Psychology and Economics (Lecture 1)

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Outline:

1. Who am I?

2. Psychology and economics

3. An experiment

4. Logistics and syllabus

5. Readings for next time

1 Who am I?

Xavier Gabaix

- Assistant Professor Professor, Department of Economics

- Math undergraduate (France), Harvard PhD (Econ.)

- psychology and economics, finance, macroeconomics, bounded rationality, cognitive science

- theory, empirics

2 Psychology and economics (aka behavioral economics)

A new field – developed to capture phenomena beyond standard economic model.

Some basic methodological principles:

- Use of experiments.

- Interest in microfoundations of behavior (preferences, beliefs, cognition).

- Interest in psychological research on behavior (social and cognitive psychology).

Homo Economicus is too extreme.

- Too rational (Who uses Bayes rule?)

- Too selfish (Who maximizes their own wealth? people give to charities, are altruistic)

- Too willful (Who doesn't experience temptation? there is some evidence of hyperbolic discounting, that is discounting between today and tomorrow is higher than between a year from now and a year and one day from now. This is important for saving decisions)

But note that assuming pure rationality, pure selfishness and pure willpower is simple.

Making an economic model psychologically realistic usually means making the model more complex.

This won't be easy.

3 Behavioral Economics (BE): Definition

- Princeton University Press Series in Behavioral Economics

   Behavioral economics uses facts, models, and methods from neighboring sciences to establish descriptively accurate findings about human cognitive ability and social interaction and to explore the implications of these findings for economic behavior. The most fertile neighboring science in recent decades has been psychology, but sociology, anthropology, biology, and other fields can usefully influence economics as well. Behavioral economics is deeply rooted in empirical findings or methods, and advances economics on its own terms – generating theoretical insights, making more accurate predictions of field phenomena, and suggesting better policy.

Here is a rationality quiz. Raise your hand when you know the answer (and keep your hand up). I will feel free to call on anyone with a raised hand.

- 1 in 100 people in the world have a disease.

- We have a test for it.

- If someone has the disease, she has a 99% chance of testing positive.

- If someone doesn't have the disease, she has a 99% chance of testing negative.

- Linda took the test, and tested positive.

- Assuming that Linda was drawn randomly from the population, what is the probability that she has the disease?

4 Results

0-10% – nine answers

50% – seven answers

99.00% – one answer

formulas – three answers

5 Apply Bayes rule.

If $D =$ "has the disease" and $N =$ "doesn't have the diseases", $T+ =$ "the test is positive", then,

$$\Pr(D|T+) = \frac{\Pr(D, T+)}{\Pr(T+)} = \frac{\Pr(T + |D)\Pr(D)}{\Pr(T+)}$$

$$= \frac{\Pr(T + |D)\Pr(D)}{\Pr(T + |D)\Pr(D) + \Pr(T + |N)\Pr(N)}$$

$$= \frac{(.99)(.01)}{(.99)(.01) + (.01)(.99)} = \frac{1}{2}$$

Another way of thinking about it:

- Here reasoning is: Instead of $P(D \mid T+)$, use $P(T+ \mid D)$ as a measure of how good the test is.

- So "The test works with probability 99%", so there's a 99% change this person has the disease.

- We want to understand this kind of psychologically natural, but *incorrect*, reasoning.

- How do people make intuitive inferences?

- How does this affect peoples' choices?

Will study boundaries of psychological phenomena.

When will psychological forces matter most?

- decision makers are inexperienced (picking a spouse)

- the decisions are difficult (financial decision making, e.g planning for retirement; choosing career)

- stakes are low (buying anything in Walmart)

- transact w/ professional salesmen (car dealerships, finance brokers)

- other personal interactions

- paid advisors don't know anything (brokers)

- arbitrage impossible (retirement saving)

Sometimes psychological forces turn out to be important where nobody thought they would — pricing $10 trillion dollars of corporate equity.

We share many things in common with mainstream economists.

- Decision makers are often highly sophisticated.

- When field data is available, we use it.

- Ideas are mathematically formalized.

- Parsimony is valued.

- Markets and incentives play an important role in shaping behavior.

- Good research poses and answers interesting questions — e.g., Why has the stock market returned 6% more on average than the bond market for the past 200 years?

6 What you will get from the course

- Knowledge of behavioral economics

- Wisdom

- If you want to go to Wall Street or Law school: that will be quite useful.

- Wall Street: Gives unique insights in what drives markets, how to beat the markets, and make use of people's biases

- Law School: Boundedly rational behavioral has lots of regulatory implications

- Graduate school: It's a new, hot topic.

7 The $p-$Beauty contest

1. Players pick a number from 0 to 100.

2. I collect all of the numbers from the players.

3. I average the numbers. Call this average X.

4. I calculate 0.8 of X. Let $Y = 0.8X$.

5. Player whose number is closest to Y wins

8   The $p-$Beauty contest – Results

First round

one minute group: mean 32.56 (so that .8*mean=26.05), variance 22.57

two and half minute group: mean 32.56 (so that .8*mean=26.05), variance 22.57

Second round

mean 10.69 (so that .8*mean=8.55), variance 15.3

9 Logistics and Syllabus

- 1 problem set every 2 weeks

- Midterm, final

- Teaching fellows.

10 Required readings for next time:

- *Kahneman, D. "Maps of Bounded Rationality: Psychology for Behavioral Economics", AER, December 2003, p.1449-1475. + the Video.

- *Sendhil Mullainathan and Richard Thaler, Behavioral economics

11 Overview of the first part of syllabus

- Heuristics and biases

- Risk aversion and prospect theory

- Bounded rationality, learning, and attention

- Decision utility and experienced utility (example of a party activist, who experience only transitory change of utility after the elections)

- Overconfidence (cf the experiment below)

- Time discounting and self-control

- Paternalism

- Fairness

- Neuroeconomics

12   Experiment: median contest

What is the probability that you will get a grade from this course that is above the median grade?

Result: mean probability of the class was .58