
Should the Decline in the Personal Saving Rate Be a Cause for Concern?

By C. Alan Garner

The personal saving rate has been drifting downward for the last two decades. According to the latest statistics, personal saving declined from about 10 percent of disposable income in the early 1980s to 1.8 percent in 2004. The decline has received particular attention recently because saving was negative in 2005 for the first time since the Great Depression. Although saving declined in other developed countries during this period, the U.S. decline was more pronounced than in most of these countries.

Many analysts and policymakers have expressed concern about the decline in the personal saving rate. A major concern is whether U.S. households are providing adequately for long-term needs, such as future retirement and medical expenses. With average life expectancies lengthening and the large baby-boom generation approaching retirement, many households will need to tap their personal savings to supplement increasingly pressured public and corporate retirement programs. In addition, low personal saving has created short-run concerns that a sudden increase in the saving rate could reduce growth of consumer spending, real output, and employment.

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But there is another, often overlooked side to this story. Two major factors suggest the decline in the personal saving rate may not be as alarming as it is sometimes made out to be. First, various measurement problems with the personal saving rate from the national income and product accounts suggest household saving may not have declined as much as the statistics suggest. Second, economic theory assumes that households rationally anticipate future labor income and asset returns and plan their spending accordingly. If this assumption is correct, the low personal saving rate may not foreshadow wrenching future adjustments in consumer spending.

This article provides some perspective on the decline in the personal saving rate over the last two decades. The first section describes the decline in the most common measure of the personal saving rate and the economic explanations offered for this decline. The second section surveys some of the measurement issues related to the decline and presents some alternative saving measures. After weighing the issues, the third section concludes that, although there are some legitimate reasons for concern, the decline in the personal saving rate may not be as alarming as it first appears.

I. THE DECLINE IN THE PERSONAL SAVING RATE

The downward trend in the personal saving rate has prompted expressions of concern by economists and other observers. Roach wrote that “the U.S. needs to end its buying binge and rediscover the art of saving,” while Eisinger worried that the United States will end up with “zombie consumers” similar to the “zombie companies” that littered the Japanese economic landscape in the 1990s. Lansing warned that “the decline in the U.S. personal saving rate and the dearth of internal saving raise concerns for the future.” Underlying these and virtually every other discussion of saving trends is a point of agreement—saving for the future is important. This section begins by reviewing why saving is important and then provides some background on the downward trend in the U.S. personal saving rate.

Why saving matters

The purpose of saving is to increase the resources available for future consumption. This point is true both for individual consumers and the nation as a whole. Households put aside some of their current income to provide for future consumption, such as a major vacation or basic living expenses during retirement. Saving also helps protect against an unexpected loss of household income caused, for example, by illness or an unanticipated layoff. Typically, households invest their savings in financial assets, such as a bank account or mutual fund, or build equity in a real asset, such as a home. These assets can be redeemed or sold to others in the future to provide the funds needed to buy consumer goods and services.

Personal saving is also important for the nation as a whole. Today's saving influences future consumption because investments in financial assets are channeled into productive investments in factories, industrial machinery, computers, and other kinds of capital. Increases in the capital stock raise the nation's ability to produce consumer goods and services in the future. A higher capital stock also raises the productivity of future workers and their wages, providing increased income with which to purchase the increased quantity of consumer goods and services.¹

Much of the concern about the low personal saving rate reflects the aging of the U.S. population and the pressure that aging will place on the nation's healthcare and retirement systems. The U.S. population has been aging gradually in recent decades, but the share of the population 65 and older will rise much faster over the next 25 years as the large postwar baby-boom generation ages. Various factors, including population aging and new medical technologies, have also caused medical costs to climb faster than the overall inflation rate. As a result, the Social Security and Medicare programs face huge unfunded liabilities (Hakkio and Wiseman). Meeting these future obligations might require higher tax burdens on future working-age families. Increased saving could help reduce such burdens by raising the domestic capital stock and increasing output per worker. More productive workers would receive higher wages, making it easier for working-age families to pay higher social insurance taxes if fiscal policymakers should decide to raise these taxes in the future.

The decline in the NIPA saving rate

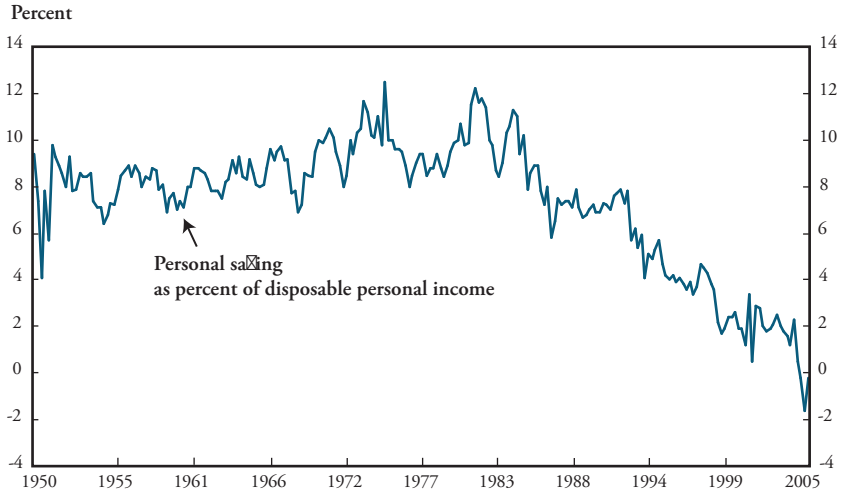
The most commonly cited measure of personal saving is from the national income and product accounts (NIPA) produced by the U.S. Department of Commerce. The NIPA saving rate measures funds taken out of current household income and made available for capital formation, such as investment in a new home or business equipment.² Personal saving in NIPA equals disposable personal income less personal outlays. Disposable personal income is the after-tax spendable income of the household and nonprofit sector. Personal outlays are mostly personal consumption expenditures, but also include transfers and nonmortgage interest payments.³

The NIPA personal saving rate does not include capital gains and losses on existing assets. These accounts were designed to measure current productive activity, but an increase or decrease in the value of an existing asset does not correspond to current production. This definition of saving is also well suited to national income accounting because its calculation requires only current information on income, taxes paid, and personal outlays. The national income accountant does not have to make forecasts of any future values, which would be uncertain and, perhaps, controversial.

Based on currently available statistics, the decline in the NIPA personal saving rate appears to have begun in the mid-1980s (Chart 1). After averaging 9.6 percent of disposable income in the 1970s, the personal saving rate rose to 10.4 percent in 1980-84. However, the personal saving rate declined steadily thereafter from 7.7 percent in 1985-89 to 6.5 percent in 1990-94, 3.8 percent in 1995-99, and 2.1 percent in 2000-04. The current NIPA estimate for the saving rate in 2005 is -0.4 percent. As will be explained later, the current estimate will likely be revised in the future as new data sources become available and the Commerce Department refines its statistical procedures.

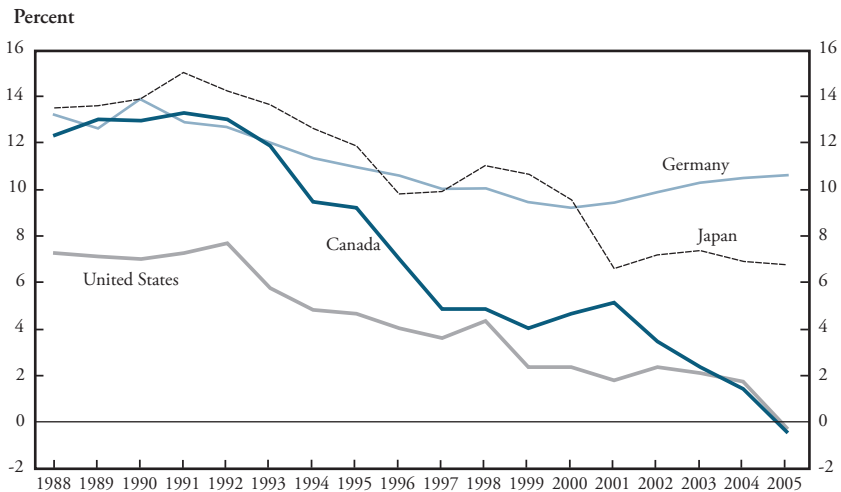
Although the saving rate declined in many other developed countries over this period, the downward trend in the U.S. saving rate was particularly pronounced. The personal saving rates for Canada, Germany, Japan, and the United States all declined from 1988 to 2005 (Chart 2).⁴ The household saving rate for Germany declined modestly from 13.2 percent of disposable income in 1988 to 10.6 percent in 2005, a decline of 2.6

Chart 1
THE DECLINE IN THE PERSONAL SAVING RATE



Source: U.S. Department of Commerce

Chart 2
HOUSEHOLD SAVING RATES FOR
SELECTED OECD COUNTRIES
(percent of disposable household income)



Source: Organization for Economic Cooperation and Development

percentage points. The Japanese saving rate declined by a much larger 6.8 percentage points over that period, almost as large as the decline in the U.S. rate. However, the Japanese saving rate was much higher at the beginning of the period and thus remained about seven percentage points above the U.S. rate in 2005. The Canadian saving rate was well above the U.S. rate in 1988 but fell more sharply over this period and, like the U.S. rate, was slightly negative in 2005.

Possible economic explanations

What economic factors might account for the pronounced decline in the U.S. personal saving rate? A wide variety of explanations have been proposed, including lack of self-control on the part of U.S. consumers and increased access to credit by households that previously were unable to borrow. Much of the economic debate, however, has considered the importance of wealth effects on consumer spending from the large increases in stock and home prices since the mid-1980s.

Modern economic thought suggests that saving and consumption depend on expectations about the future—for example, expected future labor income or expected returns on stocks and bonds. Economists often assume that current consumption and saving depend on “permanent income” or “life-cycle income,” concepts that include expected future resources as well as resources that are currently in hand. Economists sometimes even define income as the maximum amount that households can consume on a sustainable basis given their current and expected future resources.⁵ Clearly this definition of income is not well suited for national income accounting because the accountant does not have available reliable measures of future labor income or asset returns.

Economists have traditionally believed that the permanent-income and life-cycle views of consumption imply a dependable relationship between wealth and consumption. Economists estimated life-cycle consumption functions implying that a \$1 increase in household net worth would raise consumption by roughly 3 cents. As a result, recent sharp increases in stock market values and home equity may have raised consumption relative to current disposable income, lowering the measured

saving rate. For example, Juster and others argued that the decline in the personal saving rate since the mid-1980s is mostly due to the large capital gains on corporate stocks in this period.⁶

But estimates of the wealth effect on consumption have been difficult to pin down empirically. For example, Ludvigson and Steindel found that conventional estimates of the life-cycle wealth effect vary substantially depending on which historical period is chosen for estimating the relationship. Poterba noted that recent estimates of the effect of stock market wealth range from around 1 cent on the dollar at the low end to 5 cents on the dollar at the high end.

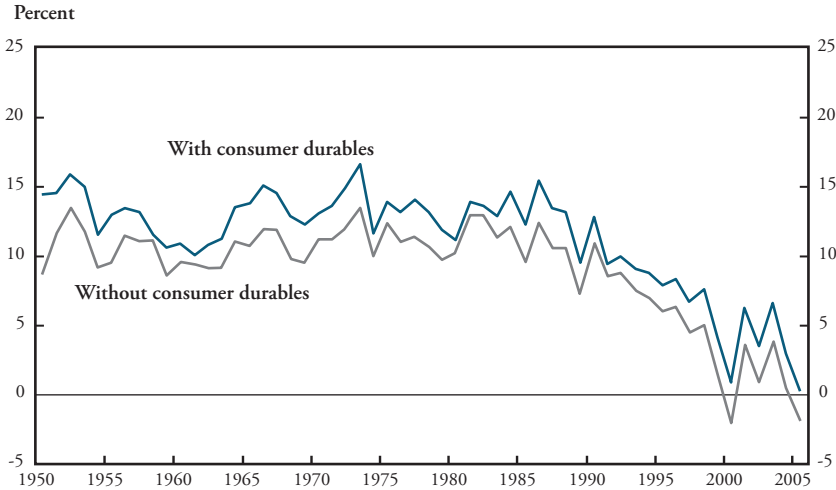
Recent research also differs on the size of the wealth effect associated with a change in home values. Some recent research finds that an increase in housing wealth has a larger effect on consumer spending than changes in other kinds of wealth. Gains in stock market wealth might have less effect in the short run on personal consumption because households are aware that stock prices are highly volatile and, thus, do not feel certain that recent gains in stock market wealth will persist. Consistent with this view, Case, Quigley, and Shiller found a “rather large effect of housing wealth upon household consumption.” In contrast, Poterba’s survey of the empirical literature before 2000 found “at best a weak link between house price changes and nonhousing consumption.” The sharp fluctuations in corporate stock prices and the large gain in home prices in recent years may eventually provide evidence that will help researchers settle such empirical disputes. But reliable empirical results will also require an understanding of the problems involved in measuring household saving accurately.

II. ISSUES IN MEASURING PERSONAL SAVING

One major reason that the decline in the personal saving rate may not be as alarming as it first appears is that the decline may partly reflect measurement problems rather than a true decline in saving. This section first shows that several alternative measures based on the NIPA definitions may imply a somewhat higher or lower personal saving rate, but such measures do not eliminate the downward trend. Evidence is then presented that the personal saving rate has historically been revised upward by fairly large amounts, although there is no guarantee that

Chart 3

PERSONAL SAVING RATE WITH AND WITHOUT CONSUMER DURABLES



Source: Board of Governors of the Federal Reserve System

future revisions will be upward to the same extent. The section closes by noting that possible conceptual changes in the national accounts related to growth of the knowledge economy might raise estimated U.S. saving and capital formation.

Alternative NIPA-concept measures

Alternative measures of the NIPA saving rate generally do not eliminate the downward trend even though such measures may slightly raise or lower the level of the personal saving rate. For example, one alternative measure of the personal saving rate treats purchases of consumer durable goods as a form of saving rather than consumption. The NIPA defines durable goods as those with an average life of at least three years. Because durable goods yield services to the purchaser over several years, such goods can be viewed as an asset, with the associated stream of services being the better measure of consumption. Purchasing a durable good can thus be considered a form of saving. Chart 3

presents alternative measures of the NIPA-concept personal saving rate from the Federal Reserve's flow of funds (FOF) accounts.⁷ Although taken from a different source than the national income accounts, the basic saving measure in this chart is conceptually identical to the NIPA measure. Essentially it is an alternative calculation of the same concept, which can differ from the NIPA measure at any point in time but shows a similar downward trend. The second series in the chart also adopts the NIPA concepts except that purchases of consumer durable goods are classified as saving.

Counting purchases of consumer durables as a form of saving raises the personal saving rate but does not eliminate the downward trend in the 1980s and 1990s. The NIPA-concept saving rate calculated from the FOF statistics was actually negative in 2000, a year when the comparable saving rate from the national income accounts was positive. But counting consumer durables as saving raises the personal saving rate in 2000 to about 1 percent. On average, counting consumer durables as saving added about 2 percent to the saving rate from 1990 to 2004, with the increase closer to 2½ percent since 2000 because of the general strength in consumer durables purchases. Nevertheless, recent saving rates with consumer durables included in saving are still down substantially from a rate near 13 percent in the 1970s and 1980s.

Another adjustment that tends to increase the measured personal saving rate without eliminating the downward trend is to add federal taxes on capital gains back into disposable personal income (Reinsdorf). Critics of the standard NIPA measure of the personal saving rate sometimes note that it excludes capital gains and losses from personal income but nevertheless subtracts tax payments on realized capital gains when computing disposable income. An alternative measure leaves federal taxes on realized capital gains in disposable income. This measure results in a personal saving rate that is 1.65 percent higher in 2000, a period when capital gains realizations were unusually high. But the measure continued to display a sharp downward trend in the 1980s and 1990s.

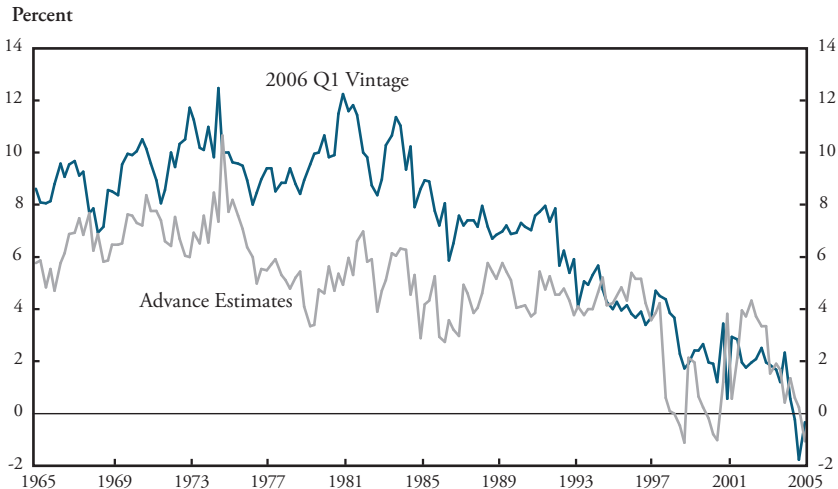
In contrast, other measures of the NIPA-concept personal saving rate slightly lower the household saving rate. However, these alternative measures also do not eliminate the downward trend. One possible adjustment is to remove nonprofit institutions from the saving calculation. Because

nonprofit institutions add more to personal income than to personal outlays, this adjustment slightly lowers the household saving rate, but this alternative measure has a similar downward trend.

Another adjustment that slightly lowers the personal saving rate is to exclude defined benefit pensions from the household sector of the national income accounts. The NIPA treats pension plans as part of the household sector, an approach that is clearly appropriate for 401(k) accounts and other defined-contribution plans because employees own the assets and bear the risks of asset-market fluctuations. The treatment of defined-benefit plans is less clear, however, because employers make the investment decisions and bear the risks for such plans. Under standard NIPA accounting, an employer's contribution to a pension fund and the investment income from the fund are counted as personal income. Because of the strong gain in equity values during the 1990s, many employers were able to reduce their pension plan contributions without reducing benefit payments to current retirees. Reduced pension contributions thus lowered the measured personal saving rate, but alternative calculations suggest that this factor did not drive the overall decline in the personal saving rate (Reinsdorf). An alternative measure of the personal saving rate that excludes private and government defined-benefit plans yields a lower personal saving rate that still shows a pronounced downward trend.

Possible future revisions

The decline in the personal saving rate may not be as alarming as it first appears partly because of the possibility of future upward revisions. In practice, forecasters and policymakers must use the latest vintage of economic statistics available at any point in time. But government statisticians continue to revise their estimates of personal income and outlays for many years after the initial release as new information sources become available and improved methodologies emerge. Personal saving is the difference between personal income and personal outlays, both of which are very large numbers. Relatively small percentage revisions to either of these numbers can produce large percentage revisions to the estimated personal saving rate.

*Chart 4*ADVANCE AND LATEST-VINTAGE ESTIMATES
OF THE PERSONAL SAVING RATE

Sources: Federal Reserve Bank of Philadelphia, U.S. Department of Commerce

Past declines in the personal saving rate have tended to be revised away as new vintages of data are released. Nakamura and Stark documented that the personal saving rate is revised for decades after the initial release, and the revision can be substantial. Chart 4 plots the advance (initially published) estimates of the personal saving rate and the most recent estimates of the saving rate for the same period. Initially published estimates of the personal saving rate from the third quarter of 1965 to the second quarter of 1999 were revised upward by an average of 2.8 percentage points. But for the fourth quarter of 1981, the upward revision was 7.3 percentage points, and the average revision for 1980-84 was 5.1 percentage points.

Nakamura and Stark documented that the largest revisions of the personal saving rate typically occurred after benchmark revisions of the NIPA following economic censuses. Large revisions to the personal saving rate can occur decades after the initial estimate is published. Another important source of revisions to the NIPA saving rate has been

conceptual or methodological changes made during the benchmark revisions that incorporated previously unmeasured sources of household income. Nakamura and Stark noted, for example, that random IRS audits to assess growth of the underground economy led to substantial upward revisions to estimated income in the 1985 benchmark NIPA revisions, with an associated upward revision to the personal saving rate.

Although future revisions to the saving rate do not necessarily have to be upward, some evidence is accumulating that the next benchmark NIPA revision may raise the personal saving rate. The U.S. Census Bureau benchmarked retail and food services sales to the 2002 Economic Census, revising some spending categories back as far as 1992. Retail and food services sales for 2005, for example, were revised downward by 1.6 percent. Such revisions suggest that personal consumption expenditures may have been overstated in the NIPA accounts. Feroli estimated that this overstatement of personal consumption expenditures lowered the NIPA personal saving rate by 1.5 percentage points. Assuming no other sources of revision to NIPA consumption or income, this downward revision to consumer spending would be enough to return the personal saving rate to a positive but still low value.

Saving and the knowledge economy

Growth of the knowledge economy is an important factor in assessing the possibility of future upward revisions to NIPA saving. Greenspan noted in 1996 that it would have been virtually impossible in the mid-20th century to imagine the extent to which “concepts and ideas would substitute for physical resources and human brawn in the production of goods and services.” In the ten years since that comment was made, the trend toward a knowledge economy has only accelerated. This change in the economy may eventually require major statistical and conceptual changes in the national accounts.

A growing share of real output is devoted to producing new ideas rather than investing in physical capital. Nakamura has argued that a large share of national wealth resides in intangible assets, such as patents, brand names, copyrights, and data bases. Traditional accounting practices treat expenditures to develop such assets as a business expense rather than the purchase of a productive asset. If such expenditures were treated as capital

investment, similar to the purchase of a new factory or equipment, corporate profits and assets would be higher. One step in this direction was the Commerce Department's decision to treat business purchases of software as a kind of investment rather than as a business expense.

At the household level, a similar measurement issue is the treatment of private education expenditures. In an economy in which knowledge is the key productive asset, educational expenditures could be considered a form of saving. Households build up knowledge capital that is expected to result in higher incomes in the future, either for current wage earners or their children. But current NIPA procedures count such expenditures as consumption. Household expenditures on education and research amounted to over \$224 billion in 2005. If such expenditures were excluded from personal consumption, the saving rate would rise from its low negative value to about 2 percent of disposable income.

III. HOW WORRIED SHOULD WE BE?

Although there are reasons to think that the personal saving rate might be revised upward in the years ahead, exceptionally large revisions would be needed to eliminate the current downward trend. But there are other economic factors that should be weighed in assessing the low personal saving rate. Some of these factors suggest concern is warranted, while others imply the decline may not be a serious problem. This section weighs these various economic factors along with the measurement issues to provide some perspective on the low personal saving rate.

Rising household net worth

An important factor in assessing the low personal saving rate is the rising net worth of U.S. households. In sharp contrast to the declining NIPA personal saving rate, household net worth has increased substantially over the last decade. Standard measures of household net worth come from the FOF accounts constructed by the staff at the Board of Governors of the Federal Reserve System. Accompanying these accounts are estimated balance sheets for the U.S. economy that report assets, both tangible and financial, and liabilities at the end of each quarter (Table 1). For the fourth quarter of 2005, households and nonprofit

Table 1

BALANCE SHEET OF HOUSEHOLDS AND
NONPROFITS, FOURTH QUARTER 2005*(Billions of dollars; end of period)*

Assets		64,023.1
<i>Tangible assets</i>	25,558.2	
Real estate	21,579.7	
Equipment and software of nonprofits	217.3	
Consumer durable goods	3,761.2	
<i>Financial assets</i>	38,464.9	
Deposits	5,887.6	
Credit market instruments	2,733.4	
Corporate equities	6,088.9	
Mutual fund shares	4,207.5	
Pension fund reserves	10,646.7	
Equity in noncorporate business	6,677.1	
Other financial assets	2,223.7	
Liabilities		11,916.0
Home mortgages	8,660.1	
Consumer credit	2,188.7	
Other	1,067.2	
Net worth		52,107.0

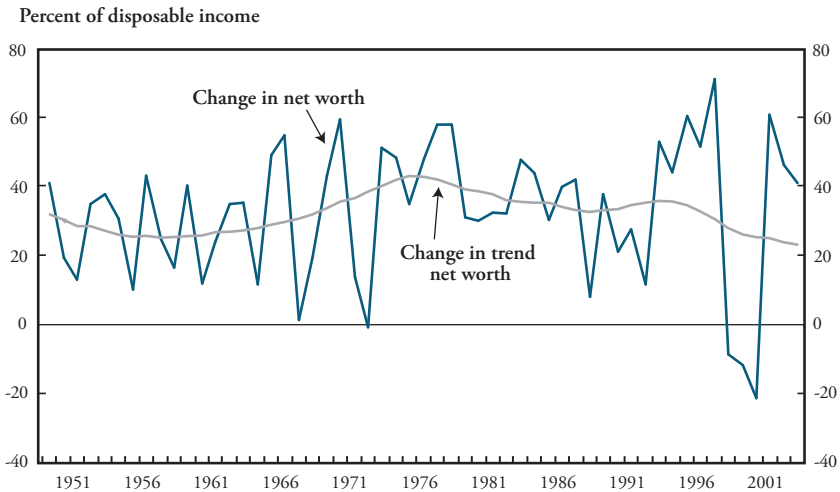
Source: Board of Governors of the Federal Reserve System

institutions had estimated assets of \$64 trillion, of which about 60 percent were held as financial assets and the rest as tangible assets. Real estate was the bulk of tangible assets, with most of the rest being consumer durable goods. Liabilities were \$11.9 trillion, consisting mostly of home mortgages and consumer credit.

The growth of household net worth over time represents a potential increase in resources available for future needs, such as retirement of the baby-boom generation.⁸ Chart 5 shows the change in household net worth as a percentage of disposable income. The growth in household wealth relative to income has been quite high, on average—household net worth rose by about 34 percent of disposable income yearly from 1980 to 2004. However, growth was extremely volatile from year to year, ranging from nearly a 72 percent gain in 1999—the height of the

Chart 5

CHANGE IN NET WORTH AND TREND NET WORTH



Sources: Board of Governors of the Federal Reserve System; author's calculations

technology stock bubble—to a 22 percent decline in 2002 during the subsequent stock market correction. Changes in stock prices account for most of the year-to-year volatility in household wealth accumulation.

Although the volatile annual changes in household net worth are difficult to assess, a smoother measure suggests only a moderate decline in the rate of wealth accumulation in recent years. Chart 5 also shows the change in trend household net worth as a percent of disposable income.⁹ Trend household net worth rose by about 25 percent of disposable income per year in the 1950s. The growth rate for trend wealth rose substantially in the 1960s and early 1970s but has decreased moderately since the mid-1970s. Recently, the change in trend net worth has been 23 to 25 percent of disposable income, similar to the rate in the 1950s.

The permanence of recent gains in household net worth is difficult to assess because of the growing importance of intangible assets in the knowledge economy. To the extent that corporations have accumulated a stock of intangible assets that are currently unmeasured in the

national accounts, a higher stock price may be justified. Relatively high stock values in the late 1990s and early 2000s may reflect investors' growing realization of the importance of such intangible assets.

Research by Hall suggested that some part of the sharp increase in household net worth over the last decade may be sustainable. It represents corporate accumulation of intangible assets related to growth of the knowledge economy. Hall emphasized what he called "e-capital," a body of business methods and organizational knowledge that has allowed some industries to dramatically raise productivity and customer service. Hall argued that this rapid accumulation of e-capital was essentially an "upsurge in saving resulting at least in part from technical progress in forming e-capital." Such saving does not appear in corporate accounts or the NIPA, but the evidence for this saving is "manifested in the rising stock market."

Greater inclusion of intangible assets in the national income accounts also would increase measured corporate and net national saving. Corrado, Hulten, and Sichel have estimated the amount of intangible investment excluded from GDP, finding that the amount could be as much as \$800 billion annually.¹⁰ Omission of intangible assets may also lead to an understatement of the business capital stock by up to \$3 trillion. Because intangible investments accelerated in the 1990s, including such investments in the national accounts would likely offset some of the apparent decline in the national saving rate as well as make current corporate share valuations appear more sustainable.

Weighing the long-run concerns

Weighing the long-run concerns may be more difficult than assessing the short-term risks to economic performance.¹¹ Although cyclical changes in the personal saving rate have occurred in the past, the projected aging of the U.S. population over the next 25 years is unprecedented in our nation's history and therefore might pose unanticipated challenges. Most economists and policymakers feel that more personal saving would be desirable to meet such challenges, but putting any dollar amount on the needed increase in saving seems highly speculative at this point. Instead, two factors are noted that suggest that any long-term saving deficit may not be as alarming as some discussions would imply.

First, the measurement problems discussed earlier are relevant in assessing the long-term adequacy of household savings. Even if the personal saving rate were revised upward, it would still be low unless the revisions are much larger than average. But if the growth of the knowledge economy were fully incorporated in saving measures, the personal saving rate would likely rise, and current high asset values would appear more sustainable. Such assets could provide financial resources to meet future retirement needs for the U.S. population, and the associated growth in productivity of U.S. firms and workers could contribute needed additional output of real goods and services.

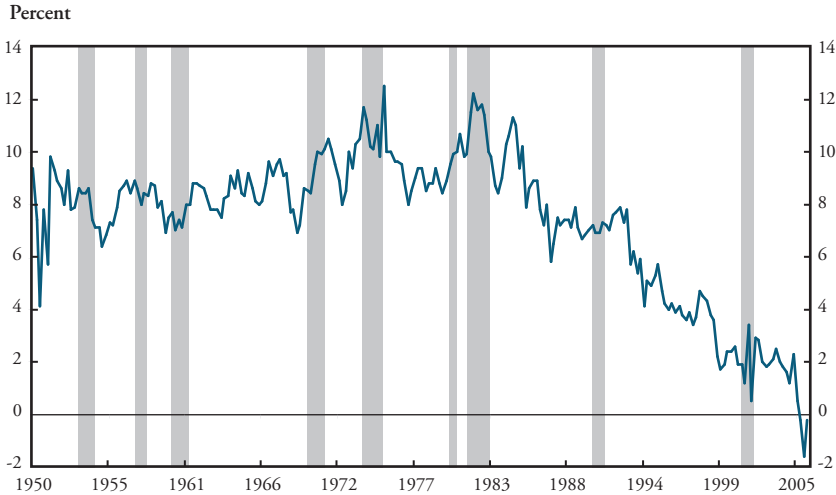
Second, new simulation models provide growing evidence that most U.S. households are behaving in line with the predictions of economic theory. If households follow the permanent income hypothesis or the life-cycle model, they rationally assess future retirement needs and adjust saving and consumption appropriately as current asset values change. Scholz and others found that over 80 percent of U.S. households have accumulated more wealth than their optimal targets, taking into account their demographic characteristics and realistic expectations about future earnings and retirement benefits. But even though most households appear to be on track to reach their required retirement nest eggs, some households are not. Undersavers are concentrated in the bottom half of the lifetime income distribution and tend to be disproportionately single-person households.¹² In addition, large unanticipated shocks to the economy and financial markets might endanger the retirement plans of households whose savings appear to be on track. Thus, the long-run concerns about personal saving should not be dismissed entirely, but the problem may not be as severe as the downward trend in the personal saving rate suggests.

Weighing the short-run concerns

With respect to short-term economic performance, many commentators have expressed concern that the low personal saving rate increases the risk of a sharp slowdown in the future. Generally, the concern is that saving is unsustainably low and that a retrenchment in consumer spending will reduce aggregate demand and real economic growth. In 2005, personal consumption was \$7,857 billion in chained (2000)

Chart 6

DOES THE PERSONAL SAVING RATE PREDICT RECESSIONS?



Sources: U.S. Department of Commerce; National Bureau of Economic Research

dollars, and disposable personal income was \$8,120 billion. If the personal saving rate were suddenly to increase by one percentage point of disposable income, with the increase occurring solely through a decline in personal consumption, then consumption would have to fall by about \$80 billion, or 0.7 percent of real GDP in 2005. If this decline occurred in one quarter, it would reduce real GDP growth by 2.8 percent at an annual rate, which would be a substantial drag on overall growth. Moreover, such a one-percentage-point increase in the saving rate would still leave the personal saving rate well below its average of around 7.5 percent since 1950, suggesting any upward correction in the saving rate might exceed one percentage point.

But the relationship between the NIPA personal saving rate and economic slowdowns is more complicated than this back-of-the-envelope calculation suggests. For example, historical evidence shows the personal saving rate has sometimes changed very little before or during recessions. Chart 6 plots the NIPA personal saving rate from 1950 to the present with recessions shaded.¹³ During some recessions, such as

those in the 1970s and early 1980s, the personal saving rate increased sharply before or during the recession. But such a pattern was not at all clear during the 1950s and early 1960s or in the last two recessions. For example, during the relatively mild 1990-91 recession, the saving rate was fairly flat immediately before and during the recession, and the broader trend during this period was a decline.

An increase in the personal saving rate need not occur as described in the preceding illustrative calculation in which personal consumption expenditures fall. For example, the personal saving rate could adjust upward gradually if consumption grows at its longer-term average rate, while the growth rate of disposable income increases. This alternative scenario could be consistent with a permanent-income or life-cycle theory of consumer behavior. Forward-looking households would have initially incorporated all available information about future income into their consumption plans. If new information were to become available that disposable income is likely to increase faster in the future, households might immediately boost their estimates of permanent income, and would increase their consumption accordingly. Because the increase in consumption precedes the anticipated increase in income, the measured saving rate initially might decline. But if the income increases materialize as expected, consumption need not be adjusted further, and the more rapid gains in disposable income would raise the measured saving rate.

Some empirical research supports the view that a low personal saving rate predicts faster economic growth rather than the more widely discussed scenario of a slowdown. Ireland estimated a quarterly model of labor income and savings and imposed restrictions derived from the permanent income model. The resulting model had smaller forecasting errors than economic models without such restrictions. Most important, Ireland concluded that “Estimates from this model show that the U.S. data conform not to conventional wisdom, but to the intuition provided by the permanent income hypothesis; historically, declines in savings have preceded periods of faster, not slower, income growth.”

In contrast, Nakamura and Stark found that saving rates are not useful for forecasting economic growth in a real-time setting. They conducted forecasting experiments similar to those of Ireland, but using real disposable income instead of labor income for reasons of

data availability. Although Ireland's results appear to be correct for heavily revised data, which should more closely reflect the "true" personal saving rate, the real-time data available historically to forecasters have not improved predictions of real disposable income, real GDP, or personal consumption.

Although such evidence does not guarantee that a sudden increase in the personal saving rate will not hurt short-run economic performance, both empirical evidence and theoretical reasoning suggest a low personal saving rate does not necessarily imply painful economic adjustments.

IV. CONCLUSION

Economists and policymakers have expressed concern about the decline in the personal saving rate over the last two decades. This article does not mean to suggest that saving should not be a matter of policy concern. Some part of the U.S. population likely is not saving adequately for future retirement needs, and large adjustments in the personal saving rate could pose short-term cyclical problems if the adjustments occurred sharply. However, this article has provided some perspective on the issue by examining various measurement problems and economic arguments. There are reasons to think that the NIPA estimate of the personal saving rate might be revised upward in the future. In addition, a revised accounting framework that better reflected growth of the knowledge economy would likely raise estimated personal saving as well as making current stock market valuations appear more sustainable. To the extent that American households have correctly anticipated future gains in productivity and labor income and incorporated these expectations into their spending plans, any future adjustments in consumption spending need not be wrenching. Although there are some legitimate reasons for concern, the decline in the personal saving rate may not be as alarming as it appears.

ENDNOTES

¹This article focuses on the decline in the personal saving rate. A complete understanding of the forces affecting the U.S. capital stock and productivity, however, requires a look at national saving. National saving is the sum of personal saving, corporate saving, and government saving. The national saving rate, defined as national saving as a percentage of gross national income, has also trended downward in recent decades. Corporate saving has not had the pronounced downward trend seen in personal saving, and in fact, corporate saving was relatively strong at 3.7 percent of gross national income in 2005. But the government has consistently run a deficit—its saving has been negative—and that has substantially lowered the national saving rate in recent decades. Combining these rates, the national saving rate was 0.9 percent in 2005, down from 8.3 percent in 1970.

²Gross saving includes funds that go to replace depreciating capital goods. If such depreciation is subtracted out, net saving represents resources that are available to increase the capital stock over and above its level at the start of the period. Although discussions of economic growth typically focus on net saving, gross saving may also be important because the replacement of existing equipment and software often introduces newer and more productive technologies.

³Personal income includes wage and salary income and benefits, interest and dividend income, proprietors' and rental income, and net transfer payments. Disposable personal income is personal income minus personal taxes. In the NIPA accounts, disposable personal income includes the income of nonprofit institutions and unincorporated businesses in addition to households. Personal consumption expenditures were more than 96 percent of personal outlays in 2005.

⁴Chart 2 presents net household saving rates published by the Organization for Economic Cooperation and Development.

⁵Ireland provides an excellent discussion of Friedman's permanent income hypothesis. Similar ideas are developed in the life-cycle hypothesis of Modigliani and Brumberg.

⁶Their overall estimate of the wealth effect was consistent with the 3 cents on the dollar figure. However, disaggregating by asset class, the study found a much larger estimate of the stock market wealth effect—as much as 19 cents on the dollar. A complete review of estimates of the wealth effect is beyond the scope of this article. Poterba provided an excellent overview of studies up to 2000.

⁷Teplin provides an overview of the U.S. FOF accounts and some of their uses. The FOF accounts record net transactions in over 40 types of financial instruments by 30 economic sectors, including incorporated and unincorporated businesses, the federal government, state and local governments, and various financial intermediaries. The household information discussed here is, thus, a small part of the information in the FOF accounts.

⁸An important limitation of the aggregate measures of household net worth is that such measures do not reflect differing developments across household income or wealth categories. Because wealth is distributed unevenly, capital gains by wealthy households might disguise a deteriorating financial situation for

households with lower wealth. The Federal Reserve Board's Survey of Consumer Finances showed, for example, a complex pattern of distributional changes between 2001 and 2004 (Bucks, Kennickell, and Moore).

⁹The trend in household net worth was computed using the Hodrick-Prescott filter with annual data and the default tuning parameter of 100 in the RATS statistical package. The change in the trend is then expressed as a percent of disposable personal income.

¹⁰In an earlier study, Nakamura estimated that excluding intangible investments could lower GDP by over \$1 trillion annually. National income statisticians began to include some expenditures on intangible assets as business investment in 1999 when computer software was added to NIPA business investment.

¹¹This section focuses on the long-term challenge from population aging. The low personal saving rate is also related, however, to the large U.S. current account deficit. An increase in the personal saving rate would raise national saving—other factors held constant—and reduce the need for the United States to borrow abroad to finance domestic investment.

¹²Scholz and others noted, however, that these results applied specifically to a sample of households age 51 to 61 in 1992. Caution should be used in generalizing the findings to younger households, especially if the social security program is changed substantially in the future.

¹³The shaded regions in Chart 6 are recessions as dated by the National Bureau of Economic Research. The NBER determines monthly dates for peaks and troughs in economic activity. Chart 6 presents quarterly observations with the peaks and troughs corresponding to the quarters in which the monthly NBER turning-point dates fall.

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