

## **Perspectives on the Household Saving Rate\***

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Original Draft: March 19, 1999  
This Draft: May, 1999

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\*The views expressed in this paper are our own and should not be interpreted as those of the Brookings Institution or the Congressional Budget Office. For very helpful comments on an earlier version of this paper, we thank Barry Bosworth, David Bradford, William Brainard, Robert Hall, William Nordhaus, Maria Perozek, George Perry, Charles Schultze, Joel Slemrod, and Gene Steuerle. We also thank Michael Simpson for extensive assistance with the data and Saran Holden in the Flow of Funds Section at the Federal Reserve Board for guidance on using the Flow of Funds Accounts. Gale gratefully acknowledges research support from the National Institute on Aging.

## ABSTRACT

We evaluate official saving rate measures in light of the recent decline of NIPA personal saving to effectively zero. We find, like others, that official saving measures are not representative of basic economic concepts, and that various adjusted measures of saving have moved in markedly different directions over the past two decades.

In particular, although NIPA personal saving declined from about 5 percent of GDP in the 1970s and 1980s to less than 0.5 percent in 1998, a measure that adjusts personal saving for durables, retirement accounts, inflation, and tax accruals, and integrates personal and business saving fell from about 9 percent of GDP in the 1970s and 1980s to 7 percent in 1998. Using this measure, which we would claim is closer to an economic concept of saving, the decline is much smaller, and the current level of saving is much higher, than under the conventional measure.

Adjusted Flow of Funds saving data show a similar decline. They also show that borrowing is not significantly out of line with prior years, and that the vast portion of the decline is concentrated in net acquisitions of non-retirement assets.

Adding capital gains fundamentally changes recent trends. With all capital gains included, the adjusted household saving rate is the highest in at least the last forty years, despite the personal saving rate being zero. However, it remains controversial whether it is appropriate to include capital gains in general, and the recent capital gains in particular, in saving.

Our findings suggest that, in principle, all discussions of whether saving has risen or fallen, and by how much, need to be qualified by the concept and measure of saving employed. In practice, this distinction appears to be particularly crucial when considering data over the recent past.

## **I. Introduction**

In September and October, 1998, the personal saving rate, as measured in the National Income and Product Accounts (NIPAs), dipped below zero for the first time since the Great Depression. For the entire year, personal saving totaled just 0.5 percent of personal disposable income, the lowest rate since 1933. In the advance estimate for the first quarter of 1999, the personal saving rate fell to -0.5 percent. These results are just the latest steps in the decline of a NIPA personal saving rate that averaged 7.6 percent in the 1960s, 8.2 percent in the 1970s, 6.7 percent in the 1980s, and 4.8 percent in 1990-94, before dropping to 3.0 percent in 1996, and 2.2 percent in 1997. Although claims of a saving crisis have been made repeatedly in academic publications and popular outlets over the last 20 years, the virtual disappearance of personal saving since 1998 has brought the issue back into the limelight.

At least three views of the decline in personal saving have been aired. One group, with a focus on long-term growth, views the low saving rate as bad news and worries that saving will stay low. Holders of this view believe low saving rates signify dangerously low levels of capital accumulation. At a macro level, this induces increasing dependence on (fickle) foreign capital; at a micro level, it raises fears that households are not saving enough for retirement or other purposes.

A second group, focused on sustaining short-term aggregate demand, thinks that the low saving rate contains significant good news, and worries that saving will rebound. Adherents of this view argue that the decline in personal saving and the accompanying rise in consumption have helped fuel the economic expansion in the U.S. and prop up the global economy. They worry that households are now stretched thin and will soon retrench, driving the U.S. and global

economies into a tailspin.

A third view is perhaps best summarized by William Nordhaus (1995): “Our tools for measuring saving and investment are stone-age definitions in the information age.” This view is rooted in the observations that standard aggregate saving measures correspond only weakly at best to the concepts of saving that drive economic models and analysis, that empirical measures of saving are inherently elusive and often arbitrary, and that different economic issues may require examination of different measures of saving. This view does not rule out the hypotheses that saving is too low, or that a consumption binge is propping up the economy, but holders of this view would be unlikely to draw these--or any other--conclusions on the basis of official saving aggregates alone.

In this paper, we re-examine secular and recent trends in saving in a spirit consistent with the third view. Our central goal is to delineate several alternative conceptual measures of saving and present evidence on how each of those measures have evolved over time. We do not attempt to determine the causes or consequences of the saving decline; indeed, some of our measures suggest that saving is rising rather than falling.

We begin our analysis in section II by examining the various ways that saving can be defined and noting that saving measures can vary in scope and level of aggregation. We highlight that different concepts and measures of saving may be most relevant for answering different questions. Understanding how each of various saving measures have evolved can help inform numerous aspects of policy and research. Indeed, it is difficult to see how relevant conclusions about saving can be reached without a detailed understanding of these issues.

In section III, we examine the standard measures of saving stemming from the National

Income and Product Accounts. To obtain measures that correspond more closely to economic concepts of saving, we alter the treatment of durable goods, inflation, retirement accounts, and tax accruals. We also show that the distinctions between personal and corporate saving are thin and somewhat arbitrary, and thus we tend to focus on private (personal plus corporate) saving. We find that the adjusted measures of personal and private saving are significantly higher than the official data, and have fallen by a much smaller amount over the last two to three decades. We also note an increase in government saving that offsets the decline in personal saving.

In section IV, we examine data from the National Balance Sheets that are part of the Flow of Funds Accounts. This data source also shows a decline in saving over time. The decline is due primarily to a reduction in net acquisition of non-tax preferred financial assets. Acquisitions of tax-preferred financial assets, household accumulations of durable goods, and trends in borrowing have remained roughly constant in recent years.

In section V, we augment the Flow of Funds measures of household saving with data on real capital gains. We show that, over the past forty years, capital gains have dominated measured saving as a source of household wealth accumulation, and that, if all capital gains are included as saving, the household-sector saving rate is at its *highest* level in the past 40 years, rather than its lowest. We discuss, but do not resolve, whether and under what circumstances it is appropriate to include capital gains in measures of saving.

In section VI, we conclude by noting other items that could be added to saving rates-- including human capital, research and development, and other intangible capital. Thus, we make no claim to having captured “the” saving rate. Rather, we conclude that different measures of saving can provide different, but complementary perspectives about the evolution of the

economy, and that an understanding of these perspectives is a crucial input to any broader interpretation of the causes or consequences of trends in saving behavior.

## **II. What is Saving?**

Generally, saving may be thought of as current-period resources or production that are not consumed in the current period but rather are made available for future consumption. With this idea in mind, saving is alternatively defined as “income” minus “consumption,” or the change in “wealth,” or the supply of “capital.” With comprehensive and consistent definitions of the terms in quotes, each definition of saving would represent the same concept and produce similar empirical measures. Empirically, however, several important issues arise.

First, even if a particular approach to defining saving is accepted, for example, income less consumption, the terms can be defined in different ways. For example, Nordhaus (1995) traces two historical definitions of income. Hicksian income is based on production and measures the maximum amount of resources that could be consumed in the current period while leaving the net capital stock intact. Fischerian income is the equivalent of a consumption annuity, and measures the maximum amount of resources that could be consumed in the current period while still allowing for at least as much consumption in each successive period. Although Weitzman (1976) shows special circumstances under which these measures are equivalent, Nordhaus (1996) shows that in general they will differ and empirically they differ significantly. As a result, measures of “saving” out of Hicksian income (i.e., Hicksian income less consumption) are empirically quite different from measures of saving out of Fischerian income.

Second, saving measures can differ in scope. A narrow measure of saving, often used in microeconomic studies of households, focuses on flows of financial assets and debt. A very

broad measure of saving would focus on changes in the stock and value of financial, physical, intangible, human, public, natural, and environmental capital.<sup>1</sup> Each alternative measure of the scope of saving implies alternative measures of “income,” “capital,” “wealth,” and so on.

Likewise, each alternative definition of wealth, or of income and consumption, implicitly defines an associated measure of saving.

Saving can be measured in real or nominal terms, and either gross or net of depreciation. For most economic purposes, however, it is undoubtedly most appropriate to measure saving in real terms and net of depreciation. Saving measures can also vary with respect to level of aggregation across individuals, businesses and governments.

Which measure of saving is most appropriate to employ may well depend on why the data are being examined in the first place. To understand how well households are preparing for retirement, for example, it would be logical to focus on personal wealth measures, including social security and medicare benefits. In contrast, if the goal is to examine government policies that encourage saving for retirement, it would be logical to include the effects on government saving as well as on private saving, since policy that raised private saving but reduced government saving by more might not be considered effective.

Alternatively, if the goal is to understand the share of aggregate production that society is devoting to investment in future production, it makes sense to include not only conventionally measured saving, but also investment in human capital, research and development, and other forms of intangible capital. Whether capital gains should be included in such a calculation is

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<sup>1</sup>Eisner (1988) surveys broad measures of saving that have been employed by various authors.

controversial, and may well depend on the source of the gain, as discussed below.

These observations do not point to a single unique, well-defined measure of saving. But they do suggest links between various economic concepts and appropriate measures of saving and the importance of close examination of the measure and concept of saving used. We explore these issues in subsequent sections.

### **III. Saving in the National Income and Product Accounts<sup>2</sup>**

#### **A. Personal Saving**

The NIPA personal saving measure is part of a broader NIPA framework whose main purpose is to measure current *production*, and the income arising from that production. NIPA personal saving is meant to represent the portion of current production that is made available by the household sector for purchasing new capital. The household sector includes individuals and families, pension funds, life insurance, trust funds, non-profits, and unincorporated businesses.

Formally, NIPA personal saving is measured as the difference between personal disposable income and personal consumption outlays. Personal disposable income is just personal income less tax and non-tax payments by the household sector to governments. Personal income is defined as the sum of wage and salary disbursements, other labor income, net proprietor's income from unincorporated business, net rental income, personal interest and dividend income, and transfer payments, less personal contributions for social insurance (social security and medicare). The vast bulk of personal consumption outlays are the sum of personal

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<sup>2</sup>For further discussion, see Antoniewicz and Engen (1994), Auerbach (1985), Boskin (1986), Bradford (1990, 1991), Ruggles and Ruggles (1983), Ruggles (1993) and Holloway (1989). The Bureau of Economic Analysis has been very responsive to past commentary about how investment is measured and how saving is allocated across sectors in the NIPA (see Holloway 1989 and Larkins 1999).



consumption expenditures on durables, non-durables, and services. Interest paid by consumers to businesses and net personal transfer payments to foreigners are also included in outlays.

Several features of the NIPA personal saving data are worth noting. First, accrued and realized capital gains are excluded. A realized gain is simply an exchange of one asset for another, and an accruing gain, while it reflects an increase in the purchasing power of the asset holder, is not considered to raise current production in the NIPA framework.

Second, all contributions to, and interest and dividend earnings on, private pensions and 401(k)s are included in personal saving. Employee contributions to pensions and 401(k)s are included as part of wage and salary disbursements. Employer contributions are counted as part of other labor income, as is the interest and dividend earnings (less expenses) of pension and 401(k) funds. To avoid double-counting, payments of pension benefits are not included as income. IRAs and Keoghs are treated similarly: contributions and interest and dividend earnings represent personal saving, but withdrawals do not count as personal income.

The treatment of pensions creates an important difference between households' view of their own wealth accumulation and recorded NIPA saving. Specifically, for workers enrolled in defined benefit pensions, the time pattern of benefit accruals may be quite different than the patterns of contributions and investment earnings. For example (and taking an extreme case), a worker who takes a job at age 30 and is immediately vested in a pension plan that pays a real benefit of \$50,000 per year upon turning 65 accumulates a large amount of pension wealth upon starting the job. The recorded NIPA saving, however--the employer and employee contributions and the interest and dividend earnings--will generally occur much later.

This is not to say, however, that the NIPA method of recording pension saving is

inappropriate. The *enrolling* of the worker in the pension plan generates no *net* pension saving-- it merely creates a future pension benefit for the worker that is exactly offset by a pension liability for the firm. Accordingly, NIPA records no saving due to the worker enrolling in the plan, even though the worker sees a large increase in pension wealth. The net saving occurs when the pension is funded by contributions and when the pension balances grow due to interest and dividends--these actions pay down the pension liability, but do not affect the pension benefit. Accordingly, these items are recorded in NIPA saving.<sup>3</sup>

Third, the NIPAs treat public pension and insurance funds in exactly the opposite manner as private funds. Contributions and earnings of federal, state and local government pension and insurance funds are not treated as personal saving, so the benefit payments from those funds are treated as income when received. Likewise, social security contributions are not counted in personal saving (they are subtracted as part of personal tax and non-tax payments), so social security benefits are counted as personal income (as transfer payments).

Fourth, NIPA treats consumer durables and owner-occupied housing differently, even though both are physical assets and both provide a stream of consumption benefits in the future. Spending on owner-occupied housing is considered saving, with the net imputed rental income included in the rental income component of personal income, and the imputed space rental in the services component of consumption expenditures. In contrast, purchases of other consumer durables count as current consumption outlays.

Fifth, the NIPA saving measure includes nominal interest receipts as income and nominal

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<sup>3</sup>There is one effect of pensions that is not recorded in NIPA saving: the unfunded liability that is created when the pension is created should reduce corporate equity values. But since the NIPA saving measure does not include capital gains, this effect is not included.

interest payments as outlays. However, in the presence of inflation, only the real component of interest flows should count as income or outlays. Thus, for example, if a corporation pays a household \$100 in nominal interest, and the inflation rate and real interest rate are equal, real household sector saving is overstated by \$50 and real corporate saving is understated by \$50.

Sixth, saving in the form of pensions has an implicit tax liability associated with it (Auerbach 1985, Bradford 1991, Engen, Gale, and Scholz 1996). For example, a household that makes a \$100 tax-deductible contribution to a pension and is permanently in a 20 percent tax bracket should only be conceived as having saved \$80. The remaining \$20 is deferred government taxes--it represents neither reduced current consumption or increased future consumption for the household. Likewise, a similar proportion of interest and dividend earnings on pensions should not be construed as personal saving. NIPA personal saving measures, however, include the entire contribution and interest and dividend earnings on private pensions.

#### B. Corporate Saving

Corporate saving in the NIPAs is the undistributed profits of corporations (i.e, after-tax profits less dividends paid to shareholders), plus an inventory valuation adjustment applied to the book value of inventories and a capital consumption adjustment applied to the book value of plant and equipment. These adjustments conform the undistributed profits measure to the replacement cost concept that underlies the NIPAs. Like personal saving, NIPA corporate saving does not adjust interest flows for inflation. We refer to corporate saving as corporate retained earnings, and private saving as the sum of corporate and personal saving.

From the perspective of economic theory, the line between personal and corporate saving is thin and somewhat arbitrary. Regardless of whether individuals effectively “pierce the

corporate veil” (see Poterba 1987 for more discussion and citations), the distinctions that NIPA makes between personal and corporate saving do not appear to be the most relevant or appropriate for most economic models or analyses of saving. For example, Poterba (1987) notes that corporate dividend payments and corporate share repurchases both involve shifting funds from the corporate to the household sector, but have different effects on sectoral saving in the NIPA. Capital gains included as part of mutual fund distributions used to be part of personal income, although gains in general are not counted. A few years ago, though, such gains were reclassified as corporate income. The associated revisions increased corporate saving and reduced personal saving, but left private saving unchanged. Likewise, the incorporation of Goldman Sachs earlier this year will shift saving from the household sector to corporations.

### C. Trends in NIPA Saving Measures

Table 1 shows NIPA net domestic investment and sources of funds for investment across economic sectors for various sub-periods over the last forty years. Focusing first on the 1990s, personal saving fell from 3.5 percent of GDP in the early 1990s to 0.4 percent by 1998. However, the table also shows that net private investment increased during the 1990s, from 5.3 percent of GDP in 1990-94 to 8.2 percent in 1998. That is, the decline in measured personal saving was more than offset by increased saving in other sectors. Total government saving rose from -2.0 percent of GDP in 1990-94 to 2.7 percent in 1998. Over the same period, corporate retained earnings rose by 1.2 of GDP and net foreign saving rose by 1.5 percent of GDP.

Taking a longer view, net investment was about 2 percent of GDP lower in 1997-8 than in the 1960s and 1970s. Measured government saving and corporate retained earnings were about the same share of GDP in the late 1990s as they were in the 1960s, but personal saving has fallen

by about 5 percent of GDP, while net foreign saving increased by almost 3 percent of GDP.

#### D. Adjusted Measures of NIPA Saving

For the reasons noted above, the raw NIPA data may be suspect, and it would be useful to know whether the issues raised earlier affect assessments of either the trend in total investment over time or in the allocation of saving across sectors. In this section, we adjust the NIPA data for several factors.

To incorporate saving and investment in the form of durable goods, we use data on net investment in durables taken from the Flow of Funds accounts. Net investment is measured as the change in the stock of durables and equals new purchases less the estimated depreciation of the existing stock of durables.<sup>4</sup>

To provide consistent treatment of government and private pensions, we treat government pensions as if they were private pensions, adding contributions and interest earnings to saving and excluding benefit payments from income.<sup>5</sup>

To measure each sector's NIPA saving in real terms, we subtract from sectoral nominal saving the product of the percentage change in the GDP deflator times the beginning-of-period

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<sup>4</sup>For further discussion, see Auerbach (1985) Congressional Budget Office (1993), Hendershott and Peek (1989), and Wilson and others (1989).

<sup>5</sup>Formally, we use the Flow of Fund's measure of government pension fund "net acquisitions." As discussed in section IV, the FFA approach measures the same concept as the NIPAs do, but uses different data and thus differs slightly empirically. Bosworth, Burtless, and Sabelhaus (1991) and Hendershott and Peek (1989) make similar adjustments. Others have decided it is more meaningful to treat accumulations by firms to pay future pension benefits as business saving, and they allocate the saving in defined benefit plans to the business sector to be consistent with the way NIPA allocates saving in government pension plans to the government sector. See, for example, Summers and Carroll (1987) and Poterba (1987).

credit market debt.<sup>6</sup> Credit market debt, for the household sector, includes debt held by pension funds. We use the GDP deflator to obtain as broad of a measure of inflation as possible. However, using the personal consumption deflator would not change our conclusions significantly. In this section, we do not adjust equity holdings for inflation, because the NIPA framework does not include capital gains.

To account for the accrual of tax payments implicit in pension saving, we multiply pension fund saving by an assumed effective tax rate of 20 percent (based on calculations in Engen, Gale and Scholz 1996). We do not claim that this is the exactly correct effective tax rate to employ. Rather, our goal here is to see whether plausible adjustments for tax accruals have significant effects on the evolution or composition of saving. For simplicity, we attribute the entire accruing tax bill to the federal government, rather than allocate it across federal, state and local governments.

The adjusted data in Table 2 show the same general trends in the level of national saving as the raw NIPA data. Both series show net domestic investment rising in the 1990s, but below levels obtained in the 1960s and 1970s. Because the share of foreign saving financed by foreign investment rose by 2-3 percent of GDP over the same period, adjusted net domestic investment financed by domestic saving fell from 12.3 percent of GDP in the 1960s to 8.1 percent in 1998.

Taken together, the adjustments significantly alter the composition of the saving decline. For example, the adjusted personal and private saving rate fell by less than the official NIPA measures suggest, both in the recent past and in the long run. While NIPA personal saving fell

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<sup>6</sup>Similar adjustments for inflation have been made by Summers and Carroll (1987), Congressional Budget Office (1993), Hendershott and Peek (1989) and Wilcox (1991).

by 3.1 percent of GDP in the 1990s, adjusted personal saving fell by only 1 percent of GDP. Relative to the 1970s and 1980s, NIPA personal saving in 1998 had fallen by almost 5 percent of GDP, and NIPA private saving fell by almost 4 percent of GDP. Adjusted private saving, however, fell by only about 2 percent of GDP.

Taken individually, the adjustments have a wide variety of effects. Investment in consumer durables was 2.3 percent of GDP in 1998, and increased by about 1 percent of GDP over the decade, which we attribute to the normal cyclical nature of durables investment. Adding investment in durables to NIPA net private domestic investment does not change long-run investment trends very much, however, because the fraction of GDP devoted to increasing the stock of durables in 1998 is close to its historical average.

Accumulation in government retirement accounts and trust funds is substantial, rising from about 1 percent of GDP in the 1960s to 1.7 percent in 1998. Shifting these funds from government to the personal sector alters saving levels in both sectors, but does not change conclusions about the recent drop in personal saving, because government pension saving has been stable or even falling in the last decade. Adjusting for the accrual of taxes reduces personal saving by about 1 percent of GDP for the last 30 years, but has not significantly altered the trend.

The inflation adjustment has a significant impact on reported saving rates. The adjustment reduces net saving of the two creditor sectors (households and foreigners) and raises net saving of the two borrowing sectors (government and corporations). The effect varies significantly over time because of changes in the underlying inflation rate. Much of the decline in nominal personal saving can be attributed to the decline in inflation. From the 1970s to the early 1990s, the nominal personal saving rate fell by 3 percent of GDP, but five sixths of that

decline can be accounted for by the decline in inflation. Between the early 1990s and 1998, the nominal personal saving rate fell by 2.3 percent of GDP, roughly 40 percent of which can be accounted for by a reduction in inflation. Since the net inflation adjustment across sectors is zero, however, the inflation adjustments shift government and corporate saving in exactly the opposite direction.

In summary, the NIPA adjustments made above raise the level of saving, reinforce the notion that saving has declined, and change somewhat the attribution of the source of the decline. In particular, official NIPA personal and private saving figures show larger declines than adjusted measures do.

#### **IV. Saving in the Flow of Funds Accounts**

Our second perspective on saving uses data on household balance sheets, to examine how the composition of private and household saving has changed over time. To do so, we use the measure of household-sector saving in the Federal Reserve Board's Flow of Funds Accounts (FFA).<sup>7</sup> The FFA measure the value of wealth holdings and debt at discrete points in time, and the active acquisition and disposition of assets and liabilities. The change in levels between discrete points in time is the sum of "net acquisitions" and "revaluations." The FFA measure of saving is just the net acquisitions component of the change in the wealth--that is, like the standard NIPA measure, the standard FFA measure of saving does not include capital gains.

The FFA measure of personal saving is intended to represent the same concept as the NIPA measure, except that accumulations in government pensions and net investment in consumer durables are attributed to household saving. In practical terms, however, the NIPA and

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<sup>7</sup>See Wilson et al (1989) for detailed description of the Flow of Funds data.



FFA use different data sources and different approaches to measuring saving, which creates statistical as well as conceptual discrepancies between the series. The statistical differences are generally less than 1 percent of income in absolute value.

Our results presented below for the FFA saving rate are not strictly comparable to the NIPA saving rate measures reported above, nor are they intended to be. Our analysis of NIPA saving focused on how various adjustments altered the allocation of saving across sectors, which requires using a denominator--GDP--that includes all sectors. In contrast, our analysis of the FFA data focuses on the composition of private saving. Thus, we use a measure of private sector net resources as the denominator for the FFA saving rates. The income measure--which we call expanded disposable income--is the sum of NIPA disposable income, net investment in government pensions, and corporate retained earnings, less the implied tax accruals on pensions.

Table 3 shows our estimates of aggregate, FFA-based saving rates. The FFA saving rates reflect the decline in saving found in the NIPA data. FFA private saving fell from an average of about 15 percent of expanded income in the 1980s to 9-10 percent in 1996-8. The equivalent measure of household saving, shown in the third line, fell from 12.2 percent of expanded disposable income in the 1980s to an average of under 5 percent in 1996-8.<sup>8</sup>

#### A. Gross Saving and Borrowing

Table 3 decomposes net saving into gross saving and gross borrowing, and their

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<sup>8</sup>For comparison purposes, the Table also reports the standard Flow of Funds household saving rate, which uses NIPA disposable income as the denominator, in the last addendum line. Our constructed household saving measure is slightly lower than the Flow of Funds household saving measure in all periods.

components, to examine several portfolio issues.<sup>9</sup> The main finding in Table 3 is that the long-run decline in FFA saving is largely associated with a reduction in gross saving, and within gross saving, the net acquisition of financial assets. The net acquisition of financial assets, net of tax accruals implicit in pension saving, fell from about 13 percent of GDP in the 1980s to 6 percent in 1996-8.

The quantitative importance of borrowing in recent saving trends depends on the time frame chosen. Over the course of the 1990s, the rise in private borrowing accounts for more than 100 percent of the decline in private saving. But comparing recent years to earlier decades suggests little change in borrowing rates. Borrowing rates in 1995-7 were somewhat lower than in the 1970s and 1980s, and the borrowing rate in 1998 was only 1 percent of GDP higher. Even the 1998 value, however, may not suggest an important upsurge in borrowing. Borrowing tends to be pro-cyclical, so the long economic expansion may be one factor driving up borrowing recently, and the 1998 data are preliminary and subject to revision.

Table 3 also provides information on borrowing relative to household investment in the tangible assets for which most people are apt to take out loans. The household sector has a long history of borrowing against its physical capital. Investment in housing less mortgage debt has been *negative* during the last 30 years, including during the inflationary years of the 1970s when real estate boomed. However, the interpretation of this variable changes after 1986, because the Tax Reform Act of 1986 eliminated deductibility of non-mortgage interest and encouraged a shift toward mortgage debt (Maki 1995). Examining household investment in durables and housing,

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<sup>9</sup>We do not provide a measure of gross corporate borrowing because the corporate sector in the Flow of Funds is not fully separated from other businesses. Although non-financial businesses are separated by corporate status, financial businesses are not.

however, provides roughly the same trend: borrowing exceeded tangible investment throughout the late 1990s, but the rates (except for 1998 itself) are not substantially different from previous time periods. Thus, the data do not suggest that increased borrowing against housing and other tangible wealth has led to a decline in saving. But interpretations should be cautious: In the 1970s, real house prices grew rapidly, whereas in the 1980s and 1990s, real house price appreciation has slowed.<sup>10</sup>

### B. Saving in Retirement and Non-Retirement Accounts

Our second balance-sheet saving decomposition, shown in Table 4, focuses on the distinction between qualified retirement saving vehicles (e.g., pensions, 401(k)s, IRAs, Keoghs, and so on) and other saving.<sup>11</sup> Pension saving is measured explicitly in the FFA, and--as discussed in the Appendix--we use data from a variety of sources to estimate IRA saving.

While Table 3 indicates that the decline in saving was accounted for by a decline in net acquisitions of financial assets, Table 4 suggests the source can be pinpointed even more closely: almost all of the decline occurred in non-qualified saving. For example, personal saving fell by almost 7 percent of expanded disposable income from the 1970s and 1980s to 1998, as did households' net acquisition of non-retirement financial assets. In contrast, saving in retirement vehicles was roughly the same in 1998 as its average in the 1970s and 1980s, gross borrowing rose by 1 percent of expanded disposable income, and corporate retained earnings rose somewhat.

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<sup>10</sup>Steuerle (1990) examines similar issues from an earlier vantage point.

<sup>11</sup>The latter category could, of course, include assets that households view as saving for retirement.

Within retirement saving, saving in private and government pensions have been relatively constant shares of GDP over the last 30 years. IRA saving has not fallen, either, even though restrictions on deductibility of IRA contributions after 1986 severely curtailed new contributions into IRAs. The strength of IRA saving in the late 1980s and 1990s is attributable to a high rate of rollovers from pensions to IRAs, which underscores the importance of examining all of the retirement-saving vehicles simultaneously.

The FFA analysis--like the NIPA results--shows that plausible adjustments and decompositions of measured saving rates can generate new insights on saving behavior. However, none of the estimates above include capital gains. Given the massive run-up in stock market values in recent years, the magnitude and interpretation of such gains are important features of wealth accumulation.

## **V. Capital Gains**

### **A. Sources of Changes in Wealth**

Our third perspective incorporates capital gains into saving rate measures. Table 5 compares the magnitude of capital gains and measured Flow of Fund saving over the past 40 years. The calculations use the same denominator--expanded disposable income--as in Tables 3 and 4. Thus, the household sector net saving rate in Table 5 excludes capital gains and is the same as the value in the third line of Table 3.

Table 5 demonstrates several key points. First, capital gains have dominated measured saving as a source of wealth change in the last forty years except during the 1960s and 1990-94. Even in those periods, however, capital gains were as large as measured saving.

Second, the overall rate of capital gains since 1995 is large relative to earlier years, and

will prove even larger when the decline in inflation is taken into consideration below. Since 1995, capital gains have accounted for over 80 percent of the gains in household sector net worth. In 1997 and 1998, capital gains were more than 10 times as high as measured saving.

Third, the composition of capital gains has changed over time. In the 1970s and 1980s, tangible capital accounted about half of the capital gains. In the 1990s, financial assets have accounted for almost all of the gains. Capital gains on pension assets alone have equaled about 10 percent of income over the past four years.

Figure 1 plots the data used in table 5 on an annual basis. The data show substantial year-to-year variation in capital gains. In the past, large accruals of capital gains, as have occurred in recent years, have proven to be temporary phenomenon.

#### B. Gains-Inclusive Saving Rates

To examine saving rates that include capital gains in an internally consistent manner, we add capital gains to the numerator and the denominator of the Flow of Funds saving rate used in table 3 and 4. (Equivalently, we add capital gains to the denominator of the values reported in the top row of Table 5, which already include capital gains in the numerator.) This makes the numerator equal to the change in household sector net worth and the denominator equal to expanded disposable income plus capital gains. We refer to this income measure as gains-inclusive income.

Table 6 reports the change in household sector net worth divided by gains-inclusive income: the results differ from the wealth change rates in Table 5 only because capital gains are now included in the denominator. The rates of wealth accumulation in Table 6 are noticeably lower than the values in Table 5, because including capital gains raises the denominator

significantly, especially in recent years. Nevertheless, the late 1990s still stand out as a period of very high wealth growth. The annual change in household sector net worth has averaged around 35 percent of gains-inclusive income since 1995. This greatly exceeds the rate of accumulation, relative to gains-inclusive income, in the 1960s and the early 1990s, and is approximately the same rate of accumulation as in the 1970s and 1980s.

Because these results are in nominal terms, we compute a measure of real gains equal to nominal gains less the product of the GDP deflator inflation rate and the beginning-of-period net worth. We then calculate the real gains-inclusive saving rate with real instead of nominal gains in both the numerator and the denominator.

Due to the sharp drop in inflation since the late 1970s, adjusting for inflation dramatically changes the results. The increase in household net worth falls by 20 percent of gains-inclusive income in the 1970s, from 33 percent to 13 percent. In the 1960s, 1980s, and 1990-94, the annual increase in household net worth falls by about 10 percent of gains-inclusive income. In contrast, the inflation adjustment in the late 1990s is small. Thus, rates of real wealth accumulation in the late 1990s are higher relative to gains-inclusive income than at any point in the past 40 years, and the inclusion of capital gains in a saving rate measure greatly amplifies the impact of correcting reported saving rates for inflation.

The inclusion of capital gains highlights the fact that part of the measured increase in household sector wealth is an accrued tax liability of the household sector, because taxes will be due on capital gains when they are realized. In the analysis in tables 1-4, we adjusted pension saving (defined to exclude capital gains) for tax accruals, using 20 percent as an estimated tax rate. Here, we continue to adjust traditionally-measured pension saving by 20 percent, but we

also adjust accrued capital gains on pensions by 20 percent and accrued capital gains on taxable assets by 10 percent (the latter to reflect rules-of-thumb in public finance). As before, we do not present these as precise estimates; our goal is rather to determine whether accounting for tax accrual significantly affects the trends in the data.

We adjust both the numerator and denominator of the saving rate calculations for tax accruals. The results in the third line of Table 6 show that, without adjusting for inflation, the tax-accrual adjustment averages about 1 percent of gains-inclusive income in the 1960s and 1970s, rising to about 2.5 percent in the 1990s.

When both the inflation and accrued-tax adjustments are applied in Table 6, the effect of tax accrual corrections on the time-path of estimated wealth accumulation rates are slightly amplified: the accrued tax effect is fairly small in the 1960s and 1970s, lowering the rate of wealth accumulation by about 1-2 percent of gains-inclusive income. By the late 1990s, when pensions and capital gains are booming, the adjustment is about 3 percent of gains-inclusive income.

Figure 2 shows gains-inclusive saving rates on an annual basis. The figure reflects the large year-to-year variation in capital gains shown in Figure 1, but also clearly shows the effects of adjusting for inflation and tax-accruals. The adjusted household wealth accumulation figures are larger, relative to gains-inclusive income, than at any time in the past 40 years.

Interestingly, the adjustment for tax accruals has a significant impact on the time path of the federal surplus, measured as a proportion of GDP.<sup>12</sup> Accruing tax liabilities were

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<sup>12</sup>The equivalent denominator adjustment for the federal government would be to add accrued tax liabilities to GDP when computing the government saving rate.

approximately 4 percent of GDP in recent years. Much of this is due to retirement accounts. Accrued liabilities on pensions and IRAs alone have risen by \$2 trillion dollars since 1980 (because pension and IRA balances have grown \$10 trillion)—about half the size of the outstanding federal debt. Adjustments for tax accruals, however, do not change the overall federal, long-term fiscal stance. That is, attributing the tax accruals to federal resources when the accruals occur implies that they cannot be attributed again in the future, when the taxes are paid. Nevertheless, examining the time path of tax accruals suggests both that fiscal policy has not been as profligate as it may first appear in the 1980s and early 1990s, and that a significant portion of future revenues are attributable to realized capital gains, pension withdrawals, and other deferred incomes that represent repayment of tax-loans made by the government.

### C. Should Capital Gains be Included in a Measure of Saving?

The results above show that interpretations of recent saving behavior hinge crucially on whether capital gains are included as saving. In this section, we discuss some of the major arguments in favor of and opposed to including capital gains as saving.<sup>13</sup>

Whether to include capital gains as saving depends to some extent on the issue being examined. For example, a household that is preparing for retirement should include capital gains in their measure of what they have saved, since capital gains can be consumed in retirement just as easily as interest and dividend earnings.

At an aggregate level, however, the issue is more complex. Auerbach (1985) notes that if saving is the creation of resources today in order to consume more tomorrow, then whether

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<sup>13</sup>For related analyses, see Auerbach (1985), Carroll and Summers (1987) and Bradford (1990, 1991), Hendershott and Peek (1989).



capital gains should be included as saving depends on the source of the gain. If the underlying asset has become more productive, the capital gain should be thought of as saving. However, if it results from a shift in tastes, the capital gain has not contributed anything to increasing future income or production and so should not be considered saving.

Auerbach's analysis is useful for tracing out a variety of effects, starting with a closed economy. For example, a decline in the value of a machine due to reductions in productivity should be counted as a decline in saving, but a decline in value due to the invention of a new, better machine should not count as a fall in saving since there is no implied decline in future production or consumption.

Auerbach also provides an interesting example regarding the role of tastes in determining capital gains, still in a closed economy. Suppose each middle-aged generation owns land, which is fixed in quality and quantity and is the only store of value, and sells it to the next generation to finance its own retirement. A change in the price of land that occurs because one generation has a different discount rate than all of the others will introduce capital gains, but no increase in future consumption. Thus, in his example, real revaluations of assets that occur because of changes in time preference rates or risk premia should not be reflected in saving.

This implies that even if capital gains increase a particular individual's or cohort's wealth, they may also impose costs on other individuals or cohorts, and therefore not increase aggregate wealth. That is, just because it is appropriate to include capital gains in measuring the resources of an individual or cohort does not automatically imply that it is appropriate to include such gains in measuring aggregate saving.<sup>14</sup>

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<sup>14</sup>Schultze (1990) provides a related example based on the value of taxi cab medallions.

The implications of Auerbach's land example, however, may be different in an open economy. A change in the price of a domestic asset that is due to changes in domestic tastes can not raise future national consumption in a closed economy, but could do so in an open economy to the extent that the gains expand U.S. consumers' and firms' ability to purchase goods or services from other countries. Of course, not all domestic capital gains will expand U.S. nationals' ability to command foreign resources: there may be equivalent capital gains in other countries, the domestic capital gains may accrue to foreigners, and exchange rate adjustments would need to be taken into account. Nevertheless, to the extent that any domestic capital gain raises the country's ability to purchase resources from other countries, the capital gain should count as an addition to national saving--even if it is due to changes in tastes and is therefore not an increase in world saving.

That is, the role of an individual country in a world economy is much that like of an individual or a cohort in a closed economy. In a closed economy, a capital gain due to shifts in tastes should count as saving for the individual receiving it, even if it is not saving at an aggregate level. Likewise, in an open economy, a capital gain due to shifts in tastes should count as saving for the country receiving it--to the extent that it raises the country's future consumption possibilities--even if it is not saving at the world level.

In practice, determining which capital gains fall in which category is difficult. Bradford (1990, 1991), for example, acknowledges that changes in discount rates could cause changes in market values and notes several other problems with using market values as indicators of saving, but concludes nevertheless that the change in market value remains a more useful saving concept than NIPA measures. Schultze (1990) suggests that most gains have little to do with increases in

future production or income and so should not be counted as saving, but implicitly acknowledges that capital gains that do raise future production and income should be included as saving.

More recently, Glassman and Hassett (1999) argue that the recent run-up in stock prices is due in large part to the decline of the equity risk premium. They point out that the growth of dividends or earnings per share has not changed much in recent years relative to historical norms, but that earnings and dividend yields have plummeted. They argue that this pattern is more likely to be result of changes in investors' attitudes toward risk, rather than the result of massive infusions of new (intangible) capital, because a large amount of new capital would normally be reflected in current earnings and medium-run earnings forecasts, which does not appear to be the case. Under this view, the run-up in stock prices should only be considered an increase in national saving to the extent that it raises Americans' ability to purchase items from abroad.

Hall (1999), however, offers an opposing view, namely that accruing capital gains on corporate stock can be interpreted as increases in the *quantity* of capital under certain conditions—the absence of monopoly rents, scarcity rents, and adjustment costs. He presents evidence that the value of aggregate corporate securities behaves over time essentially as one would expect if the value of securities reflects the quantity of capital. Under Hall's view, recent capital gains should be included in saving.

## **VI. Concluding Remarks**

This paper evaluates official saving rate measures in light of the recent decline of NIPA personal saving to effectively zero. We find, like others, that official saving measures are not representative of basic economic concepts, and that various adjusted measures of saving have

moved in markedly different directions over the past two decades.

In particular, although NIPA personal saving declined from about 5 percent of GDP in the 1970s and 1980s to less than 0.5 percent in 1998, a measure that adjusts personal saving for durables, retirement accounts, inflation, and tax accruals, and integrates personal and business saving fell from about 9 percent of GDP in the 1970s and 1980s to 7 percent in 1998. Using this measure, which we would claim is closer to an economic concept of saving, the decline is much smaller, and the current level of saving is much higher, than under the conventional measure.

Adjusted Flow of Funds saving data show a similar decline. They also show that borrowing is not significantly out of line with prior years, and that the vast portion of the decline is concentrated in net acquisitions of non-retirement assets.

Adding capital gains fundamentally changes recent trends. With all capital gains included, the adjusted household saving rate is the highest in at least the last forty years, despite the personal saving rate being zero. However, it remains controversial whether it is appropriate to include capital gains in general, and the recent capital gains in particular, in saving.

Our findings suggest that, in principle, all discussions of whether saving has risen or fallen, and by how much, need to be qualified by the concept and measure of saving employed. In practice, this distinction appears to be crucial when considering data over the recent past.

However, as Eisner (1991) noted in a similar exercise, “There is nothing sacrosanct about any of the time series presented in this paper.” In particular, other items could be added to the definitions of saving or investment used in this paper. Intangible capital may be growing rapidly, but these expenditures are not treated currently as saving or investment (Hall 1999, Blair and Kochan 1999). Accumulation and decumulation of human capital share many of the same

properties as accumulation and decumulation of physical or financial capital (Auerbach 1985, Eisner 1988, Jorgenson and Fraumeni 1989, and Rosen 1989). The discovery and development of natural resources clearly adds to a nation's capital stock (Nordhaus 1995). Tangible government assets provide services and income flows just as comparable private assets do (Boskin 1986, Eisner 1988). The findings could also be extended to examine different measures of resources available to consumers. Kotlikoff (1989) and Bradford (1990), for example, advocate use of a measure that includes net national product plus consumption of durables and government tangible assets less government's exhaustive spending. Gokhale, Kotlikoff and Sabelhaus (1996) construct comprehensive estimates of all expected government benefits and taxes of the household sector, and examine the changes in those expected values over time

We believe that the appropriate measure of saving to use will ultimately be a judgment call, and will depend on the question being asked. But developing empirically comprehensive and theoretically consistent measures of saving would clearly be helpful. It would provide saving data that correspond more closely to the concept of saving employed in theoretical models, allowing more informative tests of theory, better comparisons of saving over time and across countries with different institutional patterns (Eisner 1988), and greater understanding of the effects of policies that encourage one type of saving on other forms of saving. These issues are well beyond the scope of this paper, but represent interesting avenues for future research.

## Appendix

To calculate IRA saving and capital gains on IRAs, we use data from the Employee Benefits Research Institute (EBRI), the American Council of Life Insurance (ACLI), and tax returns (See Fronstin (1998) and ACLI (1998) for descriptions of the data.)

There are two ways to construct saving measures for pension or IRAs. Saving is the sum of employer and employee contributions, interest earnings, and dividend earnings, less benefits paid—the FFA calls this “net acquisition” of financial assets. This net saving flow is conceptually identical to changes in pension fund balances less capital gains.

We use both approaches to construct estimates of IRA saving. Using EBRI data on IRA balances at financial institutions, we subtract IRA balances held at life insurance companies using ACLI data because those balances are already counted as pensions in the FFA. We also use data on contributions to and withdrawals from IRAs from tax returns, and an estimate of interest and dividends paid on IRAs from unpublished NIPA sources. We do not have direct data on rollovers from pensions to IRAs, but proxy those flows using the gap between gross and taxable pension distributions as reported by taxpayers on their form 1040s.<sup>15</sup>

Given the data on IRAs from many sources, it is instructive to see how well the flows and balances fit together. The missing link is capital gains: we estimate gains by applying the change in the S&P 500 to IRAs held at brokerage institutions and mutual funds. We then compute the IRA flow discrepancy as the change in balances less estimated gains, contributions, rollovers,

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<sup>15</sup>The rollover estimate is described in detail in Sabelhaus (1998). A direct estimate of rollovers based on linked form 1040 and IRA/pension information returns in Sabelhaus and Weiner (1999) confirms this approach.

and interest and dividend earnings, plus withdrawals. The pieces of the puzzle fit together quite well; on a percentage basis, the discrepancy is quite small.<sup>16</sup> Our measure of IRA saving is then the change in IRA balances less estimated capital gains.

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<sup>16</sup>Sabelhaus (1998). It is important to note here that all of the IRA data series end before 1998, and we extend the series through the end of 1998 using the methodology described in Sabelhaus(1998).

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**Table 1. Investment and Sources of Funds For Investment**  
Percent of GDP

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Net Domestic Investment	10.6%	9.4%	7.8%	5.3%	6.3%	6.9%	7.6%	8.2%
Equals Gross Domestic Investment	20.6	20.4	19.8	16.7	17.4	17.8	18.4	18.9
Less Consumption of Fixed Capital	10.0	11.0	11.9	11.3	11.0	10.9	10.7	10.7
Sources of Funds for Net Domestic Investment	10.6%	9.4%	7.8%	5.3%	6.3%	6.9%	7.6%	8.2%
Total Private Saving	8.9	8.6	7.1	5.9	6.2	5.6	5.2	4.0
Personal Saving	5.2	5.7	4.8	3.5	2.7	2.2	1.5	0.4
Corporate Retained Earnings	3.6	2.9	2.3	2.4	3.5	3.4	3.7	3.6
Total Government Saving	2.4	0.2	-1.3	-2.0	-0.9	0.2	1.4	2.7
Federal Government Surplus	0.3	-1.9	-3.2	-3.4	-2.4	-1.4	-0.3	0.9
State and Local Government Surplus	2.1	2.1	1.9	1.4	1.5	1.6	1.7	1.8
Net Foreign Saving	-0.6	-0.2	1.8	1.0	1.4	1.6	1.7	2.5
Statistical Discrepancy	-0.1	0.7	0.1	0.4	-0.4	-0.4	-0.7	-1.0

Source: National Income and Product Accounts.

**Table 2. Adjusted Measures of Saving and Investment**

Percent of GDP

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Adjusted Net Domestic Investment	12.8%	11.6%	9.8%	6.8%	8.2%	8.9%	9.7%	10.5%
Equals NIPA Net Domestic Investment	10.6	9.4	7.8	5.3	6.3	6.9	7.6	8.2
Plus Investment in Consumer Durables	2.2	2.2	2.0	1.4	1.9	2.0	2.1	2.3
Adjusted Sources of Funds for Net Domestic Investment	12.8%	11.6%	9.8%	6.8%	8.2%	8.9%	9.7%	10.5%
Adjusted Total Private Saving	10.6	9.0	8.6	7.2	7.9	7.6	7.6	6.9
Equals NIPA Private Saving	8.9	8.6	7.1	5.9	6.2	5.6	5.2	4.0
Plus Adjustments to Private Saving	1.7	0.3	1.5	1.3	1.8	2.0	2.4	2.9
Adjusted Personal Saving	6.3	4.0	4.9	3.7	3.7	3.6	3.3	2.9
Equals NIPA Personal Saving	5.2	5.7	4.8	3.5	2.7	2.2	1.5	0.4
Plus Investment in Consumer Durables	2.2	2.2	2.0	1.4	1.9	2.0	2.1	2.3
Plus Saving in Federal Government Retirement Plans	0.2	0.3	0.6	0.6	0.3	0.7	0.5	0.5
Plus Saving in State and Local Government Retirement Plans	0.5	0.7	1.2	0.9	0.8	0.7	1.0	0.6
Plus Saving in Other Federal Social Insurance Trust Funds\	0.3	-0.2	0.1	0.4	0.5	0.0	0.4	0.6
Plus Inflation Adjustment\	-1.8	-4.0	-2.6	-2.2	-1.5	-1.2	-1.1	-0.6
Less Accrued Tax Adjustment\	-0.4	-0.6	-1.1	-1.0	-0.8	-0.8	-1.0	-0.9
Adjusted Corporate Retained Earnings	4.3	4.9	3.7	3.5	4.2	4.0	4.3	4.0
Equals NIPA Corporate Retained Earnings	3.6	2.9	2.3	2.4	3.5	3.4	3.7	3.6
Plus Inflation Adjustment\	0.7	2.0	1.4	1.1	0.7	0.6	0.6	0.3

**Table 2. Adjusted Measures of Saving and Investment**

Continued

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Adjusted Government Saving	2.9	2.1	-0.6	-1.6	-0.5	0.4	1.4	2.3
Equals NIPA Government Saving	2.2	0.1	-2.2	-2.8	-1.5	-0.5	0.5	2.1
Plus Adjustments to Government Saving	0.7	2.0	1.6	1.3	1.0	0.9	0.9	0.2
Adjusted Federal Government Surplus	1.0	0.1	-1.6	-2.1	-1.4	-0.5	0.6	1.1
Equals NIPA Federal Government Surplus	0.3	-1.9	-3.2	-3.4	-2.4	-1.4	-0.3	0.9
Less Saving in Federal Government Retirement Plans	-0.2	-0.3	-0.6	-0.6	-0.3	-0.7	-0.5	-0.5
Less Saving in Other Federal Social Insurance Trust Funds <sup>a\</sup>	-0.3	0.2	-0.1	-0.4	-0.5	0.0	-0.4	-0.6
Plus Inflation Adjustment <sup>b\</sup>	0.8	1.4	1.1	1.2	1.0	0.8	0.8	0.4
Plus Accrued Tax Adjustment <sup>c\</sup>	0.4	0.6	1.1	1.0	0.8	0.8	1.0	0.9
Adjusted State and Local Government Surplus	1.9	2.0	1.0	0.6	0.9	1.0	0.8	1.2
Equals NIPA State and Local Government Surplus	2.1	2.1	1.9	1.4	1.5	1.6	1.7	1.8
Less Saving in State and Local Government Retirement Plans	-0.5	-0.7	-1.2	-0.9	-0.8	-0.7	-1.0	-0.6
Plus Inflation Adjustment <sup>b\</sup>	0.3	0.6	0.2	0.2	0.1	0.1	0.1	0.1
Adjusted Net Foreign Saving	-0.5	-0.2	1.7	0.7	1.1	1.3	1.4	2.4
Equals NIPA Net Foreign Saving	-0.6	-0.2	1.8	1.0	1.4	1.6	1.7	2.5
Plus Inflation Adjustment <sup>b\</sup>	0.1	0.0	-0.1	-0.3	-0.2	-0.3	-0.3	-0.2
Statistical Discrepancy	-0.1	0.7	0.1	0.4	-0.4	-0.4	-0.7	-1.0

Sources: National Income and Product Accounts and Flow of Funds Accounts.

<sup>a\</sup> Estimated saving in non-retirement trust funds is the difference between NIPA trust fund accumulation and FFA federal employee retirement fund accumulation.<sup>b\</sup> The inflation adjustment for each sector is the product of the percent change in the GDP deflator and each sector's holdings of credit market debt.<sup>c\</sup> The accrued tax adjustment is equal to 20% of the saving in pension and IRA accounts, which is the estimated deferred tax-liability.

**Table 3. Private Borrowing and Saving in the Flow of Funds Accounts**

Percent of Expanded Disposable Income/a/

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Household and Corporate Sectors Net Saving	17.2%	16.7%	15.2%	12.1%	11.2%	9.8%	9.6%	9.3%
Corporate Sector Net Saving	5.0	4.0	3.1	3.2	4.6	4.5	4.8	4.9
Household Sector Net Saving	12.2	12.7	12.2	9.0	6.6	5.3	4.8	4.4
Equals Household Sector Gross Saving	16.6	19.5	19.1	13.9	13.0	11.8	10.9	12.5
Investment in Owner-Occupied Housing	2.5	3.3	3.1	2.8	2.7	2.9	2.2	2.7
Investment in Consumer Durables	3.1	3.0	2.7	1.9	2.5	2.7	2.8	3.1
Investment in Non-Profit Tangible Capital	0.9	0.5	-0.1	-0.2	0.2	0.3	0.9	0.8
Net Acquisition of Financial Assets Less Accrued Taxes	10.1	12.7	13.4	9.4	7.7	6.0	5.1	6.0
Less Household Sector Gross Borrowing	4.5	6.8	6.9	4.9	6.5	6.5	6.2	8.0
Mortgage Borrowing	2.4	4.3	4.7	3.4	3.1	4.3	3.9	5.8
Consumer and Other Debt	2.0	2.5	2.2	1.5	3.4	2.2	2.3	2.2
Addendum: Housing Investment Less Mortgage Borrowing	0.1	-1.0	-1.6	-0.6	-0.4	-1.4	-1.6	-3.2
Housing and Durables Investment Less Gross Borrowing	1.2	-0.6	-1.1	-0.2	-1.3	-1.0	-1.2	-2.3
Household Sector Saving in the Flow of Funds Accounts/b/	13.4	14.2	14.2	10.7	8.0	6.8	6.4	5.9

Sources: National Income and Product Accounts and Flow of Funds Accounts.

/a/ Expanded disposable income equals NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings less accrued taxes on retirement saving.

/b/ FFA Household sector saving divided by NIPA disposable income.

**Table 4. Saving in Retirement and Non-Retirement Vehicles**

Percent of Expanded Disposable Income/a/

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Household and Corporate Sectors Net Saving	17.2%	16.7%	15.2%	12.1%	11.2%	9.8%	9.6%	9.3%
Saving in Retirement Vehicles/b/	2.0	3.5	5.9	5.2	4.3	4.4	5.3	4.7
Private Pensions	1.3	2.4	2.8	2.5	2.2	1.8	2.4	2.5
Government Pensions	0.7	1.0	1.9	1.6	1.1	1.5	1.6	1.2
Individual Retirement Accounts/c/			1.2	1.0	1.0	1.0	1.3	1.0
Saving in Non-Retirement Vehicles	15.2	13.2	9.4	7.0	6.9	5.4	4.3	4.6
Equals Household Net Acquisition of Non-Retirement Assets	14.7	16.1	13.2	8.7	8.7	7.5	5.7	7.7
Life Insurance and Trust Assets	1.0	1.3	0.9	0.9	0.9	0.6	2.1	1.5
Other Non-Retirement Assets	13.7	14.7	12.4	7.8	7.8	6.9	3.6	6.2
Plus Corporate Retained Earnings	5.0	4.0	3.1	3.2	4.6	4.5	4.8	4.9
Less Gross Borrowing	4.5	6.8	6.9	4.9	6.5	6.5	6.2	8.0

Sources: National Income and Product Accounts and Flow of Funds Accounts

/a/ Expanded disposable income equals NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings less accrued taxes on retirement saving.

/b/ Saving measures adjusted for accrued taxes.

/c/ IRA saving is estimated using various EBRI, ACLI, and SOI data sources. See text for details.



**Table 5. Sources of Change in Household Sector Net Worth**

Percent of Expanded Disposable Income/a/

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Total Change in Household Sector Net Worth/b/	27.8%	39.5%	37.1%	17.9%	42.4%	35.8%	51.0%	48.0%
Household Sector Net Saving	12.2	12.7	12.2	9.0	6.6	5.3	4.8	4.4
Capital Gains	15.7	26.8	24.9	8.9	35.8	30.5	46.2	43.6
Gains on Tangible Assets	4.8	14.7	11.6	0.6	3.1	3.2	6.8	6.5
Gains on Financial Assets	10.8	12.2	13.3	8.3	32.7	27.3	39.4	37.1
Retirement Assets/c/	0.3	0.3	1.9	2.6	10.4	8.7	14.0	13.7
Non-Retirement Assets	10.5	11.8	11.4	5.7	22.3	18.6	25.5	23.4

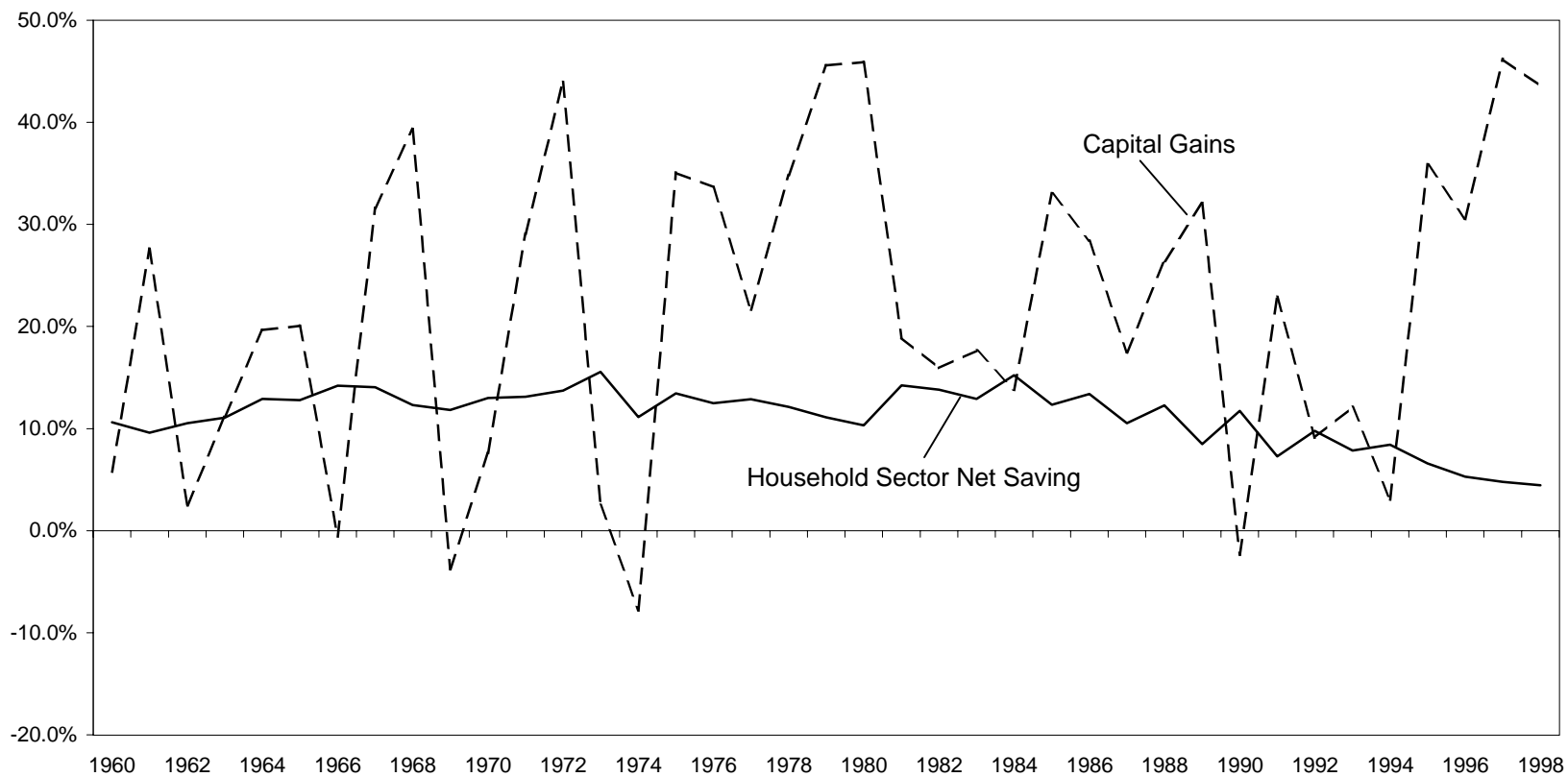
Sources: National Income and Product Accounts and Flow of Funds Accounts.

/a/ Expanded disposable income equals NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings less accrued taxes on retirement saving.

/b/ All measures adjusted for accrued taxes on retirement assets and unrealized capital gains.

/c/ Retirement assets include pensions and Individual Retirement Accounts. See notes to Table 4.

**Figure 1. Sources of Change in Household Sector Net Worth  
(Percent of Expanded Disposable Income)**



Source: National Income and Product Accounts and Flow of Funds Accounts

Notes: Capital gains and household sector net saving are both adjusted for accrued tax liabilities on retirement account saving and unrealized capital gains. Expanded disposable income is NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings less accrued taxes on retirement saving.

**Table 6. Gains-Inclusive Saving Rates**

<i>Item</i>	1960-69	1970-79	1980-89	1990-94	1995	1996	1997	1998
Change in Household Sector Net Worth Over Gains-Inclusive Income\	26.0	33.3	32.1	18.6	35.2	30.9	39.1	37.5
Adjusted for Inflation\	16.7	13.6	19.6	6.0	30.4	26.2	35.4	35.4
Adjusted for Accrued Taxes\	25.3	32.4	30.8	17.1	32.6	28.7	36.4	34.9
Adjusted for Inflation and Accrued Taxes\	15.8	12.0	17.9	4.0	27.3	23.6	32.4	32.6
Addendum: Accrued Tax Liabilities on Household Sector Assets, % of GDP\	0.8	1.2	1.7	1.4	4.0	3.1	4.7	4.3
Federal Surplus Adjusted for Accrued Taxes, % of GDP\	1.1	-0.7	-1.5	-2.0	1.6	1.6	4.4	5.2

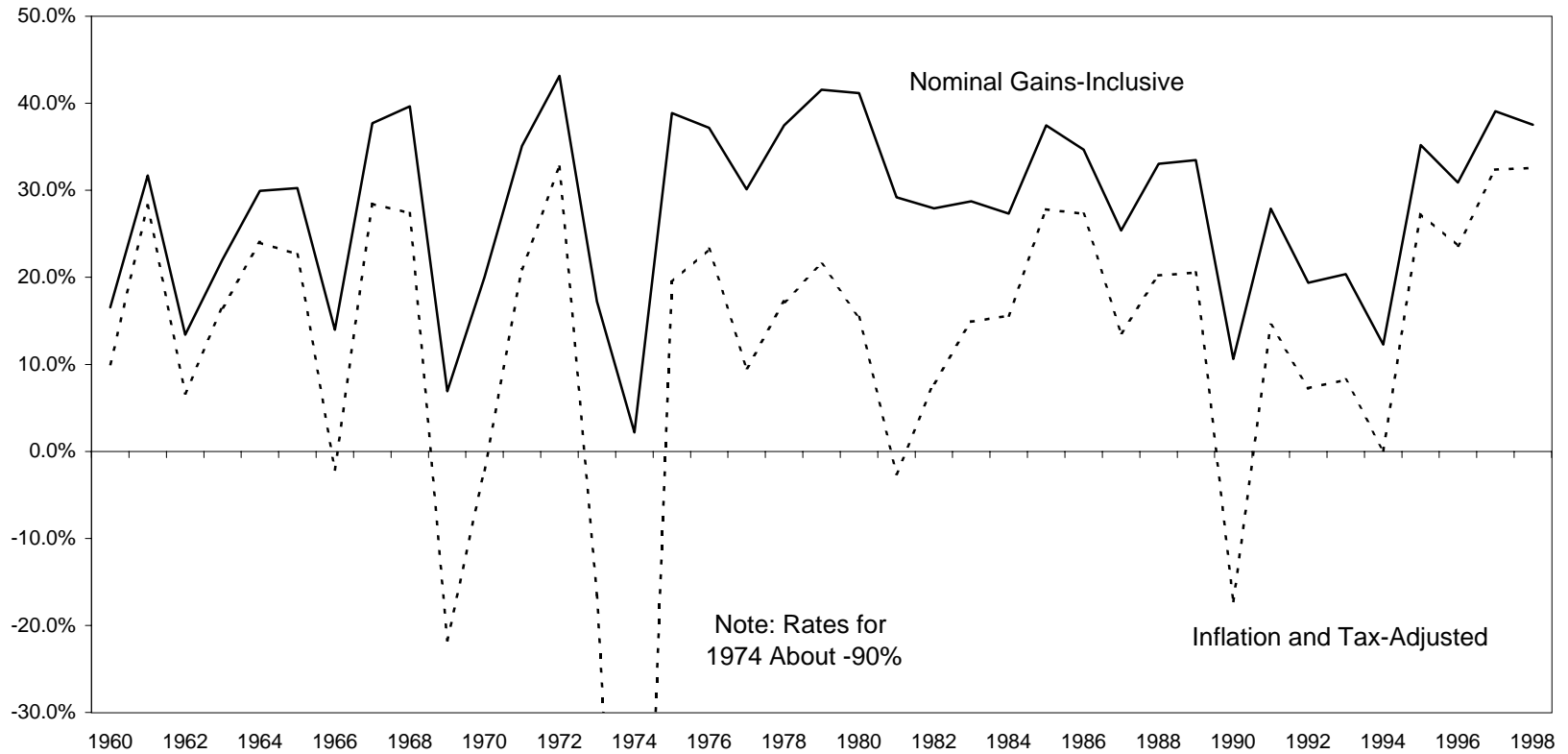
Sources: National Income and Product Accounts and Flow of Funds Accounts.

\a\ Gains-inclusive income is NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings less accrued taxes on retirement saving plus household-sector capital gains.

\b\ Inflation adjustment is the product of the percent change in the GDP deflator and household-sector net worth.

\c\ Accrued tax adjustment is 20% of the change in retirement account balances (see notes to Table 4) plus 10% of the change in unrealized capital gains.

**Figure 2. Gains-Inclusive Saving Rates**



Source: National Income and Product Accounts and Flow of Funds Accounts

Notes: The nominal gains-inclusive saving rate is the change in household sector net worth divided by gains-inclusive income. Gains-inclusive income is NIPA disposable income plus net investment in government retirement accounts and corporate retained earnings. The inflation and tax-adjusted saving rate starts with the nominal gains-inclusive saving rate, then subtracts the inflation losses on household-sector net worth and accrued tax liability on pension accumulations and unrealized capital gains from both the numerator and denominator.