



Why is the Household Saving Rate So Low?

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January 9, 2008

Congressional Research Service

7-5700

www.crs.gov

RL33168

Summary

Despite mostly favorable economic conditions since the early 1990s, one development—the focus of this report—may be cause for concern. While the economy was growing, household saving fell to next to nothing. At the beginning of the 1990s, households saved, on average, about 8% of their after-tax income. Since then, it has steadily declined, and since 2005, the proportion of income households set aside has been near zero.

One of the most striking aspects of the economic expansion of the 1990s was the dramatic rise in equity prices. Between 1991 and 2001, the Standard and Poor's index of 500 stock prices rose by 217%, and the NASDAQ stock price index increased by 313%. The standard economic model of saving behavior assumes that households are likely to spend more and save less out of current income given an increase in their wealth. Given that, it seems reasonable to suppose that those increases in equity prices had something to do with the decline in the personal saving rate. A number of studies have found that the decline in the personal saving rate during the 1990s was due at least in part to the rise in equity prices.

The stock market peaked in the second half of 2000. Between September 2000 and October 2002, the S&P 500 fell by 46%. Since then, S&P 500 stock prices have recovered, but they remained slightly below the 2000 peak at the end of 2006. Even though the stock market boom ended, the household saving rate continued to decline. The fact that household saving continued to be anemic even after the stock market cooled suggests that there are other factors that need to be considered. One candidate is the boom in the housing market. Since late 1997, the price of housing has risen rapidly. Between late 1997 and late 2006, house prices doubled, on average. Although there are reasons to think that housing price appreciation might not be a good substitute for saving, a number of empirical studies, while not quite a consensus, found evidence to suggest that it might.

When changes in personal wealth are taken into account, the decline in the official saving measure may be less of an issue, although there will always be concerns about the durability of any gains in asset prices. With respect to the household sector's contribution to total national saving, that has clearly fallen. Meanwhile, investment spending has risen relative to gross domestic product (GDP), in spite of the decline in personal saving, due to the increase in capital inflows from abroad. Some of the productivity gains likely to result from that increased investment, however, will benefit foreign rather than domestic investors. If house price appreciation slows for a long time, households may end up with less wealth than they anticipate. That would make the current low saving rate seem more of a problem.

This report will be updated as developments warrant.

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Introduction

With the exception of a contraction in 2001, the economy has experienced healthy economic growth since the early 1990s, aided in part by a pickup in productivity growth that began in 1995. At the same time, even in a period of relatively rapid growth in output, inflation remained low. One development however, and the focus of this report, may be cause for concern. While the economy was growing, household saving fell to almost nothing. At the beginning of the 1990s, households saved, on average, about 8% of their after-tax income. Since then, it has steadily declined, and since 2005, the proportion of income households set aside has been near zero.

A negative saving rate would seem to be cause for worry. Congress has already indicated its desire to promote household saving by, among other things, creating individual retirement accounts, and saving is an important consideration in proposals to reform Social Security.

Household saving is important for two distinct reasons. First, most households must accumulate wealth over the course of their working lives if they are to avoid a decline in their standard of living after retiring. Saving next to nothing would seem unlikely to afford a comfortable retirement for many, especially if Social Security benefits are ever reduced as part of any reform plan, as many workers fear may occur. Second, households are an important source of funds to finance capital investment, increasing the capital stock and adding to worker productivity.

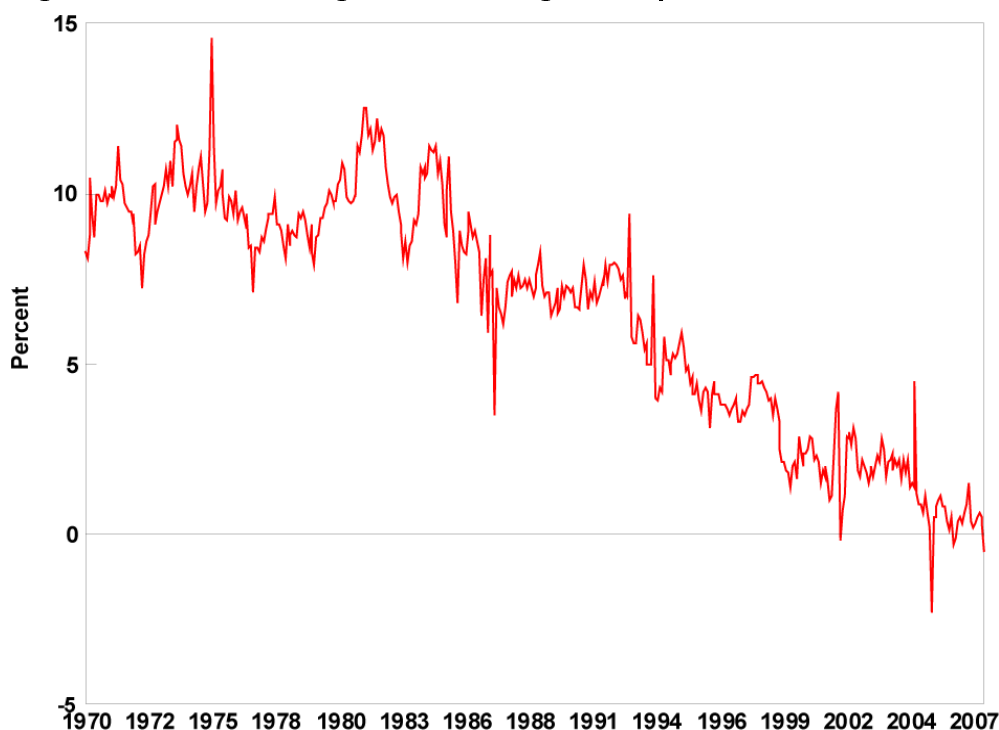
This paper begins by showing how much the household saving rate has declined in recent years. Next, it explains how household saving is measured, and provides some detail on how saving varies across the income distribution. Finally, it discusses factors that may account for the decline in household saving, as well as how much of a policy concern the decline in household saving may be.¹

The Decline in Household Saving

The personal, or household, saving rate has fallen steadily since 1990. Personal saving as a percentage of after tax personal income fell from just under 8% in 1990 to near zero since 2005. **Figure 1** shows the monthly personal saving rate since 1970.

Clearly the personal saving rate has dropped. But it is important to understand what, exactly, this measure of saving takes into account. As is the case with many economic statistics, there are differences between the theoretical notion of saving and statistical efforts to measure it.

¹ For a complete accounting of saving in the United States, see CRS Report RS21480, *Saving Rates in the United States: Calculation and Comparison*, by Brian W. Cashell.

Figure 1. Personal Saving as a Percentage of Disposable Personal Income

Source: Department of Commerce, Bureau of Economic Analysis.

Measuring Saving

The simplest definition of saving is income minus consumption. But what counts as income and how to measure consumption can be complicated. The national income and product accounts (NIPA) published by the Bureau of Economic Analysis (BEA) of the Department of Commerce are the primary source for statistics on overall U.S. economic activity.² The aim of the NIPA is to account for both income and expenditures that are related to the current production of goods and services. Changes in asset values are not included since they have nothing to do with current production. Thus, capital gains and losses are not counted as income in the NIPA.

Even though capital gains are not included in the NIPA measure of personal income, they still affect the measurement of the personal saving rate. Tax payments on capital gains realizations are included in personal tax payments. Thus, after-tax personal income is reduced by the amount of the tax payments. Saving, which is calculated by subtracting consumption from income, is reduced as well.

A difference between saving in a theoretical sense and the NIPA measure of saving is in the treatment of consumer durable goods.³ Ideally, the consumption of durable goods would be measured by the value of the flow of services they provide over their useful lives, similar to an investment. In the NIPA, however, consumption of durable goods is treated like any other type of

² This is the source for the data shown in **Figure 1**.

³ Consumer durable goods consist mainly of purchases of automobiles, furniture, and household equipment.

consumer spending, by simply counting the expenditures on those goods. That portion of income that is invested in housing is not considered to be consumption in the NIPA and thus contributes to total personal saving.⁴

A similar difference occurs with respect to expenditures on education. They are currently treated in the NIPA as consumption spending, but given that they yield benefits over an individual's lifetime they might more appropriately be counted as investment spending. If they were, that would raise the measured saving rate.

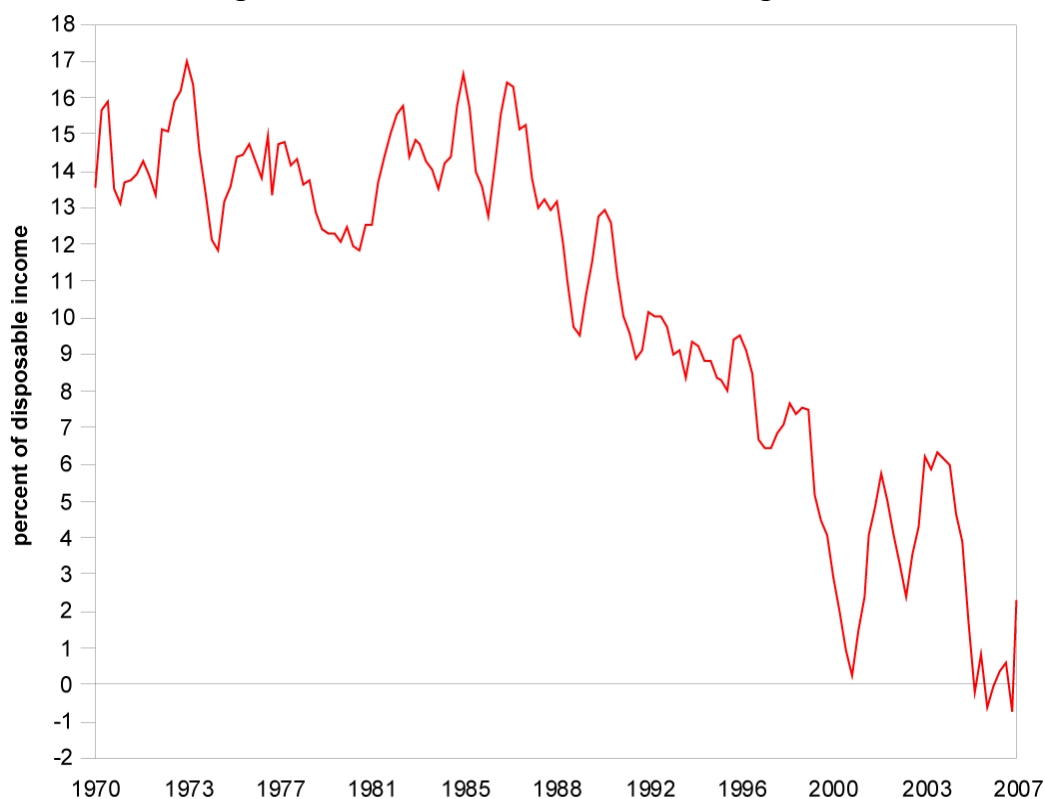
An Alternative Measure

The Board of Governors of the Federal Reserve Board (Fed) publishes an estimate of household saving that differs somewhat from the one published by BEA. The BEA estimate of household saving is calculated by subtracting consumption expenditures from income. In contrast, the Fed estimate is based on a balance sheet for the household sector. When households save, it shows up in the Fed's flow of funds accounts as an increase in household net worth. The gross increase in household net worth is the sum of the net acquisition of financial and tangible assets minus the net increase in household liabilities.

Using net acquisition of tangible assets to measure saving means that not only is investment in housing included in the flow of funds measure of saving, but also net investment in consumer durable goods. Since consumer spending on durable goods is substantial, including it in the flow of funds measure of saving means that the Fed's estimate of household saving is usually higher than BEA's estimate. **Figure 2** shows the household saving rate from the flow of funds accounts including the net increase in household durable goods. The alternative Fed measure shows the same steady decline in the household saving rate beginning in the 1980s as the BEA measure. But instead of falling from about 10% to below zero, the Fed measure shows a decline from about 14% to about zero.

Accounting for net investment in consumer durables as saving is entirely appropriate given that saving is defined as income less consumption. But when policymakers express concern about the low saving rate the distinction between the Fed measure and the BEA measure may not be very significant. The public policy concern over low household saving is one related to retirement saving, and investments in automobiles and household furnishings are not likely to be a source of income for retirees. What is significant is that the independent measures both show that household saving has fallen to very low historical levels.

⁴ Marshall B. Reinsdorf, "Alternative Measures of Saving," *Survey of Current Business*, September 2004, pp. 17-27.

Figure 2. Flow of Funds Household Saving Rate

Source: Board of Governors of the Federal Reserve System.

Who Saves?

The saving rates depicted in **Figure 1** and **Figure 2** are averages. But not everyone saves at the same rate and it might be more informative to have an idea of how saving rates vary across households, by income in particular. **Table 1** presents data on saving by quintile of income. The lowest quintile represents the bottom 20% of the income distribution, the second quintile represents the second lowest 20% in the distribution, and so on. The figures in the first row show saving rates.⁵ They are derived from data from the 2006 Survey of Consumer Expenditures, published by the Bureau of Labor Statistics. The figures in the second row are taken from the 2004 Survey of Consumer Finances published by the Board of Governors of the Federal Reserve System.⁶

Both sets of numbers indicate that those at the upper end of the income distribution account for most saving. On average, they save at a higher rate than those lower in the distribution, and a larger proportion of them save. Given that the overall saving rate is close to zero, the saving of those at the upper end of the distribution is about equal to the dis-saving of those at the bottom of the distribution.

⁵ These saving rates should not be taken as precise estimates. They are derived by subtracting expenditures from income as reported in a survey. If the estimates of income and expenditures are biased in opposite directions then there could be considerable error in the resulting saving estimate.

⁶ This survey is conducted every three years.

Table 1. Saving by Income Quintile

	Income Quintile				
	Lowest	Second	Third	Fourth	Fifth
Saving as a percent of aftertax household income (2006)	-104.7	-14.7	5.4	18.7	33.6
Percentage of families that saved (2004)	34.0	43.5	54.4	69.3	79.2

Sources: Department of Labor, Bureau of Labor Statistics; Board of Governors of the Federal Reserve System.

Household Saving and Retirement

The standard model of consumer spending used in economic analysis makes the basic assumption that consumers seek to avoid large swings in their living standards over the course of their lifetimes. Thus as incomes rise and fall both in the short and long term, individuals are expected to vary their saving rate in order to minimize the effect on their consumption.

Typically, over the course of an individual's lifetime, income has a tendency first to rise over the course of a career, and then fall in retirement. The model of saving based on this "life cycle" presumes that, in order to dampen the effects of the lifetime income cycle on consumption and living standards, individuals vary the rate at which they save. Saving will thus tend to be relatively higher during their peak earning years, and lower at the beginning of their careers and during retirement.

From an economic perspective, there is no "ideal" saving rate. The rate at which an individual saves is, for the most part, simply a reflection of his willingness to consume less now in order to be able to consume more in the future. Taking the life cycle model as a guide, however, prudent individuals might be expected to save enough to avoid a substantial decline in their living standard on retirement.

If consumers do seek to maintain a fairly stable level of consumption over their entire lives, then the level of consumption at any given point in their lives will depend on their current wealth and some expectation about their earnings over the rest of their lives.⁷

There are a number of implications that follow this model of consumer behavior. One is that an unexpected one-time income windfall is more likely to be saved than spent. A rise in income that is temporary is less likely to raise consumption than one that is permanent as long as consumers seek to maintain a relatively constant standard of living. A permanent increase in income is more likely to induce an increase in consumption, so that the saving rate will be less affected. Similarly, an increase in overall wealth raises consumption possibilities over the long run. An increase in wealth that is believed to be permanent will tend to raise consumption. Unless there is a corresponding increase in income, an increase in wealth is likely to reduce the measured rate of saving.

Consumption is ultimately constrained by income and wealth. An increase in wealth increases potential lifetime consumption and diminishes an individual's incentive to save. The effect of an

⁷ To the extent that consumers can borrow against future income, that enhances their ability to maintain a fairly steady level of consumption over a long period of time.

increase in wealth on consumption and saving may depend on a number of variables. Most important, if the life cycle model is correct, only a fraction of any increase in wealth would affect current consumption because any rise in consumption would be spread out over one's remaining lifetime. Some increases in wealth may not be viewed as permanent as might be the case with assets whose prices tend to be highly variable. If there is uncertainty about the permanence of an increase in wealth then it is less likely to affect consumption and saving. In addition, a strong desire to leave a bequest may dampen the influence increasing wealth has on consumption.

Numerous studies of wealth and consumer spending have been conducted. Empirical estimates of the magnitude of the effect of changes in wealth on consumption vary, but they tend to be fairly small. The estimates suggest that for each additional dollar of wealth, consumption spending tends to rise by anywhere from 1 cent to 7 cents.⁸

Equity Prices and Personal Saving

One of the most striking aspects of the economic expansion of the 1990s was the dramatic rise in equity prices. Between 1991, the beginning of the expansion, and 2001, the year it ended, the Standard and Poor's index of 500 stock prices rose by 217%, the Dow Jones Index rose by 247%, and the NASDAQ stock price index increased by 313%. Given the model of saving behavior described above, it seems reasonable to suppose that those increases in equity prices had something to do with the coincidental decline in the personal saving rate.

A number of studies have found that the decline in the personal saving rate during the 1990s was due at least in part to the rise in equity prices. Lusardi, Skinner, and Venti found that between one-half to two-thirds of the decline in the personal saving rate was attributable to the effect of wealth gains on consumption spending.⁹ They also point out that because of rising equity prices, firms were able to reduce their contributions to defined benefit retirement plans and still keep those plans fully funded. Pension benefits could be paid out of the capital gains of the pension fund. That tended to reduce a component of personal income (employers' contributions to pension funds) without reducing consumption and thus contributed to the decline in the saving rate.

Maki and Palumbo analyzed the drop in saving of the 1990s and found that almost all of it could be attributed to the performance of the stock market.¹⁰ Moreover, they found that those households with the highest incomes experienced the largest gains in wealth and also the largest declines in saving rates. In fact, they found that, between 1992 and 2000, almost all of the decline in the aggregate personal saving rate can be attributed to reduced saving of those households in the top 20% of the income distribution. They also found that the saving rate of those households in the bottom 40% of the income distribution actually rose over the same period.

⁸ See Martha Starr-McCluer, "Stock Market Wealth and Consumer Spending," Finance and Economics Discussion Series, 1998-20, Board of Governors of the Federal Reserve System, April 1998, 21 pp. Also, Congressional Budget Office, *The Economic and Budget Outlook: An Update*, August 1998, p. 19.

⁹ Annamaria Lusardi, Jonathan Skinner, and Steven Venti, "Saving Puzzles and Saving Policies in the United States," National Bureau of Economic Research, Working Paper 8237, April 2001, 52 pp.

¹⁰ Dean M. Maki and Michael G. Palumbo, "Disentangling the Wealth Effect: A Cohort Analysis of Household Saving in the 1990s," Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series, 2001-21, April 2001, 38 pp.

It seems both theoretically and empirically clear that the large increase in equity prices of the 1990s likely had something to do with the decline in the measured rate of personal saving. If the drop in saving was simply a response to the increase in asset values, then households at the end of the 1990s were not necessarily any less well prepared for the future than if stock prices had not risen so rapidly and the saving rate had not fallen. In this sense existing measures of personal saving may not be very good guides to the extent to which individuals are preparing for retirement or the proverbial rainy day.

Because capital gains can contribute just as much as saving to a household's retirement nest egg, it might be appropriate to include them in any measure of retirement saving. After all, the aim of saving for retirement is to accumulate enough wealth to be able to continue, in retirement, the lifestyle to which one has become accustomed during one's working life. Gale and Sabelhaus have calculated what the saving rate might have been if capital gains were included in the current measure of personal saving.¹¹ They found that, after adjusting for inflation, household wealth rose at least as rapidly in the late 1990s as at any time since 1960.

Until the end of 2000, this explanation for the decline in the saving rate was widely accepted. But subsequent developments suggested that stock price movements alone are insufficient to explain the downward trend in household saving.

House Prices and Saving

The stock market peaked in the second half of 2000. Between September 2000 and October 2002, the S&P 500 index of stock prices fell by 46%. Since then, stock prices have recovered, but they remained slightly below the 2000 peak at the beginning of 2008. Even though the stock market boom ended, the household saving rate continued to decline.

Much of the wealth gain due to the equity appreciation of the 1990s endures, but it was the appreciation that allowed households to accumulate wealth without saving out of current income. If rising equity prices in the 1990s are the explanation for declining household saving, then household saving might have been expected to rise when the stock market declined during 2001 and 2002. But that did not happen.

The fact that household saving continued to be anemic even after the stock market cooled suggests that there are other factors that need to be considered. One candidate is the boom in the housing market. Since late 1997, the price of housing has risen rapidly relative to prior years. Between late 1997 and late 2007, the house price index published by the Office of Federal Housing Enterprise Oversight (OFHEO) doubled.

There are reasons it might seem less likely that an increase in the value of houses would have the same effect on household saving behavior as equity price appreciation. An increase in house prices increases the wealth of current homeowners, but it also increases the cost of housing. For renters, that might result in a reduction in saving in order to pay increased rents. For many homeowners, an increase in housing wealth may simply translate into an increase in consumption of housing, rather than spending more for other goods and services. In that case, an increase in housing prices would be unlikely to show up as a reduction in saving out of current income.

¹¹ William G. Gale and John Sabelhaus, "The Savings Crisis: In the Eye of the Beholder?" *The Milken Institute Review*, Third Quarter 1999, pp. 46-56.

Another consideration is that some savers may have a bequest motive for saving. In other words, they save more than is necessary for their own well-being in retirement in order to be able to pass some wealth on to their children. A permanent increase in the price of housing now would also increase its cost for future generations. Presumably, many of those for whom the bequest motive is important would increase their desired bequest to compensate for the higher cost of housing.

It may also be more difficult for homeowners to consume any of the gains from house price appreciation. Transaction costs in the housing market are significantly higher than they are in equity markets, although homeowners may be able to borrow against any gains they have. It has also been suggested that because of the perceived illiquidity of housing wealth homeowners have no expectation of being able to consume out of capital gains in housing.

A number of studies have found that the effect on saving of asset price appreciation depends on the kind of asset. For example, Juster, et al., found that for each \$1 increase in wealth, household spending rose (saving fell) by about 3 cents.¹² But they also found that the effect of asset price appreciation on spending depended on the type of asset. They found that household spending was much more influenced by gains in equity wealth than was the case for any other type of asset.

The authors found a large effect on saving of appreciation in stock prices, as much as 19 cents for each dollar gain in equity wealth. But the effect of house price appreciation was much smaller. The effect of a \$1 increase in housing wealth was a 3 cent drop in saving, but the estimate was not statistically significant. While the increase in equity prices during the 1990s may explain the drop in household saving, this study suggests the rise in house values is an unlikely reason for the saving rate's continued decline.

Other studies, however, have suggested that housing price appreciation may have had a significant effect on household saving. Belsky and Prakken found that in the long run, the effects on household saving of house and equity price variations were similar.¹³ They also found that house price appreciation had a more immediate effect and that the effect of equity price appreciation took longer to be fully reflected in the saving rate. The authors suggested that may be because historically equity prices have been more volatile than house prices, and so households may be more confident in the durability of house price gains. The authors also indicated that the strong effect of the post-2000 boom in house prices may have been partly due to the simultaneous decline in interest rates which encouraged homeowners to refinance as well as borrow. They left open the question of whether, in other circumstances, house price appreciation would have the same effect on household saving.

Case, et al., did a cross-country and cross-state comparison of changes in both housing and equity wealth and the effect on household spending.¹⁴ They found that increases in housing wealth had a greater effect on household spending (and, hence, saving) than increases in equity wealth. They also found evidence that the correlation between increases in housing wealth and spending

¹² F. Thomas Juster, Joseph P. Lupton, James P. Smith, and Frank Stafford, *The Decline in Household Saving and the Wealth Effect*, Board of Governors of the Federal Reserve System Working Paper 2004-31, June 2004, 17 pp.

¹³ Eric Belsky and Joel Prakken, "Housing's Impact on Wealth Accumulation, Wealth Distribution and Consumer Spending," National Association of Realtors National Center for Real Estate Research, 2004, 26 pp.

¹⁴ Karl E. Case, John M. Quigley, and Robert J. Shiller, "Comparing Wealth Effects: The Stock Market versus the Housing Market," Institute of Business and Economic Research, University of California, Berkeley, Working Paper W01-004, 2005, 32 pp.

increased after 1986 when tax law changes made it more advantageous for households to borrow against home equity.

Benjamin, et al., found that changes in real estate wealth had a greater effect on spending and saving than variations in financial wealth.¹⁵ The authors found that for each \$1 increase in real estate wealth household saving would fall by 8 cents, while for each \$1 increase in financial wealth household saving would fall by just 2 cents. They suggest that the effect of variations in financial wealth might be smaller because much financial wealth is tied up in pension and insurance funds and gains are not easy to withdraw. They also point out that financial wealth is concentrated and that some financial asset holding may represent controlling interests in businesses and thus not readily liquidated.

Although there are reasons to think that housing price appreciation might not be a substitute for saving, the empirical studies, while not quite amounting to a consensus, found evidence to suggest that it might. The recent decline in house prices might begin the pose a problem if it proves to be more than temporary and there is no offsetting increase in household saving.

Other Considerations

In addition to equity and housing price appreciation, the recent sharp rise in energy prices has also been offered as an explanation for some of the decline in household saving.¹⁶ But if energy prices do not decline from recent highs that explanation does not alleviate concerns for the long run.

Accounting issues have also been suggested as possible reasons for the decline in measured saving. In particular, the fact that stock repurchases are not counted as part of personal income may have caused both income and saving to be understated. There has been an increase in stock repurchases in recent years.¹⁷

Clearly, there is no shortage of potential explanations for the decline in household saving. A recent study published by the St. Louis Federal Reserve Bank reviewed all of the potential explanations and came to the conclusion that while each of them may have its merits, none of them is compelling and that much of the decline in saving remained a puzzle.¹⁸

Are Households Saving Enough?

Even if the decline in the saving rate could be explained, it does not answer the question of whether Americans are saving enough, or accumulating enough wealth, to avoid experiencing a decline in their living standard in retirement. One study attempted to estimate how much

¹⁵ John D. Benjamin, Peter Chinloy, and G. Donald Jud, "Real Estate Versus Financial Wealth in Consumption," *Journal of Real Estate Finance and Economics*, vol. 29, no. 3, 2004, pp. 341-354.

¹⁶ Charles Steindel, "How Worrisome Is a Negative Saving Rate?," Federal Reserve Bank of New York, *Current Issues in Economics and Finance*, May 2007, 7 pp.

¹⁷ Ibid.

¹⁸ Massimo Guidolin and Elizabeth A. La Jeunesse, "The Decline in the U.S. Personal Saving Rate: Is It Real and Is It a Puzzle?," Federal Reserve Bank of St. Louis *Review*, vol. 89, no. 6 (November/December 2007), pp. 491-514.

households should be setting aside in order to maintain their living standards into retirement.¹⁹ Using a retirement planning financial model and data from a survey of the financial status of households approaching retirement, it was found that low-income households (those with incomes below \$15,000) needed to save only about 1% of their income. But that assumed that there would be no cuts in Social Security benefits. When it is assumed that Social Security benefits are cut by 30% in 15 years, the desired saving rate rises to 6%.

Households that have higher incomes need to save at higher rates if they are to avoid a decline in their living standards on retirement, because Social Security benefits will account for a much smaller share of their retirement income. The desired saving rate for those households with incomes between \$15,000 and \$100,000 was about 14%, but rose to about 20% when it was assumed that future Social Security benefits would be cut.

Conclusion

The drop in personal saving that occurred over the past 15 years may not be as troubling as might first appear, at least with respect to retirement planning, for several reasons. The decline in personal saving coincided with large increases in equity values and housing wealth. When changes in personal wealth are taken into account, the decline in the official saving measure may be less of an issue, although there will always be concerns about the durability of any gains in asset prices. With respect to the household sector's contribution to total national saving, that has clearly fallen. Meanwhile investment spending has risen relative to gross domestic product (GDP), in spite of the decline in personal saving, due to the increase in capital inflows from abroad. Some of the productivity gains likely to result from that increased investment, however, will benefit foreign rather than domestic investors.²⁰

While the low saving rate may not pose an immediate economic risk, there could be significant consequences if it persists. Households apparently felt a diminishing need to save out of current income during the 1990s because of the large increase in stock prices. Stock prices have since declined, but house price appreciation seems to have encouraged households to save even less.

An additional consideration is that the large federal government surpluses of the late 1990s have now evaporated. For the immediate future, the federal government will continue spending more than it is taking in, which means that the public sector saving rate will be much lower than it was in the late 1990s. Without an increase in household or business saving, either investment spending must fall, or the United States will have to continue importing substantial amounts of capital from abroad.

If foreigners were to reduce or stop their investments in the United States, then the decline in demand for U.S. financial assets would cause their prices to fall and interest rates would rise. Without an offsetting increase in domestic saving, the rise in interest rates would be likely to result in a decline in domestic investment.

¹⁹ B. Douglas Bernheim, Lorenzo Forni, Jagadeesh Gokhale, and Laurence J. Kotlikoff, "How Much Should Americans Be Saving for Retirement?," Federal Reserve Bank of Cleveland Working Paper 00-02, January 1999, 13 pp.

²⁰ See CRS Report RL33140, *Is the U.S. Trade Deficit Caused by a Global Saving Glut?*, by Marc Labonte.

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