ECON4260 Behavioral Economics
4th lecture

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

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

Organ donations
Why is Germany so different from Austria? Denmark so different from Sweden?
“Save more tomorrow”
Contract: save part of future pay-rise

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<td>0.9%</td>
<td>1.0%</td>
<td>0.8%</td>
<td>0.7%</td>
<td>0.8%</td>
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Source: Baily and Brooks, 2004

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%)

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 may hand after the others
• Loss aversion
  – It is often natural to expect status quo.
Liberal paternalism

• We need defaults
  – Organ donor or not?
  – Many left without a license when they had to choose (no default)
  – Join savings plan or not
  – There is some food on the first spot
• It is easy to opt out – no one forced (Liberalism)
• Knowing that more people pick the first dish
  – Should the healthy or unhealthy be picked first? (Paternalism)
• Caveat
  – Suppose one option is good for society another for the individual
    • Littering, military services…
  – Is it acceptable for the government to induce individuals to act against their own self interest, using subtle means like: defaults?

Real rates of return

• Highly dependent on risk
  – Stock return about 8%
  – Long term bonds about 3.5%
  – USA Treasury Bills (short term) 1%
• Difference too large to explain with risk aversion
• One argument: It is loss aversion
• NOTE: THERE ARE OTHER THEORIES
  – Habit formation
  – Transaction costs
  – Non-expected utility
  – Unknown probability distribution for future consumption

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?
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

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)

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%)
Evaluation with prospect theory

- Consider value function:
  - \( v(x) = x \text{ for } x \geq 0 \)
  - \( v(x) = 2.5x \text{ for } x < 0 \).

- Once:
  \[ -2.5 \times 100 \times 0.5 + 200 \times 0.5 = -25 \]

- Twice, watching:
  \[ -25 + (-25) = -50 \]

- Twice, not watching:
  \[ -2.5 \times 200 \times 0.25 + 100 \times 0.5 + 400 \times 0.25 = 25 \]

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, \((\beta = 30)\)
    - Lottery in future consumption:
      \((200000, 50\% , 400000, 50\% ) \sim (204500)\)
    - "No one is that risk averse."

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
Alternative explanations

- Nonexpected utility (Kreps and Porteus)
  - Preference over resolution of uncertainty
  - Can explain both interest rates, but still need high risk aversion.
- Habit Formation (Constantinides)
  - Requires very high (implausible?) degree of habit formation.
- Fat tailed distributions (Weitzman)
  - Put much more weight on extreme outcomes than standard normal distribution.

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.

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
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.

The critique
- Traditional theory have one parameter, risk aversion, with a narrow plausible range
- The value function of CPT is similarly fixed
- But the choice of reference point adds a degree of freedom
  - With two parameters we can track two observations
  - No way to check the plausibility of the last parameter.
- On the other hand, the theory generate new predictions supported in lab.

What if this is the correct theory?
- What interest rate should we use
  - For public project
  - Evaluate environmental policy (climate change)
- Is Prospect theory a good theory of how we ought to act?
  - What are the losses of climate abatement?
  - Or is expected utility a better normative theory?
- Are investors overly reluctant to accept risk?
  - Should government stimulate risk taking?
Summary:
Behavioral decision theory

• Imperfect probability assessment
• Over-weighing 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

Applications

• Rabin: EU implies risk neutrality in small gambles
• Prospect theory predict risk aversion in small gambles
• Keeping 10 000 NOK in stock is a small/modest gamble
  – EU predict almost risk neutrality
  – We observe a huge risk premium
• To tell this story we also need ‘mental accounting’

• Liberal paternalism
  – Loss aversion induces a status quo bias.
  – Other reasons for such a bias
  – Can make people choose what is good for them - without coercion