


ECON4260 Behavioral Economics

4th lecture

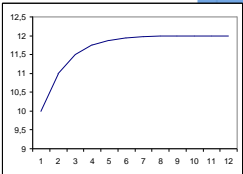
Mental accounting, Status Quo, Liberal Paternalism and Equity premium.




Rabin's theorem - continued

- A global utility function $u(W+x)$
- Indifferent between (0) and (100, 2/3 ; -100, 1/3) for any wealth.
 - Chose: $u(W-100)=-1$ and $u(W)=0$
 - Compute:
 - $u(W+100) = \frac{1}{2}$
 - $u(W+200) = \frac{1}{2} + \frac{1}{4}$
 - $u(W+300) = \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$
 - ...
 - $u(W+X) < 1$ for all X
- Implies extreme risk aversion

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Rabins theorem

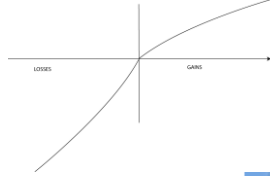
- Risk aversion in small gamles + Expected utility
 - **Implies** unreasonable risk aversion in large gambles
- Thus: only risk **neutrality** in small gambles is consistent with expected utility.
- Risk neutrality correlates with intelligence
 - But risk tolerance correlates with volume of gray mass
 - This is the reason why old people are more risk averse than young

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Prospect theory, by contrast, yields modest risk aversion

- Reference point is current wealth.
- Choices should be independent of wealth
 - Plausible?
 - Could you think of an experiment to test it?
 - Can the theory easily be adjusted to account for wealth?
- Loss aversion implies risk aversion even for modest risk.



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Mental accounting

- Imagine that you are about to purchase a jacket for (\$125)[\$15] and a calculator for (\$15)[\$125]. The calculator salesman informs you that the calculator you wish to buy is on sale for (\$10)[\$120] at the other branch of the store, located 20 minutes drive away. Would you make the trip to the other store
 - A: Numbers in (). Most will make the trip
 - B: Numbers in []. Few will make the trip
 - Both cases save \$5 at the cost of a 20 minutes trip.
- Why do people choose differently in A and B?

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Mental accounting

- To simplify decisions we isolate different decisions. Keep separate mental account
 - The calculator purchase is seen isolated
 - We do NOT focus on the global preference question
 - Travelling 20 minutes
 - Versus saving 5 dollars

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Successive lotteries

- Samuelson's colleague
 - Turned down $(-100, 50\%, 200, 50\%)$
 - Would accept the same lottery played 100 times
"as long as he did not have to watch the bet being played out"
 - Two such lotteries = $(-200, 25\%; 100, 50\%, 400, 25\%)$

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Evaluation with prospect theory

- Consider value function:
 - $v(x)=x$ for $x \geq 0$ but
 - $v(x)=2,5x$ for $x < 0$.
- Once:
 $-2,5 \cdot 100 \cdot 50\% + 200 \cdot 50\% = -25$
- Twice, watching:
 $-25 + (-25) = -50$
- Twice, not watching
 $-2,5 \cdot 200 \cdot 25\% + 100 \cdot 50\% + 400 \cdot 25\% = +25$

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Equity Premium Puzzle

- Mehra and Prescott
 - Equity return: 8% (real)
 - Treasury bills: 1 – 0.5% (real)
 - Consumption is growing, 2% per year
 - Marginal utility declining
- Risk aversion required, $(\text{rra}=30)$
 - Lottery in future consumption
 $(200\,000, 50\%, 400\,000, 50\%) \sim (204\,500)$
 - "No one is that risk averse."





Alternative explanations

- Nonexpected utility (Kreps and Porteus)
 - Preference over resolution of uncertainty
 - When will you know whether you won?
 - Can explain both interest rates, but still need high risk aversion.
- Habit Formation (Constantinides)
 - Requires very high (implausible?) degree of habit formation.
- Unknown distribution of future consumption (Weitzman)

Explaining the equity premium puzzle

- How is a stock kept 36 months valued
 - As 36 bets (watching the bets played out)
 - As almost 1000 daily bets (watching)
 - As 12 quarterly bets (watching)
 - As 3 yearly bets (watching)
 - As one bet (or no watching)
- To explain the eq. prem. paradox, we must assume that it is seen as 3 yearly bets.
 - Benartzi and Thaler argues that this is the most natural. E.g. tax reports are due yearly.

Opening and closing accounts

- Purchase a stock at price P_0 .
- Sold at time t (mental account closed)
- If $P_t < P_0$, we would close with a loss
 - Utility function is locally convex (risk seeking)
 - Accepting the loss is painful
 - Thus: Keep losers
- If $P_t > P_0$
 - Utility function is concave (risk aversion)
 - We can close the account without losses
 - Thus: Sell winners
- Observe a tendency to keep losers and sell winners
- Rationality predicts: Optimal to sell losers (tax deductible)



Why does it matter when mental accounts are closed?

- Consider an asset held for two years
 - First year yield a nice +1000 gain
 - Second year yield a bad -500 loss
- Evaluated as one account
 - Total gain + 500 is good
- Account closed every year:
 - First year a benefit + 1000
 - Second year loss value $2.5(-500) = -1250$
 - Net value -250
 - Perceived as a bad choice

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Empirical evidence

- Thaler 1997
 - Subjects allocate investment between high and low risk fund
 - "Monthly" treatment – 200 decisions binding for 1 period
 - "Yearly" 25 decisions, binding 8 periods
 - Much more investment in risky funds in yearly treatment
- Gneezy, Kapteyn and Potters (2008)
 - Trading in lottery tickets
 - High frequency: Ticket last and traded each period
 - Low frequency: Tickets last three periods and traded every third period.
 - Tickets higher price in Low than High
 - But price exceed expected value!
- Eriksen and Kvaløy find similar for fund managers investing others money.
- Larson, List and Metcalfe (2016) find that professional traders buy 33% more risky assets when they receive price information less frequently

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If it is loss aversion, So what?

- A discount rate of 8% or 1% for public projects matters a lot.
 - The major issue in the economics of climate change
- Private and public project may have similar risk
- But what are the losses in public projects?
- Should prospect theory be a normative theory
 - How often should we evaluate public projects?
- If we should be consistent with EU
 - How do we account for the large deviation from EU in the asset market

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Default / Status Quo Bias



- Samuelson and Zeckhauser (1988):
 - A: "...You inherit a large sum of money from your uncle. ..."
 - B: "... You inherit a portfolio... A significant portion invested in modest risk company. ..."
 - The choice: Moderate risk company; high risk company, treasury bills, municipal bonds.
 - Result: An option is more likely to be selected when it is designed as the status quo.
- Organ donations
- Saving for retirement (opt in or opt out)
- Choosing the first dish in display

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Explaining default effects



- Effort
 - Becoming a organ donor requires effort (as does opting out)
- Implicit endorsement
 - I ask "does anybody disagree", it may have been interpreted as "you better not".
- Coordination
 - "Raise your hand" may be a coordination game
 - "I want to answer the same as everyone else"
 - "Nothing" is the best prediction of what others will do
 - Besides, I can raise my hand after the others
- Loss aversion
 - It is often natural to expect status quo.

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Fairness

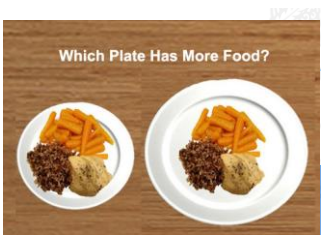


- Q 1a: "A shortage has developed for a popular model of automobile, and customer must wait two months for delivery. A dealer has been selling the car at list price. Now the dealer prices the model 200 \$ above list price"
 - Acceptable (29%) Unfair (71%)
- Q 1a: "... A dealer has been selling the car 200 \$ below list price. Now the dealer prices the model at list price"
 - Acceptable (58%) Unfair (42%)

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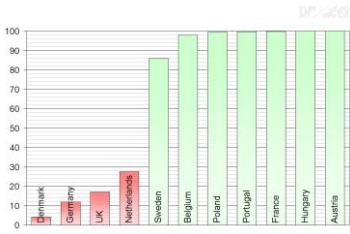
Nudge

- Smaller plate
 - Eat less
 - Less waste at buffet
- Liberal paternalism
 - Liberal: Eat as much as you like
 - Paternalism: We give you a small plate, you eat less which is good for you



Many kinds of nudges

- Default
 - Opt in or opt out for organ donation
- Liberal
 - You choose donor or not
- Paternalism?
 - You are likely to choose default which is good for **society**
- **Caveat:** In opt in countries the hospital call relative before taking an organ



Save more tomorrow

- Sign up today
 - X% of future pay-rise will be saved
- No sacrifice today only later
- You sacrifice the gain (pay-rise)
- Result: People much more likely to save for their pension.





Who nudge nudgers?

- Compare to subliminal advertising.
- Only one picture – Not perceivable
- Claimed to have an effect – originally fake.
- Are these comparable:
 - You are swayed to eat popcorn from a message you did not know you saw.
 - You eat less for a reason you do not know (plate)





Summary: Behavioral decision theory

- Imperfect probability assessment
- Over-weighting low probabilities
 - Buying Lotto tickets
- Loss aversion and endowment effect
 - Explain risk aversion in small gambles (and perhaps also equity premiums)
 - Kinked indifference curves
 - Status quo bias
- Reference point is expectation based.
 - Training trade reduce endowment effect
 - Cab drivers