio, there might be little cause for concern. Households should be expected to consume a portion of such a large and unanticipated gain; and if the surge in wealth turns out to be transient, the saving rate should recover in future years. Other more permanent sources of decline would have more significant implications for future growth and the adequacy of retirement resources.

The objective of this paper is to use information on net asset purchases and wealth from the flow of funds accounts to provide a link between the measure of the flow of saving in the national accounts and wealth estimates obtained from the Survey of Consumer Finances. In the first section, data from the national accounts and the flow of funds accounts are used to disaggregate saving among a range of different contractual pension plans, Individual Retirement Accounts (IRAs), and more discretionary forms of saving. This macroeconomic overview highlights some potential causes of the reduced rate of saving.

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<sup>2</sup> Some of the most recent articles are Gale and Sabelhaus (1999), Lusardi and others (2001), Maki and Palumbo (2001), Parker (1999), Peach and Steindel (2000), and Sabelhaus and Pence (2000). I have also made extensive use of the measurement discussion in Reinsdorf and Perozak (2002).

In the second section, data from the flow of funds are used to estimate capital gains within asset categories, and to shift from a focus on saving flows to wealth estimates that can be matched to the microeconomic perspective of the Survey of Consumer Finances (SCF). The SCF is conducted every three years and extends over the period of 1983 to 2001, an 18-year period that both predates the decline in saving and includes the years of most dramatic change. Because the wealth estimates of the SCF are believed to provide a relatively good match with the estimates of the flow of funds accounts, the repeated cross-section estimates of can be used to explore some of the demographic characteristics of the change in aggregate wealth. In particular, the analysis explores the potential usefulness of a synthetic cohort technique to examine changes in the wealth accumulation of specific age cohorts over the 18 years for which we have survey data.

### **Macroeconomic trends**

The unprecedented magnitude of the saving decline is most evident in figure 1. The personal saving rate has fallen from an average of 10.4 percent of disposable income in the early 1980s to 1.4 percent in 2003. Prior to the 1980s, the saving rate had actually shown evidence of a modest upward trend with very limited annual fluctuations. The broader measure of private saving, which includes corporate retained earnings, indicates a very similar pattern except for the sharp rise of corporate earnings in 2002 and 2003. Retained earnings declined as a share of national income in the early 1980s, but they are not part of the decline of the past two decades. Thus, the subsequent analysis focuses on personal saving.

*Contractual saving.* The major role played by retirement saving accounts is highlighted in table 1 by using data from the flow of funds accounts to identify saving within employer-provided pension funds and individual retirement accounts. The capital income of these funds are generally exempt from income taxation, but they are subject to some restrictions on withdrawal prior to retirement. Both the national income and product accounts (NIPAs) and the flow of funds accounts (FFAs) classify net additions to these funds as part of the saving of the household sector. Retirement saving was a slowly rising share of total household saving throughout the period of 1952 to 1985, and reached

a peak equal to two-thirds of the total in the mid-1980s. There is some evidence of a substitution with other forms of saving which were a declining share of total saving in the late 1970s and early 1980s (Bosworth, Burtless, and Sabelhause, 1991; and Bosworth and Burtless, 2004).

The decline in the overall rate of personal saving appears to have begun in the last half of the 1980s and was initially evident only in the non-retirement components, which fell to zero and remained at that level throughout the 1990s. Over the past four years, saving outside of the retirement accounts has averaged -1.7 percent of disposable income. However, retirement saving fell steadily throughout the 1990s as a share of disposable income; and in the 2000-2003 period, the percentage devoted to retirement account saving was less than half that of the 1980s. Saving within pension funds and IRAs accounts for 40 percent of the drop in the personal saving rate between its peak in the early 1980s and 2000-2003.

The changed rate of accumulation within the different types of retirement accounts is shown in the middle portion of table 1. A reduced rate of saving within employer-funded defined-benefit plans might be expected in the late 1990s as large capital gains on equities pushed many of the plans into an 'over-funded' status that prevented continued contributions. Surprisingly, however, saving also declined within state and local pension plans that are not bound by funding limits, and the reduced rate of accumulation within defined-contribution plans is as large as that for defined benefit plans.<sup>3</sup> There has been no decline in pension saving within life insurance companies, but many of those accounts are related to the transfer of funds from other pension plans to finance retirement annuities. Finally, there is some falloff in the rate of saving within IRAs relative to the peak accumulation of the mid-1980s. A large portion of the funds that flow into IRAs today are the result of the rollover of employer-provided pension accounts occasioned by job terminations.<sup>4</sup> By the end of 1993, these IRA accounts

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<sup>3</sup> Separate information on private defined-benefit and defined-contribution plans are only available for the years after 1985. In addition, the data for 1985 may be distorted by an unusually large increase in accumulation for the total of all private pensions.

<sup>4</sup> Summaries of a extensive body of research on the disposition of lump-sum distributions is available in Burman and others(1999) and Moore and Muller (2002).

accounted for \$3 trillion in household wealth, compared to \$9 trillion in formal pension accounts.

It is difficult to determine fully the reasons for the falloff in pension saving. The flow-of-funds estimates are computed by excluding capital gains from the change in wealth to obtain a net measure of the flow. The basic information is derived from tabulations of the Form 5500 filings of individual pension plans with the Internal Revenue Service, for which the last available report is for 1998. Thus, the current information requires considerable extrapolation using private-sector sources. Alternatively, saving within these accounts can be defined as contributions plus capital income (excluding capital gains) minus benefit payments. Some information on the three components is provided in the national accounts, but no information is available on employee contributions to private pension plans.

The data are relatively complete for government pensions, and the FFA and NIPA measures of pension saving are in close agreement. In that case, the fall in the saving rate can be traced to both a steady deterioration in the ratio of contributions to income dating back to the early 1990s, and a growth in benefits. In the expansion of Social Security to cover state and local government employees, some states have scaled back the size of their pension programs for new employees. Investment income has fluctuated in line with financial market developments, and has fallen as a share of disposable income in recent years.

For private plans, the change is due more to a large growth in benefit payments that most likely reflects the maturing of defined-contribution plans. Although employer contributions as a share of income declined in the late 1980s, the ratio has been relatively constant over the past decade, and has increased significantly in 2002 and 2003. As with government pensions, investment income has fallen in recent years. I would conclude that a large portion of the decline of saving within the pension accounts is relatively permanent and reflects a maturation of the overall retirement system. The proportion of workers with private pension programs has been constant for several decades, and the aging of the covered workforce is leading to significant increase in benefit outflows.

If the falloff in saving is dated to begin in the mid-1980s, the largest drop is in non-retirement saving, which fell to zero in the late 1980s and turned sharply negative

after 1999. The change since 1980-84 amounts to five percent of disposable income, and it would be even larger if measured against the 1952-79 period. It is notable that this component actually held quite steady over the 1990s when household incomes and wealth were rapidly rising.

We can also be relatively confident that the saving decline is not just a statistical illusion. While the FFA measure of household saving is more volatile than that of the NIPAs, it shows a very similar pattern of deterioration. Because of a narrowing of the statistical discrepancy, the FFA measure actually indicates a larger drop in the rate of non-retirement saving, 6.4 versus 5.2 percentage points.

*Alternative saving concepts.* Over the years, many researchers have suggested alternative definitions of saving, and it is useful to inquire if they would alter the magnitude of decline shown by the standard measure.<sup>5</sup> A convenient recent summary is provided by Perozek and Reinsdorf (2002), who focus on (1) the treatment of consumer durables, (2) inflation, and (3) capital gains. Most economists would agree that the current line of demarcation between consumption and investment goods is somewhat arbitrary and that a case can be made for an expanded definition of investment (and thus saving) to include a broader group of expenditures. Like housing, consumer durables can be viewed as providing a stream of services in future period rather than representing current consumption. The FFAs provide a measure of income and saving in which durable purchases are treated as an investment. However, as shown in the bottom panel of table 1, the inclusion of durables has only a small impact on the estimated magnitude of the long-term deterioration in the saving rate. Such purchases are highly volatile, even over 5-year periods, and there is no obvious trend.

Furthermore, it has long been recognized that, in periods of inflation, nominal interest payments include some prepayment of principle in order to maintain the real value of wealth. That is, an increase in inflation would raise the reported level of nominal income and saving of net creditors (households) without implying any increase in real wealth.<sup>6</sup> A measure of the inflation adjustment is reported in table 1. It is

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<sup>5</sup> Some of the most cited references are Auerbach (1985), Bradford (1991), Eisner (1989), Gale and Sabelhaus (1999), Hendershott and Peek (1989) and Jump (1980).

<sup>6</sup> The household sector is normally thought to be a net lender to the business and government sector. Thus, the inflation adjustment would be of little consequence to national income unless a country has large debts

computed by multiplying the rate of inflation by an estimate of household net interest-bearing wealth.<sup>7</sup> The wealth is defined as deposits and credit market assets less credit market liabilities. The calculations include the interest-bearing assets and liabilities of noncorporate enterprises and assets held indirectly through pension plans, life insurance, personal trusts and mutual funds( Perozek and Reinsdorf, 2002).

The adjustment is quite large in the early 1980s, over three percentage points of income; and it declines to only 0.7 percentage points in 2000-2003. The decline is due both to lower rates of inflation and a much smaller level of interest-bearing wealth. Traditionally, the household sector has been a net creditor and the noncorporate sector a net debtor. But, beginning in 1999, the household sector becomes a net debtor in terms of directly-held interest-bearing assets and liabilities, reflecting the growing concentration of wealth in housing and equities on the one hand and the rise of mortgage debt on the other. The indirect holdings by the financial agents of households remain highly positive, but the overall net position falls as a proportion to disposable income from about unity in the early 1950s to one-fourth in 2003. Thus, lower inflation is a potential explanation for some of the decline in the saving rate.

The most controversial issue involves the treatment of capital gains. The focus of the system of national accounts is on the disposition of the current period's production of real resources. Thus, under the NIPA definition, saving is the portion of the current period's production that is not consumed. The unconsumed portion of output is available for investment in productive assets, and those additional assets will enable an increase in future production and consumption. This definition of saving excludes the revaluation of existing assets.

On the other hand, net wealth accumulation – inclusive of capital gains and losses, but perhaps adjusted for general inflation – is more relevant for purposes of measuring changes in individuals' economic well-being. By enabling a person to make larger future consumption claims, an increase in wealth improves well-being, regardless

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to the rest of the world. However, in recent years the household sector is a creditor only if retirement accounts are included and the United States does have a considerable foreign debt. Jump (1980) was one of the first to make the adjustment empirically.

<sup>7</sup> The inflation rate is measured by the year-over-year change in the average of the 4<sup>th</sup> and 1<sup>st</sup> quarter values of the personal consumption expenditure deflator of the national accounts.

of whether the increase in wealth reflect the future real income flows from additional capital investment or a transitory bubble associated with stock market exuberance. However, it has been argued that from the perspective of the aggregate of a closed economy the increased claim on current consumption can only come about with a reduction for others.<sup>8</sup>

Even in the aggregate, an increase in wealth resulting from a technological breakthrough that increases the productivity of existing capital should be no different from that which is due to increased investment outlays. If all investors were forward looking and perfectly knowledgeable about the future, the changes in valuation would necessarily reflect changes in the productivity of capital. In practice, however, revaluations of the capital stock as reflected in the stock market seem much more random.<sup>9</sup>

The inclusion of capital gains results in an extraordinarily volatile measure of saving at the aggregate level, however, and valuation changes overwhelm any underlying variation in saving and investment flows. A simple measure of the nominal holding gains on market-valued assets is available in the FFAs and an inflation adjustment is computed as the rate of price inflation times the initial value of net worth. The resulting real capital gains, shown in table 1, suggest an astounding 44 percentage point addition to the saving rate over the last half of the 1990s, followed by a substantial negative correction in recent years.<sup>10</sup> Even over long period of time, capital gains average in excess of 10 percent of disposable income. However, the focus on the household saving and wealth overstates the long-run role of capital gains because the contribution of reinvested corporate earnings is assigned to the capital gains term. Furthermore, increased land prices are all allocated to capital gains. Some of the rise in land price is reflected in increased production, but much of it falls outside the boundaries of production as conventionally

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<sup>8</sup> Even the claim of no net gain might be questioned in the context of increasingly open global economy since the assets could be sold to foreigners.

<sup>9</sup> Hall (2000), for example, argued that the surge in the stock market in the late 1990s represented an increase in intangible capital that would contribute to future output, only to see the market reverse that valuation in subsequent years.

<sup>10</sup> Peach and Steindel (2000) point out that the secular decline in the saving rate can be greatly reduced by including realized capital gains in saving. But the logic for focusing on realized gains is weak because most such gains are generated in the process of portfolio realignments, often by mutual fund agents. It is not clear why those gains would be more likely to lead to additional consumption.



measured (travel time, for example). Furthermore, if capital gains were to be included as a component of saving, a similar change would be required in the definition of income. Yet, no one would suggest that the marginal propensity to consume out of wealth approaches that of other forms of income.

For most purposes, the inclusion of capital gains does not yield a useful definition of either income or saving. Instead, it seems more reasonable to stick with the standard definitions of income and wealth, but to recognize that the change in wealth is a separate but important determinant of consumption. As shown in the last line of table 1 and in figure 2, the wealth-income ratio rose to unprecedented levels in the 1990s; in recent years it remains well above its historical average, despite the declines in equity prices in 2000-2002. The 2000-2003 average is 0.95 higher than the benchmark period of 1980-84. However, the figure also illustrates that housing wealth is as important as equities in accounting for the secular rise of the wealth-income ratio. If the marginal propensity to consume out of wealth is in the range of 0.03-0.05, as suggested by Poterba (2000), a wealth effect would account for 3-6 percentage points of the saving rate decline. Ludvigson and Steindel (1999) argue, however, that changes in equity wealth has no consistent predictive power in consumption regressions. They also point out that much of the decline in saving preceded the post-1995 rise in the wealth-income ratio. Thus, the timing does not support a causal interpretation.

*Housing Equity Withdrawal.* An alternative explanation of the saving decline focuses on a presumed increase in the liquidity of the housing and mortgage markets. The cost of mortgage refinancing dropped substantially over the 1990s, from about two percent of the outstanding mortgage to less than 0.5 percent in recent years (Federal Housing Finance Board, 2004). With this decline in mortgage rates, many homeowners have sought to refinance their mortgage. In addition, data from Freddie Mac suggest that about one half of refinancings result in an increase in the mortgage amount in excess of 5 percent. It is argued that the increased liquidity of the housing market leads to the withdrawal of housing equity earlier in individuals' lifecycle than was the typical situation for older generations (Brady and others, 2002).<sup>11</sup>

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<sup>11</sup> However, the Brady and others study concluded that the magnitude of the effect on consumer spending was likely to be small.

On the basis of an examination of the housing market in ten countries, a recent OECD study (Catte and others, 2004) argued that there is significant link between the withdrawal of housing equity and consumption spending. They focus on the overall relationship between the mortgage market and housing, using the net change in the mortgage stock less new residential investment, rather than refinancings. This is a different measure than that reported by Freddie Mac because it includes the sale of homes by older cohorts with a small remaining mortgage to younger households. However, for several countries, including the United States, they find a significant link between their measure of equity withdrawal and consumption. Perhaps more importantly, they illustrate a link between the ‘completeness’ of mortgage markets and the strength of the association between housing values and consumer expenditures. Countries with highly developed mortgage markets display a larger impact of home value on consumption.<sup>12</sup>

The historical pattern of change in housing equity withdrawal is shown in figure 3 together with overall housing equity defined as the value of residential housing less mortgage liabilities. There is a substantial rise in the rate of equity withdrawal in the late 1990s, but it only offsets a portion of the overall increase in homeowners’ equity. Furthermore, there is no evident correlation between this changes in this measure and the decline in the saving rate in earlier years. Also, as shown at the bottom of table 1, mortgage equity withdrawal appears to be too small to account for a major portion of the saving decline. It represented about 1.7 percent of disposable income in the 2000-2003 period and it had the opposite sign through much of the 1990s.

### **Microeconomic Evidence**

Given the stability of the saving rate in the decades prior to 1980 and the one-time nature of the recent decline, it is extremely difficult to account for the change on the basis of macroeconomic data alone. Thus, this section explores some survey data of households to determine if the microeconomic analysis can provide any insight into the source of the decline.

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<sup>12</sup> An appealing argument of the article by Catte and others is that the development of the mortgage market, particularly for refinancing, increases the liquidity of housing wealth. However, the inclusion of their measure of equity withdrawal eliminates any significant role for housing wealth in the consumption regressions that they estimate for the United States.

An ideal data set would follow the behavior of a select panel of households continuously throughout the period. Unfortunately, no such data exists. There are four basic surveys that we might use. The Consumer Expenditure Survey (CES) has been conducted on a continuous basis since 1980, and individual households participate in quarterly interviews spread over a period of one year. Saving can be measured as income minus expenditures. However, as reported more fully in Garner and others (2003), there is a growing deterioration in the ratio of the survey measure of consumption expenditures to corresponding components of the national accounts.<sup>13</sup> As a result, the survey does not even capture the deterioration in saving that is so evident in the aggregate data.

The Survey of Income and Program Participation (SIPP), the Panel Study of Income Dynamics (PSID), and the Survey of Consumer Finances (SCF) all provide estimates of wealth over the relevant period, but they provide no direct information on saving. In addition, the SIPP captures only about half of the wealth reported in the SCF, presumably because of a failure to include high-income families (Czjaka and others, 2003). The PSID is potentially very useful because it does follow the same individuals over time and the estimates of wealth are much closer to those of the SCF than the SIPP.<sup>14</sup> However, this paper focuses on the SCF because it includes six individual surveys spanning the years 1983-2001, thus providing information on wealth holding over the period of decline in the saving rate.

I propose to use the wealth surveys to examine the change in saving at the microeconomic level by constructing measures of household wealth that are consistent with the definitions of the FFA, adjusting for capital gains and losses between survey years, and using a synthetic-cohort technique to examine the change in wealth for specific age cohorts over the two sub-periods of 1983-92 and 1992-2001. The household saving rate averaged 7.9 percent of disposable income in the first period and 3.7 percent in the second. Thus, these two periods encompass a large portion of the period of falling saving. However, it is important to note that the SCF does not include most retirement accounts.

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<sup>13</sup> An extreme example is provided by noting that the weight of housing in the CPI, which is based on the CES, is nearly twice that in the NIPA consumption data. The discrepancy does not reflect any disagreement over the magnitude of housing expenditures, but the CES finds only about half of the other expenditures.

<sup>14</sup> Hurst and others (1998) used the PSID to examine wealth changes over the 1984-94 period.

*Prior research.* Several recent studies have undertaken similar analyses. Maki and Palumbo (2001) use the relationship between comparable components of wealth in the SCF and FFAs to impute the FFA measures of wealth and saving to groups of households in the SCF. That is, they allocated each asset and liability category of the FFAs to groups of households using the distribution of the asset category reported in the SCF. They defined their groups on the basis of income and educational attainment. A more controversial aspect of their procedure is the assumption that they could use the asset allocation to distribute FFA saving (flows) across the same groups. In affect, they assume that net purchases are proportionate to the holdings of the specific asset/liability in the cross-section of households.

Maki and Palumbo concluded that the decline in saving has been concentrated among the highest-income and best-educated families. However, that may be a direct result of their assigning a predominate portion of equities to those same groups. Equities are the major FFA category for which household net purchases are consistently negative. While those were the groups that benefited most from the rise in equity prices, the negative net accumulation was common both before and after the run up of prices.

Sabelhaus and Pence (1999) used the SCFs of 1989, 1992, and 1995 to measure the wealth accumulation of specific age cohorts over the 1989-1995 period. They employed the level and flow data of the FFAs to separate the change in wealth holdings within broad asset groups between capital gains and net purchases. These aggregate rates of capital gains are then applied to the comparable asset categories for the SCF. They used the adjusted SCF measures to track the change in wealth due to net investment and capital gains for broad age cohorts. Thus, they can observe each age cohort's wealth accumulation over a 6-year period – for example, as they aged from 34-43 in 1989 to 40-49 in 1995. They also include adjustments for mortality and bequests.

Sabelhaus and Pence find a much stronger life-cycle impact on saving than is typical in other studies, with very large rates of dissaving among the oldest cohorts even after adjusting for bequests. They attribute this result to the better representation of high-wealth families in the SCF. Of more relevance to the current study, their adjustment of the SCF for capital gains does not imply a decline in the rate of saving over the period.

In fact, the rate of active wealth accumulation (excluding capital gains) is higher in 1992-95 than in 1989-92.

One other research report is of particular relevance to the methodology of this study. Hildebrand (2001) used the wealth estimates for eight SIPP surveys to undertake a synthetic-cohort analysis of the age pattern of wealth accumulation. Even though the SIPP may not capture large portions of aggregate household wealth, the Hildebrand study is interesting in highlighting the usefulness of the cohort perspective. In particular, he shows a strong hump-shaped age distribution of wealth in the cross section that vanishes in the cohort analysis. Older households have less wealth than younger households at a point in time not because they dissave but because they had lower lifetime earnings.

*SCF Versus FFA Wealth.* The first step is to compute measures of household wealth and its components in each survey that are comparable to those of the FFA. The procedures for grouping survey responses rely heavily on the methodology of Antoniewicz (2000). The results are summarized in table 2. The estimates for the 1989 through 1998 surveys agree closely with the values published by Antoniewicz and we extended her methodology to the 1983 and 2001 surveys. We also can compare our result for 1983 to a study by Avery and others (1998).

Some wealth items that are part of the FFA, such as defined-benefit pension accounts and life insurance reserves, are not included within the SCF. However, the coverage of matching categories accounts for 70-80 percent of the total with the difference being largely due to the exclusion of pensions. In most years, the SCF is a fairly good match to the FFAs for corresponding components of net worth, ranging from 94 to 99 percent in the 1983-98 surveys, but there is a large 20 percent overestimate in 2001.

With respect to individual components, the FFA estimate of deposits consistently exceeds that of the SCF.<sup>15</sup> Also, there are significant problems with corporate equities that appear to be associated with the measure of the value of closely-held corporations. Avery and others (1988) in their analysis of the 1983 data argued that the FFAs did not capture many of these holdings, and they simply excluded the category from their

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<sup>15</sup> We did not follow Antoniewicz in deducting rest-of-world deposits and currency from total currency because it resulted in a negative residual in 2001. Our estimates make no deduction for currency even though it is not captured in the SCF.

comparison. In later years, Antoniewicz (2000) distinguishes between closely-held and other equities, but the SCF estimate is consistently larger than the FFA value in all years. The discrepancy between the two sources is also quite large for noncorporate equity in 1983. There is a surprisingly close alignment of the valuation of residential real estate in all years, and a relatively good agreement on financial liabilities.

*Capital gains adjustment.* The FFAs provide estimates of both the net accumulation of assets and liabilities (exclusive of valuation changes) and end of period estimates of net wealth that include valuation changes. Thus, the capital gain can be computed as the change in the level of wealth minus the flow accumulation. For the data shown in table 2, capital gains adjustment are made for all the categories except deposits, credit market instruments and financial liabilities. Both the FFAs and the SCF record bond holdings at book value, eliminating the need to adjust any of the credit market instruments. The estimated rate of capital gain for each category of the FFAs is used to adjust the components of wealth in both the FFAs and the SCF.

Measures of the change in wealth over the periods of 1983-92 and 1992-2001 are shown in tables 3a and 3b. Table 3a reports the total change in wealth inclusive of capital gains and Table 3b reports the net rate of saving. Several features stand out from the tables. First, the magnitude of capital gain overwhelms the estimated rate of active saving. In table 3a the change in FFA net worth averages 30 percent of disposable income in both periods. In contrast, the net saving component declines from 10 to 4 percent of disposable income (table 3b).

Second, despite a fairly close correspondence between the SCF and the FFAs for the nominal value of wealth, the two sources yield much different estimates of the gross change in net worth and the net rate of saving. The SCF measure of the change in net worth actually rises substantially in the second period (because of the large discrepancy between the SCF and the FFAs in 2003), from 19 to 37 percent of disposable income. It also suggests a doubling of the net saving rate between the two periods. However, the SCF and the FFAs yield more similar measures of wealth change and saving for the 1983-92 period. In addition, the discrepancies in those asset components with volatile prices tend to magnify the differences between the SCF and the FFAs when they are used to estimate the residual net saving component.

*Benchmark Adjustments.* There is nothing in the aggregate data that would support the conclusion from the SCF that the rate of household net saving has increased over the past two decades. Thus, errors in respondents' estimate of the value of their asset holdings is the most plausible explanation for the difference between the two wealth estimates. That premise is also supported by noting that the discrepancies in table 2 are largest for the asset categories with the most volatile prices. In particular, it does not seem surprising that investors were relatively unsure of the value of their equity holdings in 2001.

If the errors in valuation are distributed relatively randomly across respondents, it would still be true that the SCF would provide useful information on the distribution of wealth, even if not on the total amount. That suggests that the SCF might be useful in providing some information on the composition of the change in wealth across various demographic and social groups. Thus the ratio of the nominal values of the FFAs to the SCF values was used to adjust the SCF data for each survey year and asset category shown in table 2. Second, a capital gains adjustment was applied to the same years and categories.

Both of these adjustments will seem very extreme at the level of individual sample households. It is unlikely that each household would make the same proportionate error in reporting its assets or that the assets within each category would be subject to the same rate of capital gain. However, the objective is to compute averages for relatively large groups within which each of these errors might be randomly distributed.

Some preliminary results are reported in table 4. The upper panel shows the change in the distribution of wealth, adjusted for capital gains, over the two subperiods of 1983-92 and 1992-2001. This can not really be referred to as saving since the individuals in each age group are not the same at the beginning and end of the two periods. Still it does indicate that the large increase in wealth implied by the SCF is concentrated among families in the middle of the age distribution. The cohort distribution on the right-hand side is more useful because it tracks the same age groups classified by their age in 1983. It gives more evidence of pronounced wealth accumulation among the young and declines in later years, both because of death and dissaving.

The middle panel reports on the results of benchmarking the SCF data to the FFA. As would be expected, there is now much stronger evidence of reduced saving because the anomalously large discrepancy of 2001 has been removed. Also it is interesting that the drop in saving is quite widespread across all age groups. In fact very little should be made of the positive saving for those who were under 30 in 1983. The rise for that group is dominated by the very low initial wealth level and large increases in the number of young people who form their own independent units in later years. In addition, the change in saving for the older ages is obviously influenced by mortality. However, there is still a substantial increase for the baby-boomers who were 30-40 in 1983. Today, they are in their 50s when saving should be a prime consideration.

Finally, some of the limits of the cohort analysis are obvious in the last panel. Even though the distribution of families age is quite uniform in any one survey year, they are heavily concentrated among those who very young in 1983. By 2001 nearly half of the survey was of families that were less than 30 years of in the 1983 survey.

## **Conclusion**

The empirical results from this effort to use the survey data to explore some aspects of the decline in saving are highly preliminary, as it has required significant time to organize the data and reduce the inconsistencies between surveys. However, it would appear that the merger of the FFA aggregate data and the SCF will enable future analysis on the wealth accumulation of various groups whose characteristics can be expected to be relatively stable over time. In addition, the data set can be extended to adjust for mortality, and perhaps some imputations can be made for the impact of bequests on wealth accumulation. However, at present the SCF has only a few limited questions with respect to inheritance.

The comparison between the SCF and the FFAs suggests that the architects of the SCF have made considerable progress in developing a sample that is truly representative of the total national wealth holding. However, the repeated surveys of wealth levels provide limited new information. It is evident that the next big step would be to extend the SCF to have a panel dimension as was originally proposed in the 1980s. In the



absence of a panel, the transformation from wealth levels to saving flows will also be filled with error and limited in the range of issues that can be explored.

## References

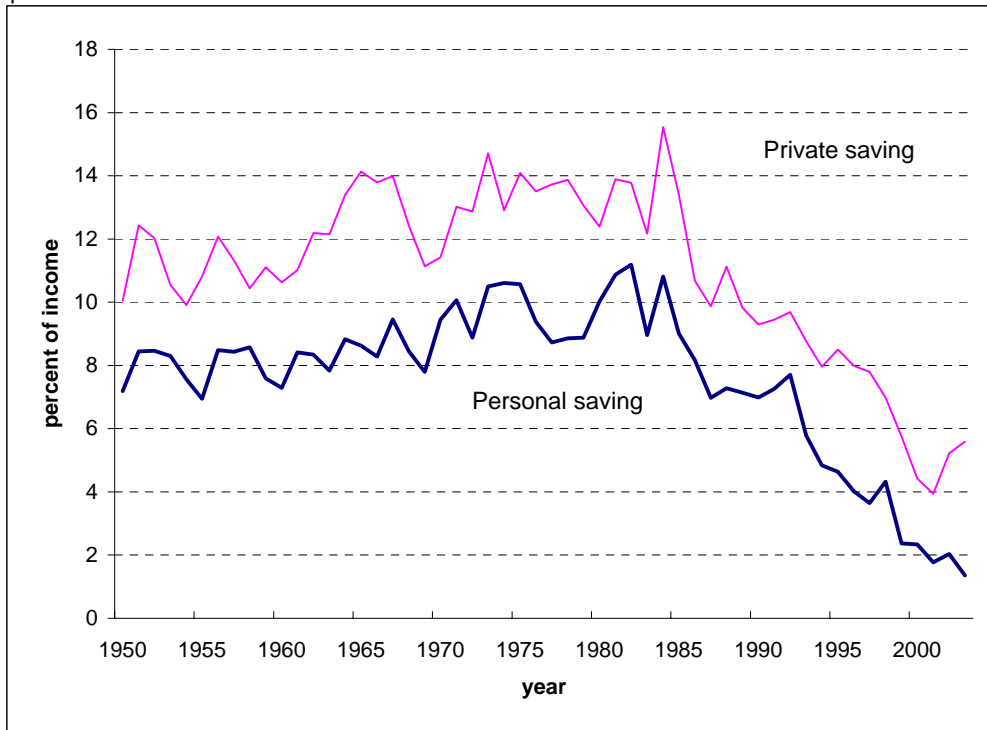
- Antoniewicz, Rochelle L. 2000. "A Comparison of the Household Sector From the Flow of Funds Accounts and the Survey of Consumer Finances," SCF Working Paper, Board of Governors of the Federal Reserve.
- Auerbach, Alan. 1985. "Saving in the U.S. Some Conceptual Issues." In *The Level and Composition of Household Saving*, edited by Patric H. Hendershott. Cambridge Mass.: Harper and Row, Ballinger: 15-38.
- Avery, Robert B., Gregory E Elliehausen, and Arthur Kennickell. 1988. "Measuring Wealth With Survey Data: An Evaluation of the 1983 Survey of Consumer Finances," *Review of Income and Wealth* 34, No. 4 (December 1988): 339-369.
- Bosworth, Barry, and Gary Burtless. 2004. "Pension Reform and Saving," forthcoming in the *National Tax Journal*, (Spring Symposium).
- Bosworth, Barry P., Gary Burtless, and John Sabelhaus. 1991. "The Decline in Saving: Some Microeconomic Evidence," *Brookings Papers on Economic Activity*, 1:1991:183-256..
- Bradford, David. 1991. "Market Value and Financial Accounting Measures of National Saving." In *National Saving and Economic Performance*, edited by B. Douglas Bernheim and John B. Shoven. University of Chicago Press.
- Brady, Peter J., Glenn B. Canner, and Dean M. Maki. 2002. "The Effects of Recent Mortgage Refinancing," *Federal Reserve Bulletin*, (July): 441-50.
- Burman, Leonard E., Norma B. Coe, and William G. Gale. 1999. "Lump-Sum Distributions from Pension Plans: Recent Evidence and Issues for Policy and Research." *National Tax Journal* 52 No. 3 (September), 553-62.
- Catte, Pietro, Nathalie Girouard, Robert Price, and Christophe André. 2004. "Housing Markets, Wealth and the Business Cycle," Economics Department Working Papers No. 394 (June), Paris:OECD.
- Czajka, John L., Jonathan E. Jacobson, and Scott Cody. 2003. "Survey Estimates of Wealth: A Comparative Analysis and Review of the Survey of Income and Program Participation," report to Social Security Administration, Office of Research, Evaluation and Statistics (August).
- Eisner, Robert. 1989, *The Total Incomes System of Accounts*, Chicago and London: University of Chicago Press.
- Federal Housing Finance Board. 2004. "Monthly Interest Rate Survey, Annual Historical Data," available at: [http://www.fhfb.gov/MIRS/MIRS\\_downloads.htm](http://www.fhfb.gov/MIRS/MIRS_downloads.htm).

- Gale, Willian G., and John Sabelhaus. 1999. "Perspectives on the Household Saving Rate," *Brookings Papers on Economic Activity 1:1999*, 181-223.
- Garner, Thesia I. George Janini, William Passero, Laura Paszkiewicz, and Mark Vendemia. 2003. "The Consumer Expenditure Survey in Comparison: With a Focus on Personal Consumption Expenditures," paper presented at the Federal Economic Statistics Advisory Committee Meeting (March 21, 2003).
- Hall, Robert. 2000. "E –Capital: The Link Between the Stock Market and the Labor Market in the 1990s," *Brooking Papers on Economic Activity, 2: 2000*: 73-102.
- Hendershott, Patric H., and Joe Peek. 1989. "Aggregate U.S. Private Saving: Conceptual Measures." In *The Measurement of Saving, Investment, and Wealth*. Studies in Income and Wealth, vol. 52, edited by Robert E. Lipsey and Helen Stone Tice, 185-223. Chicago: University of Chicago Press.
- Hildebrand, Vincent A. 2001. "Wealth Accumulation of U.S. Household: What Do We Learn From the SIPP Data?" IRISS Working Paper Series No 2001-01. Luxembourg: CEPS/Instead.
- Hurst, Erik, Ming C. Luoh, and Frank P. Stafford, "The Wealth Dynamics of American Families: 1984-94," *Brookings Papers on Economic Activity, 1, 1998*: 267-338.
- Jump, Gregory V. 1980, "Interest Rates, Inflation Expectations, and Spurious Elements in Measured Real Income and Saving," *American Economic Review, 70*, 990-1004.
- Kennickell, Arthur B. 2003. "A Rolling Tide: Changes in the Distribution of Wealth in the U.S., 1989-2001." Survey of Consumer Finances Working Paper. Washington: The Federal Reserve Board.
- Ludvigson, Sydney, and Charles Steindel. 1999. "How Important is the Stock Market Effect on Consumption?," *Federal Reserve Bank of New York Economic Policy Review 5*, no. 2 (July), pp. 29-52.
- Lusardi, Annamaria, Jonathon Skinner, and Steven Venti. 2001. "Saving Puzzles and Saving Policies in the United States." Working paper no. 8237. Cambridge, MA: National Bureau of Economic Research.
- Maki, Dean M. and Michael Palumbo. 2001. "Disentangling the Wealth Effect: A Cohort Analysis of Household Saving in the 1990s," Finance and Economics Discussion Series 2001-21. Washington: Board of Governors of the Federal Reserve System.
- Moore. James H. and Leslie A. Muller. 2002. "Analysis of Lump-sum Pension Distributions Recipients," *Monthly Labor Review* (May) :29-46.

- Parker, Jonathan A. 1999. "Spendthrift in America? On Two Decades of a Decline in the U.S. Saving Rate," *NBER Macroeconomics Annual, 1999*. Edited by Ben S. Bernanke and Julio J. Rotemberg. Cambridge: MIT Press.
- Peach, Richard, and Charles Steindel. 2000, "A Nation of Spendthrifts? An Analysis of Trends in Personal and Gross Saving," *Current Issues in Economics and Finance* (Federal Reserve Bank of New York), 6, no. 2, 1-6.
- Poterba, James M. 2000. "Stock Market Wealth and Consumption." *Journal of Economic Perspectives* 14, no. 2 ( Spring): 99-118.
- Poterba, James M., Steven F. Venti, and David A. Wise. 2001. "The Transition to Personal Accounts and Increasing Retirement Wealth: Macro and Micro Evidence." Working paper no. 8610. Cambridge, MA: National Bureau of Economic Research, November.
- Reinsdorf, Marshall, and Maria Perozek. 2002, "Alternative Measures of Personal Saving," *Survey of Current Business* (April):13-24.
- Sabelhaus, John, and Karen Pence. 1999. "Household Saving in the '90s: Evidence From Cross-Sectional Wealth Surveys," *Review of Income and Wealth*, vol. 45 (December), pp. 435-53.
- United States Treasury Department. 2002. "Capital Gains and Taxes Paid on Capital Gains for Returns with Positive Net Capital Gains, 1954-2000," obtained from the Treasury web site at: <http://www.treas.gov/offices/tax-policy/library/>

**Figure 1. Private and Personal Saving, 1950-2003**

percent of income



Source National Income and Product Accounts (July release), Flow of Funds Accounts (June release), and author's estimates.

Personal saving is measured as a percent of disposable income

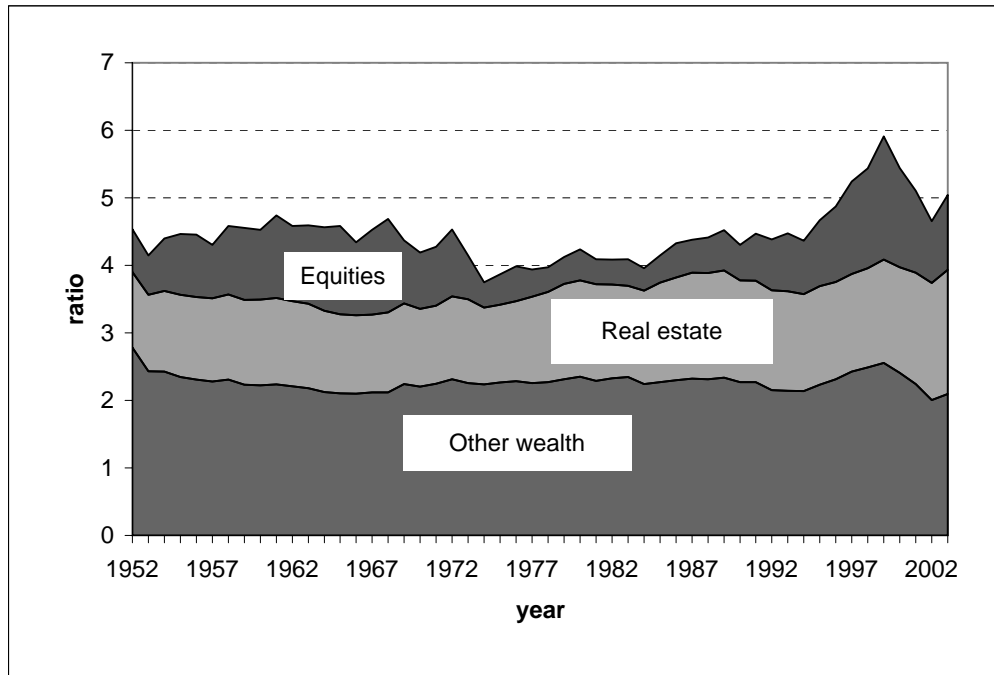
Private saving is measured as a percent of national income.

**Table 1. Components of Personal Saving, 1952-2003**

Component	Period						Change (6)-(2)
	1952-79 (1)	1980-84 (2)	1985-89 (3)	1990-94 (4)	1995-1999 (5)	2000-2003 (6)	
Household saving	8.7	10.4	7.7	6.5	3.8	1.9	-8.5
Pension saving	3.1	5.8	6.2	5.0	2.8	2.6	-3.2
Individual retirement accounts	0.1	1.0	1.6	1.2	0.8	0.9	-0.1
Other saving	5.6	3.5	-0.1	0.3	0.1	-1.7	-5.2
NIPA-FFA (discrepancy) <sup>a</sup>	-2.2	-1.8	-2.1	-1.9	-1.4	-0.5	1.3
FFA other	7.8	5.3	2.0	2.3	1.5	-1.2	-6.4
Pension fund reserve accumulation	3.1	5.8	6.2	5.0	2.8	2.6	-3.2
State and local gov't retirement funds	0.7	1.3	1.7	1.2	1.1	0.4	-0.9
Federal government retirement funds	0.3	0.5	1.0	0.9	0.8	0.6	0.1
Life insurance companies	0.6	1.4	1.6	1.3	1.2	1.8	0.4
Private pension funds	1.5	2.6	1.9	1.6	-0.2	-0.3	-2.8
Defined benefit			0.3	0.5	-0.8	-0.5	
Defined contribution			1.0	1.0	0.6	0.2	
Addenda:							
Percent of disposable income:							
Consumer durables	2.3	1.2	2.6	1.4	2.3	2.7	1.5
Inflation adjustment	2.4	3.1	2.4	2.0	1.0	0.7	-2.4
Realized capital gains	3.5	4.1	5.6	2.8	5.9	5.1	1.0
Real capital gains	10.0	6.9	15.0	0.4	43.4	-5.2	-12.1
net equity withdrawal	-1.9	-0.9	0.4	-0.5	-0.9	1.7	2.7
Wealth-income ratio (excl. cons. durables)	4.3	4.1	4.4	4.4	5.2	5.1	1.0

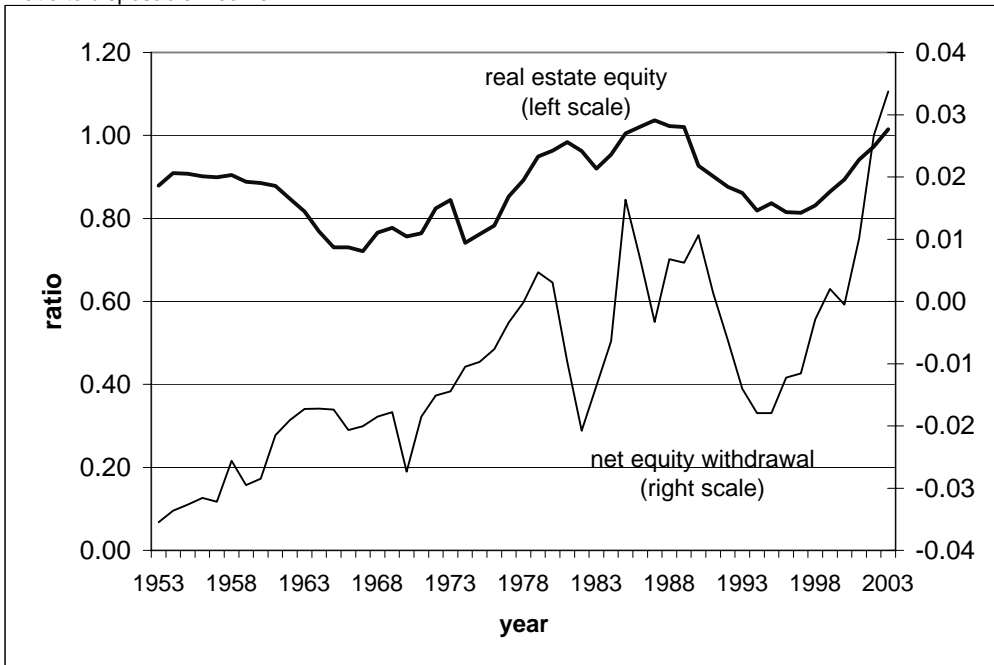
Source: National Income and Product Accounts (July release), Flow of Funds Accounts (June release), and author's estimates. The estimates of realized capital gains were obtained from U.S. Treasury (2002), and updated with information from the Congressional Budget Office.

**Figure 2. Household Wealth-Income Ratio, 1952-2003**



Source: flow of Funds Accounts (June release).

**Figure 3. Housing Equity Withdrawal, 1953-2003**  
Ratio to disposable income



Source: Flow of Funds Accounts (June release) and author's estimates. Real estate equity is defined as the value of residential real estate less mortgage debt as a percent of disposable income. Net equity withdrawal is the change in the net mortgage stock less residential investment as a percent of disposable income.

**Table 2. Comparison of SCF Asset and Liability Categories With Flow of Funds Estimates, 1983-2001**

Billions of dollars

Components	1983			1989			1992			1995			1998			2001		
	SCF	FFA	Difference	SCF	FFA	Difference	SCF	FFA	Difference	SCF	FFA	Difference	SCF	FFA	Difference	SCF	FFA	Difference
<b>Assets -matching components</b>	<b>8842</b>	<b>9591</b>	<b>-749</b>	<b>15574</b>	<b>15993</b>	<b>-419</b>	<b>16780</b>	<b>18094</b>	<b>-1315</b>	<b>19689</b>	<b>21732</b>	<b>-2043</b>	<b>27569</b>	<b>29583</b>	<b>-2015</b>	<b>38374</b>	<b>33952</b>	<b>4422</b>
Deposits	1089	2023	-934	2031	3156	-1125	2076	3116	-1039	2065	3198	-1133	2727	4139	-1411	3740	4627	-887
Credit market instruments	493	450	43	850	967	-117	774	1290	-516	797	1486	-689	785	1680	-895	1158	1840	-681
Mutual funds	134	93	41	491	499	-8	809	782	27	1679	1264	415	2897	2503	394	4334	2973	1362
Corporate equity	1863	834	1028	2386	1686	699	2658	2528	130	3456	3593	-138	6118	6176	-59	8314	5432	2882
Publicly Traded	931	574	357	944	1146	-203	1087	1679	-592	1420	2353	-934	3130	4462	-1332	4360	3933	426
Closely Held	931	260	672	1442	540	902	1571	849	722	2036	1240	796	2987	1714	1273	3954	1498	2456
Noncorporate business equity	1353	2467	-1114	2951	2804	147	3084	2744	340	3097	3147	-50	3995	3733	262	5433	4843	589
Pension assets (DC only)	171	286	-115	723	708	15	852	956	-104	1434	1428	6	1836	2219	-384	2629	2244	385
Real estate	3738	3437	302	6144	6173	-30	6526	6678	-152	7160	7615	-455	9210	9133	77	12766	11993	773
<b>Liabilities - matching components</b>	<b>1525</b>	<b>1503</b>	<b>22</b>	<b>3573</b>	<b>2947</b>	<b>626</b>	<b>3577</b>	<b>3696</b>	<b>-119</b>	<b>4040</b>	<b>4543</b>	<b>-503</b>	<b>5122</b>	<b>5398</b>	<b>-276</b>	<b>6111</b>	<b>6992</b>	<b>-881</b>
Home mortgages	1189	1080	109	2436	2162	275	2711	2859	-148	3068	3353	-286	3901	3983	-82	4750	5144	-394
Consumer credit	319	423	-104	1081	785	295	793	837	-44	869	1190	-321	1042	1415	-374	1225	1848	-623
Other	17	0	17	56	0	56	73	0	73	103	0	103	180	0	180	136	0	136
<b>Net worth - matching components</b>	<b>7317</b>	<b>8088</b>	<b>-771</b>	<b>12001</b>	<b>13046</b>	<b>-1044</b>	<b>13203</b>	<b>14398</b>	<b>-1196</b>	<b>15649</b>	<b>17188</b>	<b>-1540</b>	<b>22447</b>	<b>24185</b>	<b>-1739</b>	<b>32263</b>	<b>26960</b>	<b>5304</b>
<b>Flow of Funds</b>																		
<b>Total Flow of Funds Assets</b>		11723			20228			23464			28452			38289			43352	
Matching Components (Percnt of FFA total)	0.75	0.82		0.77	0.79		0.72	0.77		0.69	0.76		0.72	0.77		0.89	0.78	
<b>Total Flow of Funds Liabilities</b>		1702			3226			3856			4761			5907			7609	
Matching Components (Percnt of FFA total)	0.90	0.88		1.11	0.91		0.93	0.96		0.85	0.95		0.87	0.91		0.80	0.92	
<b>Total Flow of Funds Net Worth</b>		10021			17002			19608			23691			32381			35743	
Matching Components (Percnt of FFA total)	0.73	0.81		0.71	0.77		0.67	0.73		0.66	0.73		0.69	0.75		0.90	0.75	

Source: 1983-2001 Surveys of Consumer Finances, Flow of Funds Accounts (March 2004 Release), Antoniewicz (2000), and author's estimates.

Notes: All FFA estimates ending-year data. The flow of funds data exclude consumer durables and the assets and liabilities of nonprofit institutions.



**Table 3a. Composition of Wealth Change in the FFA and SCF, 1983 to 1989 and 1989 to 2001**  
Percent of disposable income

Components	1983-1992		1992-2001	
	SCF	FFA	SCF	FFA
<b>Assets -matching components</b>	28.0	30.0	42.5	31.2
Deposits	3.5	3.9	3.3	3.0
Credit market instruments	1.0	3.0	0.8	1.1
Mutual funds	2.4	2.4	6.9	4.3
Corporate equity	2.8	6.0	11.1	5.7
Publicly Traded	0.5	3.9	6.4	4.4
Closely Held	2.3	2.1	4.7	1.3
Noncorporate business equity	6.1	1.0	4.6	4.1
Pension assets (DC only)	2.4	2.4	3.5	2.5
Real estate	9.8	11.4	12.3	10.5
<b>Liabilities - matching components</b>	7.2	7.7	5.0	6.5
Home mortgages	5.4	6.3	4.0	4.5
Consumer credit	1.7	1.5	0.9	2.0
Other	0.2	0.0	0.1	0.0
<b>Net worth - matching components</b>	20.8	22.3	37.5	24.7
<b>Total Assets</b>		41.4		39.1
<b>Total Liabilities</b>		7.6		7.4
<b>Total net worth</b>		33.8		31.7

Source: Table 2 and author's calculations as explained in the text.

**Table 3b. Composition of Wealth Change in the FFA and SCF Adjusted for Capital Gains**  
Percent of disposable income

Components	1983-1992		1992-2001	
	SCF	FFA	SCF	FFA
<b>Assets -matching components</b>	10.8	13.2	13.1	9.2
Deposits	3.5	3.9	3.3	3.0
Credit market instruments	1.0	3.0	0.8	1.1
Mutual funds	-0.1	-0.1	-0.5	-0.3
Corporate equity	2.1	1.8	4.2	0.9
Publicly Traded	-0.2	-0.3	-0.5	-0.4
Closely Held	2.3	2.1	4.7	1.3
Noncorporate business equity	-0.1	0.0	-0.2	-0.2
Pension assets (DC only)	1.4	1.6	1.6	1.2
Real estate	3.1	3.2	3.9	3.5
<b>Liabilities - matching components</b>	7.2	7.7	5.0	6.5
Home mortgages	5.4	6.3	4.0	4.5
Consumer credit	1.7	1.5	0.9	2.0
Other	0.2	0.0	0.1	0.0
<b>Net worth - matching components</b>	3.6	5.5	8.1	2.7
<b>Total Assets</b>		19.1		11.8
<b>Total Liabilities</b>		7.6		7.4
<b>Total net worth</b>		11.5		4.4

Source: Table 2 and author's calculations as explained in the text.

**Table 4. Aggregate Saving by Age and Cohort, 1983-92 and 1992-2001**

Billions of dollars

Survey of Consumer Finances						
Age Group	Change in net wealth			Saving by 1983 Cohort		
	1983-1992	1992-2001	Change	1983-1992	1992-2001	Change
Under 30	-59	-2	57	483	2288	1804
Age 30-39	-138	-105	33	823	2141	1319
Age 40-49	513	1264	751	780	1406	626
Age 50-59	320	2263	1944	406	579	172
Age 60-69	101	827	726	-369	-595	-226
Age 70-79	571	795	224	-379	-461	-82
Over 80	212	267	55	-224	-47	177
Total	1520	5309	3790	1520	5309	3790

## Benchmarked to FFA

Age Group	Change in net wealth			Saving by 1983 Cohort		
	1983-1992	1992-2001	Change	1983-1992	1992-2001	Change
Under 30	-93	-169	-75	427	831	405
Age 30-39	-273	-578	-305	702	1371	669
Age 40-49	400	280	-121	789	692	-96
Age 50-59	348	1222	874	429	385	-44
Age 60-69	47	300	253	-277	-832	-555
Age 70-79	725	520	-205	-357	-613	-256
Over 80	283	202	-81	-276	-57	219
Total	1436	1777	341	1436	1777	341

## Distribution of Families by Age and Cohort, 2001

Percent of total

Age Group	Age in 2001	Cohort Age in 1983
Under 30	10.8	47.0
Age 30-39	16.2	21.5
Age 40-49	25.0	14.6
Age 50-59	20.4	10.9
Age 60-69	13.0	5.0
Age 70-79	10.3	1.0
Over 80	4.3	0.0
Total	100.0	100.0

Source: Author's calculations as explained in text. Changes in wealth and saving are adjusted for capit