THE DECLINING PERSONAL SAVING RATE: IS THERE CAUSE FOR ALARM?

INTRODUCTION

How much we save as a nation is important because saving provides the capital for the investment that fuels economic growth. Gross saving—the sum of government saving, business saving, and personal saving—indicates how much a nation can save and invest, which is important to productivity gains, a rising standard of living, and a growing economy.

Consequently, the personal saving rate is a key measure of how much Americans save on their own. Its importance is reflected in the preferential treatment the tax code provides to employer pensions, IRAs, 401(k) plans and other saving vehicles. In recent years, despite the booming economy, the already low personal saving rate has declined even further. Some policy makers are concerned about the decline because they believe Americans do not save enough for their retirement or for financial emergencies, such as spells of unemployment and large medical expenses. Policy makers and economists are also concerned about the effects of the decline in personal saving on the overall health of the economy, including the nation's increasing dependence on foreign capital.

Two government agencies measure personal saving and publish an official personal saving rate. One measure is based on the National Income and Product Account (NIPA) developed by the U.S. Commerce Department's Bureau of Economic Analysis (BEA), and the other is based on the Federal Reserve's Flow of Funds Account (FOFA). The NIPA rate is the more frequently cited of the two.

Like most government statistics, personal saving rates are subject to constant revisions based on changes in definitions and statistical improvements. Recent changes in the way BEA classifies different activities in the NIPA have resulted in significant and sudden swings in its personal saving rate measure. Such changes often trigger swift and intense reactions on the part of policy makers and economists.

For example, in the fall of 1998, concerns about saving adequacy grew when the personal saving rate published by the BEA declined sharply and actually turned negative (meaning Americans "dissaved," that is, consumed more than they earned) for a time. The 0.2 percent monthly decline in the personal saving rate in October 1998 (after the July 1998 revisions) was not only a decline but also its first negative performance since 1959, when BEA began tracking the figure on a monthly basis.[1] This shift into negative saving territory coincided with technical revisions to BEA's official saving measure and stimulated a debate about whether this most recent drop was only a statistical aberration or a significant sign pointing to the virtual disappearance of personal saving, at least in the short run. However, in October 1999, BEA again revised the official saving measure, under its 11th comprehensive revision of NIPA, but this time

[1] In 1998, the personal saving rate was revised by BEA to exclude capital gains from mutual funds, which were shifted to business saving. BEA's revisions and the greater significance of capital gains caused the measured saving rate to drop from 1982 until 1997, but the rapid decline culminated in 1998 and 1999. The personal saving rate in 1998 dropped from 1.2 percent in the first quarter to 0.4 percent in the second quarter, 0.2 percent in the third quarter, and 0.0 percent in the fourth quarter. The personal saving rate in 1999 further dropped to -0.7 percent in the first quarter, and -1.1 percent in the second quarter. (Macroeconomic Advisers, 1999.)

upward, so that the saving rate—while still falling—is no longer in negative territory.

The decline in personal saving has focused attention on the adequacy of current saving measures. It has also focused attention on the issue of how to react to inevitable technical revisions that can significantly change a statistical indicator at one point in time as well as over time.

With respect to the adequacy of current measures of the personal saving rate, many observers of the economy are puzzled by BEA's official statistic because they have difficulty reconciling a declining personal saving rate with the large inflows to mutual funds and the strong performance of the stock market, which has generated vast capital gains. Some analysts believe that such gains have rendered Americans wealthier than ever, and that a more appropriate measure of personal saving would include such capital gains, which the current BEA measure does not.[2]

Despite a decline in *personal* saving, *gross* saving at the national level (which includes personal, business, and government saving) is steady largely because government budgets are now in surplus. The numbers provided by the U.S. Treasury Department show that the federal government's non-Social Security (*on-budget*) budget was less than $1 billion in surplus for fiscal year 1999, while the Social Security program (*off-budget*) was $124 billion in surplus for the same year.[3]

How to use this budget surplus is the subject of intense political and policy debate. Some suggest tax cuts to encourage personal saving, some recommend increasing spending on education and health care, and others ropose buying down public debt to reduce federal interest payments.

Since the scope of this paper is limited to the declining personal saving rate, our discussion will center on the measurement of personal saving and the impact of its decline on the economy and individuals.

This paper compares the two measures of saving—NIPA and FOFA—and addresses the issue of including capital gains in the measurement of saving. It also discusses how the personal saving rate has changed recently and over time, and whether the nation actually faces a saving crisis. Projected saving trends are then presented, and their implications for the future economic health of the economy are discussed.

TWO WAYS OF MEASURING PERSONAL SAVING

The NIPA Approach

In the NIPA, personal saving is the difference between income and consumption (see Box 1). NIPA's measure of household income from the current production of goods and services is not intended primarily to measure saving. Personal saving is calculated as a residual—what is left over from personal income[4] after consumption, taxes, and interest payments have been deducted.

[2] Gale and Sabelhaus (1999), U.S. Commerce Department. Bureau of Economic Analysis (1999), and Rippe (1999).

[3] Congressional Budget Office (2000).

[4] Personal income is defined as the sum of wage and salary disbursements, other labor income, net proprietor's income, net rental income from unincorporated business, personal interest income, dividend income, and transfer payments. Personal disposable income is defined as personal income less personal contributions to social insurance and personal taxes.

BEA defines the personal saving rate as the ratio of personal saving to personal disposable income. For purposes of macroeconomic analysis, BEA's measure of the personal saving rate has generally been considered the best because it directly links saving to investment and hence to the productive capacity of the economy. However, BEA's definition, prior to the 1998 revisions, excluded all capital gains (accrued or realized) from personal income except *gains from mutual fund distributions*, which were classified as dividends to shareholders. Prior to its October 1999 revisions (which were released in December), government retirement plans were included as saving in the government sector, not as personal income.

Box 1: NIPA Definition of the Personal Saving Rate

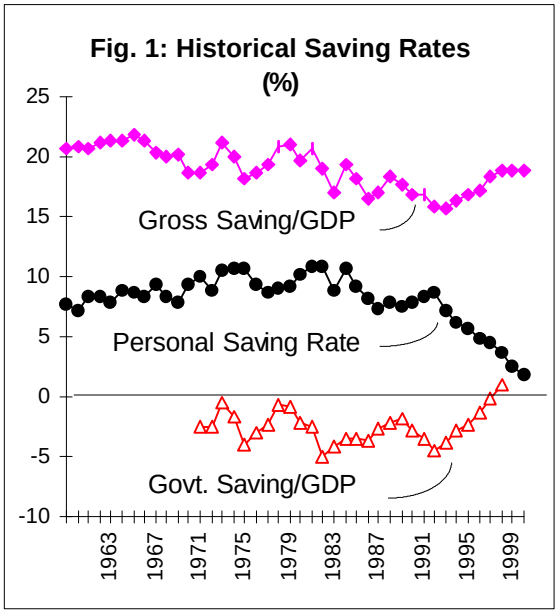
Let personal income be defined as Y, consumption as C, and saving as S. Then in a simple model with no taxes:

$$Y = C + S$$
or $$S = Y - C$$
or $$S/Y = 1 - C/Y$$

Personal income *less* personal taxes is defined as personal disposable income. The ratio of savings to personal disposable income is defined as the personal saving rate.

Revision of NIPA Definition

In July 1998, BEA revised its definition of personal income to exclude all mutual fund distributions.[5] In October 1998, the personal saving rate declined and turned negative in the last quarter of 1999. Although the personal saving rate has been declining for the last decade and a half (see Figure 1), BEA's decision to exclude mutual fund distributions accelerated the decline relative to previously published rates (see Figure 2).



Source: Bureau of Economic Analysis

BEA redefined personal income for two major reasons. First, mutual fund distributions did not reflect actual production in the economy. Second, these gains grew enormously in the last few years, resulting in the overestimation of personal saving and underestimation of corporate saving. BEA's previous definition included mutual fund distributions because, in the early 1980s, individuals began saving more in the form of mutual funds than in the form of traditional bank deposits. Consequently, capital gains from mutual funds became an important part of personal income.

As the gains from mutual funds grew larger, however, BEA realized that a sizable portion of personal income did not reflect

[5] However, the mutual fund distributions were counted as corporate retained earnings so they showed up as corporate saving. Thus, total saving did not change. The decline in personal saving was offset by an increase in business saving, although the tax liability is different in the two cases.

returns from current production and was therefore inappropriate for income and product account calculations. The capital gains on equities, as such, have always been excluded from the calculation of gross domestic product (GDP), which is defined as the value of goods and services produced domestically in a given year. Hence, BEA decided to exclude capital gains from mutual funds as well to have a new measure of personal income that was consistent with the GDP approach.

Secondly, since capital gains from mutual funds were treated as dividends in the personal income calculation, the impetus for BEA's redefinition also came from massive increases in capital gains accrued to individuals from their mutual funds since 1994. According to BEA, this growth resulted in the underestimation of undistributed corporate profits (corporate profits left after paying dividends) and the overestimation of the personal saving rate. In 1997, BEA estimated that dividends distributed to individuals by mutual funds included about $61 billion in capital gains. As a result, the inclusion of these dividends, according to BEA, had overstated personal income by about 0.9 percent, and the personal saving rate by 2.1 percent.[6] Consequently, the redefinition of dividends significantly reduced the personal saving rate from 1994 to 1998—a period during which there was a rapid upsurge in the value of the stock market. However, even before BEA revised the definition, the personal saving rate had already fallen to near record low levels.

On October 28, 1999, the BEA released NIPA estimates beginning with 1959 that reflected its 11th comprehensive revision to NIPA.[7] Of many changes in definitions and classification of items, the ones that affect personal/national saving include:

- Business and government purchase of software and "own-produced" software is now classified as investment instead of business expense. This increased measured GDP by $248.9 billion for 1998.

- In the government sector, government retirement plans are now moved to the personal sector, and are classified as private retirement plans.

- Savings associated with government retirement plans are shifted from the government sector to the personal sector. Employer contributions to government retirement plans are now added to labor income, and interest and dividends received by these plans are classified as *personal interest income* and *personal dividend*s. The revised estimates increased personal income, and hence personal saving. For 1982 to 1998, the personal saving rate now declines from 10.9 percent to 3.7 percent, compared to the decline reported in August 1998 from 9.0 percent to 0.5 percent during this period.[8] (See Figure 2.)

- Certain transactions which were excluded from NIPA are now classified as "capital transfers." These transfers have increased national income as well as national saving.[9]

[6] U.S. Department of Commerce, Bureau of Economic Analysis (1998).

[7] U.S. Department of Commerce, Bureau of Economic Analysis (1999d).

[8] All saving rates reported in this paper are annual saving rates.

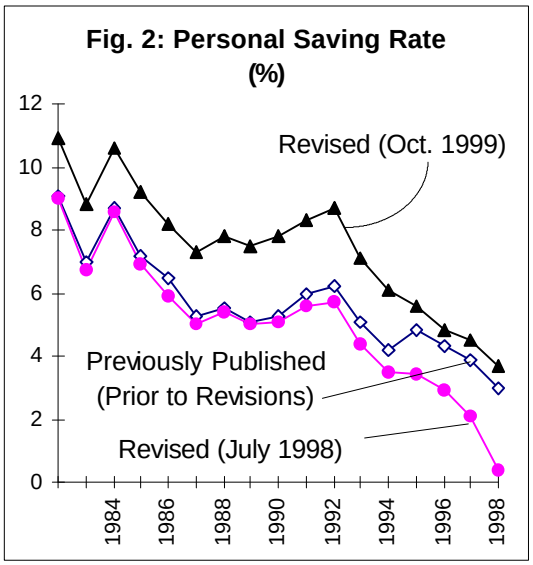
[9] Such capital transfers include: federal government investment grants to state and local governments for highways, transit, air, and water treatment plants; federal government subsidies to business; immigrants' transfers to the U.S. (now a part of personal income); federal government forgiveness of debt owed by foreign governments; and estate and gift taxes (now a part of personal tax).

Comparison of the Personal Saving Rate Before and After the Revisions

In July 1998 when BEA revised its definition of personal income, it simultaneously revised its published personal saving rate retroactively to 1982 and reported the newly defined personal saving rate as the *revised* rate. The two rates, original (*published*) and new (*revised*), were fairly similar until 1994. After 1994, the revised rate decline was significantly steeper than the published rate.

A key reason for sharper decline is that in the late 1980s and early 1990s, the proportion of mutual fund distributions in personal income was relatively small and therefore its exclusion in the *revised* rate did not lower the saving rate significantly. However, in the last four years, capital gains from mutual funds skyrocketed as a percentage of personal income, so the exclusion of capital gains (in the revised definition) reduced personal income dramatically, thus resulting in a sharp decline in the personal saving rate. For instance, in 1994, the published rate was 4.2 percent and the revised rate was 3.5 percent, a difference of only 0.7 percentage points. However, in 1998, the published rate dropped to 3.0 percent and the revised rate dropped to only 0.4 percent, a difference of 2.6 percentage points.

After the comprehensive revision of October 1999, the personal saving rate increased by 2.1 percentage points in 1983 and 3.2 percentage points in 1998. Figure 2 shows the previously published saving rate, the rate revised in July 1998 after the exclusion of mutual fund distributions, and the current rate after the comprehensive revisions in October 1999.



Source: Bureau of Economic Analysis

The FOFA Approach

An alternative measure of the personal saving rate that frequently receives attention whenever the NIPA saving rate declines to a new low is computed by the Federal Reserve and reported in the Flow of Funds accounts (FOFA). The FOFA measure of personal saving, unlike the NIPA measure, is defined as net additions to wealth from one period to another. In this concept, household saving equals net acquisition of financial assets (cash, bank deposits, stocks, bonds, life insurance, and pensions, and so on) *plus* net investment in tangible assets (residential structures, fixed assets, and consumer durables, and so on) *less* net increase in liabilities (mortgage debt, loans, and others).

Neither realized capital gains (from sale of stocks or a house, etc.) nor unrealized gains (accrued on paper) are included in the NIPA or in the Flow of Funds definition of wealth.[10]

[10] In NIPA, the "realized" gain is considered as an exchange of one asset for another; the "unrealized" gain does not count in assets but simply increases the perceived purchasing power of the asset holder. Since neither (realized and unrealized) type of gain represents returns from

The FOFA personal saving rate is the ratio of *net* additions to wealth to personal disposable income.

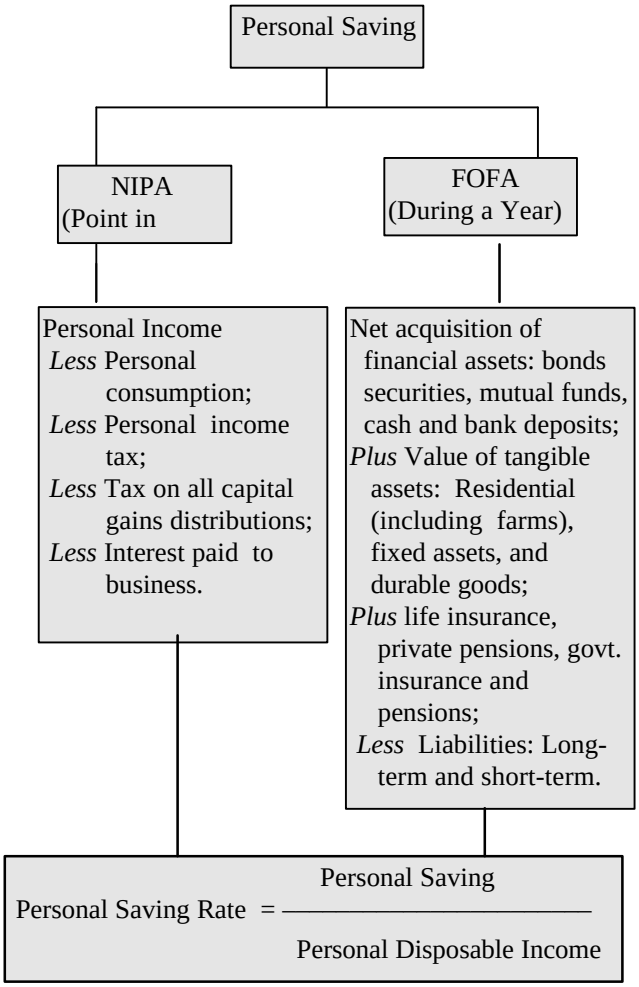
The Differences between the Two Approaches

The two saving rates differ conceptually in many ways, but three important differences are listed below.

First, NIPA and FOFA measures differ in their treatment of consumer durable goods. For instance, FOFA treats acquisition of consumer durables (that is, automobiles, major household appliances, etc.) as a form of saving, and services from these goods as consumption, whereas NIPA treats consumer durable expenditures as personal consumption. As regards housing, NIPA treats spending on owner-occupied housing as personal saving, taking the imputed value of net rental income as part of personal income. FOFA, on the other hand, considers only equity in the home as wealth, and mortgage payments as long-term liabilities. The NIPA and FOFA concepts of personal saving are compared in Diagram 1.

Second, the FOFA and NIPA measures treat private pensions differently. The NIPA includes employee contributions to 401(k) plans and pensions as part of *wages and salaries*, and employer contributions as *other labor income*. To avoid double counting, NIPA income excludes both pension benefits and withdrawals from IRAs. Individual contributions to IRAs and Keoghs are counted as personal saving, and therefore withdrawals do not count as personal income. Unfunded pensions (in NIPA) are not counted as personal saving. Likewise, contributions and earnings of government pensions and insurance funds are not treated as personal savings, so benefit payments are treated as personal income when received. Before the October 1999 NIPA revisions, the accumulation in government pension funds was assigned to the government sector. After the revisions, however, such pensions are included in the personal sector. Private pension funds are assigned to the household sector.

Diagram 1: NIPA versus FOFA



Third, Social Security contributions in NIPA are counted in personal taxes, not as personal saving, so Social Security benefits are counted as personal income. FOFA, on the other hand, counts both private and government pensions, and life insurance reserves as

production or increases in productive capacity, they are not included in the calculation of personal saving.

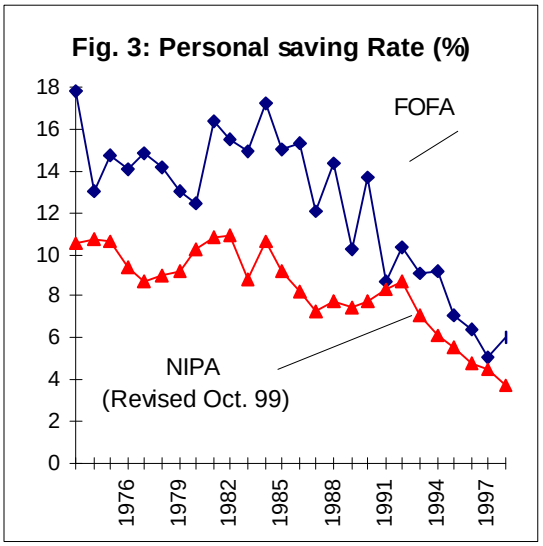
household saving.[11]

One can arrive at the NIPA's concept of personal saving using FOFA data. Deducting net contributions to government insurance, net investment in consumer durables, and net savings by farm corporations from the FOFA measure of saving produces the NIPA definition of personal saving.[12] As noted earlier, both the NIPA and FOFA measures exclude capital gains.

Since the in-depth analysis of the FOFA measure of personal saving is beyond the scope of this paper, we will focus mainly on NIPA's measure.

REASONS FOR DECLINING PERSONAL SAVING RATES

Even though measured differently, the long-term trends in the NIPA and the FOFA personal saving rate turn out to be quite similar. Both have declined significantly over the last 15 years. Their trend lines follow a similar path, although the NIPA measure falls more steeply after 1995. The FOFA personal saving rate (see Figure 3) declined from 11.7 percent in 1992 to only 5.1 percent in 1997—the lowest rate since 1946 when the Federal Reserve series began— and increased to 5.6 percent in 1999.[13] In contrast, the NIPA revised saving rate declined from 8.7 percent in 1992 to 2.5 percent in 1999 (and is projected to decline to 1.8 percent in 2000).



Source: Federal Reserve Board, and BEA

The Recent Decline in the NIPA's Personal Saving Rate

The recent decline in NIPA's personal saving rate can be explained by using the same ratios as shown in Box 1. While the BEA's exclusion of capital gains reduced personal income, consumption expenditure did not decline. This reduced the ratio of personal savings to income even further than BEA's intended revision.

As a practical matter, consumption depends on both income and wealth. Therefore, as individuals accrue capital gains from their mutual funds, they view these gains as additions to their wealth and hence increase their consumption in response to capital gains, a behavioral phenomenon known as the *wealth effect*. The increase in wealth generated by capital gains also offsets individuals' need to save out of personal income, and therefore releases for consumption expenditure income that would otherwise have been saved. With BEA's recent revisions of personal income, the exclusion of capital gains from mutual funds reduces personal income (Y) but consumption (C) keeps rising in response to the *wealth*

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[11] Before the October 1999 revisions, expenditures on R&D and software were counted as business expenses. After the revisions, such spending is counted as investment, causing the gross saving rate to increase. Similarly counting saving by sole proprietorships and partnerships as personal saving relies on a thin distinction. These might be treated as business saving.

[12] U.S. Federal Reserve Board (1999).

[13] U.S. Federal Reserve Board (2000a) and Macroeconomic Advisers(1999a).

effect. And this is the main reason for the decline in personal saving. Personal saving (defined as S = Y - C) diminishes from both ends: Y declines as a result of the exclusion of mutual funds distributions, while C continues to rise on account of the wealth effect. Hence, the ratio of consumption to income (C/Y) continues to show a rising trend while that of saving to income (S/Y, which is 1 - C/Y), more commonly known as the saving rate, shows a sharp decline. This sharp decline has been tempered by the latest revision, which adds contributions to government retirement plans to personal income.

In the NIPA definition, income (Y) is measured as personal disposable income, calculated by subtracting personal taxes from personal income. When BEA decided to exclude mutual fund gains from personal income, personal taxes still included taxes on capital gains, including the capital gains on these mutual funds. (It is ironic that personal taxes on realized capital gains are subtracted from income, because such gains were never part of the income to begin with.) These taxes, which have been substantial in the booming stock market of the 1990s, have reduced personal disposable income even more, and have resulted in a further decline in the personal saving rate. (For mathematical derivation, see Appendix 1: Technical Section.)

The ratio of consumption to personal disposable income remained fairly constant until 1980, but has risen since then. In 1998, real personal consumption jumped by 4.7 percent, the highest increase since the early 1980s. This contributed to a significant decline in the personal saving rate in the late 1990s.

Reasons for the Long-Term Decline in the Personal Saving Rate

The long-term decline in the personal saving measure—over the last two decades—is largely due to five factors: rising consumption; the wealth effect; increased transfer payments; shifts from traditional saving instruments, like bank deposits, to higher risk instruments, such as stocks, bonds, mutual funds, and options; and rising consumer credit card debt (Browne and Gleason, 1996).

Increased Consumption

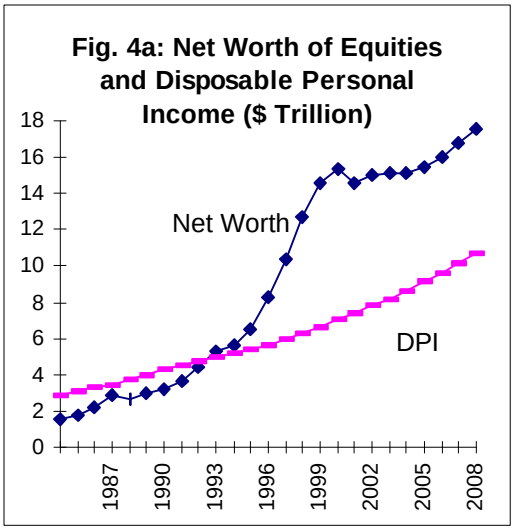
NIPA-measured saving declined in the last two decades because of increased consumption of services (from 32 percent of personal income in 1959 to 46 percent in 1995), particularly medical services, which rose from 4.2 percent of personal income in 1959 to 12.9 percent in 1995. Rising medical prices accounted for much of the increase. Steep increases in the costs of education, recreation, personal business, and housing also contributed to the growth of consumer spending.

Wealth Effect

In both the NIPA and FOFA measures, the "wealth effect" probably accounts for some of the long-term decline. The effect stems from the tendency of households to increase spending in response to an increase in the value of their asset holdings, whether realized or unrealized. The low-inflation environment of the late 1990s and the rapid rise in the value of the stock market has resulted in an enormous wealth accumulation.

A look at the relation between the measures of net worth and personal income between 1991 and 1997 helps explain how the saving rate can fall even as net worth increases. According to the Federal Reserve Board data, capital gains increased household net worth by $1,099 billion in 1991, or one-fourth of

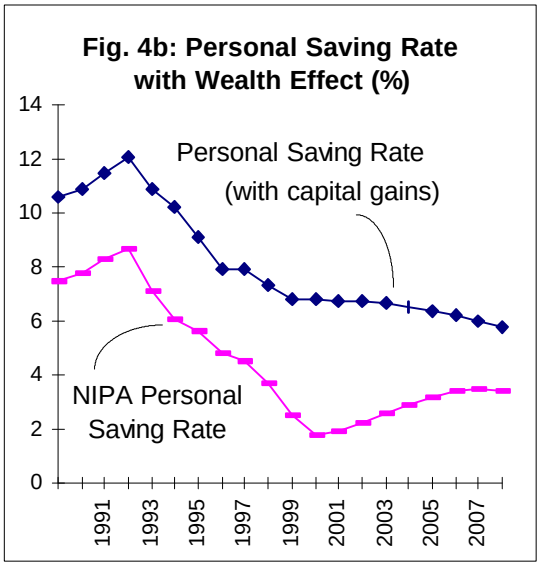
disposable personal income. In 1997, these gains increased household net worth by $3,445 billion, or three-fifths of disposable personal income. Even though wealth can increase without an increase in capital gains, the growth in net worth surpassed the growth in personal income during most of the 1980s and 1990s. Therefore, even as the saving rates fell, the ratio of household net worth of equities to personal disposable income increased. In 1998, household net worth of equities ($12.7 trillion) was twice that of current disposable personal income ($6.3 trillion) as shown in Figure 4a.



Source: Macroeconomic Advisers

How large is this wealth effect? The answer depends on the proportion of wealth spent on consumption. According to one estimate, households consume, on average, about 6 cents of every new dollar of net worth—a small but nevertheless significant proportion.[14] With the household net worth of corporate equities rising sharply in the 1990s, the ratio of household net worth of equities to personal income has reached its highest level in the last 50 years.

If the NIPA personal saving rate is recalculated to include all capital gains in personal income, it would be 11.4 percent in 1991, 10.2 percent in 1994, and 7.3 percent in 1998 (Fig. 4b). Hence, if one includes capital gains in personal income, the personal saving rate has declined, but not precipitously, from its 1982 level of 10.9 percent.



Source: Macroeconomic Advisers

Figure 4b shows these two personal saving rates: one, as measured by NIPA currently, and the other—an alternative personal saving rate—that includes capital gains (or losses) in disposable personal income.[15] Gale and Sabelhaus (1999) also estimated an alternative saving rate by adjusting NIPA's rate for retirement accounts, investment in durable goods, and inflation. Their adjusted saving rate was 8 percent in 1986, 5 percent in 1990 and 4 percent in 1998.

[14] The marginal propensity to consume (MPC) is 0.64 out of labor income, 0.13 out of asset income, and almost 1.0 out of transfer income (Source: Macroeconomic Advisers' Model).

[15] Alternative personal saving rate = (disposable personal income + capital gains or losses - consumption) / (disposable personal income + capital gains or losses). These calculations are based on the Macroeconomic Advisers' recursive model.

Transfer Payments

The long-term decline in the saving rate also stems from increases in government transfer payments, which discourage many households from saving.[16] Federal transfer payments to persons (in current dollars) increased from $27.5 billion in 1960 to $81.8 billion in 1970, $219.0 billion in 1980, $445.3 billion in 1990, and $743.7 billion in 1999. Transfer payments for government-provided medical care (Medicare and Medicaid) and Social Security benefits tend to increase the rate of personal income growth more than the rate of GDP growth for two reasons. First, transfer payments are part of personal income, but not part of GDP. Second, households save very little from such transfers. Out of necessity, most recipients of transfer payment consume virtually all of these payments. Personal consumption as a share of GDP grew from 62 percent in the 1970s to 65 percent in the 1980s, and to 68 percent in the 1990s. Government transfer payments (or government dissaving) helped finance this increase in personal consumption.

Consumers' Saving Patterns

Changes in consumer saving instruments have also contributed to the long-term decline in the personal saving rate. Since the 1980s, consumers have radically changed the form of their savings. Traditionally, most consumers saved in the form of bank deposits and tangible assets, such as housing. Yet consumers now invest in mutual funds most of the funds that were once held in bank deposits. Growing investment in mutual funds, however, did not fully compensate for the decline in bank deposits until the mid-1980s. In the last ten years, individuals' direct investment in corporate equities has even exceeded the inflow to mutual funds.

Deeply intertwined with the economy, stock market investment by the public has reached historic highs. According to Federal Reserve Board studies, nearly half of American households (48.8 percent) now have some exposure to the stock market, either through direct ownership of shares, through mutual funds, or through the nearly ubiquitous 401(k) retirement plans. Individuals now hold more than half of all stocks and another 20 percent in mutual funds. More than a third of households now have money in mutual funds, while more than 28 percent of household assets are in stocks—the highest level since the Federal Reserve began keeping figures after World War II.[17] Despite a ballooning increase in mutual funds, the personal saving rate has not improved, because some of the increase is attributed to a shift from traditional forms of savings to mutual funds. For example, over 90 percent of the total new investment in mutual funds consists of transfers from retirees and near-retirees switching from traditional savings accounts, GICs, annuities, and bank certificates of deposit into mutual funds. Secondly, as contributions to mutual funds increased, the capital gains in those investments, as noted earlier in the discussion of the wealth effect, encouraged personal spending: personal saving (as a residual) therefore declined.

Another form of saving is household net investment in housing. Due to rising housing prices over the last 20 years, consumer mortgage debt and other credit liabilities have fully offset any new investment in housing, thus adding virtually nothing to the productive capacity of the economy. Using the FOFA's analytic perspective, investment in housing shows a decline in the acquisition of net assets.

The change in saving vehicles also affected investment in the economy. When personal saving was traditionally held in the form of

[16] See Aaron and Reischauer (1999).

[17] Federal Reserve Board (2000b).

bank deposit accounts, saving immediately made funds available for investment and hence increased productive capacity (Browne and Gleason, 1996). Investment and saving were closely aligned. Capital gains, however, do not immediately make resources available for investment and pose more risk than do bank deposits.[18] Similarly, appreciation of residential housing (for example, in the FOFA measure) does not automatically raise national investment or productive capacity of the economy.

Credit Card Borrowing

Another reason for the long-term decline in the personal saving rate is that many individuals have been borrowing aggressively on their credit cards and other credit instruments like home equity loans. Some individuals even borrow on their credit cards to invest in stocks. Consumer credit, excluding mortgages, has skyrocketed from $3.9 billion in 1992 to $69.5 billion in 1998, and the amount of consumer credit owed has increased from $984 billion in 1994 to $1,289 billion in 1998.

Credit card use by consumers with annual incomes of less than $15,000 increased from 28 percent in 1983 to 44 percent in 1995. Credit balances (the part of the credit card bill that consumers choose not to pay off immediately), actually increased more in higher income groups (than in middle and lower), contrary to the conventional wisdom. The outstanding credit card balance as a share of income increased from 0 to 1 percent between 1989 and 1995 for median income households; it increased from 3 percent to 6 percent for households in the 75th income percentile; and from 14 percent to 22 percent for households in the 95th income percentile (Economic Report of the President, 1998).

NATIONAL PERSPECTIVE: GROSS SAVING

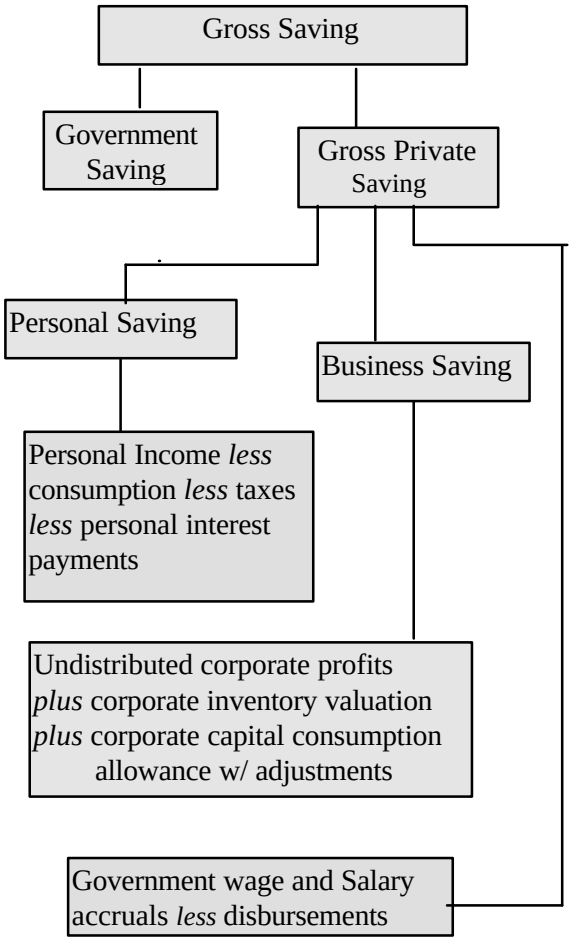
This section discusses the role that personal saving plays in gross saving, more commonly known as national saving. NIPA equates gross saving with gross investment in the economy (domestic and foreign), and this parity is important for a stable macroeconomic equilibrium. Whenever national saving falls short of required investment, capital inflows and foreign investment fill the gap. Gross saving is the sum of personal saving, business saving, and government saving. Government wage and salary accruals less disbursements are added to gross private saving to adjust for the retroactive wage payments (see "Glossary of Terms" in Appendix 2).

Business saving, as shown in Diagram 2, consists mainly of three parts: unsold stock (inventory), undistributed corporate profits, and a capital consumption allowance (also known as a depreciation allowance). The corporate capital consumption allowance is the largest share (75 to 85 percent) of gross private saving.[19] Government saving, on the other hand, comprises the combined surpluses (or deficits) of federal and state and local governments plus the capital consumption of federal, state and local, and government enterprises (such as the U.S. Postal Service), a concept analogous to businesses.

[18] Between 1991 and 1995, corporations issued $400 billion equities (new stocks) but the rising stock market valued them by $2,500 billion. If the productive capacity of the economy fails to increase at a pace equal to the valuation of stocks, the stock market is likely to correct itself, and stock prices would drop abruptly.

[19] The NIPA calls the depreciation charge the "capital consumption allowance." For details see U.S. Department of Commerce. Bureau of Economic Analysis (1998a). For brief definitions of components of gross saving, see also Appendix 2 of this paper.

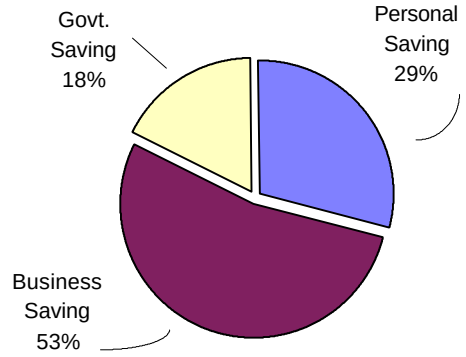
Diagram 2: Components of Gross Saving



Over nearly three decades, the composition of gross saving has changed dramatically. In 1970, 29 percent of gross saving was from personal saving, 53 percent from business saving, and 18 percent from government saving (see Figure 5a). In 1999 (fourth quarter) only 9 percent of gross saving was from personal saving, 69 percent was from business saving, and 23 percent was from government saving (see Figure 5b).

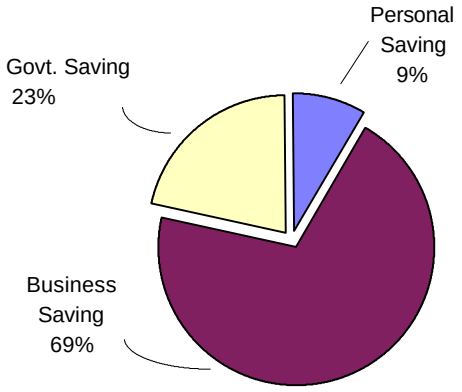
BEA's redefinition of personal income, both in August 1998 and October 1999, merely shifted some saving from the personal saving to the business saving category. An increase in business and government saving effectively offset the decline in personal saving.

Fig. 5a: Composition of Gross Saving in 1970



Source: Bureau of Economic Analysis

Fig. 5b: Composition of Gross Saving in 1999



Source: Macroeconomic Advisers

Trends in the Gross Saving Rate

The national saving rate has declined somewhat in the last three decades but not as much as generally believed. During the early 1960s, when the gross saving rate was 21 percent, the federal government ran small surpluses, and private saving contributed the largest share of national saving. In the 1970s, 1980s, and as late as the early 1990s, however, the federal government ran huge deficits and the gross saving rate fell from 20.7 percent in

1959, to 18.6 percent in 1970, and to 16.9 percent in 1995.[20] Since the mid-1990s, national saving has been rising and reached 18.3 percent of GDP in 1997. This rise is largely due to declining federal budget deficits. The federal *unified* budget surplus in 1998—the first in thirty years—added to the national saving rate. According to government budget forecasts, for the next 20 years, projected federal surpluses will make their largest sustained contribution to national saving since World War II. The federal contribution to national saving is particularly important today, because personal saving has dried up and business saving will probably grow much less rapidly than it has since 1990.

Box 2: Components of Gross Saving

	1971/Q1 ($ Billion)	1999/Q4 ($ Billion)
Gross Saving	205.6	1,745.2
Gross Private Saving	193.8	1,366.4
Personal Saving	77.4	152.1
Business Saving	116.4	1,214.3
Government Saving	11.8	378.7
Gross Saving/GDP (%)	18.6	18.6
Personal Saving/Disposable Personal Income (%)	10.0	2.2

Source: Macroeconomic Advisers

Although gross saving (in current dollars) increased over eightfold since 1971, from $205.3 billion to $1,745.2 billion in 1999, its ratio to GDP, that is, the national saving rate, after a brief decline between 1990-1993 has reached its 1971 level of 18.6 percent (see Figure 1 and Box 2). The personal saving rate (ratio of personal saving to disposable personal income) has declined from 10 percent in 1971 to only 3.7 percent in 1998 and 2.2 percent in 1999 (fourth quarter).

ECONOMIC FORECAST

This section presents the short-term saving rate forecasts for 1998 to 2008 based on the Macroeconomic Advisers (MA) model. The present simulation assumes no changes in the Federal Reserve's monetary policies.

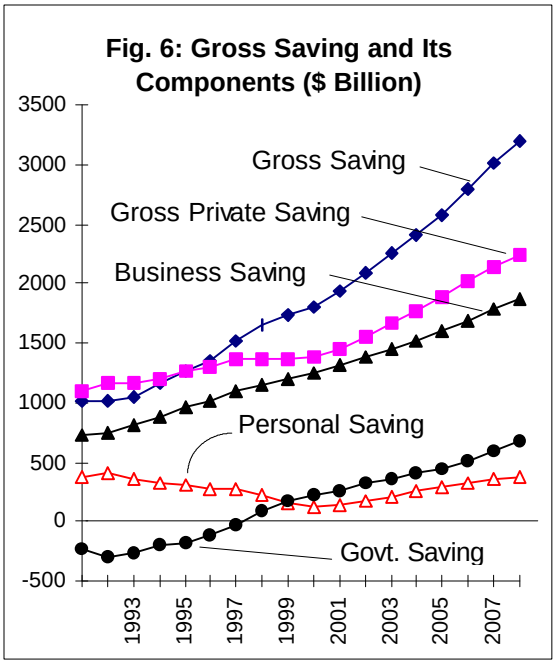
What Implications Do Current Trends in Saving Have for the Future?

Using the MA model,[21] one can estimate gross saving, business saving, personal saving, and government saving .

The model projects that gross private saving (in current dollars) will rise from $1,371 billion in 1998 to $2,244 billion by 2008 (see Figure 6). The model also projects limited growth in personal saving—from $164 billion in 1999 to $370 billion by 2008. The model also predicts, however, that federal budget surpluses will rise from $121 billion in 1999 to $588 billion in 2008, and combined surpluses of federal and state governments to $674 billion by 2008—boosting the gross saving in the economy from $1,730 billion in 1999 to $3,204 billion by 2008.

[20] Clearly, while gross saving as a percent of GDP has experienced a modest decline since 1970, the magnitudes of the components of gross saving have shifted dramatically; the decline in personal saving has been offset by the explosion of business and government saving (see Figures 5a and 5b).

[21] The Research Group of AARP is a licensed user of econometric simulation model of the Macroeconomic Advisers, LLC, St. Louis.



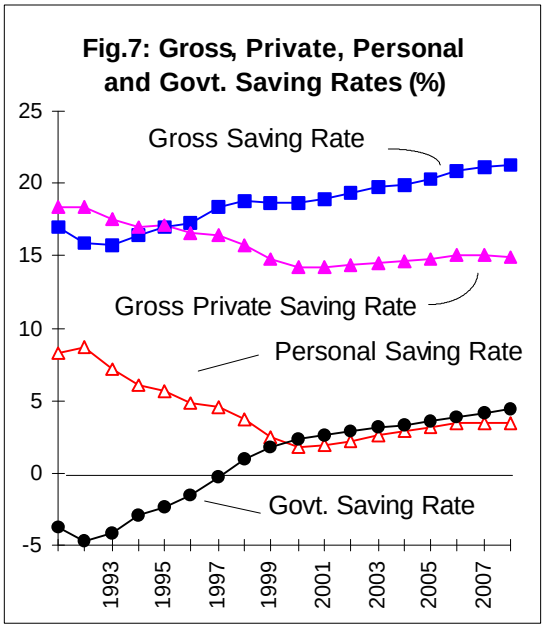
Source: Macroeconomic Advisers

Saving Rates

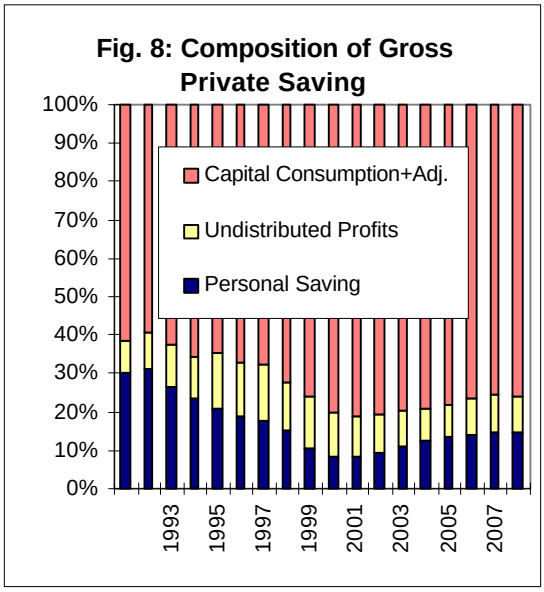
An increase of $1,558 billion in gross saving (in current dollars), will increase its share in GDP from 18.8 percent in 1998 to 21.3 percent by 2008, while the share of gross private saving (personal saving plus business saving) in GDP will decline from 15.7 percent in 1998 to 14.7 percent by 2008. BEA's revised personal saving rate will decline from 3.7 percent in 1998 to 1.8 percent 2001, and then gradually rise to 3.4 percent by 2008 (see Figure 7).

Components of Gross Private Saving

Although personal saving's share of gross private saving has not been high historically, BEA's revised definition, along with the other factors discussed earlier, has reduced its share from 35 percent of gross private saving in the 1980s to 24 percent in 1992, 15 percent 1998, and 8 percent in 2000. However, with the revised definition, personal saving is projected to rise again to 14.5 percent by 2008 (see Figure 8). The capital consumption allowance (depreciation fund) constitutes the largest share of gross private saving, about 80 percent, while the undistributed corporate profits share represents from 10 to 15 percent.



Source: Macroeconomic Advisers

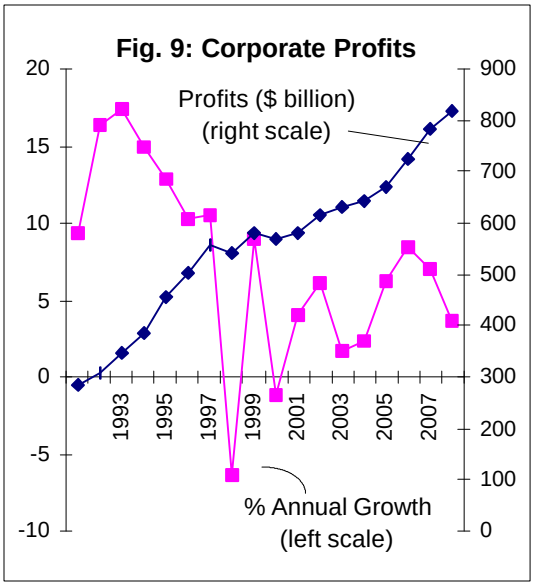


Source: Macroeconomic Advisers

Corporate Profits

The annual growth in corporate profits, as shown in Figure 9, was negative in 1998,

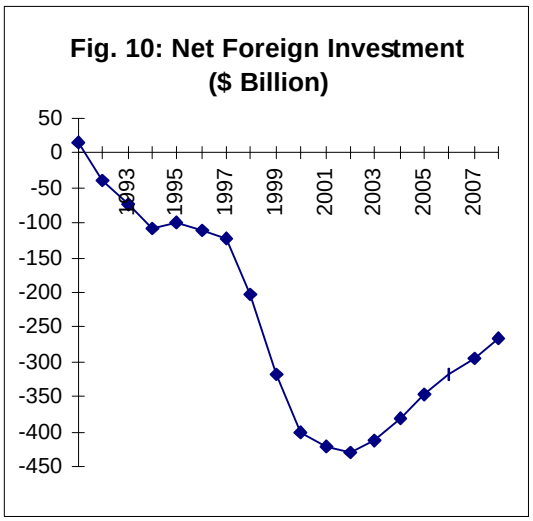
turned positive in 1999, but will probably dip again in 2000. The model projects that corporate profits—basically equivalent to business saving—will rise only 1 percent in 2000, 2 percent in 2001, 5 percent in 2005, and over 6 percent by 2007 before declining; after-tax profits, in dollar terms, will gradually rise from $580 billion in 1999 to $820 billion by 2008.[22]



Source: Macroeconomic Advisers

Low Personal Saving Rate and Foreign Investment

In NIPA , as mentioned above, overall investment in the United States. economy by definition has to be equal to gross saving (see Box 1). Foreign assets currently fund a major portion of investment in the U.S. economy. The decline in domestic investment has been offset by net foreign investment.[23] In the 1960s and 1970s, the United States was a net investor to the rest of the world; in the 1980s and 1990s, the United States became a net borrower, relying upon the saving of other countries. In the past three years this annual increase in America's international indebtedness has skyrocketed to well over $200 billion per year. Just like the ever- falling level of personal saving, an ever-rising international indebtedness is equally an important concern for the economy.



Source: Macroeconomic Advisers

As shown in Figure 10, net foreign investment is negative—meaning other countries are investing more in the U.S. economy than the United States is investing abroad.[24] It also means that the nation's productive capacity and the income generated by the economy are partly devoted to supporting foreign consumption rather than domestic consumption. Foreign investment in the United States grew substantially in the early 1980s, reaching $10.7 billion in 1982 and $130 billion in 1986. In 1999 this investment

[22] Evidence of negative annual growth in corporate profits was the stock market plunge in the third quarter of 1998, and an immediate cut in interest rates by the Federal Reserve.

[23] Gross investment declined from 20.9 percent in 1960 to 18.8 percent in 1998. A third of the decline was attributable to falling domestic investment, and two-thirds to lower expenditures of the federal (defense, etc.), state, and local governments.

[24] Net foreign investment comprises net exports less federal interest payments to foreigners less personal transfers to foreigners. Net foreign investment plus gross domestic investment equals gross investment.

ran $316 billion and will probably reach $440 billion in 2002 before declining to $266 billion by 2008.

CONCLUSION

The steady decline in the NIPA personal saving rate has puzzled many observers of the economy because it has persisted even during a decade-long economic boom. The decline has raised numerous questions about whether Americans save even less than many had thought for both retirement and financial emergencies. Many policy makers worry that the decline will also negatively affect the overall economy by reducing the investment needed to increase productivity, raise standards of living, and promote economic growth. Growth makes it easier to save and to afford the costs of private and public retirement programs, including Social Security and Medicare.

Some policy makers have expressed especially strong concerns about BEA's 1998 revisions that plunged the personal saving rate into negative territory. Yet while BEA's October 1999 comprehensive revisions produced significantly higher personal saving rates for 1998 and previous years, they did not reverse the downward trend. This suggests that interpretation of any technical revision to this statistic, or to any other government statistic that is frequently or regularly revised, requires a cautious rather than a crisis reaction.

An examination of BEA's latest two revisions (July 1998 and October 1999) indicates there is no immediate cause for alarm. The July 1998 revision of the NIPA personal saving rate pushed the rate into negative territory. It was a statistical aberration and did not affect the economy to an extent that warrants alarm. In terms of national saving, the BEA's redefinition of mutual fund distributions merely shifted saving from the personal saving to the business saving category and therefore had no impact on gross national saving. BEA's October 1999 revision, which produced a significantly higher personal saving rate for 1998, further challenges the notion that a short-term saving problem exists.

There appears to be no cause for alarm in the long-term personal saving either. Even though both official measures of the personal saving rate—BEA and Federal Reserve—show a long-term decline, neither of these measures includes capital gains. If capital gains are included in personal income, the saving rate has declined only marginally from its 1982 level. There are, however, other concerns. Personal saving, if measured by including capital gains, is highly volatile and subject to market fluctuations. As long as stock prices parallel the growth in productive investment, future growth in consumption can be sustained.[25] There are also concerns that only those in the upper-half of the income distribution invest in the stock market and, therefore, such accumulations of gains should not be attributed to all segments of the population.

In addition, with respect to personal well-being, NIPA's personal saving rate may be too narrow to measure how well off consumers become by acquiring market equities. Perhaps we need to broaden the scope of the NIPA saving rate further by providing alternative measures of personal saving: one measure based solely on the current definition (which now includes private pensions and government retirement plans) and other measures that include capital gains. For instance, in the case of the Consumer Price of Index (CPI), the Bureau of Labor Statistics measures cost of

[25] Incidentally, investment in new capital is restrained because business saving is used up increasingly (75 to 80 percent) in replacing the short-lived equipment. However, investment in R&D and Internet, etc. is treated in NIPA as a current expense instead of a capital expense.

living for different segments of the population, and the CPI is reported with and without housing prices separately.

In terms of national saving, there is no cause for immediate alarm, but again some cause for concern. The long-term decline in the personal saving rate has lowered the overall gross saving rate. If increased government or business saving does not offset the decline in personal saving, there will be less investment, lower productive capacity, and lower economic growth. Recently, national saving has been growing mainly as a result of increased business and federal government saving (declining deficits followed by growing projected surpluses). But uncertainty always looms in such projections, and future surpluses are not guaranteed. The current *unified* budget surplus—mainly due to off-budget Social Security revenues in excess of annual payments— would help reduce the public debt, interest paid on debt, and interest rates in the long run.

The gap in domestic investment is currently being filled by foreign investment. However, the disadvantage of relying on foreign saving, besides sharing the fruits of investment with other countries, is that foreign investment is highly vulnerable to the ups and downs of foreign currencies and foreign economies.

APPENDIX 1: Technical Section

Before the BEA's revision of the personal saving rate, personal disposable income (PDI) included labor income, interest income, and capital gains from mutual funds. PDI *less* personal consumption expenditure (PCE) was defined as personal saving, and its ratio to PDI was the personal saving rate. BEA's new definition excludes capital gains from mutual funds in PDI, but personal taxes still include taxes on all capital gains, including the taxes on mutual fund distributions.

To analyze the impact of the exclusion of mutual funds and tax on capital gains on the saving rate, we use the Macroeconomic Advisers' mathematical approach. Let personal saving (S) be defined as income (Y) less consumption (C):

(1) $S = \text{Income} - \text{Consumption}$

Reported personal disposable income (before BEA's revisions) included wages and salaries (Y), and some portion, α, of capital gains realizations, R. These realized gains came from the mutual fund industry that NIPA has proposed to exclude from personal income. Hence, saving (S) can be written as:

(2) $S = Y - t_Y Y + \alpha R - t_G R - C$

where t_Y and t_G are tax rates on income and realized capital gains respectively. Or,

(3) $S = (1- t_Y) Y + (\alpha - t_G) R - C$

Turning to consumption, under life cycle assumptions, personal consumption (C) depends on after tax personal income; capital gains *accrued* (G) during a period less taxes paid on *realized* portion of gains; and the net wealth (W) at the beginning of the period. Hence, we can rewrite (3) by breaking C into its components,

(4) $S = [(1 -t_Y) Y + (\alpha - t_G)R] - [\beta_1(1 -t_Y)Y + \beta_2(G- t_G R) + \beta_3 W]$

where $\beta 1$, $\beta 2$, and $\beta 3$ are marginal propensities to consume out of income, capital gains, and net wealth respectively.

From the saving equation (4), it is evident that NIPA saving is affected by both wealth and capital gains. It involves two variables: the proportion α of the mutual funds distributions in total capital gains, and the capital gains tax, t_G, on the realized portion of gains. If they are both small, then the impact on the saving rate will be small. Since the tax rate on capital gains (t_G) has historically exceeded the proportion of capital gains realized (α), there has been a downward bias in the measurement of saving even before the BEA's revisions because the coefficient of R in (4) is negative ($\alpha < t_G$).

With BEA's revisions, personal saving is reduced from two sides. First, as wealth increases, consumption increases since $\beta_2 > 0$, and therefore it reduces personal saving (S). Second, if mutual fund distributions were excluded in accordance with BEA's new definition (that is, $\alpha = 0$) the personal tax that includes taxes on all realized capital gains (including gains on mutual funds) would still reduce personal disposable income by $- t_G R$ (the second term of the first square parenthesis), and would reduce overall personal saving. The downward bias is directly related to the wealth effect; the greater the increase in wealth (mutual funds), the higher the consumption, the lower the measure of personal disposable income, and the lower the NIPA saving rate.

It is worth noting that the proportion of gains realized is not insignificant. Recently, the proportion of personal dividends reported by the mutual funds industry experienced an enormous growth. The total realizations, at

current prices, increased from $50 billion in 1984 to $156 billion in 1988, then decreased to $100 billion in 1990 due to recession. Since 1990-91, realized gains have skyrocketed and were $278 billion in 1997. The growth in mutual funds also shows a similar pattern; their capital gains distributions accounted for 17 percent of the total gains in 1995 and 22 percent in 1997 (Macroeconomic Advisers, *The U.S. Economic Outlook*, August 1998).

The tax rate has always been greater than the proportion of realizations from mutual funds distributions ($t_G > \alpha$). The tax rate on capital gains, including state taxes, exceeds the share of mutual funds in total gains distributed. The tax rate on capital gains rose from 20 percent in 1981 to 28 percent in 1987 after the Tax Reform Act. Thus, when mutual fund distributions from personal income were excluded in BEA's new definition, the capital gains taxes reduced personal income by as much as the amount of taxes paid on realized gains, t_G R.

APPENDIX 2: Glossary of Terms*

Undistributed profits is the portion of corporate profits not paid out in dividends.

Change in business inventories and inventory valuation adjustment. Business inventory is the physical volume of unsold goods valued at average prices to determine corporate profits before tax. Change in business inventories measures the change from one period to another. It differs from the change reported in the book-value of inventories at the end of the period, which is based on actual replacement costs and actual prices. The difference is the inventory valuation adjustment.

Consumption of fixed capital and capital consumption adjustment. Capital consumption is a charge for the using up of private and government fixed capital located in the United States. To replace the worn out and obsolete fixed capital, all firms keep aside a fund called a *depreciation fund*. This fund is based on historical prices of used equipment and structures in resale markets. Capital consumption adjustment is the difference between the historical cost-based depreciation, as calculated and reported by BEA, and the tax return-based depreciation calculated by using actual prices, and reported to IRS.

Government wage and salary accruals less disbursements. Wage and salary accruals are monetary compensations earned. Disbursements are wage and salary accruals except that retroactive wage payments are recorded when paid rather than when earned. Wages accrued (earned) are part of national income, and wages disbursed (paid) are part of personal income.

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* Source: NIPA of the United States (1998). The composition of gross saving for the year 2000 is shown below in Box 3.

Box 3: Projected 2000 1st Quarter Savings

	$ Billion	% Share
Gross Private Saving	**1362.4**	77%
Personal Saving	133.2	8%
Gross Business Saving	1,229.1	70%
Undistributed profits	194.2	11%
Inventory valuation adjustment	-9.8	-1%
Capital Consumption adjustment	63.1	4%
Corporate Consumption of Fixed Capital	692.3	39%
Non-corporate Consumption of Fixed Capital	289.3	16%
Wage accruals *less* disbursement	0.0	0%
Government Saving	**404.9**	23%
Federal Surplus (Deficit)	156.0	9%
State & Local Surplus (Deficit)	49.4	3%
Capital Consumption	169.5	10%
Federal	86.0	5%
State & Local	83.5	5%
Govt. Enterprises	30.1	2%
GROSS SAVING	**1,767.30**	100%
% of GDP	19.2%	

Source: Macroeconomic Advisers Economic Outlook, January 8, 2000.

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