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## **Saving, Public Policy, and Late-Life Inequality**

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## Abstract

In the past two decades the widely reported personal saving rate in the United States has dropped to its lowest level in recent history. This has raised concern that the current generation may not be accumulating sufficient resources for their retirement. In this paper, we address the relationship between low measured saving, wealth accumulation, and prospective financial adequacy in the post-retirement years. We first look closely at the official statistics on saving, such as those from the National Income and Product Accounts (NIPA), to account for the decline in the NIPA saving rate. We then discuss the fact that NIPA saving measures are not well suited for measuring whether households are preparing for retirement or other contingencies. Many households have accumulated significant wealth, primarily through retirement saving vehicles and capital gains, even as the saving rate slid. Despite these gains, late-life inequality in wealth holdings is substantial. Many households approach retirement with little or no financial or housing wealth. We explore several explanations for low levels of saving, including the effects of public and private pension and welfare plans, the failure of households to appreciate their financial vulnerability, and the inability of households to follow through on saving plans.

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## 1. Introduction

In the past two decades, the personal saving rate in the United States has declined dramatically, from 10.6 percent of disposable personal income in 1984 to a low of 1.0 percent in 2000 before rebounding somewhat in the first three quarters of 2001. There is considerable debate over the reasons for the behavior of the saving rate, as well as about the usefulness of the rate as an indicator of saving. A wealth effect arising from stock market capital gains has been the primary suspect, but even this explanation has not been supported unanimously (e.g., Parker (1999); Poterba and Samwick (1995); Hassett (2000)). Some view the decline in personal saving as a harbinger of future financial distress (Bryant (2001)), while others have suggested that the focus on National Income and Product Accounts (NIPA) personal saving is too narrow and ignores important components of saving, such as capital gains, education, and durables (Gale and Sabelhaus (1999); and others).

In this paper, we first make three general observations about the behavior of the saving rate and its usefulness as an indicator of the well-being of future retirees. The first is that stock market capital gains and losses *are* affecting the measured rate of personal saving. One pathway is the conventional wealth effect in which capital gains lead households to consume more, and conversely. Stock market capital gains do not appear in NIPA income since the doubling of a stock's price does not cause an increase in the measurable flow of income. Since the net effect of stock market wealth is to increase consumption, with no influence on measured income, the net impact of capital gains is to reduce NIPA saving, i.e., the difference between after-tax income and consumption. A similar story holds for stock market losses that should exert a positive influence on personal saving rates. Empirical estimates from the literature, while

exhibiting wide variation, suggest that appreciating stock market wealth from 1988 to 2000 has reduced personal saving by as much as two-thirds.

There is another pathway as well. Even without any change in spending behavior on the part of consumers, personal saving in the NIPA will tend to fall in the presence of capital gains (and rise in the presence of capital losses). For example, in past years defined benefit (DB) plans were an important source of household saving, but as the stock market was booming, they became a drag on household saving. The appreciating stock in pension funds restricts firm-level contributions and, as noted above, has little influence on income. Since DB retirement benefits are largely spent, but are not counted as income, the secular increase in DB benefits that are largely consumed also tends to drive down measured saving rates.<sup>1</sup> By the same token, growing capital gains tax revenue reduces disposable income and hence saving even if consumption does not change at all (Reinsdorf and Perozek (2000), Peach and Steindel (2000), and Poterba (2000)). We estimate that these accounting effects can cause another one-third of the decline in NIPA personal saving from 1988 to 2000.

Our second observation is to emphasize that NIPA personal saving is not a useful measure of whether households are prepared for retirement. For example, financial capital gains throughout the 1990s may have depressed NIPA saving, but they have also been a boon to households saving for retirement. In 1999, saving rates that included capital gains were more than 40 percent, in contrast to the 2.4 percent rate for the personal saving rate that excluded capital gains. Of course, when the stock market is declining, the effect goes in the other way;

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<sup>1</sup> The increased annuitization of retirement income may have secondary effects on saving; see Gokhale, Kotlikoff, and Sabelhaus (1996).

our estimated saving rates including financial capital gains was -22.4 percent for the first three quarters of 2001.

Of course, only households that participate in equity markets are influenced by the fluctuations in the stock market. Thus the boom may have increased both the average level of financial preparation and the level of wealth inequality of future retirees. There remains a significant group of households in the U.S. that do not appear to have adequate resources for adverse economic events or for retirement. Late-life inequality in wealth is large in the U.S. and, in particular, there are many households that hold little wealth, even a few years away from retirement. We show below that most households hold higher levels of wealth in 1998 than in 1989, but there remain a core of low-wealth households in both years. Our third point is that neither lower personal saving rates, nor stock market booms and busts, had any impact on a significant swath of households who just don't appear to save much of anything.

The appropriate policy approach to this problem depends crucially on why saving is so low. If households save little because of high time preference rates or generous retirement benefits, then perhaps there is little additional role for government policy. If, on the other hand, households save little because of a failure to perceive the need to save, inability to plan, financial illiteracy, lack of discipline, or other explanations, one might argue that there is a basis for additional government intervention. For example, saving reforms could include encouraging saving rates among the lowest income groups (those subject to heavy asset-based means testing), and pension reforms could encourage firms to expand pension coverage to uncovered workers and to reduce the degree of risk they face in their investments.

## 2. Measuring Savings: Some Preliminaries

The first issue we face in describing empirical facts about household or personal saving is a measurement problem: how do we measure saving? We consider this question at both a theoretical and empirical level (see also the discussion in Browning and Lusardi (1996)).

*Theoretical measurement of saving.* At a theoretical level, it is straightforward to measure saving. Letting  $W_{it}$  denote wealth for person  $i$  at time  $t$ , then saving  $S_{it}$  is defined as after-tax income  $Y_{it}$  minus consumption  $C_{it}$ , or accounting explicitly for components of  $Y_{it}$ ,

$$S_{it} = r_{it}W_{it-1} + E_{it} + M_{it} - T_{it} - C_{it}$$

where  $r_{it}$  is the individual-specific rate of return (which may or may not include “unexpected” capital gains or losses),  $E_{it}$  are earnings,  $M_{it}$  transfers from the government (plus private pensions),  $T_{it}$  taxes, and  $C_{it}$  consumption.

We can use this basic identity to consider how saving measures are constructed at the macroeconomic level. As it turns out, the key assumption has to do with the return on wealth. When constructing household saving from the NIPA accounts,  $r_t$ , aggregated over households, measures a flow of income from assets, such as interest payments on bonds, dividends on stocks, and so forth. From this measure of saving, capital gains are entirely excluded.

Alternatively, one may allow the return on wealth to reflect capital gains revaluations as well. In this case, both income and saving will tend to be substantially larger during periods of appreciating asset prices, and smaller during downturns. This measure of saving tends to fluctuate considerably with the vagaries of the stock market, and is more informative about how well are households accumulating assets for retirement or other contingencies, as well as their

ability to consume in the long term. The real difference between the two measures of saving lies in whether the return on capital includes or excludes capital gains.

*Empirical measurement of saving.* Three different personal saving rates are regularly calculated and widely reported. The first is the NIPA saving rate assembled by the Bureau of Economic Analysis (BEA) of the Department of Commerce. Roughly speaking, personal saving is total income less personal consumption outlays and taxes. A second widely reported saving rate is the Flow of Funds Accounts (FFA) compiled by the Federal Reserve Board. This measure is based on the net acquisition of assets and differs from the NIPA measure in several minor and one major respect: the FFA treat expenditures on consumer durable goods as saving whereas the NIPA treats them as personal consumption. To facilitate comparisons between the FFA and NIPA measures the Federal Reserve Board also publishes a third saving rate (FFA – NIPA basis) based on FFA sources but excluding consumer durables.

The three saving rates are shown in figure 1. All show the same basic trends. In particular, the well-publicized and well-documented downward trend in saving since the mid 1980's is evident in all three series. An even more pronounced decline in the 1990's is also quite clear. In 1999 the saving rates are 2.2 percent of disposable income in the NIPA, 5.2 percent in the FFA, and 2 percent in the FFA excluding durables. Over the past two decades the NIPA rate averaged 10.2 percent in the first half of the 1980's, and fell to 8 percent, 7.6 percent, and 4.2 percent in the next three five year periods. The NIPA saving rate has since fallen to one percent

in 2000. A negative rate had previously been reported as early as 1998. However, this was under the previous methodology and has since been revised upward.<sup>2</sup>

The NIPA and adjusted FFA measures of saving explicitly exclude any capital gains and losses. We can assess the impact of omitted capital gains by constructing an alternative saving measure based on changes in asset balances using the National Balance Sheets (NBS) published by the Federal Reserve Board.<sup>3</sup> The NBS provide estimates of financial and tangible assets valued (for the most part) at market prices. We construct two saving rates based on changes in the market value of wealth. The first constructed measure, labeled NBS - Net Worth, is the change in net worth expressed as a percentage of an expanded income measure that adds the capital gains to disposable income. The second, labeled NBS - Financial Assets, is the change in financial assets expressed as a percentage of yet another expanded income measure that augments disposable income with financial capital gains. The two saving rates are shown in figure 2. Given what we know about the volatility of asset prices, it should not be surprising that these estimates show enormous year-to-year variation. These wealth based saving rates bear

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<sup>2</sup> The BEA periodically undertakes a comprehensive revision of the NIPAs to incorporate methodological improvements. There have been eleven comprehensive revisions, with the two recent revisions having had relatively major effects on personal saving. In 2000 the BEA reclassified contributions to Federal Civilian, Federal Military, and State and Local retirement plans as personal income (affording government pensions the same treatment as private pensions). This change raised personal saving, but decreased government saving by an offsetting amount.

<sup>3</sup> This point has been raised and similar estimates have been provided by many authors including Summers and Carroll (1987), Bradford (1990), Gale and Sabelhaus (1999), and Peach and Steindel (2000). Other variations include adjustment for the the treatment of home ownership, correcting for inflation-induced revaluation of nominal assets, and measuring the implicit tax liability in tax-advantaged assets. See Holloway (1989), Seskin and Parker (1998), Gale and Sabelhaus (1999), and Reinsdorf and Perozek (2000). See also the discussion of Judge (1989).

little resemblance to the NIPA and FFA series. In particular, the trends in the 1990's are starkly different. The market wealth measures show a dramatic increase in saving between 1994 and 1999, peaking at 41.1 percent of disposable income in 1999 before plummeting to -22.4 percent in the first three quarters of 2001.

## **2.1 How Much of the Saving Decline is Due to the Wealth Effect?**

What has been the effect of these large capital gains? The sharp increase in stock market wealth has been suggested as one of the main culprits for the decline in (NIPA) saving and much of the media attention has been focused on the stock market wealth effect on consumption.

Assessing the importance of the wealth effect is, however, no easy task.

Aggregate estimates, such as those included in the Federal Reserve Board FRB/US model (see Brayton and Tinsley (1996)) indicate that an additional \$1 of stock market wealth raises the level of aggregate spending by around 3 cents. More recent estimates (see Ludvigson and Steindel (1999)) suggest that the effect of total wealth on consumption is closer to the lower estimate (2 cents for each \$1 of total wealth). Estimates, however, tend to be different across time periods. This is not surprising. After all, the stock market run-up has been concentrated in a short period of time (increases are very steep from 1995 until 2000), and most aggregate studies have not explicitly modeled the sources of shocks to aggregate wealth. Poterba (2000), for example, argues that on basis of lottery experiments, larger gains in wealth trigger proportionately stronger economic responses than small gains.<sup>4</sup>

There are reasons, however, to question the aggregate estimates. One reason is that the channel could be "indirect", i.e., stock prices may simply lead economic activity and forecast an

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<sup>4</sup> Also see Barberis, Huang, and Santos (2001).

increase in production and employment that will also translate into higher consumer spending.<sup>5</sup>

An additional problem with aggregate estimates is that they represent an average across different types of consumers. However, not everyone in the economy is a stock-holder. According to the Federal Reserve Board's SCF only half of the U.S. population hold stocks, and the top 1% of equity holders account for as much as 53% of household holdings of stocks (Poterba (2000)). This has led some observers to question whether the truly wealthy could possibly spend enough of their stock market gains to make a dent in aggregate saving (Hassett (2000)).

Disaggregated or micro-level data can help to sharpen our understanding of the wealth effects on consumption. Maki and Palumbo (2001) combine data from the Flow of Funds with data from the SCF to examine saving rates and wealth-to-income ratios of selected demographic groups over-time. As expected, families in the uppermost 20% of the income distribution experienced the largest increase in net worth-to-income ratios. These same families also decreased their NIPA-equivalent personal saving rates the most, from 8.5% in 1992 to 2.1% in 2000.

Dynan and Maki (2000) further use individual level data from the Consumer Expenditure Survey (CEX) to estimate the effect of stockholder wealth on consumption. They showed that the spending of stockholders was positively related to stock market returns and was stronger when the sample was limited to those with greater stock-holdings. Furthermore, they showed that the households with the largest imputed capital gains also experienced the largest jumps in

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<sup>5</sup> Lettau and Ludvigson (2000) further note that aggregate studies do not distinguish between transitory and permanent components of the variation in asset wealth. According to their findings, a vast majority of variation in asset wealth is transitory and has no impact on consumer spending.

consumption. Although the noisiness of the CEX data limited the precision of their estimates, the authors estimate a marginal effect of stock market wealth on consumption in the range of 2 to 12 cents. Other studies using micro data find evidence of more modest effects on consumption (Starr-McCluer (2000), Parker (1999) and Poterba and Samwick (1995)).

While there is considerable uncertainty surrounding the precise value of the marginal propensity to consume (MPC) out of wealth from the microeconomic evidence -- particularly since micro-level data typically miss the consumption behavior of the very wealthy who hold much of the stock market wealth -- the data at the macroeconomic level is reasonably robust, and a measure of 3-4 cents per dollar of stock market wealth is not inconsistent with the evidence.

Real stock market capital gains, calculated by summing Federal Reserve Board measures of capital gains in household corporate equities and mutual funds, adjusted for nominal inflation using the chain-weighted GDP deflator, yield \$7.88 trillion between the first-quarter 1988 and the fourth-quarter 2000, expressed in 2000 dollars. A 3 cent wealth effect, therefore, implies a decline in the personal saving rate of 3.4 percentage points, or about half of the overall decline in saving between 1988 and 2000.<sup>6</sup> A 4 cent wealth effect implies a 4.5 percent decline in personal saving, or two-thirds of the decline.

Two qualifications need to be made for these figures. First, in making these calculations, we have not considered the wealth accumulated in pensions, such as DC plans. However, as we discuss extensively later on, capital gains on pensions have been very large. If we incorporate

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<sup>6</sup> We use as a denominator disposable income of \$7031 billion in 2000. Strictly speaking, consumers should value the stock market gains on an after-tax basis, but since econometric estimates do not correct for tax liabilities, neither do we.

after-tax DC wealth in our calculations and we use the estimate of a MPC between 3 and 4 cents, we find that an additional 0.8 to 1.1 percent of the decline in saving can be explained by DC pension capital gains. Thus, if consumers respond to capital gains on pensions, the conventional wealth effect could be as high as four-fifths of the decline in saving between 1988 and 2000.

Second, if enormous capital gains in the mid to late 1990's are, in part, responsible for the decline in saving over this period, shouldn't the stock market collapse in 2000 and 2001 have triggered a rebound in the saving rate? Between 1999 and the third quarter of 2001, the value of financial wealth declined by over \$4 trillion dollars. Using a conservative wealth effect of 3 cents suggests that saving should have *risen* by nearly 2 percent of disposable income. And while saving rates did jump up in August and September of 2001, it is likely that the Bush income tax rebates, as well as the September 11<sup>th</sup> attacks, had an effect on saving; by November 2001 personal saving rates had again fallen to 0.9 percent. One possibility is that changes in consumption lag changes in wealth, and we should expect to see the saving rate rebound in the coming months. The magnitude and abruptness of the recent change in wealth may provide the strongest test yet of the effects of changes in wealth on consumption.

## **2.2 How Much of the Decline in Personal Saving is Due to the Treatment of Retirement Accounts?**

Capital gains also work through other channels. In this section, we consider how large levels of capitals gains may influence the accounting definition of personal saving in NIPA. Under normal circumstances, these influences are small in magnitude and exert only a small influence on measured saving. However, the dramatic swings in capital gains during the latter 1990s have had somewhat perverse effects on measured personal saving.

We first consider the role of retirement accounts. The principle sources of retirement saving are defined benefit (DB) and defined contribution (DC) plans sponsored by employers and personal saving plans such as Individual Retirement Accounts (IRAs). Assets in these plans have grown dramatically over the past two decades. Between 1975 and 1998 the ratio of assets in these plans to income increased more than five-fold (see Poterba, Venti, and Wise (2001)). Although assets in both DB and DC plans have grown enormously, annual contributions to each plan type have taken different paths. Contributions to DB plans have leveled off since the mid 1980's. Reasons for this trend include changing industrial composition and changing regulatory climate (see Gustman and Steinmeier (1992)). Of particular relevance are recent federal policies that have effectively linked DB contributions to asset market performance. In 1974 ERISA set minimum funding requirements for DB pensions. When stock and bond prices increased, many firms responded by cutting back on pension contributions. More recently, the 1987 Omnibus Reconciliation Act redefined "full funding" and limited pension assets to no more than 150% of the legal liability (the balance firms must hold to pay future benefits). Funds up against this ceiling could no longer make tax-deductible contributions to their pension plans. In addition, increases in "reversion taxes" have discouraged firms from offering DB plans and have limited the amount that can be contributed to them (see Bernheim and Shoven (1988) and Ippolito (1998)).

During this same period contributions to DC plans have grown dramatically. Most of this growth has been in 401(k) plans - so called voluntary contribution plans - which grew rapidly after 1982. The third component of private retirement saving, IRA plans, also grew quickly following a legislative change in 1981, but were curtailed significantly by the Tax

Reform Act of 1986. Strictly speaking, contributions to IRAs are not counted as income in the NIPA accounts (like 401(k) employer contributions). However, since 1986 when IRA contributions were largely curtailed by income limits, a significant fraction of new IRA assets are rollovers from employer-based pensions; thus we consider IRAs together with the other pension plans. By 1999 private and public pension plans held about \$10 trillion of assets, while IRAs held another \$2.6 trillion. The size of the retirement saving sector doubled between 1994 and 1999, to a large extent because of massive capital gains inside the retirement accounts.

The problems associated with the treatment of retirement savings in the NIPAs run much deeper than simply omitting capital gains.<sup>7</sup> A booming asset markets means that, by NIPA conventions, resources flowing into the retirement sector will lag resources flowing out of the sector. To see this, note that the NIPA income components –contributions, interest payments, and dividend earnings – are logged in the year in which income is earned. Distributions (and the resulting NIPA consumption) occur when pension or IRA benefits are paid out. This makes sense from the perspective of an individual: over the first part of the life-cycle a worker diverts some income to savings and, in later years, a worker receives and consumes retiree benefits. Recall that retiree benefits are not a component of NIPA income.

However, funny things happen when this NIPA convention is applied to the cohort of post-war workers who were most likely to hold DB pension plans. In a fully funded system with capital gains, the rate of growth of contributions will be less than the rate of growth of benefits as a large share of benefits will be paid out of the fund's internal accumulation. This alone will

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<sup>7</sup> These capital gains are enormous relative to measured saving. In the boom year of 1995 there were \$229.4 billion of capital gains in DB plans, \$188.7 billion in DC plans, and \$208.9 billion in IRAs. By comparison, total NIPA saving in 1995 was \$302.4 billion.

drag down the NIPA saving rate. The problem is exacerbated by the host of legal and regulatory restrictions (discussed above) that further depress contributions. If asset prices are booming, pension plans can, in principle, pay benefits entirely from sales of appreciated assets and remain fully funded. In the extreme case where all returns are realized as capital gains, the pension sector pays benefits which both raises consumption and triggers a tax liability which lowers NIPA income.

How serious of a drag on NIPA saving might this phenomena be? Assume for the moment that all benefits paid are consumed. Then in each year the contribution to NIPA saving is:

$$\{\mathbf{Saving}\} = \{\mathbf{Contributions}\} + \{\mathbf{Interest\ and\ dividend\ earnings}\} - \{\mathbf{Benefits\ paid}\}$$

Since the mid-1980's distributions from DB plans have exceeded contributions. In 1997, the most recent year for which data are available, employers contributed about \$30 billion to DB plans, but disbursed about \$97 billion of benefits. Moreover, interest and dividend earnings in this year amounted to only \$28 billion. More generally, DB plans (and, to a lesser extent, IRA plans) have had distributions well in excess of income components throughout the 1990's. In contrast, among DC plans, many of which are recently established 401(k) programs, contributions have always outpaced distributions. Trends for DB, DC and IRA plan contributions and distributions are presented in Lusardi, Skinner, and Venti (2001) and Poterba, Venti, and Wise (2001).

To illustrate the effect of these trends on the measured saving rate, Figure 3 shows the net contribution to NIPA saving for DB, DC, and IRA plans during the years 1988-2000.<sup>8</sup> This net contribution is simply the difference between NIPA income components (contributions plus investment earnings) and NIPA consumption (equal to benefits if pension benefits are fully consumed). The contribution of DC plans to NIPA saving is large and positive in all years. DB pension plans reduce NIPA saving in all years since 1988, and the amounts are increasingly large in recent years. The net contribution of IRA plans has been negative since 1994. Thus, for example, NIPA saving is lower by \$60.7 billion in 2000 because of transactions involving DB plans. This is the amount by which benefits paid exceeded income components. DC plans, however, generate positive saving flows of \$58.4 billion in 2000. Like DB plan participants, IRA holders tend to be older, so by 2000 outflows exceed inflows by \$35.7 billion.<sup>9</sup>

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<sup>8</sup> The DC and DB contribution data used in these figures are from form 5500 filings for private sector pensions for 1988-1997; the latest year data is available. DC contributions through 2000 are assumed to grow at 10.0 percent per year (the average for the three years preceding 1998 is 12.1 percent). DB contributions are assumed to remain at their 1997 level. The apparently anomalous increase in DB contributions in 1993 is the result of a one-time injection of \$15.3 billion by General Motors into its underfunded pension plan. IRA contributions include only tax-deductible contributions and ignore contributions from rollovers. The data on IRA contributions and distributions through 1999 are from the IRS *Statistics of Income*, with author's estimates for 2000. DB and DC investment earnings and distribution data through 1997 are from the Form 5500. Investment earnings are estimated to be 5.47 percent in 1998, 3.2 percent in 1999 and zero percent in 2000. These are the rates of growth of imputed income for the entire pension sector in the NIPAs for 1998 and 1999 (2000 data are unavailable). DB and DC distributions are assumed to be 6.55 percent for 1998, 8.08 percent for 1999, and 7.81 percent for 2000. These are the rates of growth for all private sector retirement benefits in the NIPAs. IRA investment income data through 1998 are from Sabelhaus (2000). Data for 1999 and 2000 are authors' estimates.

<sup>9</sup> The IRA flows also reflect the increasing importance of rollovers. Rollovers are most likely to occur among older persons with large pension accumulations who are separated from their jobs.

Figure 4 illustrates what the NIPA saving rate would be without transactions involving DB, DC, and IRA plans. Of the 6.8 percentage point drop in the NIPA saving rate between 1988 and 2000 (from 7.8 percent to 1.0 percent), fully 2.1 percentage points is explained by the NIPA accounting of inflows and outflows for pension plans. Put another way, since about 1996 - when the two lines in Figure 4 cross - retirement saving accounts have contributed *nothing* to NIPA saving.

The second way in which accounting conventions affect personal saving is when individuals sell appreciated stock and pay capital gains taxes.<sup>10</sup> The gains realized do not affect income, but the taxes paid reduce disposable income. Even under the extreme assumption that individuals do not increase their consumption when they realize capital gains, NIPA saving would still decline. Estimates from Reinsdorf and Perozek (2000) suggest that capital gains taxes as a fraction of disposable income were 0.9 percent in 1988, but had risen to 1.9 percent in 1999, or an increase of 0.7 percentage points in government tax revenue. To summarize: these two adjustments (retirement accounts plus capital gains taxes) yields a shift of 2.8 percent of DPI from personal saving to government plus corporate saving, and account for more than one-third of the decline in saving between 1988 and 2000.

### **2.3 Is Rising Debt the Problem?**

The increase in debt as a fraction of income was not a major cause in the decline in personal saving. From the Federal Reserve Flow of Funds accounts, the biggest factor accounting for the drop in the FFA measure of household saving (which excludes capital gains)

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<sup>10</sup> Here we follow the excellent analysis in Reinsdorf and Perozek (2000) with data updated to 1999 (personal communication); also see Poterba (2000).

was the fall in the purchase of financial assets, from 13.3 percent of disposable personal income (DPI) in 1988 down to 4.1 percent in 2000. The net increase in liabilities increased only slightly, from 7.4 percent of DPI in 1988 to 8.1 percent in 2000.

While the level of debt may not have been important for aggregate personal saving, it is worth checking to see whether it can explain low saving for specific households, a topic we consider in more detail below. Maki (2000) shows that the debt service burden, defined as households' required debt service payments relative to DPI, is at a relatively high level (approximately 14% of disposable personal income). However, similar and even higher levels were reached in the mid-1980s. One disturbing trend is the increase in the fraction of families for whom debt payments amount to more than 40% of income, which has been rising over time (see Kennickell and McCluer, 2000). Thus while the debt burden is clearly a concern for many households, it was not likely to have been the driving force behind the decline in aggregate saving.

### **3. Personal Saving and Household Financial Security**

At least in the news media, the declining personal saving rate has been interpreted as a disturbing trend for the financial security of American households. In this view, the declining personal saving rates make households "vulnerable to financial disaster" (Bryant (2001)). On the other hand, the stock market has strongly affected the wealth and security of many households (see figure 2), at least when the market was booming. How have these trends affected the financial security of US households?

Aggregates tell us little about wealth accumulation among specific individual households. Here we consider the record by looking at the distribution of wealth (i.e.,

accumulated saving plus capital gains) at the micro level. We first try to establish how widespread low savings or low wealth is in the population. Which groups fail to save? We then consider changes in either saving or wealth over time.

### **3.1 A look at Micro Data: Late-life Inequality in Wealth.**

There is little question that saving rates vary with income and that low income explains the low level of saving of many older households. However, the amount of variation in saving even after accounting for income is often underestimated. Figure 5 presents the 10<sup>th</sup>, 30<sup>th</sup>, 50<sup>th</sup>, 70<sup>th</sup>, and 90<sup>th</sup> percentiles of total wealth as a fraction of lifetime earnings for each of 10 lifetime earnings deciles for households headed by a person between the age of 51 to 61.<sup>11</sup> It is clear that a large segment of the population saved nothing. Many of these households have low lifetime earnings, but significant numbers of higher lifetime earnings households have saved small amounts as well. It is also clear that some low earnings households manage to save relatively substantial amounts. And of course, some households, particularly those with high lifetime earnings, accumulate a great deal.

It is likely that those households that accumulated substantial wealth by the early 1990's benefitted most from the stock market run-up. Whether via direct holdings, mutual funds, or retirement accounts, households that participated in the stock market have witnessed their wealth increase at a rapid pace in the 1990s. As shown in figure 2, the saving rate inclusive of capital gains has increased, not decreased, during the 1990s. In addition, the expansion of retirement

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<sup>11</sup> Total wealth includes housing, retirement assets, business wealth, and financial. Lifetime earnings are calculated from Social Security earnings histories. These data are from the 1992 Health and Retirement Study which is the most recent survey containing pension wealth at the micro level. See Venti and Wise (1998, 2001) for detail. See also Smith (1995).

programs has helped many households improve their retirement financial security. Thus, irrespective of a declining NIPA saving rate, for many households the prospects for retirement are much better than they were a decade ago.

To analyze how capital gains in the 1990s have affected wealth of retirees and near-retirees, we compare the ratio of wealth to income in 1998 to the ratio in 1989 for households with heads age 50 and over using data from the Survey of Consumer Finances; these are shown in Figures 6a and 6b.<sup>12</sup> The first figure shows the ratio of net worth (financial assets, business assets, and property less debts) to income. First note the tremendous variability in wealth holdings among this group; 25 percent of households over age 50 hold net worth (including housing) less than 2 times annual income, while 10 percent of households hold more than 15 times annual income. There is a noticeable, but small, change in this measure of wealth beginning at about the tenth percentile of the distribution. There is a modest, but uniform, upward shift in wealth for the top half of the distribution; at the 50<sup>th</sup> percentile the mean ratio was 4.44 in 1998 and 3.89 in 1989. It is worth noting that the same figure, calculated for all ages (Lusardi, Skinner, and Venti (2001)), shows smaller changes in the wealth to income ratio for households in the bottom half of the distribution. This suggests that the benefits of the stock market boom in the 1990's increased the wealth of a larger proportion of older households than of households of all ages.

Net worth is, of course, dominated by housing and business assets that did not show the same sharp increase that is observed for stock prices. The results for financial assets in figure 6b

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<sup>12</sup> The figures are based on households with at least \$1,000 of annual income. The first percentile, which is negative in all cases, has been dropped from these figures.

are more striking. There is virtually no change for the lower fifth of the distribution. However, there is a substantial increase in financial wealth between 1989 and 1998 for the upper half of the distribution. At the 50<sup>th</sup> percentile the ratio of financial assets to income increased from 0.71 to 1.13 and at the 75<sup>th</sup> percentile the ratio increased from 2.48 to 3.37. This suggests that a large fraction of the population is noticeably better off in 1998 than in 1989 - mostly as the result of capital gains. Of course, some of these gains were given back in the subsequent market downturn.<sup>13</sup> Note also that about a fifth of the population (not necessarily the same persons over time) appear to have been unaffected by the behavior of the stock market. They saved little in 1989 and they save little in 1998 and account for little of aggregate personal saving in either year.

These “low savers” will be the principal focus of the remaining sections of this paper. However, before proceeding, we consider a few features of the “high savers” in figures 5 and 6. As Hurst and Lusardi (2001) document, entrepreneurship is an important source of wealth for high savers. The proportion of entrepreneurs rises gradually as we move up the wealth distribution.<sup>14</sup> While less than 10% of older households are (successful) entrepreneurs in the first

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<sup>13</sup> Gale (1998) has argued that after-tax wealth should be considered in making comparisons over time. We also considered changes in the wealth distribution using after-tax DC wealth in both years (with an assumed tax rate of 27 percent), and found a smaller change but a very similar pattern. For example, the 1998-1989 difference in the 50<sup>th</sup> percentile was an increase of 0.42 in ratio of financial wealth to income without adjustment, and 0.38 with adjustment. One shortcoming of these data is that we do not know individual defined benefit (DB) wealth. However, since FFA data show that the ratio of DB assets to disposable income increased from 23 percent in 1989 to 31 percent in 1998, we would expect an even wider difference in the wealth distribution including DB plan wealth.

<sup>14</sup> The definition of entrepreneurs differs across studies. In some case, it is used to mean self-employed, in some others business owners or both. We use the word interchangeably.

two quintiles of the wealth distribution in the HRS, more than 80% of households are entrepreneurs in the top 3% of wealth distribution. Even though entrepreneurs are a very mixed group in terms of economic success, they account for a large share of wealth. Gentry and Hubbard (2001) and Hurst and Lusardi (2001) both report that entrepreneurs account for approximately 10-13% of the population but for close to 40% of total net worth. In the HRS, mean and median wealth holdings of the entrepreneurs are three to four times larger than non-entrepreneurs.

Why do entrepreneurs hold so much wealth? The fact that business families own more wealth has been interpreted as evidence of borrowing constraints: initial capital is needed to start a business and only those having enough wealth are in a position to start a business. There is an extensive literature that shows that wealth is associated with both being an entrepreneur and becoming an entrepreneur. Using different sources of data, Evans and Jovanovic (1989), Evans and Leighton (1989), Gentry and Hubbard (2001), and Holtz-Eakin, Joulfaian and Rosen (1994), among others, find that wealth (or proxies for wealth) is an important determinant of entrepreneurship.<sup>15</sup> This finding is, however, controversial. First, a simple selection mechanism can be at work here so that only successful entrepreneurs survive and one only observes the upper tail of the distribution. Second, it is not obvious what wealth “measures”. It may proxy the presence of borrowing constraints or it may reflect special talents or abilities of entrepreneurs.

The reason why savings behavior of entrepreneurs and other very wealthy individuals is important is that unlike the vast majority of American households who save a relatively small portion of aggregate household saving, the savings behavior of entrepreneurs *does* matter for

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<sup>15</sup> See Hurst and Lusardi (2001) for a detailed discussion of this literature.

aggregate capital accumulation and the NIPA measure of aggregate saving. A better understanding of what motivates high-wealth households is critical to a better understanding of inequality of wealth among older households, but is beyond the scope of this paper (see Kennickell and Lusardi, 2001).

### **3.2 Are Households Saving Too Little for Retirement?**

A number of studies have attempted to determine what is an “adequate” level of saving and wealth accumulation given the presence of Social Security and pension funds.<sup>16</sup> One approach is to compare actual wealth with the amount of wealth deemed necessary to smooth consumption at retirement (Warshawsky and Ameriks, 2000; Moore and Mitchell, 2000; Gustman and Steinmeier, 1999). Generally, these studies find about half of the population will not be able to preserve consumption levels after retirement. Of course, the key assumption in the replacement rate analyses in both types of studies is that households wish to maintain consumption levels into retirement, a question about which little is known.<sup>17</sup>

A second approach is to test empirically the extent to which households suffer a decline in consumption at retirement. Most studies show a sharp drop, more than can be rationalized by explanations consistent with traditional models of saving, and/or extensions that take account of nonseparabilities between expenditures, leisures, and work.<sup>18</sup> Bernheim, Skinner, and Weinberg

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<sup>16</sup> For an earlier debate on this question, see Congressional Budget Office (1993) and Bernheim (1993, 1995).

<sup>17</sup> One reason why many of these studies, including those referenced in the above footnote, arrive at different conclusions is that they make a variety of assumptions about the use of housing wealth to finance consumption in retirement.

<sup>18</sup> See Hamermesh (1984), Mariger (1987), Hausman and Paquette (1987), and especially Banks, Blundell and Tanner (1998) and Bernheim, Skinner and Weinberg (2001).

(2001), for example, find that even after instrumenting for endogenous retirement decisions, roughly one-third of retirees experienced a drop in consumption of more than 35 percentage points.

There is other scattered evidence suggesting that households save too little and that resources may be inadequate to support a comfortable retirement or to deal with adverse circumstances. Venti and Wise (2001) and Hurd and Zissimopoulos (2000) examine subjective information about past saving behavior. When asked to evaluate their saving, a stunning proportion of respondents (over 70 percent) report having saved too little over the past 20 and 30 years. Similarly, Lusardi (2000) documents that half of the people who did not plan for retirement experienced a non-satisfying retirement. Inadequacy of financial resources is particularly crucial to the welfare of women in retirement. Hurd and Wise (1989) and Weir and Willis (1998) have shown that many women are vulnerable to the death of their spouse. A husband's death is an important factor in causing the widow's entry into poverty.

### **3.3 Why Do Households Save So Little? Rational or Economic Factors.**

Explanations for why people save too little can be grouped into two basic categories: rational reasons for saving little, and behavioral or psychological (but probably not rational) reasons. In line with the rationality approach, some have argued that what we deem "low wealth" households need not save much as they can expect generous relative retirement benefits, either from Social Security or from other pension plans (Huggett and Ventura (2000) and Gustman and Steinmeier (1999)). As mentioned in Section 2, pensions have been one of the fastest growing components of total wealth. Focusing on non-pension wealth, particularly financial assets, is very limiting when looking at older households, as many of them have

annuity wealth. As Gustman and Steinmeier (1999) report using data from the HRS, approximately 50% of total retirement wealth is accounted for by Social Security and pensions, and these two sources account for almost all wealth for the lowest quartile of households. Thus, many households with low “saving” have accumulated substantial wealth through pension and Social Security benefits. Moreover, while the distribution of private wealth is very dispersed, the distribution of pension wealth and, particularly, Social Security wealth is much less unequal (McGarry and Davenport (1998), Gustman and Steinmeier (1999) and Smith (2001)).

We should note, however, that many households do not have private pensions, and thus can rely only on Social Security and their private wealth at retirement.<sup>19</sup> But for low income workers, the replacement rate offered by Social Security alone can approach unity (in other words, the pension will be roughly equivalent to the individual’s after-tax earnings) and that may partly explain why these households save so little and accumulate such little wealth. As it turns out, Social Security and pension wealth differences across income groups cannot entirely explain the low levels of saving among households in the bottom half of the income distribution. Dynan, Skinner, and Zeldes (2000) imputed Social Security and pension saving in a sample of households during the 1980s, and found that even within given age groups, lower income households accumulate at lower levels compared to higher income households after accounting for the implicit saving provided by Social Security and pension plans.

Engen, Gale, and Uccello (1999) have demonstrated that in simulation models with random earnings shocks, there will be wealth heterogeneity because some families will

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<sup>19</sup> Households without pensions are not necessarily poor. Some of them, particularly those who are self-employed and own their own business, are quite wealthy.

experience positive shocks, others negative shocks. This is an important point; that adequate saving plan *ex ante* can, in the event of adverse downturns, lead to what appears to be *ex post* undersaving near retirement. This can explain some, but not all of the observed heterogeneity among households nearing retirement.

As mentioned earlier, wealth inequality is high in the U.S. and, in particular, wealth levels are strikingly low for poor households. Hurst and Ziliak (2001) report that over 90% of welfare recipients in 1994 and over 80% of pre-retired households with children who have less than a high school education have less than \$500 of accumulated non-pension liquid assets. For this segment of the population, low rates of saving may simply be a rational response to the presence of asset-based means tests in welfare programs. Among low income households, the likelihood of turning to welfare programs (such as Medicaid, Supplemental Social Insurance, or cash welfare payment programs) is very high. The asset limitations for participation in these programs impose quite severe penalties to saving and accumulating wealth. Effectively, these programs tax wealth at a rate of 100 percent in the event of an income or health downturn; households are required to “spend down” assets to qualify for support. Thus households could optimally choose to saving little or nothing, even if in fact they never qualify for welfare *ex post* (see Hubbard, Skinner, Zeldes (1995)).

There is some empirical research that suggests that these welfare programs may discourage saving and increase the inequality of asset holdings. Gruber and Yellowitz (1999) note that welfare recipients can be legally prosecuted for holding assets above the legal limits, which vary from state to state and over time. They exploit this variation to estimate the effect of asset limits on saving. They find that asset-based means tested programs reduced measured

wealth (and presumably saving) by 17 percent among lower income groups. Similarly, Powers (1998) finds a strong effect of assets limits: each one dollar rise in the asset limit raises savings of single female-headed households by 50 cents.

### **3.4 Why Do Households Save So Little? Behavioral Factors**

A growing literature has focused on behavioral explanations for why some households fail to save. Some households may simply have difficulty recognizing the need to save and calculating the saving they need to do. For example, Lusardi (1999, 2000) used data from the HRS - in which respondents are only a few years away from retirement - and found that as many as 30% of respondents have not given any thought whatsoever to retirement plans.<sup>20</sup> Most importantly, she found that the lack of planning leads to low levels of wealth accumulation, participation in retirement plans, and ownership of stocks. Some households may simply face high planning costs or lack financial literacy; they find planning for retirement too complicated and they do not know how to find help to do it (Bernheim (1995); Yakoboski and Dickemper (1997)). There is also evidence that households are not well informed about their Social Security and pensions benefits, even when these are the major source of support for retirement. Gustman and Steinmeier (2000a) report that workers often do not know the types of pension they have (whether DB or DC) or the benefits associated with it.

A related problem is that even households that make financial plans may not be able to carry them out. As a series of papers have suggested, people may display hyperbolic rather than exponential discount functions (see, Laibson (1997); Laibson, Repetto, and Tobachman (1998;

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<sup>20</sup> In the conventional life cycle model, rational individuals make optimal consumption and saving plans starting at time 0. See also Yakoboski and Dickemper (1997).

and O'Donoghue and Rabin (1999a, 1999b)). For hyperbolic agents, short-run discount rates are higher than long-term rates, so decision-making is time inconsistent. When combined with costs of planning, this gives rise to much inaction: people procrastinate making decisions that require immediate effort. More generally, many people suffer from self-control problems and thus fail to follow through on plans to save (See, for example Thaler and Shefrin (1981) or Akerlof (1991)).

As further evidence that workers have difficulties in devising saving and retirement plans, many employers have started offering financial education to their employees. As of 1994, the large majority of large firms (88%) offered some forms of financial education (Bernheim (1998)). Financial education is prevalent among firms offering DC pensions, where workers have to make their own decisions on how to allocate pension funds. A few studies have looked at the effects of financial education in the work-place on private savings or contributions to pension funds (see, among others, McCarthy and Turner (1996), Bernheim (1995, 1998), Bayer, Bernheim and Scholz (1996), Bernheim and Garrett (1999), Clark and Schieber (1998), and Madrian and Shea (2001)). The empirical findings are still mixed. There is evidence of some effects of financial education, but the form of education seems to matter. For example, Bernheim and Garrett (1999) and Bayer, Bernheim and Scholz (1996) find that programs that rely on print media (newsletters, plan description, etc.) have generally no effects on participation or contributions to pensions. Similarly, retirement seminars are found to affect only certain aspects of behavior, for example participation in pension and the amount of contributions but not, for example, total savings (Bernheim and Garrett (1996), McCarthy and Turner (1996)). In short, the behavioral approach to understanding why some households fail to save holds promise, but the causal links are still not entirely well understood.

#### **4. Directions for Public Policy**

If individual savers have trouble doing so because they lack information, or because of the dynamic inconsistencies suggested above, then there is some justification for government policies to encourage saving. For example, one problem is that low income workers are simply less likely to be covered by employer-sponsored pension plans which overcome many of the behavioral impediments to saving. (In theory, workers not covered under employer pension plans - where participation is often mandatory - could simply open IRA accounts and provide for their own retirement, but in practice, such behavior among low income workers is rare.) In 1993 about 8 percent of workers with incomes less than \$10,000 and 35 percent of workers with incomes less than \$20,000 worked for an employer offering a pension. In contrast, over 80 percent of full-time workers earning more than \$50,000 are covered (U.S. Department of Labor, 1994).

Given coverage, participation in most DB and conventional DC plans is typically mandatory. However, if the worker is covered by a 401(k) plan, then participation is often voluntary. There is a substantial literature that suggests participation is sensitive to plan design and the level of information and support provided by employers (see Bernheim and Garrett (1996); Clark and Schieber (1998); Duflo and Saez (2000); and Madrian and Shea (2001)). Of course a key issue is whether retirement saving programs increase saving. While this has been a matter of much debate (see Engen, Gale and Scholz (1996); Hubbard and Skinner (1996) and Poterba, Venti and Wise (1996)), there is a consensus that pensions and 401(k)s, are effective at

stimulating saving particularly among low income households.<sup>21</sup> Furthermore, these pension plans entail relatively little revenue cost (Hubbard and Skinner (1996)), and in the presence of capital gains, could even raise revenue for the government (Dusseault and Skinner (2000)).

The recent controversies surrounding the Enron bankruptcy and the evaporation of some employees' 401(k) plans that were heavily invested in company stock reinforces the importance of adequate pension regulation as well. In theory, adequate education should be enough to guard against employees placing all of their eggs in the company basket, but in practice, regulations placed on the allocation of employee (or employer) contributions could be critical in preventing these unlikely adverse events.

Encouraging saving among the very poor elderly is complicated by the presence of means-tested welfare programs which discourage asset accumulation. Since this group saves little anyway, removing all asset-based means testing may increase wealth accumulation by these households at relatively little cost to the government. Another reason why many poorer households fail to save is that they lack experience and expertise in financial matters. Not only do these households not invest in stocks or retirement accounts, but they often do not even hold a bank account. As mentioned before, a growing number of employers have undertaken several initiatives to promote financial literacy. The U.S. Department of Labor as well has launched a national pension education program aimed at "drawing the attention of American workers to the importance of taking personal responsibility for their retirement security." While these initiatives are important and document how widespread the problem of financial illiteracy is, it is not clear

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<sup>21</sup> Results from Gustman and Steinmeier (1999) suggests pension saving lead to higher overall saving, on the other hand see Gale (1998). Engen and Gale (2000) suggest that 401(k) balances are largely new saving among lower income households.

that the poor, especially the elderly poor, are effectively targeted by these initiatives.

Unfortunately, much of the financial “know-how” of poorer households is likely to be acquired at a more local level. For example, low income families are likely to live in communities whose members also have low financial literacy or come from families of low financial literacy. Several recent studies have shown that family background plays an important role in affecting the amount and type of assets households own. People learn about financial matters from parents and siblings (Lusardi (2000), Chiteji and Stafford (1999)). For women, in particular, parents and relatives seem to be the dominant source of financial information and advice. This channel may not be a viable or a desirable one for those households that come from poor and low saving families.

## **5. Conclusion and Discussion**

This paper began with the observation that the measured personal saving rate has fallen close to zero. We find that capital gains in the stock market can explain much of the decline in the measured NIPA saving rate throughout the 1990s, through both behavioral and accounting channels. We concluded that the effect of the decline in the NIPA saving on the financial security of future and current retirees, is often overstated in the popular press. The NIPA saving rate is primarily a gauge of the supply of new funds for investment from the household sector, and not a measure of how well households are preparing for retirement. Other indicators of saving and financial preparedness provide a more optimistic outlook. After adjusting for “shortcomings” of the measured saving rate, the implications for retirement security during the 1990s seem much less worrisome: for most households over age 50, wealth relative to income

appears to be rising, not declining, suggesting that most of the population appears to be better prepared in the 1990s than a decade earlier.

While the late 1990's run-up in the value of financial assets (including assets held in retirement accounts) has benefitted many households, the gains have not been shared equally. There remain segments of the population that continue to accumulate extremely little wealth. We consider at length some of the reasons for low saving by some elderly households and the effectiveness of policies such as the diffusion of employer-provided pension plans or the promotion of financial education programs designed to encourage saving and wealth accumulation..

One important topic not explored here is the link between wealth and income, and health. Smith (1999) and others show there is a much stronger correlation between low wealth holdings and poor health than between low income and poor health. The issues of causality is particularly intriguing; whether the direction goes from wealth to health, or from health to wealth, and carries important implication for the well-being of the elderly population. If indeed adequate financial planning ensures not just financial health, but a reduction in stress and hence better biological health, then the issues surrounding saving for retirement and other contingencies assumes even greater importance.

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Figure 1. Reported Saving Rates

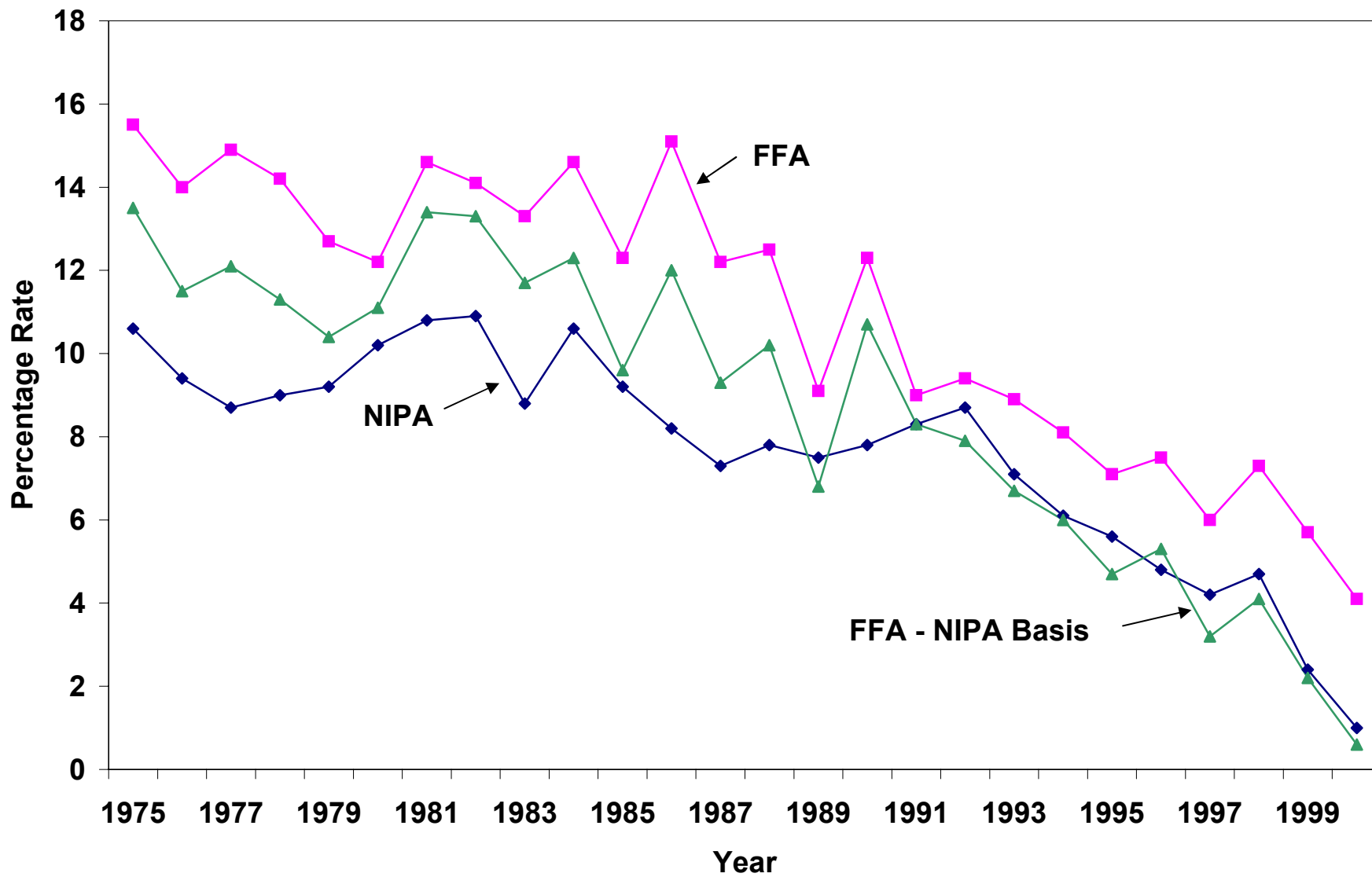


Figure 2. NIPA, FFA, and NBS Measures of Saving

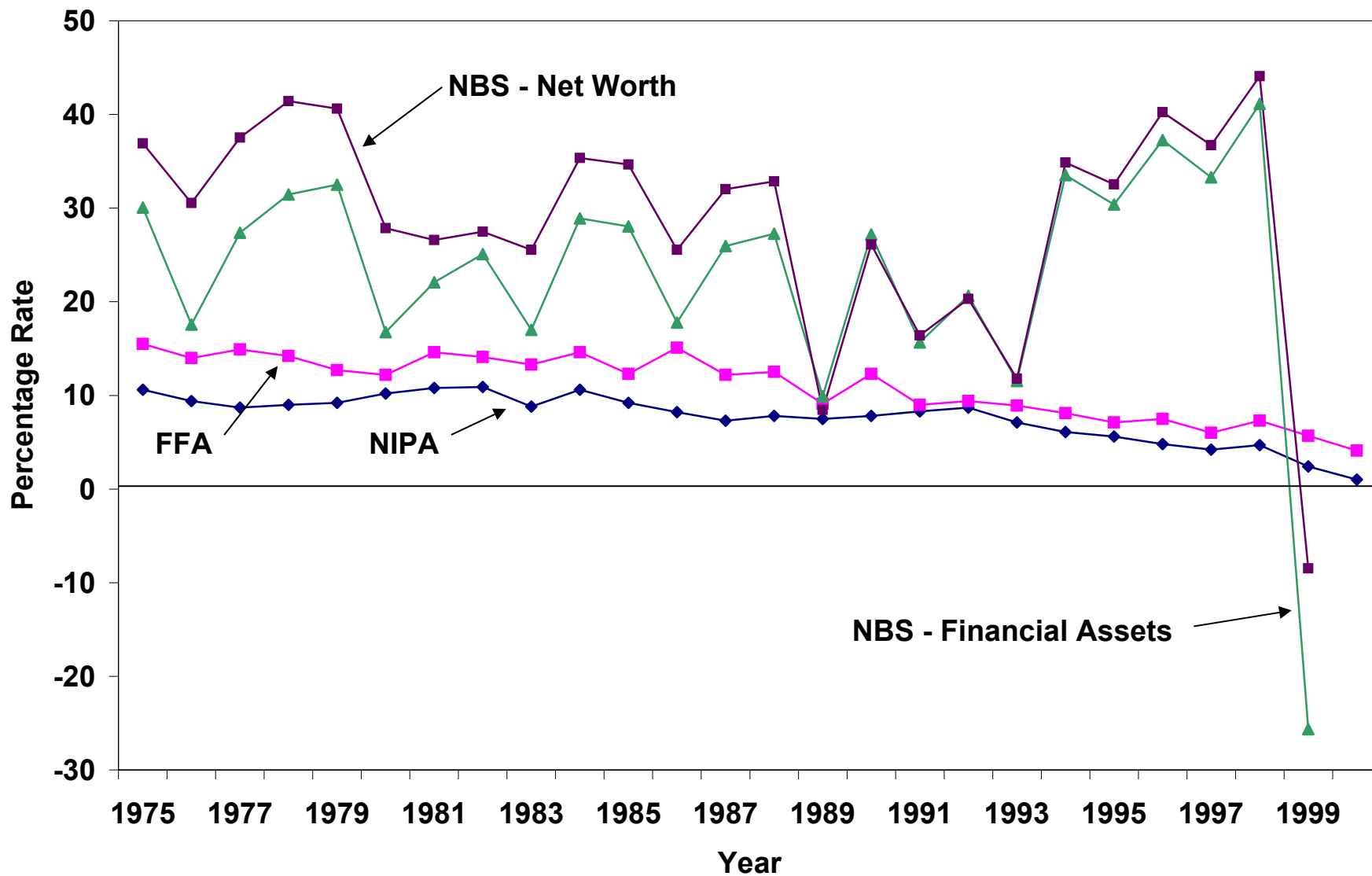
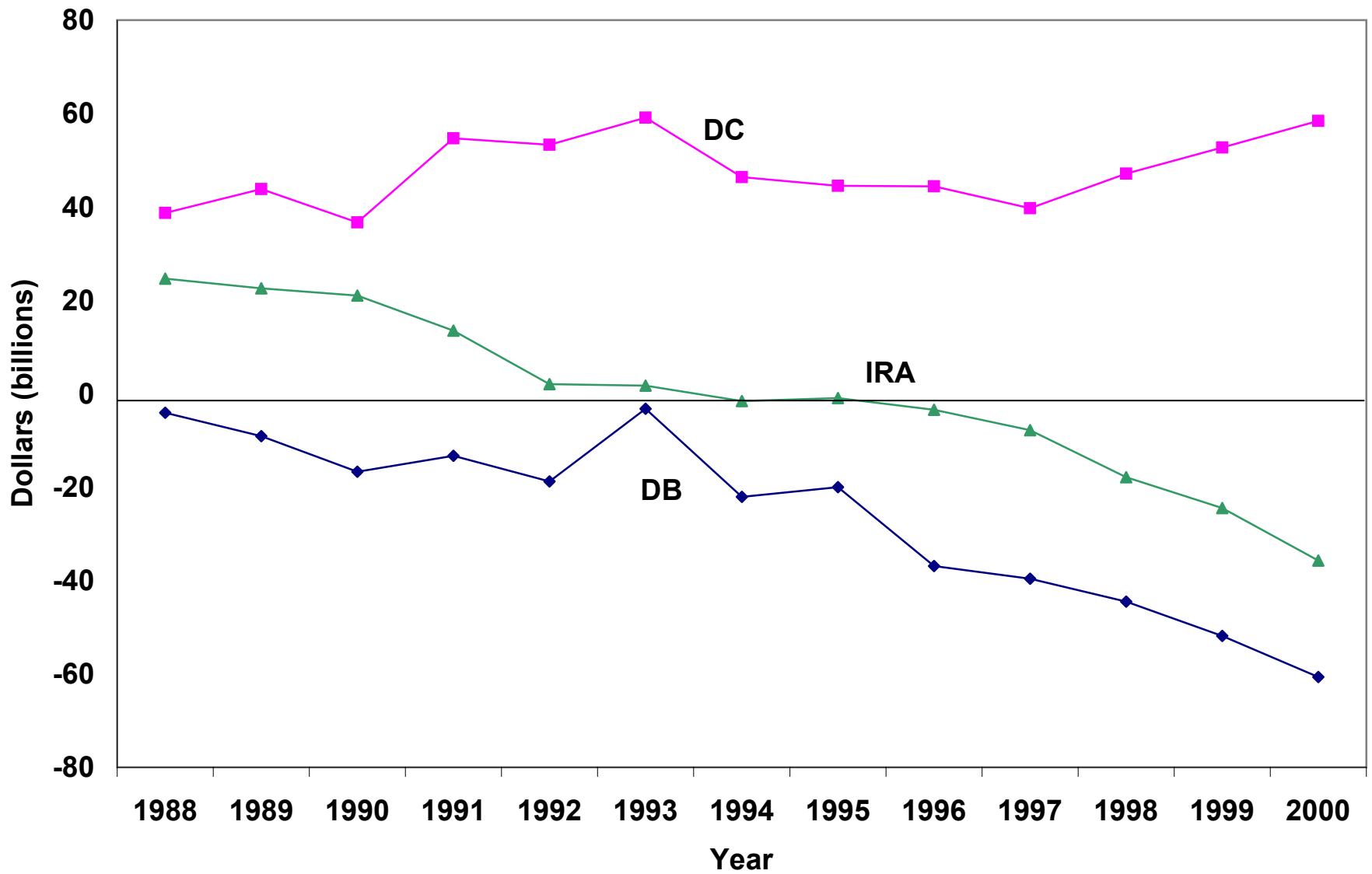
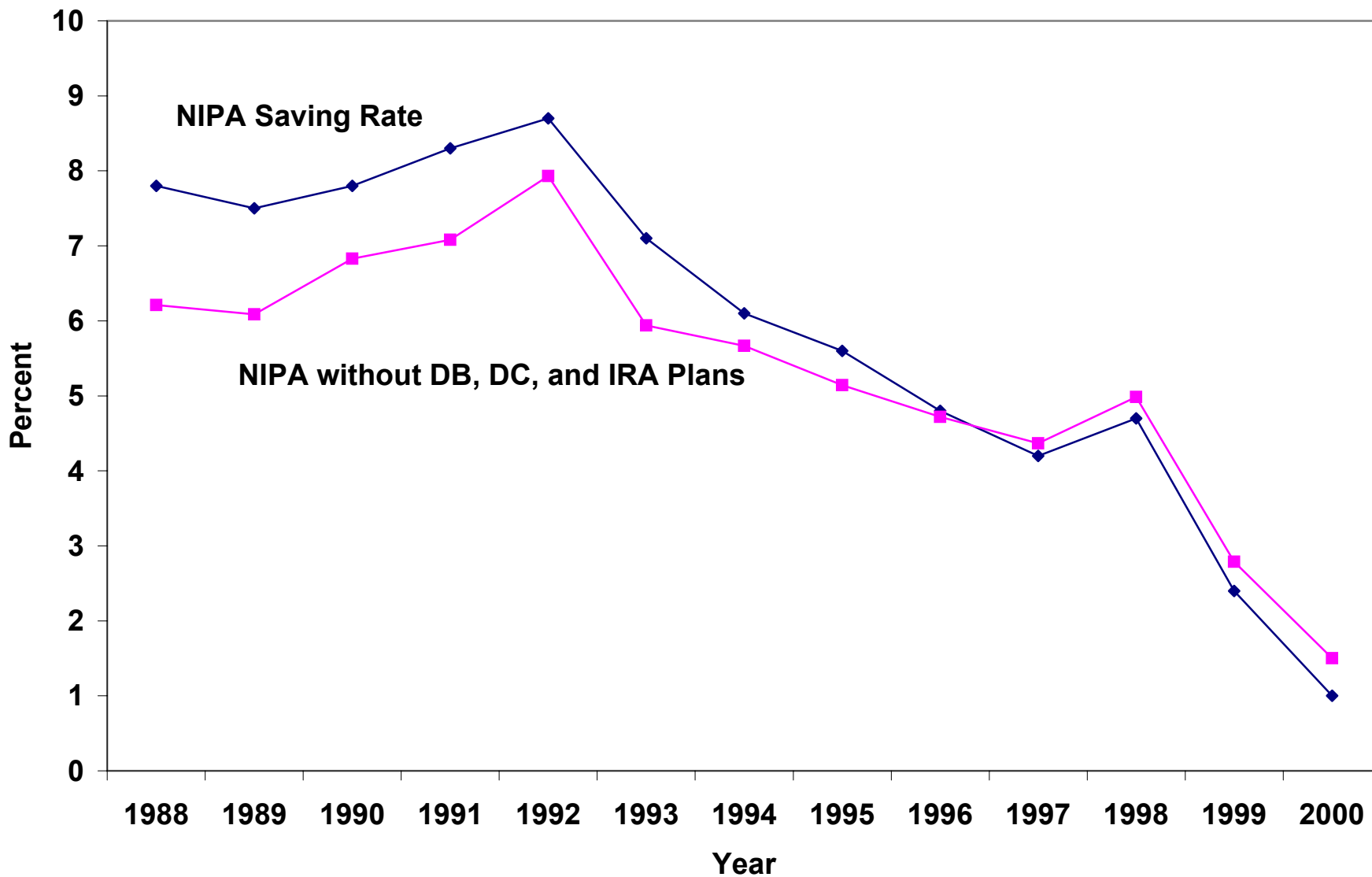


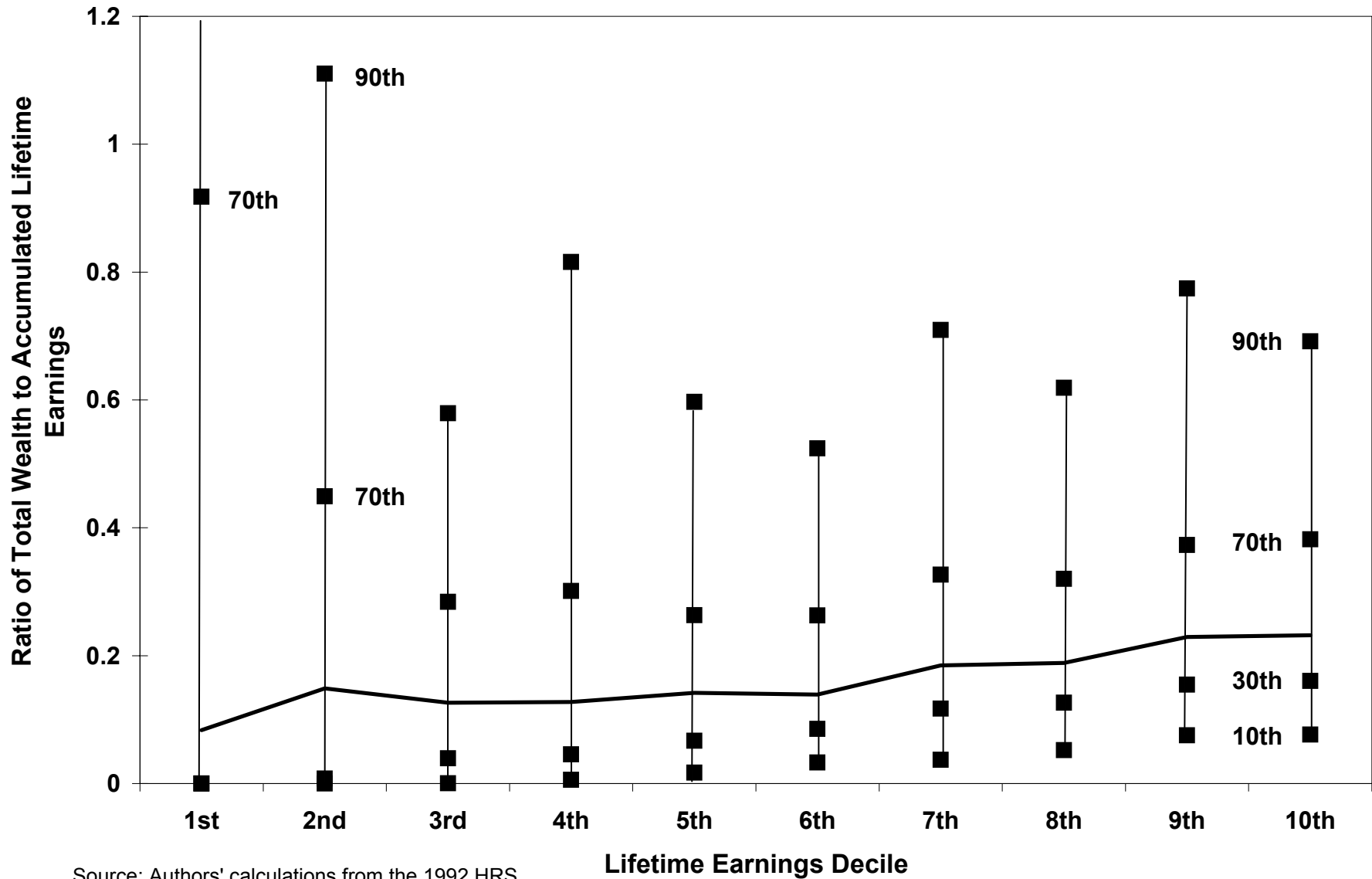
Figure 3. Contribution of DB, DC, and IRA Plans to NIPA Personal Saving



**Figure 4. NIPA Saving Rate with and without DB, DC, and IRA Plans**

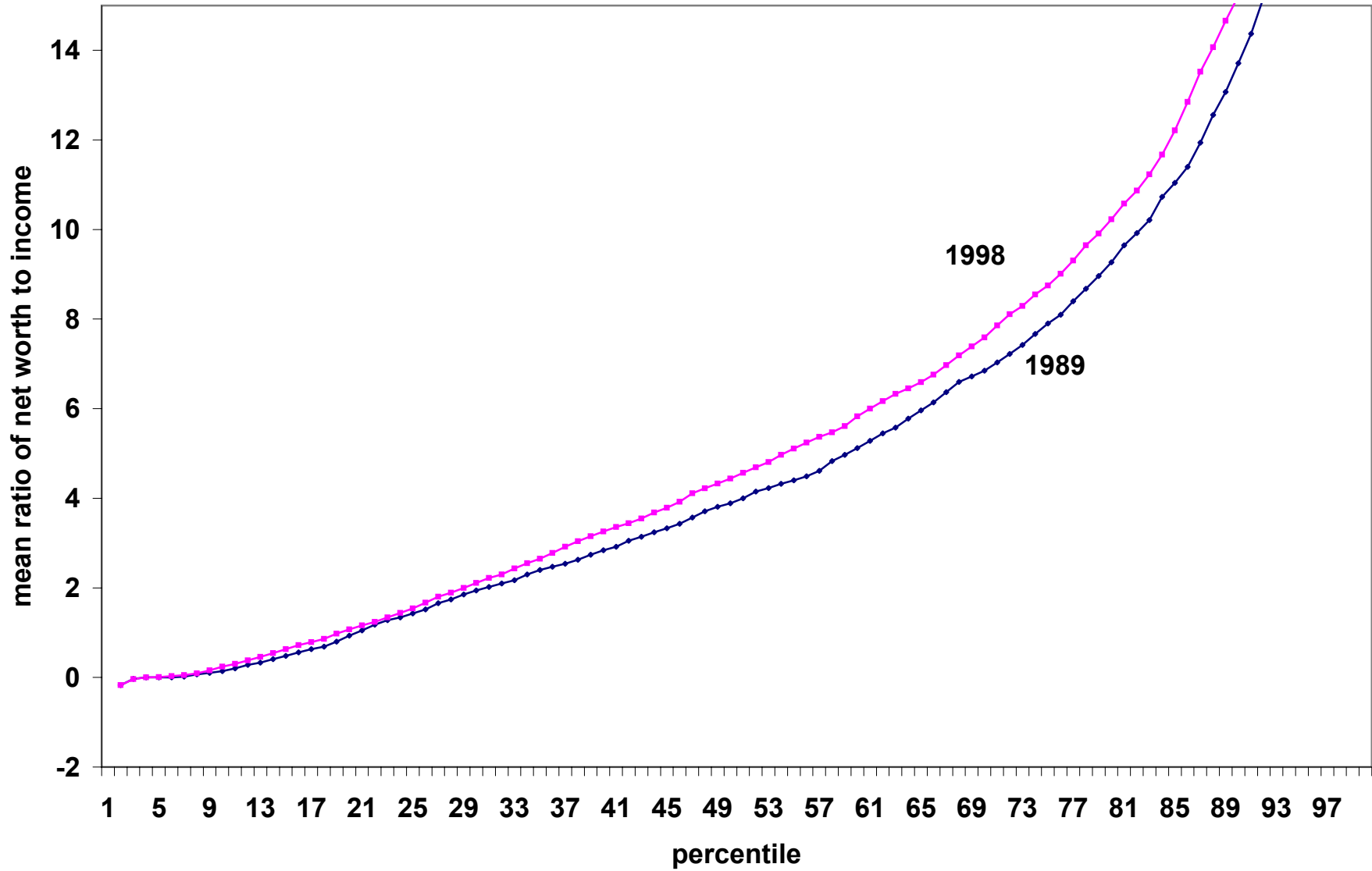


**Figure 5: The 10th, 30th, 50th, 70th, and 90th Percentiles of the Ratio of Total Wealth to Lifetime Earnings, by Lifetime Earnings Decile**



Source: Authors' calculations from the 1992 HRS.  
 The 90th percentile for the 1st earnings decile (not shown) is 1.00.

Figure 6a. Ratio of Net Worth to Income for Households Over Age 50, 1989 and 1998



**Figure 6b. Ratio of Financial Assets to Income for Households Over Age 50, 1989 and 1998**

