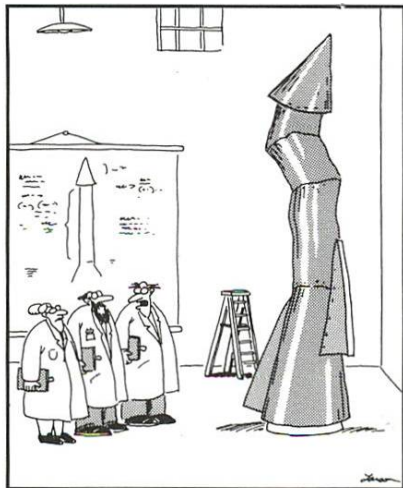


Measuring Optimal Savings Using a Life-Cycle Model of Consumption

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I Always Worry When People's Lives Are So Empty That They Will Attend a Talk By An Economist!



"It's time we face reality, my friends. ...
We're not exactly rocket scientists."

The
FAR SIDE

MARCH

15

FRIDAY

One Does Not Need to Look Hard to Find Concerns About Americans' Poor Financial Preparation for Retirement

- A short list:
 - "Retirement's Unraveling Safety Net," *Washington Post*, (5/15/05).
 - "...only about a quarter of boomers are financially prepared for their twilight years," *McKinsey Quarterly*, (2007).
 - "... nearly 45 percent will be 'at risk' of being unable to maintain their standard of living in retirement," *Munnell, Webb, Golub-Sass*, (2007).
- If this view is correct, then
 - Policy-makers and opinion leaders should educate, scold, and otherwise castigate irresponsible Americans.
 - Policy-makers should (perhaps) allocate scarce federal resources to provide tax incentives for wealth creation.

But What If the Popular Perception is Wrong and Most Americans Are Building Secure Financial Futures?

- I see four potential problems.
 - First, families and individuals may forego expenditures. In some cases, this might mean that people buy a Toyota and not a Lexus. Few would find this a major problem. But in other circumstances, they may forego investments in human capital, or in their children, or in experiences that would add richness to their lives.
 - Second, I fear the steady message that people are not doing enough generates anxiety that can negatively affect life satisfaction.
 - Third, the "Americans are woefully under-saving" narrative could lead to a proliferation of tax preferences for saving or a proposal to mandate savings.
 - Fourth, if people are convinced that *all* Americans are undersaving, then inadequate attention is likely to be given to individuals and groups that are truly having problems.

Why Are So Many Convinced We Have a Saving Crisis?

- The NIPA personal saving rate is low (or negative!).
 - But it has many measurement and conceptual problems. Most importantly, it does not reflect wealth accumulation in the form of capital gains (or losses).
 - For example, I suspect with the market meltdown, NIPA saving took a big jump up. But the magnitude of the saving increase will be sharply overstated, just as the problems of "saving decline" were overstated as the stock and housing markets were doing well.
- Decline in consumption right at the time of retirement and towards the end of life.
- Replacement rates are a workhorse financial planning tool, but they are flawed.

What Is the Problem with Replacement Rates?

- The replacement rate is designed to reflect the amount of retirement income needed to maintain pre-retirement living standards. It is less than 100 percent for three reasons.
 - Taxes are typically lower in retirement (social security is more lightly taxed than wage and salary income).
 - Households typically reduce or stop saving in retirement.
 - Work-related expenses typically fall in retirement.
- But replacement rates do not account for critical aspect of individual's lives. Take children, for example.
 - Consider two otherwise identical married couples, but one has four children, the other has zero.
 - The childless couple likely has to accumulate considerably more retirement wealth to maintain their accustomed standard of living.

What Do Data Say About American's Retirement Satisfaction in 2008?

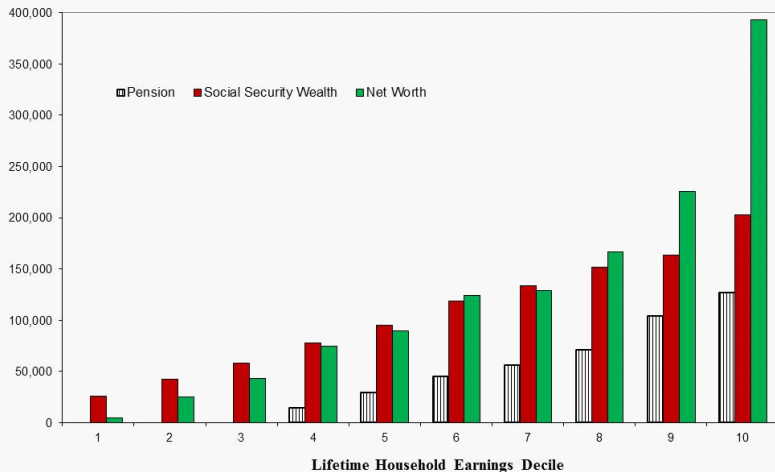
Subjective Views of Retirement Well-Being, HRS Cohorts, 2008

	How satisfying is retirement?			Retirement years compared to before?		
	Very	Moderately	Not at all	Better	Same	Worse
AHEAD (avg. age 92)	59 percent	37 percent	4 percent	32 percent	55 percent	13 percent
CODA (81)	55	40	5	36	45	19
HRS (72)	54	38	8	45	39	16
War Babies (64)	54	36	10	57	29	13
Early Boomers (58)	32	43	25	53	18	29
Overall (75)	54	38	8	47	36	17

Note: 8,230 respondents answered the "how satisfying" question, 1,808 answered the other.

The Variation in Wealth: Households 51 to 61 in 1992

Figure 1: Median DB Pension Wealth, Social Security Wealth, and Net Worth (Excluding DB Pensions) by Lifetime Earnings Decile, (1992 dollars)



How do we rationalize the data?

- Can simple-minded rules of thumb rationalize the data?
- Consider various rules of thumb
 - example: A household saves a constant fraction of income
- Question: How well does this fit the data?

Model	Best Fit
Equalize consumption across age	7%
Save a constant fraction of income	15%
Assume this saving rate varies with income	16%
Regression with each year's earnings separately	29%
Regression with linear and quadratic terms separately	36%

- Bottomline: Rationalizing the data requires a fairly complicated rule of thumb!

Understanding the variation in wealth

- Differences in earnings
- When we compare rich and poor households, there are systematic differences
 - Differences in savings rates
 - Differences in longevity
 - Differences in earnings profiles
 - Differences in family size
 - Differences in marginal tax rates
 - Differences in when they expect to enter a nursing home
- Bottomline: Various considerations need to be brought to bear to understand the degree of wealth inequality

We Could Talk All Day About Descriptive and Qualitative Evidence: We Need an Objective Standard

- The life-cycle model (accounting for uncertain earnings, lifespan, and health) provides a natural benchmark.
 - The jargon: to maximize one's lifetime well-being, given available resources, households should equate the discounted marginal utility of consumption each period.
 - The intuition: smooth the satisfaction you get from your last bit of consumption each period.
- Given lifetime resources and preferences, the lifecycle model's consumption choices will maximize appropriately discounted lifetime well-being.
- We examine the implications of the life-cycle model, household-by-household, using data from the Health and Retirement Study, linked to data from the Social Security Administration on lifetime earnings.

The Life Cycle Model?

- Modigliani (Nobel prize, 1985)
- "The life-cycle hypothesis implies that individuals both plan their consumption and savings behaviour over the long-term and intend to even out their consumption in the best possible manner over their entire lifetimes. The key assumption is that all individuals choose to maintain stable lifestyles."
- Widely used in Economics
 - Consumption savings decisions
 - Portfolio Choice
 - Human Capital Theory
 - Behavioral Economics: Games with future self

A Couple More Words on Our Approach

- We simulate a rich economic environment: we model the tax, transfer, and social security systems, people get married and have children as they do in practice, and they face uncertain earnings, health, and longevity.
- We calculate optimal consumption rules for households and then see the earnings that households actually receive, based on their social security earnings records.
- We then compare their actual wealth in the data with what the model says they should have, at the time we observe them in the data.
 - I'll be happy to talk off-line about technical details of what we're doing.

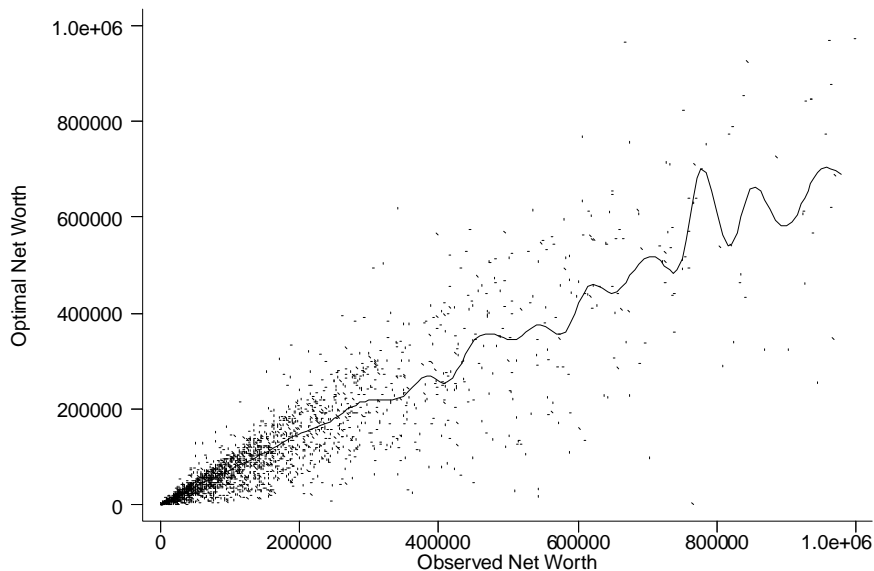
Features of our Model

- Decision theoretic: Agents making decisions subject to constraints
- Uncertainty: Earnings, medical expenses, mortality
 - Creates another motive to save (precautionary)
- Demographics: kids
 - Households with kids consume much less than otherwise identical households
- Policy variables: time varying tax transfer policies, SS, Medicare etc.
- Solve model separately for each household

So To Summarize, What Have We Done and Why Is it Interesting?

- Existing financial planning advice provides rules of thumb (i.e., replace 80 percent of pre-retirement income).
- We use the workhorse conceptual framework from economics and examine its implications, household-by-household, for a representative set of Americans born before 1954.
 - The question our model is designed to answer is whether the household is on track for maintaining their living standards in retirement.
 - A household that was poor during their working years could be "on track" but still be poor in retirement, so our measure is not meant to imply a normative ideal.

How well does our model fit the data?



We Have Examined Saving Adequacy in 1992 and 2004

- Our first paper examined households with an adult born between 1931-41.
 - We found that 84 percent of households had accumulated more than their optimal wealth target in 1992.
 - Of the 16 percent who had saved less than their optimal target, the median shortfall was only \$5,300 (equivalent to about \$7,200 in 2004).
- In a follow-up paper, we showed that the percentage of households who were not saving enough for retirement in 2004 was even smaller than in 1992
- Our results, are in distinct contrast to the conventional wisdom that Americans are doing a poor job preparing for retirement.

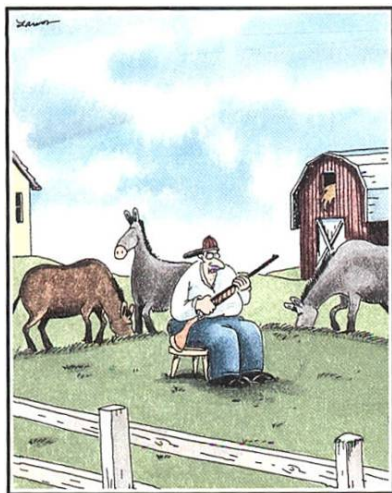
A More Conservative Calculation

- We updated our calculations, focusing on 2004, and studying a set of households representative of all Americans born before 1954. We try to be even more stringent in our assumptions
 - Assume only half of housing equity is included in net worth
 - Discount the future even more

Table: Optimal and Actual Net Worth in 2004 and Percentage Failing to Meet Optimal Target

Age in 2004	Median Optimal Wealth	Median Actual Wealth	Percentage Below Target	Median Deficit
81 or older	\$128,718	\$200,000	23.3	\$23,713
74 to 80	174,420	271,600	25.1	32,280
63 to 74	228,405	355,000	26.9	37,595
57 to 62	112,789	212,000	28.1	24,302
Full Sample	188,835	300,600	25.9	32,260

I've Already Spoken Too Long and I'm Challenging Conventional Wisdom. Are We Like Arnie?



Misunderstanding his dying father's advice, Arnie spent several years protecting the family mules.

The
FAR SIDE

JULY

6 & 7

SATURDAY & SUNDAY

One Doesn't Thrive in Academe Without Confidence, So We Think We Are Right. Who Is Undersaving and What Can People Do?

- Characteristics correlated with *not* undersaving are: having higher lifetime income, higher levels of education, being married. Those with lower educational attainment, low lifetime income, blacks and Hispanics are more likely to be undersaving.
- For those who have a saving deficit...
 - If they are still working or are able to go back to work, the most immediate response will be to delay retirement or go back to work.
 - For those who are unable or unwilling to go back to work, there is little they can do besides pare back living standards.

Let's Look Forward

- We offer four closing thoughts.
- First, most Americans, even today, are on track to maintain their living standards in retirement.
 - If we are right, the time and effort of those concerned about these issues could be better targeted to groups and sub-populations that indeed are in trouble.
 - Identifying these groups, diagnosing their problems, and designing effective interventions is important work.
- Second, the "Americans are Financially Irresponsible" folk wisdom distorts important public policy decisions and creates anxiety that may harm well-being.
 - If financial goals seem completely unattainable, people may simply not try.

- Third, how can we translate what I have described today into more practical financial planning advice that can improve the financial well-being of typical households?
 - Replacement rates do a disservice to many households, as do many of the web-based financial planning products we have glanced at. But we also recognize that few people can do the complex dynamic programming calculations that underlie our analytic work. To make financial planning more effective, we need rigorous, yet tractable financial planning rules of thumb.
- Fourth, I am excited about several extensions of our work, the most immediate being to incorporate health care choices more fully into our framework. If health and consumption are complements, the decline in health in old age will lead households to cut consumption.