

Do People Save Enough For Retirement?

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Econ520

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- With the U.S. saving rate so low, do people save enough for retirement?
- How saving is needed for retirement?

Framework: The Life-cycle Model

- The household lives for T years.
- He starts at age 1 - after finishing school.
- He retires at age T_R .
- While working he earns an exogenous wage w_t .
- He earns interest rate R on assets.
- When retired he earns Social Security benefits b_t .

Flow budget constraint

- Income: $y_t = Ra_t + w_t + b_t$.
- Expenditures: $c_t + a_{t+1}$.
- We ignore housing (a biggy).
- Budget constraint:

$$a_{t+1} + c_t = y_t = Ra_t + w_t + b_t$$

Lifetime budget constraint

- Assume: you die with zero assets: $a_{T+1} = 0$.
- By analogy to the two period model:

Lifetime budget constraint

$$[\text{Present value of consumption}] = [\text{Present value of income}] + [\text{Initial wealth}]$$

The PP derive this.

Household problem

- Choose the lifetime consumption path c_t to max

$$\sum_{t=1}^T \beta^t u(c_t)$$

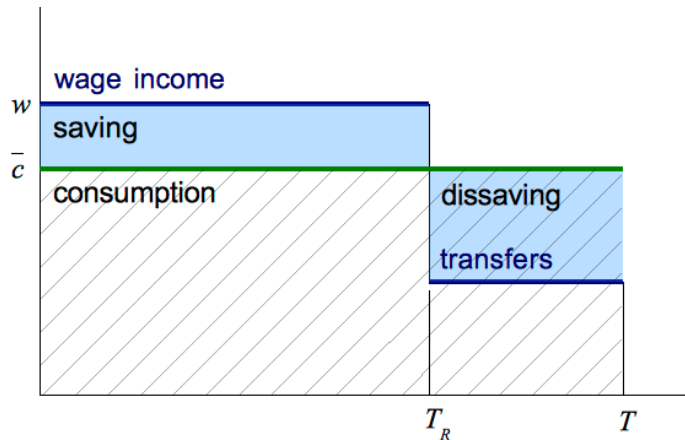
subject to the lifetime budget constraint: $PV(c) = PV(y)$.

- Simplifying assumption: the household wants constant consumption.

$$PV(c) = \bar{c} \sum_{t=1}^T R^{-(t-1)}$$

- Now we can solve for
 - the constant \bar{c} the household can afford OR
 - the amount of wealth the household needs to finance a given \bar{c} in retirement.

Thought experiment



Set $\bar{c} = (1 - s)w$ at all ages. Find initial assets needed to finance gap between lifetime income and consumption.

Parameters

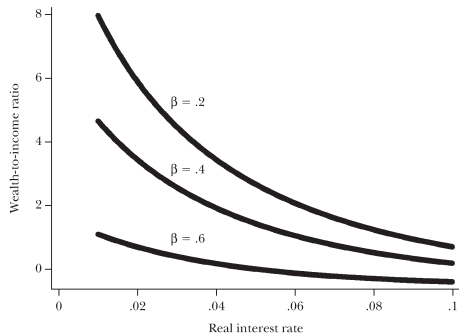
- Assume that all parameters are constant (w , b , etc)
- Then we need to set:
 - 1 Current age
 - 2 Retirement age $T_R = 65$
 - 3 Life expectancy $T = 95$
 - 4 Interest rate $R = 1.03$
 - 5 Size of housing payments (taken out of w): 20% of w .
 - 6 Saving rate (annual saving / annual income) (assumed constant): 7.5%
 - 7 Retirement replacement rate: $\beta = b_t/w_t = 30\%$.

Case	Age 40	50	60	T_R
Baseline	1.8	2.9	4.3	5.1
Save 15%	-0.5	1.1	2.8	3.8
w and c grow at 2%	3.2	4.0	4.7	5.1
c drops 20% in retirement	0.6	1.6	2.7	3.4

Source: Skinner 2007, table 1

The interest rate and Social Security payments.

The Impact of the Interest Rate on Required Life-Cycle Wealth Accumulation

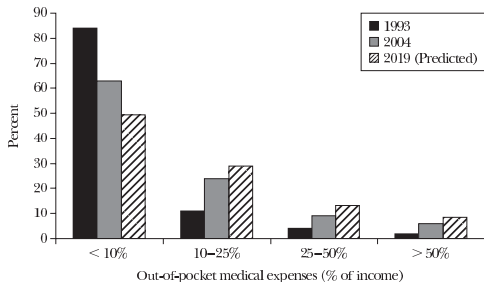


Note: This graph shows how changes in assumptions about future real interest rates affect target wealth values to ensure consumption smoothing, evaluated at age 50. The model is as described in the notes to Table 1. The association between the interest rate and wealth-income ratios are shown for different replacement rates of retirement income relative to preretirement income: $\beta = 0.2$ (20 percent of pretax income), 0.4, and 0.6.

Source: Skinner 2007

Uncertainty: Medical Spending

Out-of-Pocket Medical Expenditures as a Percentage of Before-Tax Household Income, Age 75–84, in 1993, 2004, and 2019 (Predicted)



Source: Skinner 2007

For ages 75-84.

How To Do This Right

We have ignored lots of complications:

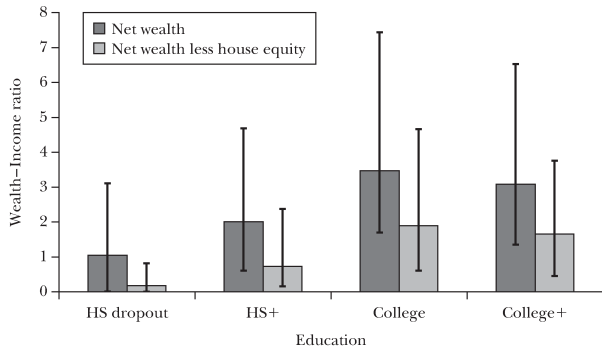
- progressive taxes
- tax deductions
- tax deferred 401ks
- child care costs

Doing this right requires financial planning software.

Details matter!

How Much Do Americans Actually Save?

Wealth–Income Ratios by Education Group: Early Baby Boomers (51–55) in 2004



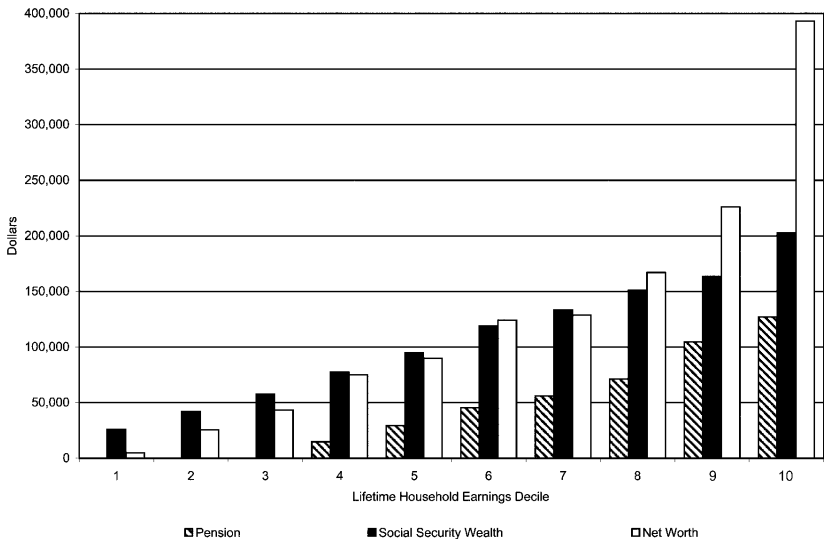
Source: Calculations by Annamaria Lusardi based on the 2004 Health and Retirement Study (HRS) sample as defined in Lusardi and Mitchell (2006).

Notes: The bars show median wealth-to-income ratio by income category, and the brackets denote the interquartile range (25th to 75th percentile distribution). $N = 2631$. HS is “high school.”

Source: Skinner (2007)

Few people save enough to keep consumption smooth.

Sources of Retirement Wealth



Source: Scholz et al. (2006). Median wealth around age 55 by lifetime earnings decile.

Percentile group	Year				
	1989	1992	1995	1998	2001
0-49.9	2.7	3.3	3.6	3.0	2.8
50-89.9	29.9	29.7	28.6	28.4	27.4
90-94.9	13.0	12.6	11.9	11.4	12.1
95-98.9	24.1	24.4	21.3	23.3	25.0
99-100	30.3	30.2	34.6	33.9	32.7

Fraction of wealth owned by various percentiles.

Do People Save Too Little?

Possible ways out:

- 1 Eat your house (not common)
- 2 Home production (common)

- Skinner, Jonathan. 2007. "Are You Sure You're Saving Enough for Retirement?" *Journal of Economic Perspectives*, 21(3): 59–80.