Psychology and Economics

14.13 Lecture 2

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Logistics

- Questions regarding syllabus or anything else?
- Ask and answer questions on Piazza forum!
- TA office hours and recitation
  - Times and locations will be posted on Learning Modules website later today.
  - Recitation this week: review of utility maximization
- Other issues
  - First pset coming soon!
  - Filming the class
  - Posting slides
  - Laptop section
Survey

• At the end of last lecture, you filled out a short survey.

• Will use results from survey to illustrate some behavioral phenomena.

• Course material is based on more thorough experimentation and evidence with economically more important implications.
How do economists think about human behavior?

• Goal-driven individual behavior: constrained optimization
  
  (1) **Utility function:** what makes people happy...
    - ...at a moment in time (instantaneous utility function)?
    - ...when time, risk, or others are involved (time, risk, and social preferences)?

(2) **Beliefs:** What do people believe about their environment?
  
  - Physical environment and others’ behavior
  - Use of information to update their beliefs.

(3) **Choice/Decision-making:** How do people use the above to make decisions?
  
  - Some influences on behavior aren’t about utility or beliefs.
  - Frames, defaults, and nudges; heuristics

• Psychological insights can improve our understanding of each of these components.²

Social preferences

- Much of classical economics assumes that people are selfish.
  - That’s mostly true, but not entirely.
  - It is a good assumption for many situations!
  - Charity: about 2% of GDP ($373.3 billion in 2015)

- People care about others in other ways than pure altruism:
  - Warm glow
  - Inequity aversion
  - Social image, social pressure
  - Reciprocity, fairness
  - …

- Key questions:
  1. What is the nature of such social preferences, i.e. the motivation to help/hurt others?
  2. How does the presence of others affect our utility?
Social preference: where do donations go?

Figure: Source: *Giving USA 2016, the Annual Report on Philanthropy*

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Social preferences: dictator game

• Question in the survey, called *Dictator Game*:

*Imagine you have been given $10 to split between yourself and another, randomly chosen, MIT undergraduate. You can keep any part of the $10 to yourself, and give the rest of the $10 to the other student.*

• The question was asked in two ways:

(1) Recipient is informed about the circumstances of the decision.
(2) Recipient might never notice (money is wired anonymously).
How much do people give?

- Strict version of standard model predicts that people give exactly $0.
- Usually, subjects give around $2 to $3.
- Average ‘giving’ in class was $3.03 in the first case, and $2.04 in the second case.
- People care about what others think, not only how much money they get.
Social preferences: dictator game (overall giving)

Other student told someone gave him/her money

Other student simply given money

How much of $10 given away

Density
Betting on losing weight

• William Hill is mostly a sport-betting agency, but they also accept some unusual wagers.
• Weight-loss bets are among the oddest bets they have allowed.
• Why is this an odd bet?
  • This is betting on an outcome over which (in principle) one has complete control!
  • But overall over 80% of the bettors lose.
  • See story HERE.
Internal Conflicts

- Two possible explanations (both might be going on):
  1. Bettors naively think they can lose weight, so they try to make some money in the process.
  2. They make the bet to give themselves incentives to lose weight.

- Internal conflict: people want to diet, but when the time comes for the pain, they don’t carry through.

- Similar conflict between short-run desires and long-term goals is apparent in many people’s exercising habits.
  - Who thinks they’re exercising more than they should?
  - Who thinks they should exercise more than they do?
Do you exercise as much as you think you should?

[Graph showing density distribution of times per month for 'Should exercise' and 'Do exercise']
Do you exercise as much as you think you should?

![Scatter plot showing the relationship between the number of times respondents should exercise per month and the number of times they actually do exercise per month. The x-axis represents the number of times per month respondents should exercise, ranging from 0 to 50. The y-axis represents the number of times per month respondents actually do exercise, also ranging from 0 to 50. The plot includes a diagonal line indicating the ideal scenario where respondents do as much exercise as they should.](image-url)
The source of the conflict: present bias

- **Suppose I could give you either $100 in cash in 52 weeks or $x in cash in 54 weeks. What is the x for which you would be indifferent between the two options?**
  - Mean $x = $105.67; median $x = $105

- **Suppose I could give you either $100 in cash right now or $x in cash in 2 weeks. What is the x for which you would be indifferent between the two options?**
  - Mean $x = $120.78; median $x = $110
Money now vs. later?

$100 in 52 weeks vs. $x in 54 weeks

$100 now vs. $x in 2 weeks
Money now vs. later?

- $100 now vs. $x in 2 weeks
- $100 in 52 weeks vs. $x in 54 weeks
Time preferences: summary

• People are relatively patient for far-off decisions.
  • That is like a person who decides she wants to diet in the future.

• People are less patient for immediately relevant decisions.
  • That’s like a person who, when facing immediate sacrifice, is not willing to carry through her diet.

• We will explore two major questions:
  (1) The conflict between short-run desires and long-run goals
  (2) Whether and how people predict their own future utility and behavior
Mistakes in Objective Probability Judgments

• Question in the survey:

*Suppose one in a hundred people have HIV. We have a test for HIV that is 99% accurate. This means that if a person has HIV, the test returns a positive result with 99% probability, and if a person does not have HIV, it returns a negative result with 99% probability. If a person’s HIV test came back positive, what is the probability that she has HIV?*

• 22% of this class answered 99%. Possible logic:

  • Positive person will probably receive a positive result.
  • If she tested positive, she is likely to be HIV-positive.

• A psychologically natural, often close to correct, but in this case very incorrect, reasoning.

• Mistake: ignoring the base rate of HIV in the population.
Remember Bayes’ rule?
Yes, 50% is the correct answer.

- Notation: \( P = \) HIV-positive, \( N = \) HIV-negative, and \( p = \) tested positive

\[
\Pr[P|p] = \frac{\text{probability that } P \text{ and } p \text{ are both true}}{\text{probability that } p \text{ is true}}
\]

\[
= \frac{\Pr(P \& p)}{\Pr(p)} = \frac{\Pr(P \& p)}{\Pr(P \& p) + \Pr(N \& p)}
\]

\[
= \frac{(.01)(.99)}{(.01)(.99) + (.99)(.01)} = 0.5
\]
Heuristics and Biases

• Correctly combining the base rate of HIV with evidence for or against HIV is a cognitively difficult process.

• When faced with cognitively demanding tasks, we often respond by approaching it with a quick intuitive shortcut.

• These shortcuts allow us to exist in an extremely complicated world, but they also lead to systematic biases in judgments.

• Psychological insights can help us understand how people process information and form beliefs.
Biases in Subjective Probability Judgments

- Two related questions in the survey:

  *What do you think is the probability that upon finishing your undergraduate studies, you CAN land a job with a starting salary over $200,000 (independently of whether you want to)?*
  
  - Average answer for your own probability: 31.63%.

  *What fraction of the students in this class do you think CAN, upon finishing their undergraduate studies, land a job with a starting salary over $200,000 (independently of whether they want to)?*
  
  - Average answer for your classmates’ probability: 29.16%.

- In reality, both averages should be the same – equal to the class’ average probability of being able to get a $200,000 job.

- People – especially men – tend to be overoptimistic about their prospects and abilities relative to others.
Overconfidence?

![Scatter plot showing overconfidence](image)

- **Probability of being able to land a $200k job (self)**
- **Probability of being able to land a $200k job (others)**

The scatter plot illustrates the self-assessment bias, where individuals tend to overestimate their chances of landing a high-paying job compared to others. The data suggests a linear trend indicating overconfidence.
Other influences on behavior

• Some influences on behavior aren’t about utility or beliefs

• Questions in survey:

*Imagine that you are about to purchase an iPad for $500. The salesman tells you that you can get the exact same good in a nearby location for $15 off. You would need to walk for 30 minutes in total. Would you go to the other store?*

*Imagine that you are about to purchase an iPad case for $30. The salesman tells you that you can get the exact same good in a nearby location for $15 off. You would need to walk for 30 minutes in total. Would you go to the other store?*
How much are 30 minutes of walking worth?

Fraction choosing to walk 30 minutes for $15

![Bar chart showing the fraction of people choosing to walk 30 minutes for $15.](image)
Anchoring? Maybe...
More anchoring in 2017!
From Jerusalem to Jericho

- Darley and Batson (1973) study determinants of helping behavior
  - Princeton theology students on way to seminar
  - Pass ostensibly injured man slumped in doorway, coughing and groaning

- What matters for helping behavior?
  1. Lecture on Parable of the Good Samaritan vs. other content
  2. Variation in time pressure (hurry)
  3. Personality measures of religiosity

- Small sample alert!
From Jerusalem to Jericho

• Main outcome: fraction who stopped and offered to help
  • Hurry condition very important.
    • No hurry: 63% stopped
    • Medium hurry: 45% stopped
    • High hurry: 10% stopped
  • Personality characteristics don’t seem to predict behavior.

• Situations can matter a great deal. Preferences can be malleable.
Summary

- Observe yourself, your friends, etc. carefully while taking this course.
  - Some of them are bound to behave in ways we are discussing.
  - You’ll often see puzzles for which you might want to think about another psychological-economic theory.

- Think about whether firm behavior is reaction to the psychological phenomena we are discussing.
  - Why is your credit-card offer structured the way it is?
  - How do grocery stores decide which items to put on sale?
  - Why is printer toner so expensive?
  - ... 

- And think about whether there’s a way to improve outcomes.
Overview of topics

• Introduction and overview (2 lectures)

• Time preferences and self-control (4 lectures); risk preferences and reference-dependent preferences (3 lectures); social preferences (4 lectures)

• Emotions, projection and attribution bias (1 lecture); limited attention (1 lecture); beliefs and learning (2 lectures); mental accounting (1 lecture)

• Malleability and inaccessibility of preferences (1 lecture); happiness (1 lecture); mental health (1 lecture); gender and racial discrimination (1 lecture)

• Frames, defaults, and nudges (1 lecture); policy and paternalism (1 lecture); poverty through the lens of psychology (1 lecture)
Readings for Monday and Wednesday

- For Monday: Frederick et al. (2002) – Sections 1 through 4.1 and 5.1

- For Wednesday: O’Donoghue and Rabin (1999) – Introduction, Section I and III (focus on examples)
References used in this lecture I


