Good Solutions for Bad Behavior: Introduction to Behavioral Economics

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1. What is Behavioral Economics?

Psychology and Economics to:

- Better understand decision making
- Use insight to improve poor choices
- Design intervention and policies
- ‘Choice architecture’
2. Why is Behavioral Economics Worth Learning?

- Evidence of effectiveness
- Increasingly being adopted
- Untapped opportunities to prevent or treat HIV/AIDS
3. If you do not believe me...

- Daniel Kahneman Noble Prize in Economics in 2002
  - ‘Prospect theory’ work with Amos Tversky
  - Psychologist won Nobel prize in Economics

- Cass Sunstein, appointed by President Obama to use behavioral economics in govt.
  - Head, White House Office of Information and Regulatory Affairs
  - Nudge, Richard Thaler and Cass Sunstein
  - President Obama, Sunstein and Thaler all at University of Chicago together
4. Behavioral Economics Interventions

- Prec commitment device
- Financial incentives
  - Lotteries
  - Play on regret aversion
  - Reminders, framing
  - Defaults, opt in, opt out
Odysseus wanted to hear the enchanting music of sirens, but not be lured toward shipwreck.

His solution: Precommitment device.

He was tied to the mast; others had to plug their ears.
Commit in advance to what Odysseus wanted in a ‘cool’ period

Knew his limitation in a ‘hot’ period

Sophisticated:
- knew low self-control listening to sirens

Sophisticated vs naïve.
Dean Karlan, economist at Yale,

- Wagered a bet he could lose weight – gave money to a friend to officiate
- It worked! He made a website StickK.com ($10 million bet online)
- You bet that you can lose weight
  - If lose weight, — get your money back.
  - If not lose — money goes to charity, or your least favorite cause!
8. ‘Serving size’ as a precommitment device

- Smaller serving size reduces calories
  - Wainsink, ‘Mindless Eating’
  - Endless soup bowl

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9. Smaller Cigarette Pack – analogy to food serving size

- Hypothesize: smaller pack size would reduce smoking – 10 cigarettes per pack
- Experiment online: Choice of number of cigarettes per pack – 10 vs. 20 vs. 30

- **37%** choose the 10 pack size
- Of those:
  - **70%** willing pay a financial premium!
Gamblers can sign up (in cool period) to have the casino turn them away.

Smokers like higher tobacco taxes—precommit to cutback due to higher price.
Agree to put future raises in savings automatically;
  Even though would not put current raises in savings

Naltrexone
  Take daily to quit drinking, but if want to drink that day... skip the pill
  Newer once-a-month injection (Vivitrol)
12. Different ways of understanding need for pre-commitment device

- **HOT**/ **COLD** periods
- Being of two minds – long term planners, short run reactor
- ‘Time inconsistent’ (hyperbolic discounting); strong present bias
- Slow vs. fast thinking, book by Kahnemen
- **Cue** based demand – rational until you see the cake, drugs, cigarettes
13. Respond to cues?
14. How I Became Interested in Behavioral Economics

- Contingency Management with Nancy Petry
- Small payments were effective. Why?
- Found to be effective, structure of payment matters
Impact of Prize Based Contingency Management as Compared to Usual Care in Drug Treatment

Consecutive Days Abstinent

Usual Care: 2.6
Incentives: 4.7

Real costs are loss of job, money, family; risk of HIV/AIDS, STDs and overdose

Not rational; not explained by neoclassical economics

- Want to lose weight
- When best to start diet? Tomorrow… but tomorrow never comes
- Financial incentives tip the balance toward today; Reinforce.
18. Lottery / Prize-based Incentives

- Use lottery to give prizes–if test drug-free
- Individuals overweight small probability events
- Maximize outcome per prize dollar in incentives
- Not politically feasible, no budget to pay $1,000 to drug users
Impact of Prize Based Contingency Management: No Incentives, Low Incentives & High Incentives

<table>
<thead>
<tr>
<th>Consecutive Days Abstinent</th>
<th>No Incentives</th>
<th>Low Incentives</th>
<th>High Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5</td>
<td>3.7</td>
<td>4.9</td>
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20. Lotteries with a twist – play on regret aversion. Medication Adherence

- All enrolled automatic in a daily lottery
- If your name is drawn...
  - took your meds - get paid
  - did not take meds - get email saying should have taken meds - regret

(Lowenstein et al.)
Mexico and beyond pay parents for students’ good behavior

Bloomberg, NYC, but....

Hawaii drug users on parole – smaller jail time with certainty, not uncertain large

Firms pay workers not to smoke
Low income, more likely to smoke—least likely for someone to pay incentives

Affordable Care Act, $10 million to CT and Yale

Test incentives in large, randomized field study

Incentives. Test: None, Low; High

Test: pay on outcome vs. treatment

Low income, Minority, Pregnant, Mental health problems
23. Financial incentives – Are most effective if payments are:

- Paid on objective criteria
- Frequent
- Immediate
- Salient
- Escalate to extend behavior
- Long time frame

- Decision-making – difficult, complex
- Simplify – use short cuts in making decisions; ’heuristics’; rules
- Rules often serve well, but not always
- Systematic ‘mistakes’; biases
- Use these biases to develop interventions to improve
## 25. List of Decision-making Biases

<table>
<thead>
<tr>
<th>BE Mechanism</th>
<th>Bias to Address</th>
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<tbody>
<tr>
<td>Precommitment device</td>
<td>lack of self-control</td>
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<tr>
<td>Financial incentives</td>
<td>present bias</td>
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<tr>
<td>Lotteries</td>
<td>overweight low prob.</td>
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<tr>
<td>Play on regret</td>
<td>regret aversion</td>
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<tr>
<td>Reminders. Framing</td>
<td>opportunity cost</td>
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<tr>
<td>Defaults</td>
<td>status quo bias</td>
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<tr>
<td></td>
<td>neglect</td>
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<td></td>
<td>low salience</td>
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- Health vs. financial motivation to quit smoking (framing matters)

Smoking cessation brochures as picked up by financial vs. health message *
* In a financial setting

- 63% Financial
- 37% Health
27. Opportunity to apply to HIV/AIDS

- **Improve adherence** to: condom use, routine HIV testing, linkage to care, antiretrovirals, Pre-exposure prophylaxis (PrEP), etc.

- **Reduce risk** of: unprotected sex, substance use, IV drug use, use of dirty syringes, etc.
Current Uses:

- Small financial incentives; Scott Braithwaite
- Lottery to maximize impact per dollar, Nancy Petry
- Different kinds of lotteries, e.g. teams
- Reminders, framing - Text messages in Africa, Pop-Elches
- Take advantage of loss aversion - say would have won; meds

Not yet used?

- Precommitment devices? Make appointments for you. (no show risk)
- Defaults, status quo bias, opt-out? weekly appointments
29. Designated Smoking Room
Lester RT et al. Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya 1): a randomised trial. Lancet 2010


31. Financial Incentives – Detractors?

- What happens when stop paying?
- Internal versus external motivation?
- Unfair to those not receiving?
- Administrative costs?
Develop habits that last
- When stop paying outcomes still better
- Learn internal motivation
- Becomes a habit

Unfair; not doing so can be unfair to recosta on others

Paternalistic; Asymmetric; Libertarian
33. Additional References

**Popular Books on Behavioral Economics**
- Dan Ariely, *Irrational Exuberance*.

**Nancy Petry**

**Jody Sindelar**
- Sindelar JL, Olmstead T, Peirce J. Cost-effectiveness of Prize Based Contingency Management in Methadone Maintenance Treatment Programs. *Addiction*. 2007 Sep;102(9):1463-71. PMCID:
Richard Thaler


Kevin Volpp

- LK John, G Loewenstein, AB Troxel, L Norton, J E Fassbender, Kevin Volpp (2011), Financial Incentives for Extended Weight Loss: A Randomized, Controlled Trial, Journal of General Internal Medicine, Note: Epub ahead of print
- Kevin Volpp, L John, AB Troxel, L Norton, J Fassbender, G Lowenstein (2008), Financial Incentive-based Approaches for Weight Loss: A Randomized Trial, JAMA, 300(22): 2631-2637
- G Loewenstein, TA Brennan, Kevin Volpp (2007), Asymmetric Paternalism to Improve Health Behaviors, JAMA, 298(20): 2415-2417