

The Decline of the U.S. Saving Rate

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Chart 3-1 **Personal Saving as a Percentage of Disposable Personal Income**

The saving rate has declined from 10 percent to a bit below zero over the past 25 years.

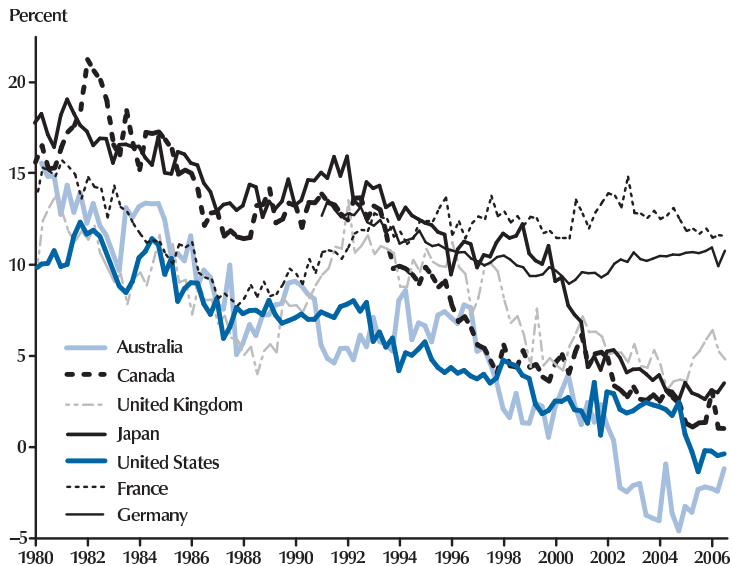
Personal saving, percent of disposable personal income (seasonally adjusted)



Source: Economic Report of the President, 2006.

The U.S. saving rate has declined to zero.

International Evidence



Source: Guidolin (2007)

Questions:

- 1 Why has the saving rate declined?
- 2 Are households not saving enough for retirement?
- 3 Does low household saving reduce investment / growth?

What is the saving rate?

- There are many definitions of saving
- Many do not correspond to what "saving" means in everyday life.
- The details can matter a lot.

- Private saving rate = $\frac{[\text{Personal saving} + \text{Corporate saving}]}{[\text{disposable income}]}$
- Corporate saving:
 - Basically retained earnings (retained profits plus changes in asset values).
- Personal saving = personal disposable income - consumption spending.

- Personal disposable income = personal income - tax payments.
- Personal income = all sorts of labor and self-employment income, rental income, dividend income, transfer income, minus contributions to social insurance.
 - Not included: corporate income, capital gains.

Complications

- Housing:
 - Count imputed rental income of owner-occupied housing as income and as consumption.
 - Count housing investment as saving.
- Durables:
 - Count expenditure as current consumption.
- Private pension plans:
 - Count contributions as saving and dividends / interest as income.
- Public pension plans:
 - Count distributions as income.
 - Do not count contributions or accrued interest.

- **Capital gains** are totally excluded.
- Distinction between personal and corporate saving is pure accounting.

Some identities:

- Investment = [private saving] + [government saving] + [foreign saving]
- Foreign saving = capital account = negative current account.

Saving and the Trade Deficit

Item	1960-69	1990-94	1998	Trend
Gross domestic investment	20.6	16.7	18.9	-1.7
Net investment	10.6	5.3	8.2	-2.4
Personal saving	5.2	3.5	0.4	-4.6
Corporate saving	3.6	2.4	3.6	0
Government saving	2.4	-2.0	2.7	+0.3
Net foreign saving	-0.6	1.0	2.5	+3.1

Gale and Sabelhaus (1999). All figures are percent of GDP.

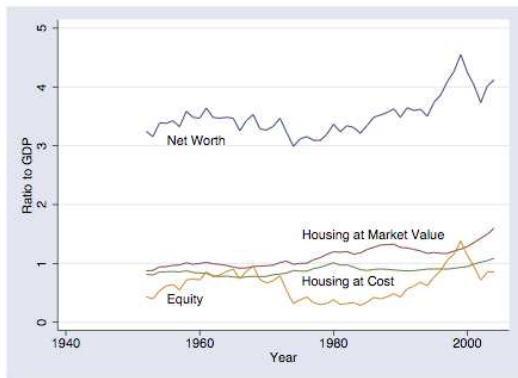
The Trade Deficit

This is what explains the U.S. current account / trade deficit:

- I/Y fell only slightly.
- Private saving fell by 5%.
- Government saving remained the same.
- Foreign saving (capital inflows) have to make up the rest.

The trade deficit has nothing to do with "competitiveness," wages, U.S. productivity.

Household wealth



Source: Backus et al. 2009

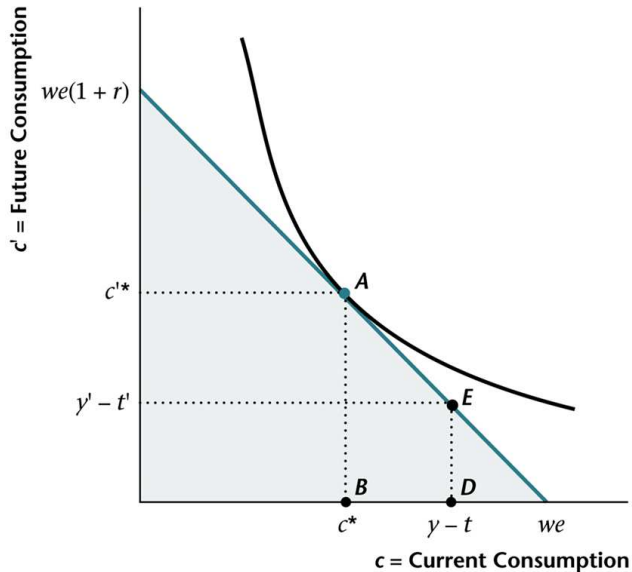
Households do not save, but they are getting richer.

Capital gains are the reason.

Why Did Saving Decline?

Perspective: Lifecycle Model

In the lifecycle model, what determines **individual** saving?



What determines **aggregate** saving?

Health Spending and Redistribution

- Hypothesis (Gokhale et al. 1996): The decline in saving is due to
 - Rising (health) spending of the elderly.
 - Redistribution of resources from the young to the old (transfers: Social Security, Medicare).
- Measure saving as:
 - national saving: $(Y - C - G)/Y = 1 - C/Y - G/Y$
 - household saving $(Y - C - G)/(Y - G)$.

Period	S/Y	G/Y	C/Y	S^P/DPI	Medical C/DPI
1950-59	9.1	21.0	69.9	11.5	3.9
1990-94	2.7	20.7	76.6	3.4	12.8

Source: Gokhale et al. 1996

National and household saving declined dramatically.

The reason is not rising G/Y , but rising C/Y .

All of the increase in C/Y is **medical spending**.

(Actually, somewhat more than all).

Develop an accounting decomposition of changes in S/Y into components:

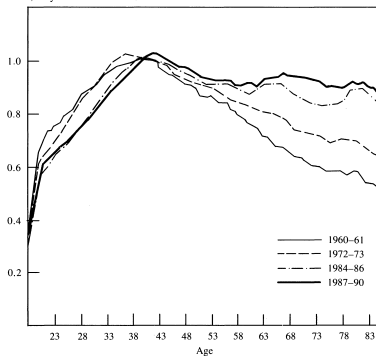
- 1 G/Y .
- 2 Age composition of the population.
- 3 Age profile of disposable income.
- 4 Cohort specific propensities to consume out of resources.
- 5 Total disposable income to income by date.
 - 1 Example: Medicare transfers to the old increase their disposable income.

Decompositions Results

Dramatic increase in relative consumption of the elderly.
No change among the young.

Figure 1. Relative Total Consumption Profiles

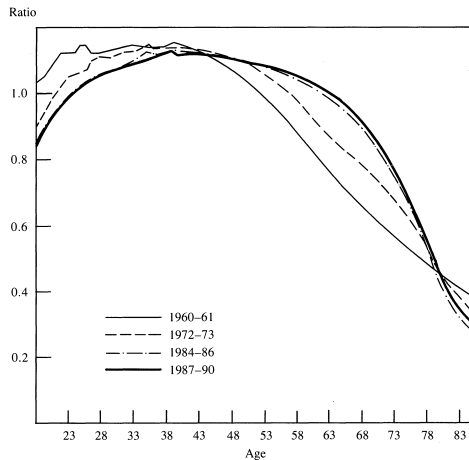
Index, 40-years-old = 1



Source: Gokhale et al. (1996)

The Old Have More Income

Figure 4. Ratio of Cohort Resources Per Capita to Total Resources Per Capita

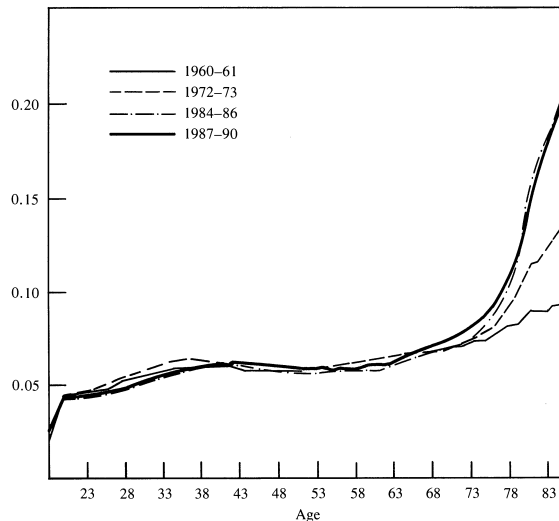


Source: Gokhale et al. (1996)

The old spend more

Figure 9. Average Propensity to Consume out of Total Resources*

Fraction of resources



Source: Gokhale et al. (1996)

- Question: How much larger would S/Y have been, had one factor (e.g. saving rate by age) remained the same as in the 60s?

Decomposition Results

Impose values from 1960-61 for	S/Y	Drop in S/Y	Contribution
$r(i)/r$	5.0	2.9	1.6
$a(i)$	4.9	3.0	1.5
$a(i)$ of the "old" (age 65+)	5.7	2.1	2.4
$a(i)$ of the "young"	2.5	5.4	-0.9
$P(i)/P$	2.4	5.4	-0.9
R/Y	5.9	2.0	2.5
G/Y	3.0	4.9	-0.4
Actual data	3.4	4.5	n/a

Gokhale (1996)

The table shows the contributions to changing S/Y between 1960-61 and 1987-90.

Example: If spending of the old had not changed, the saving rate in 1990 would have been 5.7% (2.4% higher than the actual rate).

Decomposition Results

- Important sources of falling S/Y (4.5%, 1960-1990)
 - ① Redistribution of resources to the old: 1.6%.
 - ② Rising consumption propensities: 1.5%.
 - Even though the young actually save more than in 1960-61.
 - ③ Rising disposable income / income: 2.5%.
 - Attributed to low net tax payments of current cohorts.
- Not important:
 - ① Government spending.
 - ② Demographic change.

- Conjecture: The old save less because their resources are more annuitized.
 - Social Security transfers.
 - Medicare benefits.
- The paper shows: the fraction of annuitized resources has increased dramatically.
- Annuities are assets that pay out fixed amounts until a person dies.
 - Insurance against longevity risk.
 - Reduces precautionary saving.

Summary

- The U.S. saving rate, $\frac{Y-C-G}{Y}$, has declined for a long time. Why?
- Two important reasons:
 - ① The old receive a larger share of total resources.
 - ② The old save less than they used to.
- Conjecture: Both are due to increased annuitization of resources (government transfer programs).
- An important limitation: This is accounting.
 - Needed: A model that measures the effect of annuities / redistribution to the old on saving.

Capital Gains

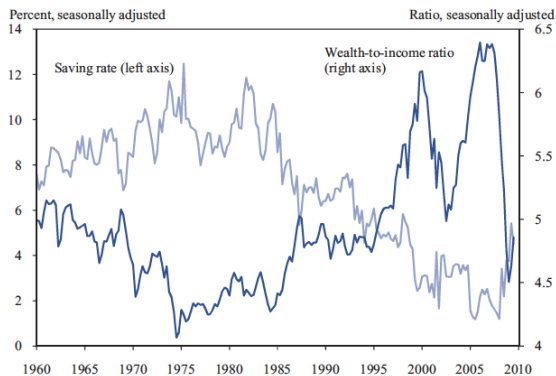
How Important are Capital Gains?

Households did not save, but they became richer.

- The main reasons: Price increases in stock markets and housing markets.
- What fraction of the decline in the U.S. saving rate is due to these capital gains?

How Important are Capital Gains?

Figure 4-2
Personal Saving Rate Versus Wealth Ratio



Sources: Department of Commerce (Bureau of Economic Analysis), National Income and Product Accounts Table 2.1; Federal Reserve Board, Flow of Funds Table B.100.

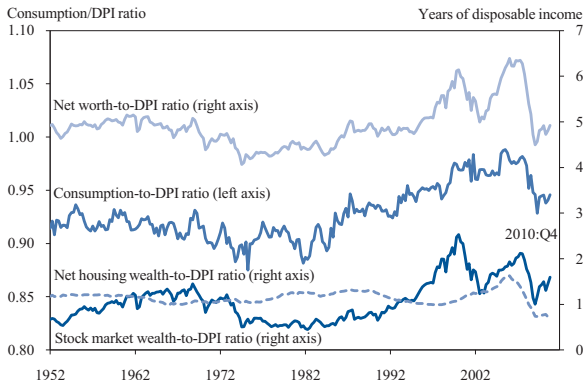
Source: Economic Report of the President, 2010

Economic Report to the President (2006)

- Empirical studies show: A dollar of additional wealth leads to 2-5 cents of additional consumption per year.
- Why is this number so low?

Figure 2-3

Consumption and Net Worth Relative to Disposable Personal Income (DPI)



- Wealth / disposable income rose from 4.4 (1980) to 5.5 (2005).
- Compute counterfactual consumption:
 - Counterfactual wealth 2005: $W_{2005}^{CF} = 4.4 Y_{2005}$.
 - Counterfactual C 2005: $C_{2005}^{CF} = C_{2005} - 0.035 \times [W_{2005} - W_{2005}^{CF}]$.

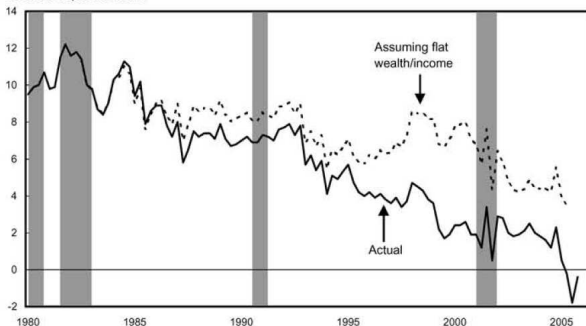
ERP(2006): Result

About half of the decline in S/Y is due to wealth.

Chart 3-3 Household Saving Rate as a Percentage of Disposable Income

If wealth only grew as much as disposable income since 1994, the saving rate would have declined substantially less.

Percent of disposable income



Note: Shaded areas indicate recessions. The difference between the two lines reflects additional consumption triggered by wealth gains. The calculation assumes that a \$1 change in wealth leads to a total of \$0.035 change in consumption over a two-year period.

ERP (2006)

How much does wealth affect consumption?

- **Regression approach** (Juster et al. 2004).
- Use data for a cross-section of households who are observed at four dates.
- Regress "active saving" ($Y - C$) on
 - ① Capital gains.
 - ② Demographics: family size, marital status, etc.
 - ③ Family income, inheritances, transfers.
- The coefficient on capital gains is interpreted as the marginal propensity to consume out of wealth.

How much does wealth affect consumption?

Results

- The MPC out of wealth is 3%.
- But when capital gains are divided into their sources:
 - Housing: MPC 3%
 - **Stocks: MPC 19%**
 - Other: MPC 1.6%
- This matters because much of the increase in wealth is in the form of stocks.

Method

- Compute aggregate capital gains from Flow of Funds data.
- Multiply capital gains by their MPCs from the regression.
- This yields changes in aggregate consumption.
- Recompute saving rates using counterfactual consumption data.

Capital gains and aggregate saving

Results

Table 4. - Model Prediction of Average Personal Saving Rate

	NIPA Saving Rate	Predicted Saving Rate	
		<i>Total</i>	<i>Separate</i>
1984 to 1988	8.5	8.6	7.1
1989 to 1994	7.0	8.5	6.5
1994 to 1999	4.0	7.9	2.7

The NIPA saving rate is reported as the average annual saving rate over the respective period in each row. The predicted saving rate is computed at an annual frequency using the estimated model coefficients from models *i* and *ii* in Table 3 combined with NIPA data on disposable personal income and the Federal Reserve's Flow of Funds data on capital gains. Only the effect from income and capital gains in housing and corporate equities are considered. The predicted

Juster et al. (2004)

If MPCs differ by asset, the drop in S/Y is larger than in the data.

Does this exercise make sense?

- This is a prime example of a question that looks fine, but is actually **not well posed**.
- The question is: How does one **endogenous** variable (wealth) affect another (saving)?
- The answer must depend on why asset prices rose (the **exogenous shock** to the economy).

Does this exercise make sense?

Examples

- 1 Exogenous shock: Population growth
 - Land scarcity → higher housing prices.
 - Households essentially got poorer (similar to a drop in income).
 - Consumption and saving fall.
- 2 Exogenous shock: Good news about future productivity growth
 - Households anticipate higher incomes → they bid up the prices of goods in fixed supply (housing).
 - Income effects cause consumption to rise and saving to fall.
- 3 Exogenous shock: Lower expected retirement transfers.
 - Households buy assets to save for retirement.
 - Negative income effect → consumption falls and saving rate rises.

Capital gains and aggregate saving

Conclusion

- The question is **not well posed**.
 - We should ask: How did the exogenous shock that drove up asset prices affect the saving rate?
 - But what is the shock?
- The **household evidence** does not aggregate.
 - For an individual household, asset prices are exogenous.
 - It makes sense to ask: how does a capital gain affect saving?
 - One could run a regression a la Juster et al. (2004):
 - Regress household saving on **idiosyncratic capital gains**.
 - The regression coefficient would have the desired interpretation.
- But: "How does the stock market affect saving?" is not a meaningful question.

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