

Household saving and wealth accumulation in the U.S.

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U.S. personal saving - the difference between after-tax personal income and consumer outlays - turned negative in the second quarter of 2005 and stayed below zero through year end. Thus, the personal saving rate (the percentage of income saved) also turned negative (Chart 1). For 2005 as a whole, the numbers available in mid-2006 show a personal saving rate of -0.4 percent. This is a substantial reduction from the low 1999-2004 average of 2.2 percent, significantly below the 1993-1998 average of 4.6 percent, and very far away from the 1950-1992 norm of 8.6 percent.

These remarkably low levels of personal saving look worrisome. Negative saving would appear to suggest growing indebtedness and, perhaps, ultimately, a decline in living standards as the people of the nation tighten their belts to pay off their debts. Nonetheless, despite the plunge in saving, household wealth has grown steadily since the start of 2003, suggesting that immediate concerns are minimal. However, concerns about the ultimate implications of low saving for household well-being remain.

Such concerns are understandable. However, a systematic investigation suggests many worries can be alleviated, though not eliminated:

1. Given the historic record of revisions in the personal saving rate, it is not altogether clear that the 2005 figure will stay negative.
2. Even if the personal saving rate was truly negative in 2005, it appears that much of the recent drop may reflect the rather arbitrary exclusion from personal income and saving of certain transfers from corporations to shareholders. An alternative computation of the personal saving rate finds that it remains positive, though quite low.
3. As noted, aggregate household wealth has been on a strong uptrend, despite the low reported levels of personal saving. Historically, personal saving flows have played only a small role in household wealth formation, and the link between broader saving measures and wealth formation has not historically been that robust. It is possible that significant components of asset accumulation are omitted from the U.S. saving and investment data; moreover, capital appreciation has long played a significant role in household wealth formation.

The balance of this paper will describe the personal saving concept, discuss alternative concepts of personal saving, and sketch the connection between various saving measures and household wealth accumulation.

Basics of the personal saving measure

As mentioned above, personal saving is defined as the difference between after-tax personal income and personal outlays (personal outlays are somewhat broader than personal

¹ Thanks to Bart Hobijn and Kevin Stiroh for helpful comments, Carol Corrado for data, and Cartier Stennis and Kieran Walsh for research assistance. All comments in this paper represent the views of the author only and not necessarily those of the Federal Reserve Bank of New York or the Federal Reserve System.

consumption expenditures, also encompassing personal transfer payments to foreigners and personal interest expense). This definition is less transparent than it appears because income is rather arbitrarily defined. In particular, income does not include any capital gains, either accrued or realized, even when such gains can (in principle) be attributed to corporate retention of earnings. This arbitrariness is accentuated when it is realized that, as noted by Peach and Steindel (2000), taxes paid on realized capital gains are subtracted from pre-tax income to compute the after-tax series. Moreover, noncorporate business and other entities - non-profit institutions, and fiduciaries such as pension funds - are considered to be part of the household sector. Their income and saving (if any) is included in the personal income and saving data. The inclusion of accumulation by fiduciaries in the saving numbers means that all contributions, by employers and employees, to all pension plans (public and private, defined benefit and defined contribution), are counted in personal saving.²

An alternate view of personal saving comes from examination of household investment flows. Personal saving is used to invest in financial or tangible assets. In principle, one can observe how personal saving flows enter into the asset accumulation and borrowing process, and even derive an alternative estimate of personal saving from the asset purchase and borrowing data compiled in the Flow of Funds Accounts produced by the Federal Reserve's Board of Governors. In practice, there are often very large differences between these independent observations of personal saving.³

Personal saving data can be subject to substantial revision. Early readings on the personal saving rate for the mid- and late 1970s were quite low. After a number of rounds of revisions, by the mid-1980s the numbers suggested that this was a period with a rather high personal saving rate (see Chart 2). While subsequent years have not seen such dramatic upward revisions, this experience suggests a certain caution about drawing inferences from the currently reported negative saving rate for 2005. The negative figure might not be there after revision.⁴

Conceptual limitations of the personal saving measure and the recent drop

The personal saving measure is intrinsically connected to the concepts of income and expenditure used in its computation. It is not at all certain that the concept of after-tax income used correctly measures household income. There are significant difficulties connected to the treatment of income realized by corporate shareholders. As noted, one oddity is that taxes paid on capital gains realizations (many of which stem from sales of corporate stock) are viewed as reducing income, even though the gains themselves are not counted in the

² Until the 2003 benchmark revision of the National Income and Product Accounts contributions to Federal employee pension funds were not included in personal saving. Instead, these contributions were credited to government saving. The revision meant that the historic data on personal saving was boosted modestly, and the historic data on government saving was reduced.

The Bureau of Economic Analysis intends to release historic annual data on saving by non-profit institutions. This paper will follow the usual practice and discuss saving and wealth accumulation for the more broadly defined household sector, including non-profit institutions.

³ These statistical discrepancies can be enormous. As currently reported, household purchases of assets (less borrowing) in 2003 was \$155 billion larger than can be accounted for by the currently-reported figure for personal saving, while in both 2004 and 2005 household purchases of assets (less borrowing) was more than \$100 billion smaller than the personal saving numbers would suggest. If these recent discrepancies were included in personal saving, the personal saving rate would have been even more negative in 2005.

⁴ Garner, 2006, discusses revisions to the saving rate and other conceptual issues connected with the measure.

pretax income data. A portion of the observed decline in personal saving in the late 1990s could be attributed to increased realizations of capital gains and increased payments of capital gains taxes, rather than to any fundamental change in household thrift or attitudes toward wealth accumulation (obviously, anybody who realizes a capital gain has the resources to pay the tax).

More germane to the recent decline in personal saving have been changes in corporate payments to shareholders. These payments may be viewed as “dividends” or “share repurchases.” For tax reasons it is important to make this distinction (the tax implication of a capital gain or loss from a share repurchase can be quite different from that resulting from a dividend payment). Some models of corporate valuation also distinguish between these payments (management may be more reluctant to change dividends than to change the scale of share repurchases; thus the payment of a dividend might be viewed as a signal of increased managerial confidence in a corporation’s prospects⁵). The U.S. National Accounts regard dividend payments to household, fiduciary, and non-profit shareholders as part of personal income; the repurchase of shares from the same parties is not included in personal income (even though, as has been noted, these distributions may result in a taxable capital gain).

The somewhat artificial distinction drawn between dividends and share repurchases in the construction of personal income and saving may normally be viewed as a minor curiosity, but there is one recent reason to focus on it: The volume of net share repurchases (issuance less repurchases) by non-financial corporations has recently increased exponentially, rising from \$42 billion in 2002 to \$359 billion in 2005. The magnitude of the increase has been such that it is worth discussing some of the factors at work, and the potential implications of these payments for household behavior.

While the upswing in corporate share repurchases started a few years ago, the surge in 2005 was particularly noticeable. A 2004 tax law provided for a temporarily reduced rate of taxation for a U.S. corporation’s receipt of dividends from foreign subsidiaries. This lower rate was only effective for calendar years 2004 or 2005 (at the corporation’s choosing). Thus, there was a sharp incentive in those years for corporations to recognize undistributed earnings in foreign subsidiaries as dividends paid to the U.S. parent.

The parent corporations had several options available once these foreign source dividends entered their books (it should be kept in mind that these are accounting transactions - corporations essentially shifted the reported distribution of their equity capital from foreign to domestic subsidiaries). Two options - accelerating capital spending in the U.S., and boosting domestic dividends - apparently were not taken to any marked extent. The common timing suggests that many corporations offset the increase in their reported equity capital by repurchasing stock. In other words, the inflow was distributed to shareholders, but not directly in the form of higher dividends.

Looking beyond any special factors that may have influenced the actual volume of share repurchases, there are some issues involved in accounting for these transactions in the household saving and investment data. If share repurchases were viewed as equivalent to dividends, and counted in personal income, some further adjustment would be needed in the household investment data in the flow of funds. There is no suggestion that fundamental household investment flows or allocations would somehow be altered if we changed the aggregate income and investment accounting of share repurchases. Hence, adding share repurchases to income would create a fundamental distinction between the income less expenditure measure of saving and the household investment flow concept. A potential

⁵ There’s always an alternate view: the payment of a dividend might be viewed as a reflection of management’s inability to find a profitable investment opportunity for the funds within the corporation’s sphere of operations.

correction would be to add a series, perhaps labeled “corporate capital transfers to shareholders” to the list of household financial investments in the Flow of Funds and equate these to share repurchases. Doing so would allow the conceptual equation of the two saving concepts to continue. This series could be excluded when examining the sources of household wealth accumulation (which include capital gains as well as investment).

Another objection may arise to viewing share repurchases as equivalent to dividends from a consideration that a repurchase can be seen as a return of capital, while a dividend is a payment out of ongoing income. This argument is that both corporations and shareholders will regard repurchases as fundamentally different from dividends. However, this distinction between dividends and repurchases may be rather arbitrary. For instance, the very large (\$32 billion) special dividend paid by the Microsoft Corporation to its shareholders in December 2004 - which swelled personal income and saving - could well be viewed as a return of capital by another name.

More substantive objections arise from some considerations of the process of share repurchases. In some cases corporations have restructured their balance sheet by offering debt to shareholders in return for equity. Transactions of this type do not result in shareholders directly obtaining cash from corporations, unlike dividends or straight cash repurchases.⁶ Moreover, share repurchases by a corporation in the open market involving a voluntary, arms-length, transaction from an individual shareholder may have different implications for spending behavior than repurchases resulting from tender offers made to shareholders. Unfortunately, there is no easy way to differentiate the different types of share repurchases in the aggregate data.

One simple way to deal with the issue of share repurchases is to consolidate the corporate and household sectors. In other words, view corporations as fiduciaries acting on behalf of their shareholders, and count all corporate profits in personal income. In this treatment, dividends and share repurchases are simply transfers within the private sector. A revised personal saving rate can be constructed after adding undistributed corporate profits to the usual personal income and saving aggregates.

Chart 3 compares movements in this revised saving rate and the usual measure. Before 2003 the transformed saving rate fluctuates very much like the usual one, though at a slightly higher level. Over the past few years, however, the alternative saving rate has been basically flat, compared to the steady drop in the conventional measure. It then seems arguable that the reported plunge of the U.S. personal saving rate to negative territory could, in part, reflect unusual strength in undistributed profits and a shift in corporate payments to shareholders from dividends to share repurchases.⁷ Nonetheless, the tentative nature of the recent numbers on undistributed profits needs to be acknowledged. For instance, there were substantial downward revisions in the numbers initially reported for 1998-2000 (Himmelberg, Mahoney, Bang, and Chernoff, 2004).⁸

⁶ Of course, a corporation may obtain the cash for a share repurchase by issuing debt - but the same could be true for the payment of a dividend.

⁷ Older studies supporting the addition of undistributed profits to personal saving include Feldstein (1973) and Steindel (1977, 1981). The FRB/US model used by the Federal Reserve Board includes undistributed profits as a component of personal property income in its consumption block.

⁸ Another factor that potentially reduced personal saving in recent years has been the increase in energy prices. If households regarded the increase in energy costs as transitory - in other words, they expected prices would soon fall to earlier levels - they may have paid for the increased costs by reducing saving. In other words, they would have sustained their energy usage and purchases of other goods and services, at the expense of increased overall outlays and reduced saving. The concern that arises from this mechanism is that if and when households change their perceptions of future energy costs they might reduce spending on other goods and services (as well as cut back on energy use).

Saving and wealth accumulation

While the inclusion of undistributed profits in saving modifies the recent decline, even this adjusted saving rate is quite low. Nonetheless, wealth accumulation has been rapid in the United States in recent years, reflecting strong growth in home values and the recovery of the equity market. It is clear that over short horizons capital appreciation may dominate saving as a source of wealth accumulation. Over longer horizons, there may be a view that there is a firmer link between saving and wealth accumulation. Holding to this view, a continuation of low saving could ultimately jeopardize U.S. household wealth accumulation.

An examination of the mechanics of wealth accumulation suggests that the longer-term connection to saving is incomplete. If the price of existing assets rises - likely for many assets in periods in which the overall price level is rising - wealth accumulation can be sustained, at least in nominal terms, without strength in saving. If the price of existing assets rises relative to price of currently produced goods and services, wealth can grow in real terms without strength in saving.

The balance of this section will examine the record on the connection between U.S. household saving and wealth accumulation over a number of horizons. A quick look at the data is in Chart 4. The top panel plots cumulated personal saving since 1952, as conventionally measured, against the cumulated increase in household wealth. The bottom panel plots the same two series in chained 2000 dollars, using the personal consumption expenditure price index of the National Accounts as the deflator (Corrado and Steindel [1980] discuss the computation of real saving and wealth accumulation). The very small fraction of wealth accumulation (either in current dollars or in real terms) over the last half-century that can be directly attributed to personal saving is striking.⁹

This exercise does understate the amount of wealth accumulation accounted for by explicit saving. As noted, undistributed corporate profits are not credited to personal saving, though any increases in the value of corporate equity due to the retention of earnings shows up in the wealth data. Moreover, the wealth data includes holdings of consumer durable goods, while purchase of these goods is not included in the saving numbers. It is a straightforward matter to reassign household investment in durables (net of depreciation) and corporate undistributed profits to saving.¹⁰

Charts 5 to 7 repeat the exercise of comparing cumulative nominal and real saving and changes in wealth from 3 vantage points: The periods since 1952, and every 5 and 10 year period ending in each year since 1957 and 1962, respectively. In general, the previous finding holds. Even this considerably broadened measure of saving has generally not accounted for the lion's share of U.S. household wealth formation, even over relatively long horizons such as 5 or 10 years, especially in the last generation.

Although this argument is plausible, it can not account for the entirety of the recent decline in saving. Current-dollar expenditures on energy use increased from 4.6% of after-tax income in 2003 to 5.7% in 2005. This 1.1 percentage point gain, though notable, is less than half of the recent drop in the personal saving rate.

⁹ While the constant-dollar series are expressed in levels, the genuine comparison, which can be deduced by comparing the plotted series, is in terms of ratios - what fraction of the percentage growth of real wealth since 1952 can be accounted for by real saving?

¹⁰ An alternative would be to remove durable good holdings from wealth. This is unattractive, since the purchase of these same goods - motor vehicles, furniture, computers, etc - by businesses is part of investment. In particular, in the usually reported data, household purchases of motor vehicles are included in consumer spending and charged against personal saving. However, household leases of new motor vehicles are counted in the data as investment by the lessor. Treating all household purchases of durables as investment eliminates this anomaly in the data.

Potential sources of the saving-wealth accumulation divergence

The divergence between saving and wealth accumulation in the United States could arise for a variety of reasons. The simplest would be problems in the measurement of saving. In particular, it is arguable that many business expenditures on activities such as R&D, employee training, and advertising should more properly be classified as investment (similar to the reclassification several years ago of software purchases as capital expenditures). Such a reclassification would boost the level of business earnings (corporate profits and proprietors' income) and corporate and personal saving, but would not affect the data on household wealth. Nakamura (2001) has noted the growing importance of investment in intangibles, while Corrado, Hulten, and Sichel (2005) estimate that spending on intangibles is approximately equal to business investment in more conventional physical capital types, and that growth in the associated stock of intangible capital would significantly increase estimates of capital deepening in the U.S. The inclusion of spending on intangibles in saving, net of estimates of depreciation on intangible assets, would boost aggregate saving, and could conceivably help to reconcile the data on saving and wealth accumulation.¹¹

More fundamentally, a close connection between saving and wealth accumulation in the long-run rests on the stability of the prices of existing assets relative to the prices of currently produced goods and services. When we examine the U.S. household balance sheet, taking care to separately present the assets and liabilities of the non-profit and noncorporate sub-sectors (rather than the usual practice of just including their net worth in the list of household assets), it becomes apparent that real estate has traditionally accounted for a disproportionate share of household net worth (Table 1). At many times, more than half of all household wealth has consisted of real estate and typically, with the exception of the stock market peak around 2000, aggregate real estate holdings have been at least twice as large as holdings of corporate equity. At least for the housing portion, the long-run tendency has been for the price of home values to increase relative to consumption goods and services. Chart 8 shows annual movements since the late 1960s in the median price of existing homes sold compared to those of the personal consumption expenditures index. The surge in home prices in the last decade is noticeable, but looking at the long term, what is also striking that in only 5 of the last 37 years has the relative price of homes dropped. The persistent growth in the nominal and relative price of homes (and, to some extent, other types of real estate, whose prices have often moved with housing values) has probably been another factor working to weaken the relationship between saving and household wealth accumulation. It may be the case that the longer-term strength of wealth accumulation relative to saving in the U.S. partly reflects continuing gains on real estate. Fluctuations in this process, and cycles in the stock market, complicate this relationship.

¹¹ The simple addition of the Corrado, Hulten, and Sichel intangible investment data to net saving does not substantially change the view given by Charts 5-7. Their intangible capital series was computed assuming quite high depreciation rates (for instance, 60 percent for advertising, and 40 percent for spending on worker training and other firm-specific resources). Thus, while they report that gross investment in intangibles is comparable to gross investment in tangible goods, net investment in intangibles is considerably smaller than either net investment in tangibles or conventionally reported private sector saving. The upshot is that the inclusion of their estimate of net investment in intangibles in saving still leaves substantive divergences between saving and wealth accumulation.

Robert Hall (2000, 2001) has argued that movements in the accumulation of intangibles can be inferred from stock market movements. At an extreme, such arguments would work to enforce equality of saving (augmented to include accumulation of intangibles) and wealth accumulation.

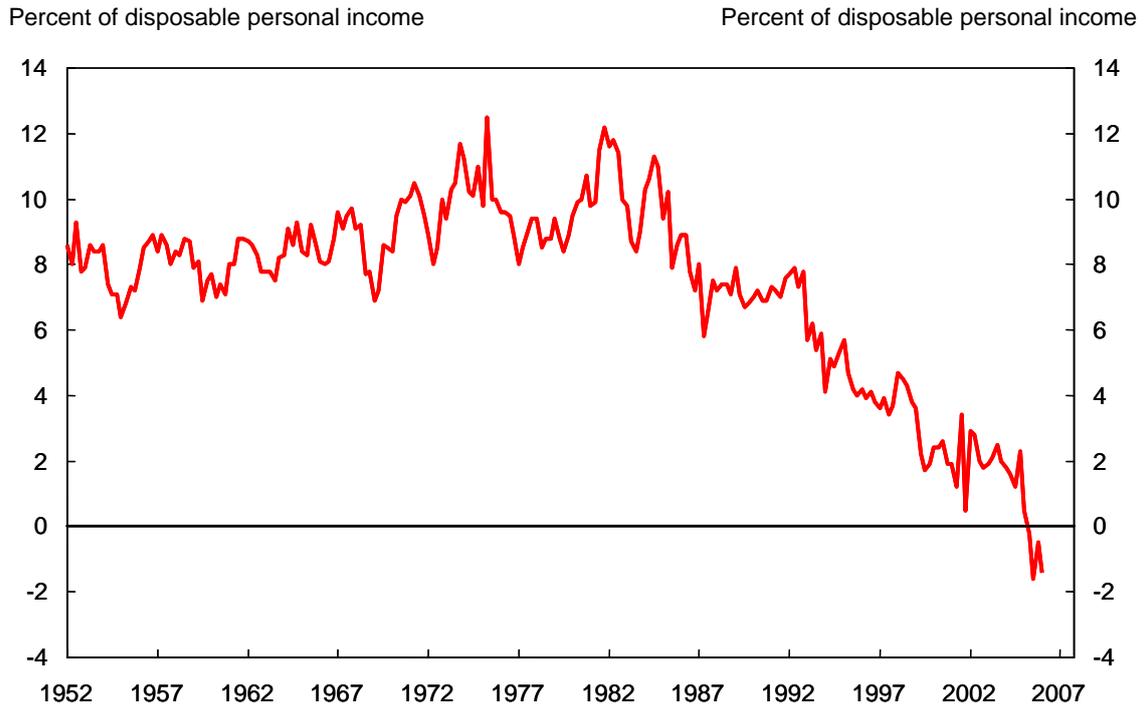
Conclusion

The fall in the reported U.S. personal saving rate to negative values has not prevented recent robust growth in household wealth. It is arguable that the standard U.S. personal saving data understates investment by, and on the behalf of, U.S. households, and that this discrepancy has been unusually large in the past few years. More fundamentally, though, saving, even more broadly, and arguably more accurately, measured to encompass investment in consumer durables and saving by corporations, has not often accounted for a predominant share of U.S. household wealth formation, even at longer-term horizons.

It is possible that broadening the definition of investment and saving to encompass business spending on intangible assets would reduce the discrepancy between saving and wealth formation, especially in an environment where the market valuation of businesses appears to be becoming increasingly sensitive to intangibles (Hall [2000,2001]). Thus, reformulations of the saving and investment accounts in the U.S. to recognize intangible assets could not only help in accounting for economic growth (Corrado, Hulten, and Sichel [2005]) but may shed light on wealth accumulation.

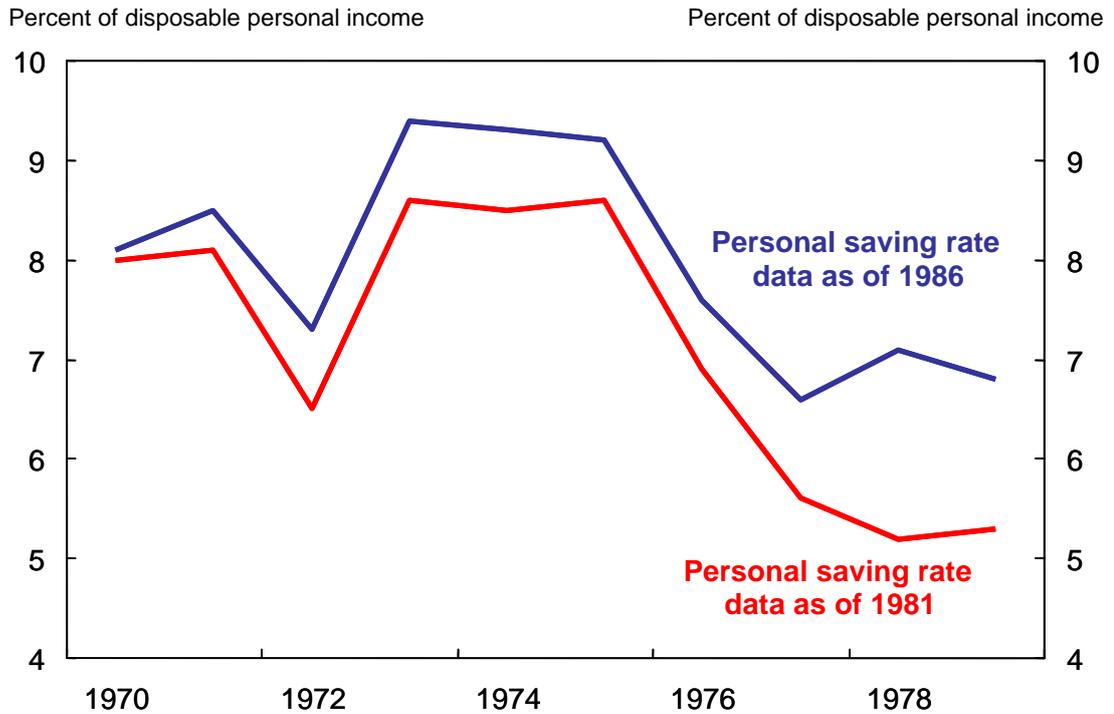
Nevertheless, it is likely that even reformulated data would show that high frequency movements in U.S. household wealth have been dominated by fluctuations in the prices of existing assets, most notably those of corporate equity. Moreover, appreciation in the value of homes and other real estate assets has, apparently, played an important role in U.S. household wealth formation over the long run. Looking at the current situation, if the recent unusually favorable moves in the stock and real estate markets were to falter, U.S. household wealth formation could weaken, even if saving were to strengthen. Likewise, sustained gains in these markets could keep wealth formation robust, even if saving were to remain lackluster.

Chart 1
Personal saving rate



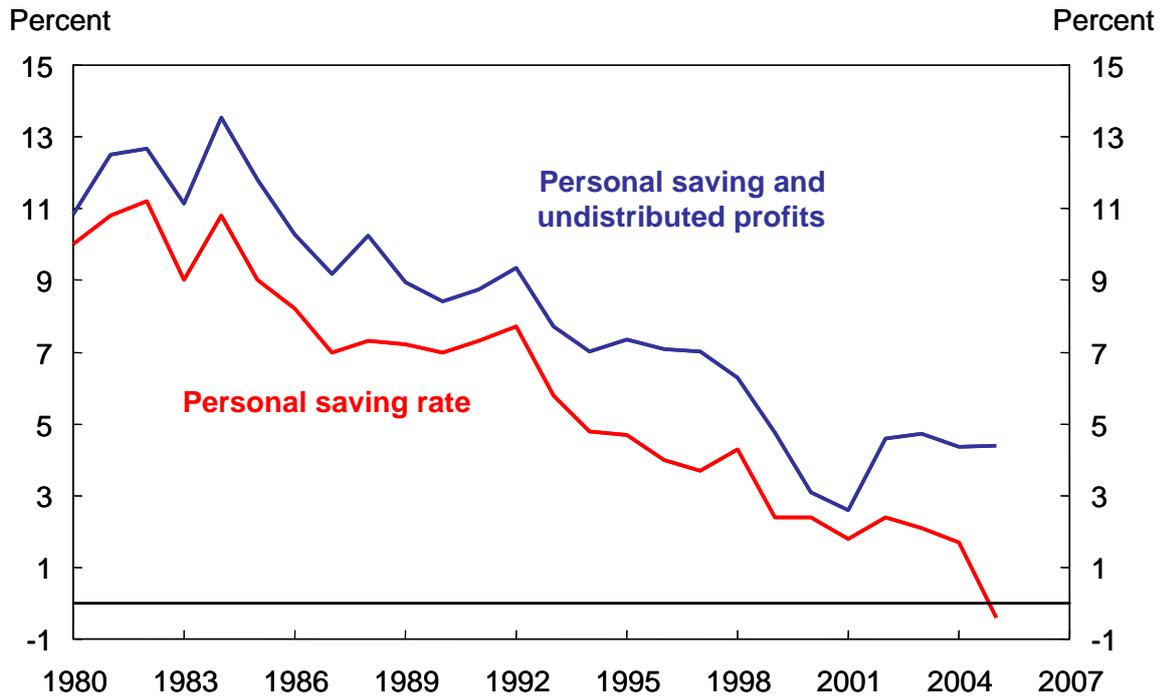
Source: U.S. Bureau of Economic Analysis.

Chart 2
Revisions of 1970s saving data



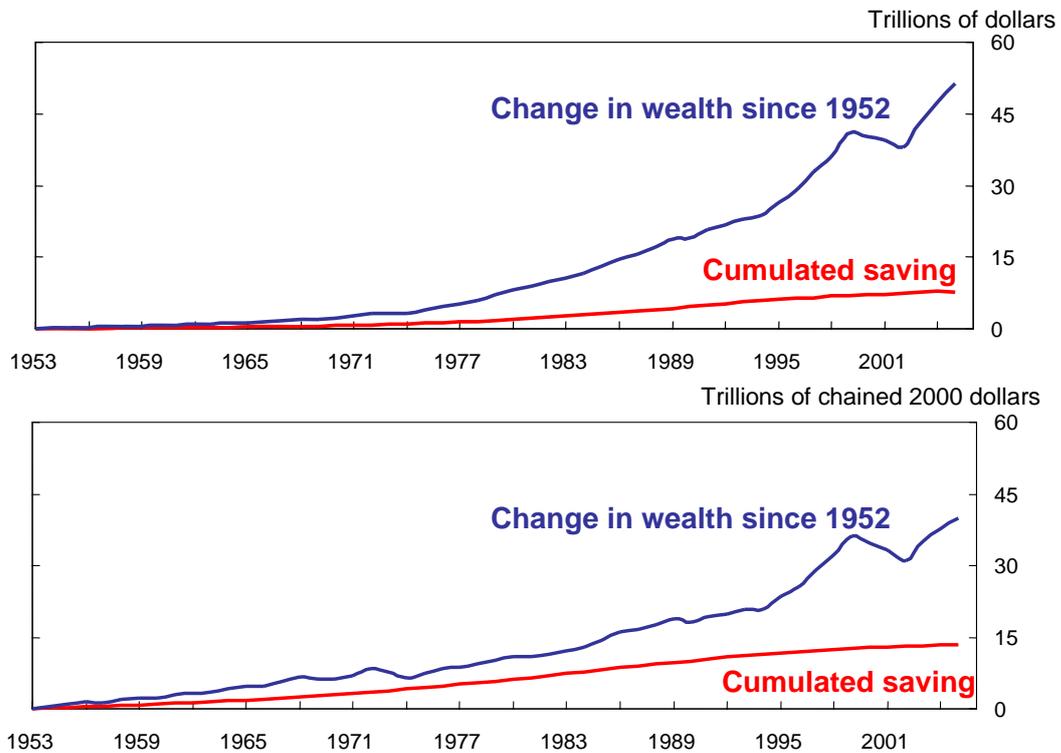
Source: U.S. Bureau of Economic Analysis.

Chart 3
Personal saving rate and undistributed profits



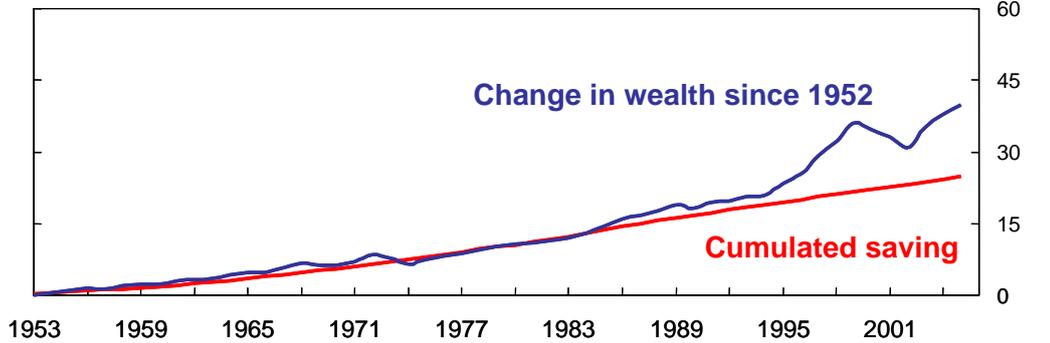
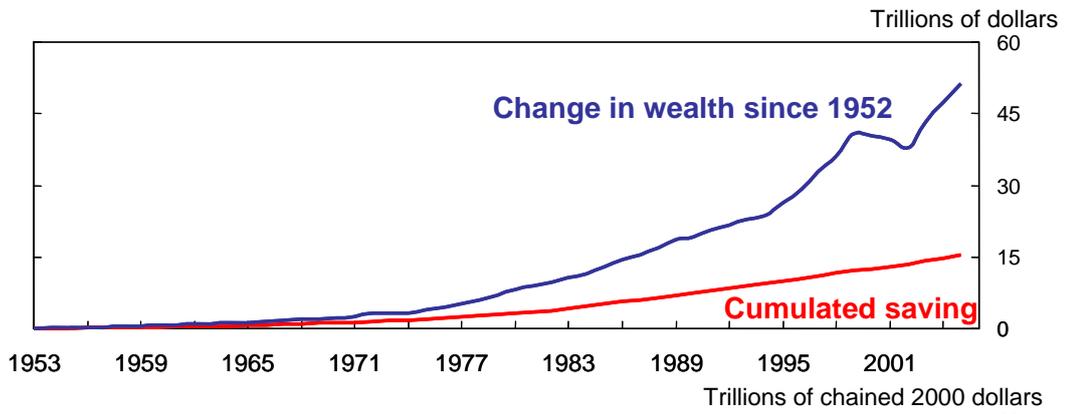
Source: U.S. Bureau of Economic Analysis.

Chart 4
Cumulated personal saving and change in wealth



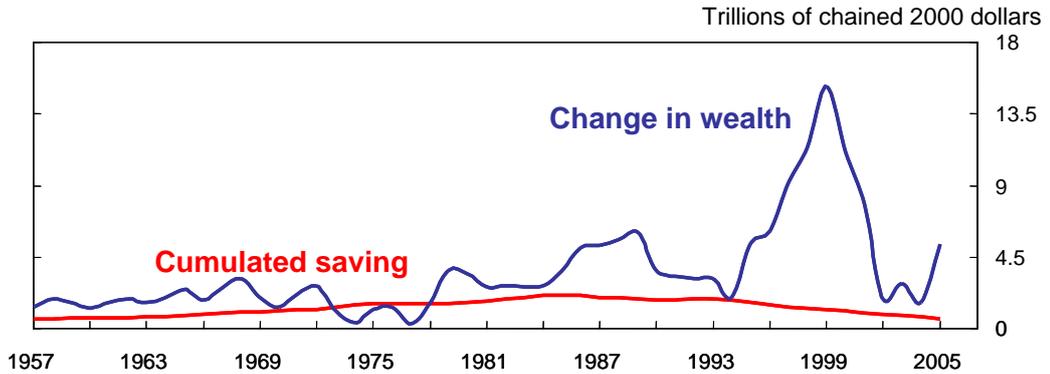
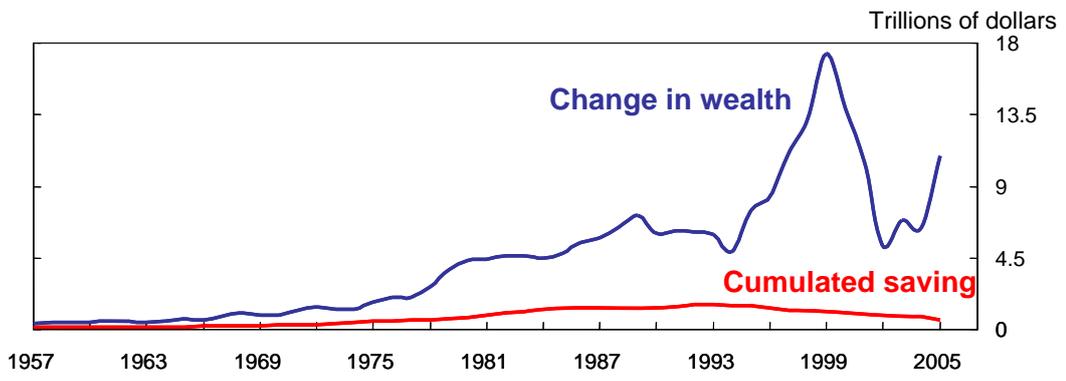
Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 5
Cumulated broadly-defined saving and change in wealth



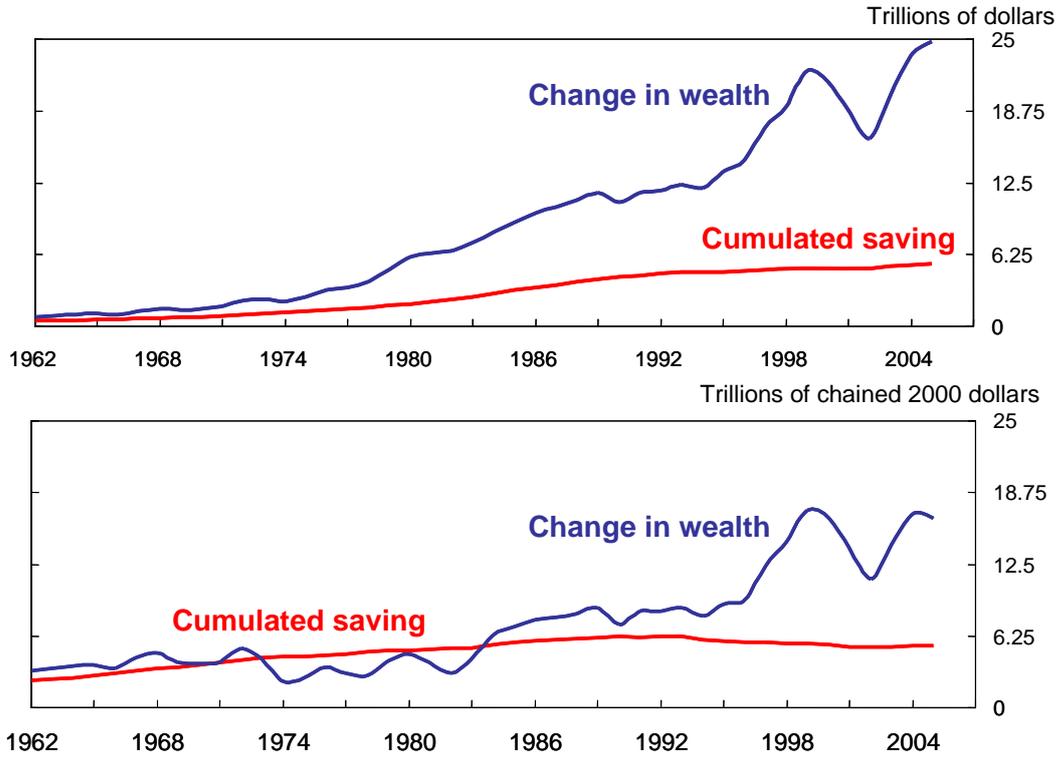
Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 6
Cumulated broadly-defined saving and change in wealth over five-year intervals



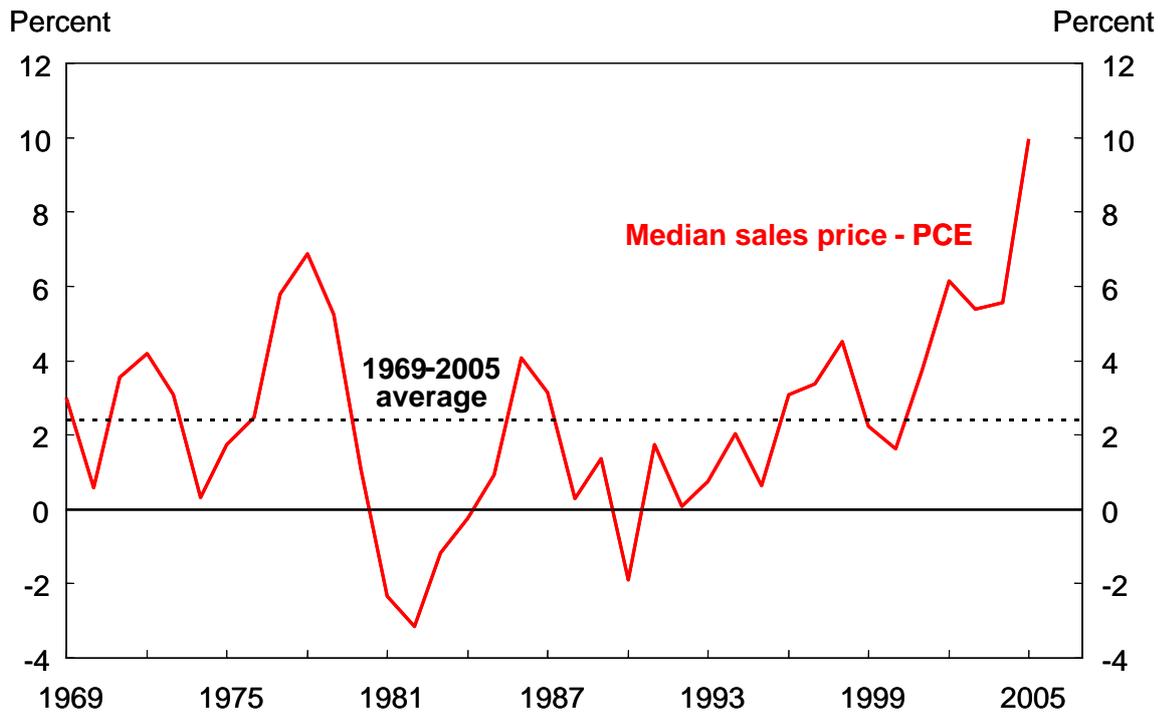
Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 7
**Cumulated broadly-defined saving
 and change in wealth over ten-year intervals**



Source: Federal Reserve Board and U.S. Bureau of Economic Analysis.

Chart 8
**Difference in yearly % change of median sales price
 of existing single-family homes and PCE: chain price index**



Source: Bureau of Economic Analysis and National Association of Realtors.

Table 1
Composition of U.S. household net worth

Billions of dollars

	1960	1970	1980	1990	2000	2005
Real estate						
Household and non-profits	547.8	1025.2	3413.9	7377.4	12631.1	21647.5
Non-farm non-corporate	225.3	445.4	1564.2	3045.1	4562.7	6434.1
Farms	123.3	202.4	782.8	619.1	946.4	1227.1*
Total real estate	896.4	1673	5760.3	11041.6	18140.2	29308.7
Corporate equity	391.7	769.1	1340.1	3124.4	15336.5	14701.3
Total	1849.2	3415.1	9451.1	20239.1	41453.3	52429.8

Percent of net worth

	1960	1970	1980	1990	2000	2005
Real estate						
Household and non-profits	29.6	30	36.1	36.5	30.5	41.2
Non-farm non-corporate	12.2	13	16.6	15	11.1	12.3
Farms	6.7	5.9	8.3	3.1	2.3	2.3
Total real estate	48.5	49	60.9	54.6	43.8	55.6
Corporate equity	21.1	22.5	14.2	15.4	37	28

Source: Federal Reserve Board, U.S. Department of Agriculture. Corporate equity includes holdings of mutual funds and fiduciaries.

*2004 value.

References

- Corrado, C, C Hulten and D Sichel (2005): "Intangible Capital and Economic Growth." October.
- and C Steindel (1980): "Perspectives on Personal Saving." *Federal Reserve Bulletin*, August.
- Garner, C A (2006): "Should the Decline in the Personal Saving Rate Be a Cause for Concern?" Federal Reserve Bank of Kansas City *Economic Review*, vol. 91, no. 2.
- Hall, R E (2000): "E-Capital: The Link Between the Stock Market and the Labor Market in the 1990s." *Brookings Papers on Economic Activity*, no. 2, pp. 73-118.
- (2001): "The Stock Market and Capital Accumulation." *American Economic Review*, vol. 91, no 5, pp. 1185-1202.
- Himmelberg, C P, J M Mahoney, A Bang and B Chernoff (2004): "Recent Revisions to Corporate Profits: What We Know and When We Knew It." Federal Reserve Bank of New York *Current Issues in Economics and Finance*, vol. 10, no. 3, March.
- Feldstein, M S (1973): "Tax Incentives, Corporate Saving, and Capital Accumulation in the United States." *Journal of Public Economics*, vol. 2, pp. 159-171.
- Nakamura, L (2001): "Investing in Intangibles: Is a Trillion Dollars Missing from GDP?" Federal Reserve Bank of Philadelphia *Business Review*, Fourth Quarter, pp. 27-37.
- Peach, R and C Steindel (2000): "A Nation of Spendthrifts? An Analysis of Trends in Personal and Gross Saving." Federal Reserve Bank of New York *Current Issues in Economics and Finance*, vol. 6, no. 5, September.
- Steindel, C (1977): *Personal Consumption, Property Income, and Corporate Saving*. Ph.D. Thesis, Massachusetts Institute of Technology.
- (1981): "The Determinants of Private Saving." In *Public Policy and Capital Formation* (Jared Enzler, William Conrad, and Lewis Johnson, eds.), Board of Governors of the Federal Reserve System.