Introduction to Behavioral Economics

Epi 246

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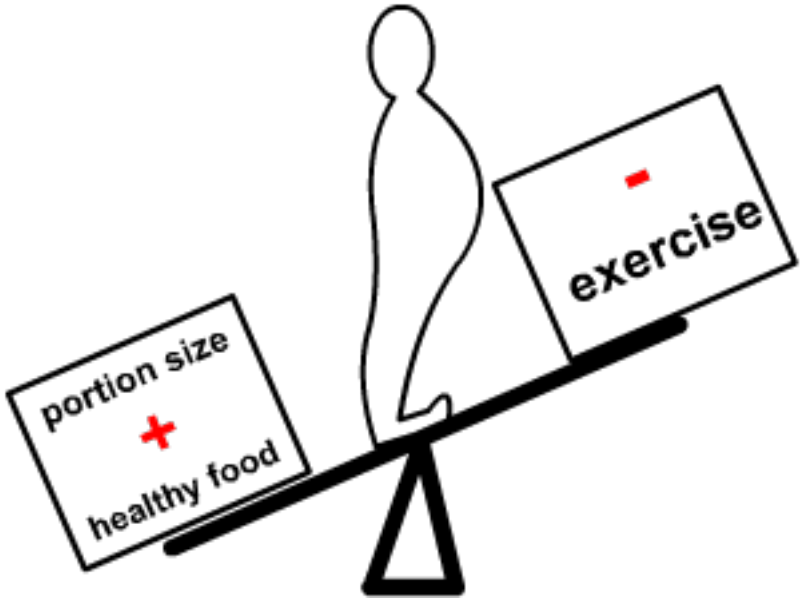
Goals

- Understand the difference between behavioral economics (BE) and standard neoclassical economics (NE)
- Identify common “behavioral” problems in health
- Understand how behavioral economics can be used to design health policies
- Apply a ‘behavioral’ economics approach to a health problem

Decision-making about health



- A "rational" person would do a cost-benefit analysis
- *Homo economicus* is fully rationale, self-interested, fully informed of all choices, and has the same preferences all the time.

Homo behavioralis

- **But oftentimes, people give into temptation! Why?**
  - Everyone else is having one (social pressure)
  - Doughnut is associated with good feelings (emotional attachments)
  - The smell is irresistible! (lack of will power)
- ***Homo behavioralis'* decisions are influenced by the context, emotions, and *transitory* perceptual conditions**
  - Behavior is adaptive to the situation

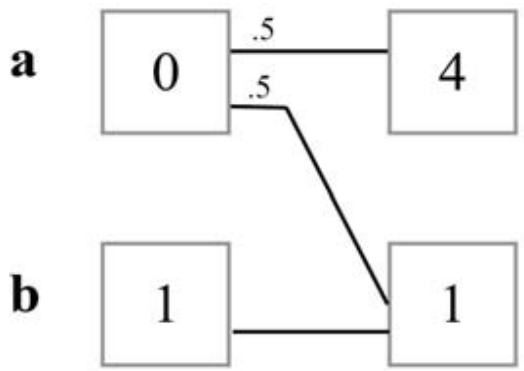
Purpose of Behavioral Economics

- **To incorporate insights from cognitive psychology into assumptions about economic actors that explain seemingly "irrational" behavior**
- **Can predict how people will make choices under real conditions**
- **Design programs/interventions that leverage/ assess people's "irrational" behavior.**
  - E.g., sustain prevention (quit smoking, regular exercise)
  - Eg., enhance treatment (drug adherence)
  - Examples from participants

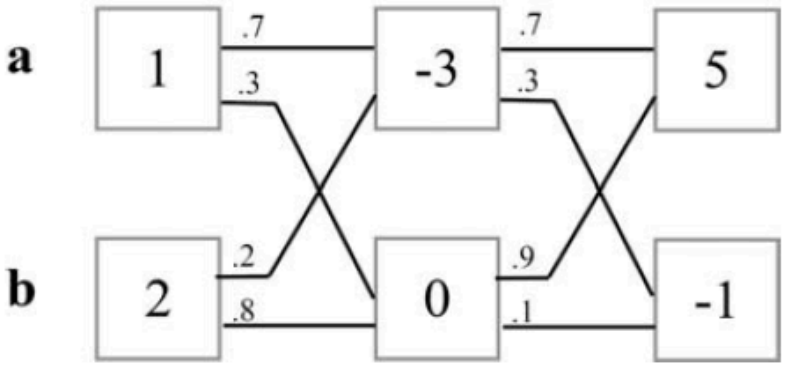
"Irrational" Behaviors Commonly Observed

- Procrastination, self-control problems, present bias: disproportionately favor gratification today over the future
- Limited attention: distracted from following through on intention
  - E.g. "heat of the moment" (Ariely & Loewenstein 2006)
- Fairness: prefer equity or collective good over individual gain
- Choice overload: use heuristics ("rules of thumb") to make choices where there's too much information

Which path do you prefer?

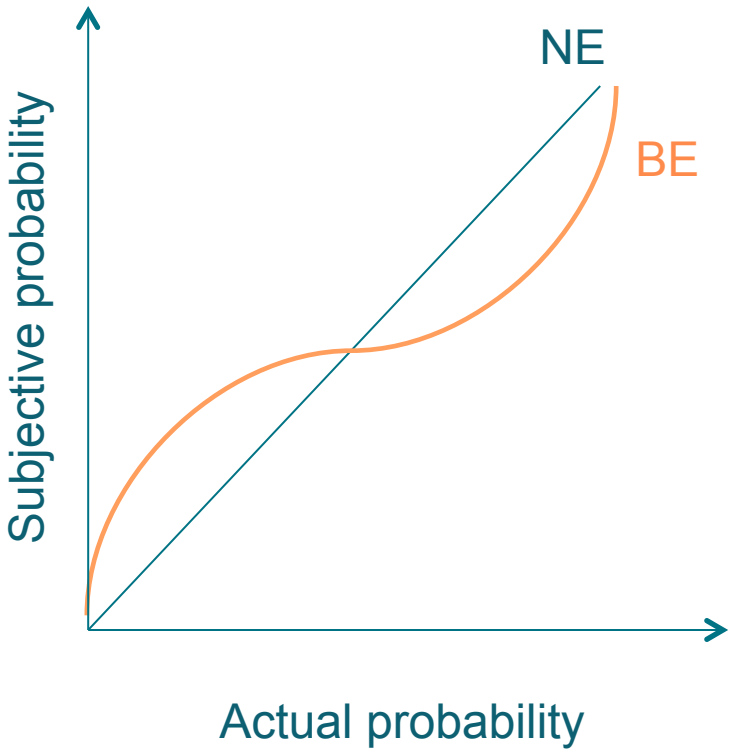


Which path do you prefer?



"Irrational" Behaviors Commonly Observed

- Poor assessment of probabilities
  - Availability bias: give too much weight to personal experience
  - Anchoring bias: influenced by the first thing heard, even if corrected
  - Use "law of small numbers": over-emphasize lessons from small samples



- Loss aversion/framing: averse to risk in choices with gains, prefer risks in choices with losses

Lesson #1: Framing matters

- **Gains vs. losses and punishments vs. rewards**
  - Example – class survey: A disease threatens 600 citizens.
    - Frame I: (a) save 200 lives for sure, or (b) 1/3 chance of saving 600 lives with 2/3 of saving no one.
    - Frame II: (c) 400 people die for sure, or (d) 2/3 chance of 600 dying, and 1/3 chance no one dying.
- ***(Most choose (a) over (b), but (d) over (c). Why? The way the choice is framed: risk averse for gains (frame I), risk-seeking for losses (frame II)***
  - E.g. Take-up of surgery is higher when framed in terms of improved survival rather than lower mortality
  - E.g. Employees prefer if smokers pay higher health insurance premiums rather than discounts for non-smokers
- **Default options affect choices**
  - E.g. organ donation rates much higher in countries where default option is "yes" vs. "no"
  - Include preventive care in basic health insurance package

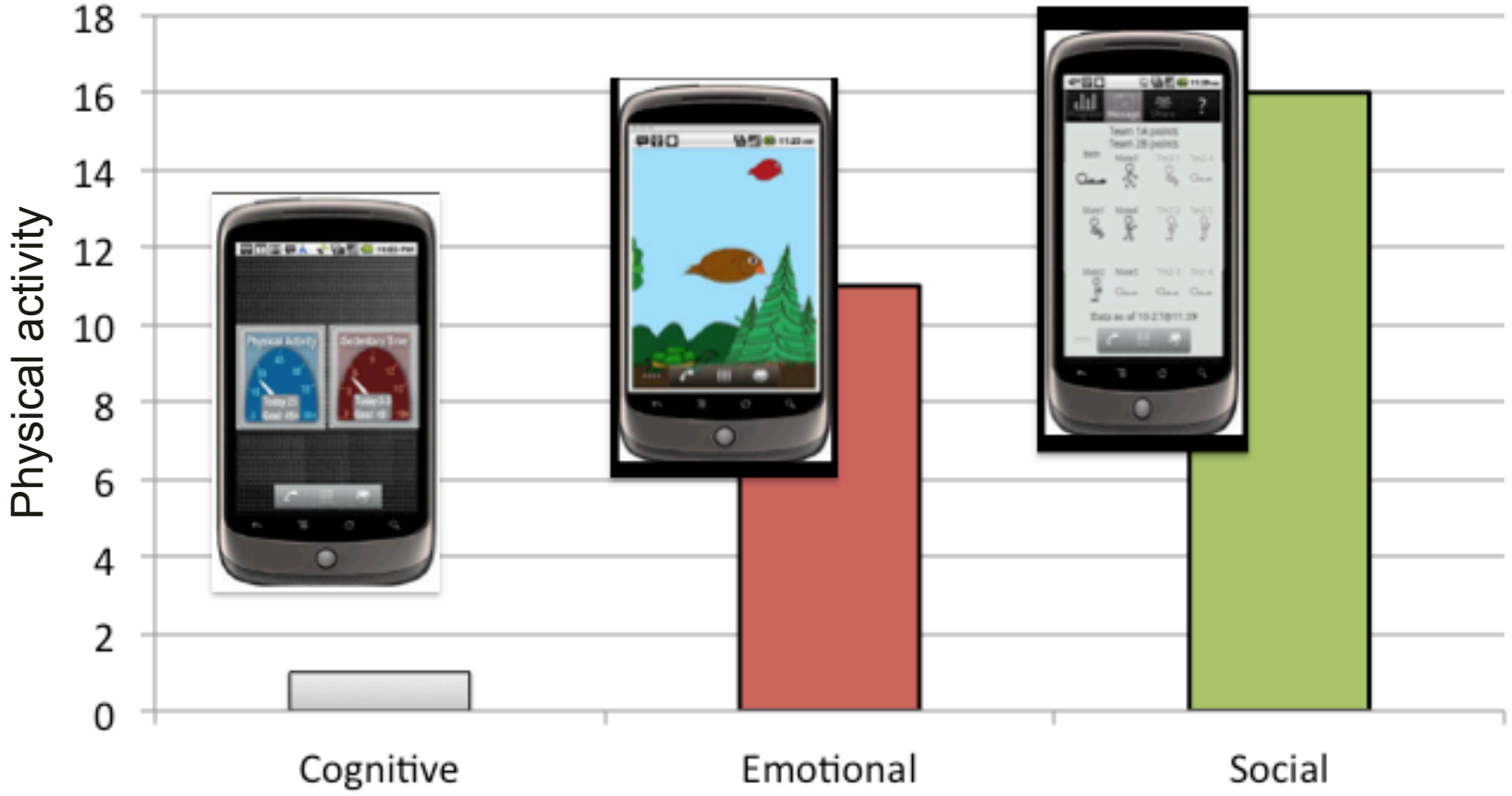
Lesson #2: Commitment devices work, and some people will seek them out

- **Overcome procrastination**
  - E.g. Regular exercise: People buy gym memberships for their "ideal" gym use, which is more than their actual use
- **Binding commitment contracts (i.e. "tie your hands")**
  - E.g. Smoking cessation: Deposit value of forgone cigarettes into bank account, returned after 6 months if quit.
- **Non-binding commitments less successful**
  - E.g. pledge to take deworming drugs didn't enhance adherence

Lesson #3: Small “nudges” can make big differences

- **People respond to social cues more than plain cognitive information**
  - E.g. Increase in physical activity higher when app showed social feedback (action compared to others) than emotional (fish happiness) or cognitive (just information)

mhealth intervention to increase physical activity



Lesson #3: Small "nudges" can make big differences

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- **Simple reminders can be very cost-effective**
  - E.g. SMS messages increase drug adherence (8-17%), sunscreen use (26%)
  - E.g. Checklists for providers increase adherence to best practices

- **Micro-incentives (cash or material) to overcome small barriers**
  - E.g. Bag of lentils for bringing children for immunizations
  - E.g. Small cash reward for staying STI-free

Lesson #4: Seek to select in (and not crowd out) intrinsic motivation

- **Want to select for intrinsically motivated individuals**
  - E.g. health care providers (especially with complex jobs, not just single-item production), public service delivery
  - E.g. commitment contracts work better for those who want to change behavior
- **Monetary incentives may 'crowd out' intrinsic motivation**
  - Incentives reinforce profit-mindedness, lower value of public service output, decrease overall work pride / commitment
  - Size and form of incentive is critical and context-dependent

Learning about behavioral foundations of choice

- **Incorporate quantitative measurements**
  - Measure risk tolerance via menu of lottery options with varying degrees of wins/losses
  - Measure time preferences through money allocation across difference time frames (e.g. today vs. next month vs. next 2 months)
- **Experimental designs**
  - Laboratory experiments: highly controlled, may want to incorporate some aspects of the field context
  - Field experiment: Subjects naturally undertake tasks and not aware of study participation
- **Qualitatively investigate through interviews to probe circumstances surrounding decision-making**

Group Exercise

Incentives to reduce STI incidence in Tanzania (Dow et al.)

- **On-going randomized prevention trial**
  - Controls: STI testing every 4 months, free treatment, counseling
  - Treatments: adds small incentive payments for negative STI tests.

- **Let's think about the pathways:**
  - Classical Economics
    - Price effect: incentives raise "price" (lost incentive payment) of risky sex.
  - Behavioral Economics:
    - Cash provides a nudge/excuse to alter conventional practices and norms.
    - Qualitative data suggest this is particularly helpful to women in getting their husbands to reduce risky behavior.

Incorporating BE into a study

1. Identify problem behavior

   Malaria should be treated only after diagnosis so introduce rapid diagnostic tests to people buying malaria drugs at drug shops

   Most people presumptively treat themselves based on presence of "fever", so getting a diagnosis and taking the right treatment is a new behavior to learn

2. What intervention would work to encourage "good" behavior?
   1. *Introduce diagnostic tests and give people information on their malaria status.*
   2. *Encourage taking the right treatment through a SMS reminder nudge.*
3. Test the intervention

   Test people who suspect they have malaria at drug shops and give them the result. Randomly assign half of respondents to receive a text message one day after their diagnosis. Must offer access to an advice nurse for complications per ethics.

4. Collect measures to assess/verify pathways

   Possible confounding: How to tell difference between "nudge" and traditional "price" effect? (Advice nurse reduces cost of seeking out additional care)
   1. *Measure actual behavior: respondent calls nurse, what treatment was taken*
   2. *Ask if respondent referred to the text message and/or liked having access to an advice nurse*

Results of the SMS intervention

- 95% of respondents presumptively treating themselves for malaria were RDT-negative (i.e. did not have malaria)→need to get people to NOT take their malaria drugs
- 75% of RDT-negative people did not take their malaria drugs just based on the diagnostic information alone.
- *Behavioral intervention:* SMS text reminder improved adherence (not taking anti-malarial drugs) by 10-15 percentage points

Q: Why did it work? What did participants say?

What about the text message did you find helpful?	
Reminded me of test result	112
Reminded me of treatment	64
Access to nurse	23
Other	9
No reason	14

Homework

1. **Conditional cash transfer programs (Fernald et al. 2008)**
   - Mexico's Oportunidades: Large cash transfers to poor mothers conditional on preventive health care and child school enrollment.
   - Compare neoclassical and behavioral economics pathways.

2. **Selecting one specific behavioral area in your field, how would you expect an incentive-based program to affect your outcome?**
   - Would you be able to tell the difference between neoclassical or behavioral economics pathways?
   - Are there measures that could be collected to help distinguish between these mechanisms?