

1 Decline in U.S. Saving Rate

1. The following is a quote from Economic Report of the President (2006):

The consumption-wealth effect (i.e., the tendency to consume more as wealth increases) has been the subject of numerous empirical investigations. ... Estimates of the consumption-wealth effect suggest that it can explain a sizable portion of the decline in personal saving since the mid-1990s.

What is the fundamental problem with this argument?

2. Give examples of shocks that would lead to increasing stock prices (and thus household wealth) while the ratio of saving to disposable income
 - (a) rises
 - (b) declines.
3. Gokhale et al. (1996) claim that the decline in the US saving rate is due to reallocation of resources from young to old combined with higher propensities to spend of the old. Explain how this claim is established.
4. The distribution of income has become more unequal over the past decades. How do you think this affects aggregate saving?
5. The volatility of individual incomes / earnings has increased over the past decades. How do you think this affects aggregate saving?

1.1 Answer: Decline in U.S. Saving Rate

1. The problem: The rise in asset prices is itself endogenous. Households choose to bid up asset prices in response to some shock. They also choose to save less in response to some (possibly the same) shock.
2. We have some examples on the slides.
 - (a) Rising saving: we are looking for shocks that either raise the rate of return (e.g. a technological breakthrough) or reduce future income (e.g. a cut in Social Security benefits). Another example is any shock that raises household income temporarily. A business cycle expansion does this every time.

- (b) Falling saving: We are looking for a shock that drives up the income assets generate, so households are richer and assets are more valuable. One example is a tax cut on dividend income.
3. See slides. Basically an accounting decomposition that decomposes changes in C/Y into the contributions of (i) what fraction of income does each cohort receive, (ii) what fraction of income does each cohort spend, (iii) how big is each cohort.
 4. The rich save much larger fractions of their incomes. More inequality raises the saving rate.
 5. This is a saving motive we have not talked about: precautionary saving. The more uncertainty people face, the more they save.

2 Life-cycle Model

1. What are the main determinants of aggregate saving in the life-cycle model?
2. Derive the lifetime budget constraint for the many period life-cycle model. (Advanced.)

2.1 Answer: Life-cycle model

1. Major determinants are:
 - age profile of income
 - generosity of retirement transfers
 - demographic composition of the population

2. Lifetime budget constraint Start with the flow budget constraint:

$$a_{t+1} = Ra_t + \underbrace{w_t + b_t - c_t}_{x_t}$$

Shift it one period forward and plug in a_{t+1} from above. Iterate:

$$\begin{aligned} a_{t+2} &= x_{t+1} + Ra_{t+1} \\ &= x_{t+1} + R(Ra_t + x_t) \\ &= x_{t+1} + Rx_t + R^2a_t \end{aligned}$$

Keep iterating:

$$a_{T+1} = x_T + Rx_{T-1} + R^2x_{T-2} + \dots + R^T x_1 + R^T a_1$$

Divide by R^T :

$$0 = x_1 + x_2/R + x_3/R^2 + \dots + x_T/R^T + a_1$$

In words: The present value of saving (x) equals the value of initial debt.

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