Behavioral and Development Economics

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Today's Talk

"Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines" Ashraf, Karlan, and Yin [2006]

- Developed SEED "commitment" savings product for a small Philippine, semi-rural, for-profit bank
  - Withdrawal restriction - time-based or amount-based (client chosen)
  - Deposit incentive - Ganansiya box or Automatic transfer
  - Same interest rate as regular savings account
- Sample of poor but "banked" (prior clients) of the bank
- RCT + survey methodology to identify "quasi-hyperbolic" individuals using hypothetical time preference questions
- 28% uptake amongst treatment; takeup predicted by present-biased time-inconsistent preferences
- Average increase in bank account savings against control: 80% after 12 months.

Present Bias: Other Applications

Smoking - Giné, Karlan, and Zinman [2010]

- A savings product for smokers with withdrawal options at six months, conditional on passing a urine test, resulted in a 3% difference, between treatment and control, in those passing the test.

Under-adoption of agricultural technology - Duflo, Dupas, and Kremer [2011]

- Time-limited discount (free delivery) early in the season increases fertilizer take-up by 47-70% (larger effect than offering free delivery, with 50% discount, later in the season)

Labor Choices - Kaur, Kremer, and Mullainathan [2015]

- Workers who exhibit sophistication about their present bias will value sharper incentives (those which penalize low output but give no additional rewards for high output) creating alignment between firm and worker.

Present Bias and Commitment: Other Applications

Insurance - Casaburi and Willis [2018]

- Enabling farmers to pre-commit to purchasing insurance a month later increases take-up by 21 percentage points

Alcohol consumption - Schilbach [2019]

- When offered a choice between unconditional payment of a fixed amount or a conditional payment with high payoff for sobriety and lower payoff otherwise, where the unconditional payment weakly dominated the conditional payment, over 50% of participants chose the conditional payment.

Hypertension - Bai, Handel, Miguel, and Rao [2021]

- Despite moderate uptake of commitment contracts, offered to hypertensive patients in rural India to attend health camps, attendance did not exceed 15% indicating patients were partially naive about their present bias.

Today's Talk

Attention to the Future

"Provision for the future makes no inconsiderable demands on our intellectual strength..The present always gets its rights. It forces itself upon us through our senses. To cry for food when hungry occurs even to a baby.

Böhm-Bawerk, The Positive Theory of Capital and Interest (1889)

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But the future we must anticipate and picture. [...]

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Time Preference and Attention

- Gabaix [2019]
  - Hyperbolic discounting: global inattention to the future
  - Projection Bias: inattention to future circumstances by anchoring on present circumstances;
- Gabaix and Laibson [2017]:
  - as-if discounting, generated by imperfect forecasting(cognitive myopia)
  - agents experience signals that are noisy, but accurate on average.
  - variance in signals can be large and increase as the event becomes more distant in the future.

Attention to the Future

"Provision for the future makes no inconsiderable demands on our intellectual strength... The present always gets its rights. It forces itself upon us through our senses. To cry for food when hungry occurs even to a baby.

But the future we must anticipate and picture. [...]

We must be able to form a ***mental picture*** *of what will be the state of our wants, needs, feelings, at any particular point of time.*

And we must be able to form another set of anticipations as to the ***fate of those measures*** *which we take at the moment with a view to the future".*

Böhm-Bawerk, The Positive Theory of Capital and Interest (1889)

Becker and Mulligan [1997]: Endogenous Determinants of Time Preference

- Rational investment in capacity to appreciate the future to reduce degree of "overdiscounting"
- The rich tend to do this more naturally; implication for inequality

Ability to imagine the future
Schacter, Rose Addis & Buckner (2007)

:

- Neuroimaging studies of the 'prospective brain' shows that imagining future events recruits the same neural processes involved in recalling past memories
- However, thinking about the future requires that event details gleaned from past events be flexibly recombined into novel future events, requiring the activity of additional brain parts (frontopolar and medial temporal regions).

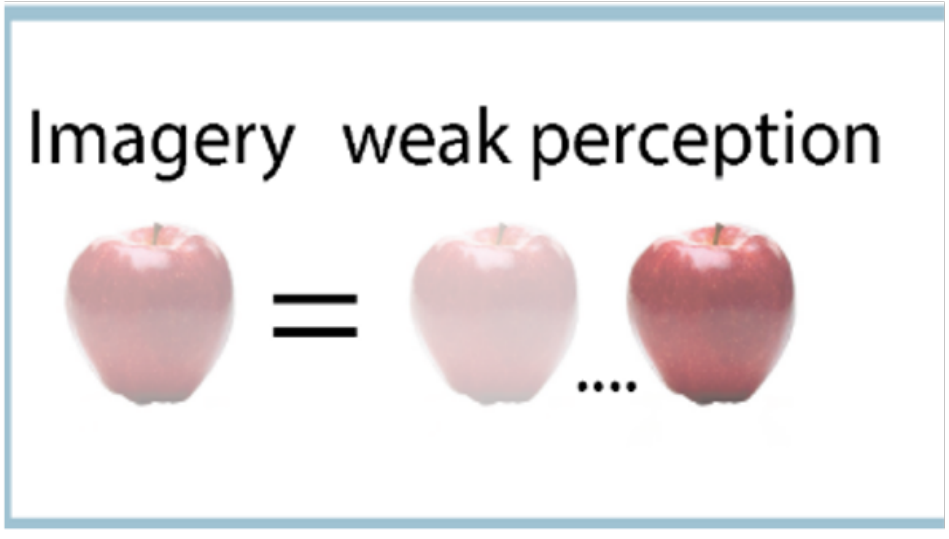
Trauma impairs the ability to imagine the future

- PTSD associated with tendency to remember past events in a non-specific, over-general way - see Kleim and Ehlers [2008]; McNally et al. [1995]; Moore and Zoellner [2007]
- Future 'mental time travel" [Tulving, 2002]: The capacity to flexibly reconstruct details to simulate or 'pre-experience' future episodic events mentally – becomes more difficult
- Implication: Murky, non-specific or limited thinking about the future [Kleim et al., 2014]

Learning to see the world's opportunities: The impact of imagery on entrepreneurial success Ashraf, Bryan, Delfino, Holmes, Iacovone, and Pople [2021]

- **Setting**:
  - *Colombia*: Over eight million of civil-conflict victims
- **Target**:
  - Around 2000 micro entrepreneurs with high trauma scores
- **Intervention**:
  - Business training embedded with imagery-based learning techniques: teaches entrepreneurs to imagine future scenarios and the pathways for achieving these outcomes with vividness and emotion, as well as mentally practice useful behaviours (scenario simulation, emotions and memory consolidation)
  - Two armed intervention:
    - **Pure control group**
    - **Placebo treatment**: Traditional business training
    - **Imagery treatment**

Imagery is a form of mental experiencing



"visual mental imagery is a depictive internal representation that functions like a weak form of perception. Brain imaging work has demonstrated that neural representations of mental and perceptual images resemble one another as early as the primary visual cortex (V1). Activity patterns in V1 encode mental images and perceptual images via a common set of low-level depictive visual features."

Pearson, Naselaris, Holmes, and Kosslyn [2015]

How can mental simulation lead to success?

Alex Honnold

Images tend to be more vivid and emotional

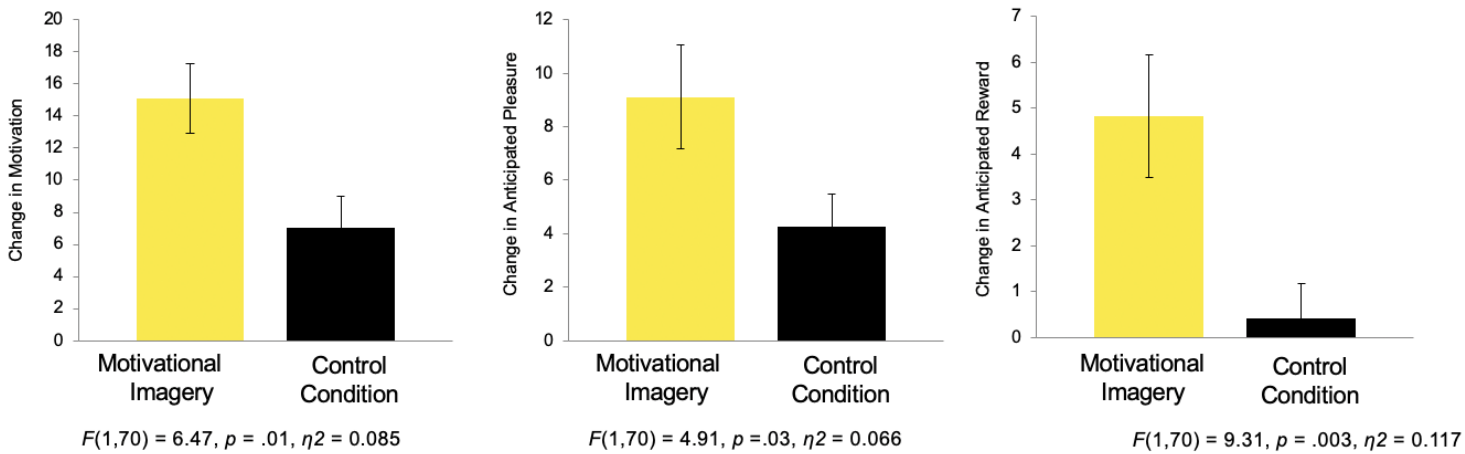
Lab experiments: Compared to verbal thought, mental imagery has a more powerful impact on **emotion and specificity of future thinking**

I want to scream

Holmes & Mathews 2005; 2006; 2008; 2010; 2013

Mental Imagery as a Motivational Amplifier

- Mental imagery simulations of engaging in planned activities impact on motivation/anticipated reward to engage in these activities



Renner et al. [2019]

Results: Learning to see the world's opportunities (2021)

- Imagery training ↑ use and quality of business imagery compared to placebo training (0.177 SD difference)
- Imagery treatment participants score 0.13 SD better on average on economic index than placebo participants
- Heterogeneity in results: **trauma** and **gender**
  - High-trauma individuals report higher quality positive imagery and have better economic outcomes
  - Imagery benefits women more than men → 0.31 SD difference on psychological resilience.
- Traditional training crowds-out people's use of mental imagery in the entrepreneurship domain → Negative downstream outcomes; especially for women.

Today's Talk

Traditional and Sticky Beliefs in Development

- Certain beliefs more difficult to change than others (e.g. cultural beliefs, beliefs core to sense of "identity", superstitious beliefs, beliefs in magical theories)

Traditional and Sticky Beliefs in Development

- Certain beliefs more difficult to change than others (e.g. cultural beliefs, beliefs core to sense of "identity", superstitious beliefs, beliefs in magical theories)
- These types of traditional beliefs can hinder social learning Ashraf, Field, Rusconi, Voena, and Ziparo [2017] found that superstitious beliefs about marital infidelity causing birth complications hinder learning about maternal risk
  - As infidelity is not well observed, its possibility confounds an individuals' ability to correctly attribute maternal deaths observed in the community to true underlying risk factors
  - Women fearing accusations of unfaithfulness will be unlikely to share experienced maternal morbidity with other women or even their spouses

Learning about Maternal Mortality Risk

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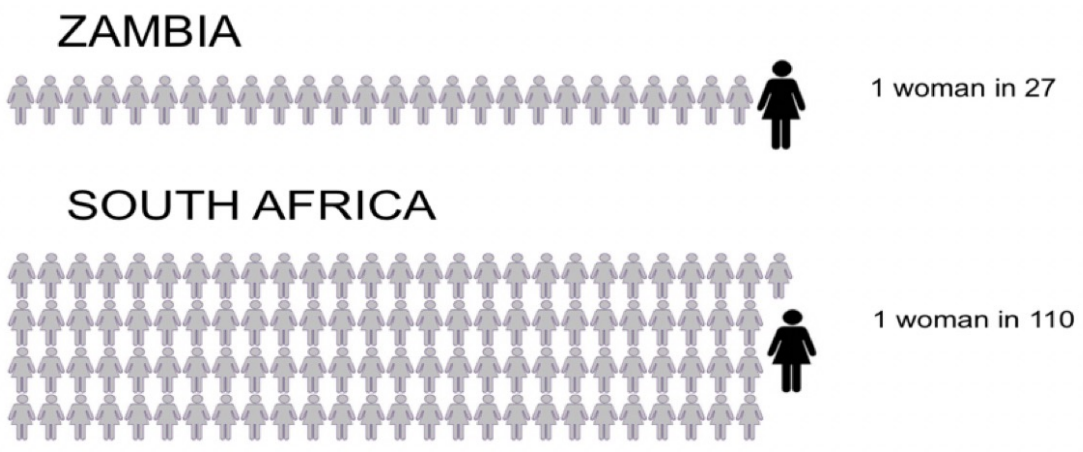
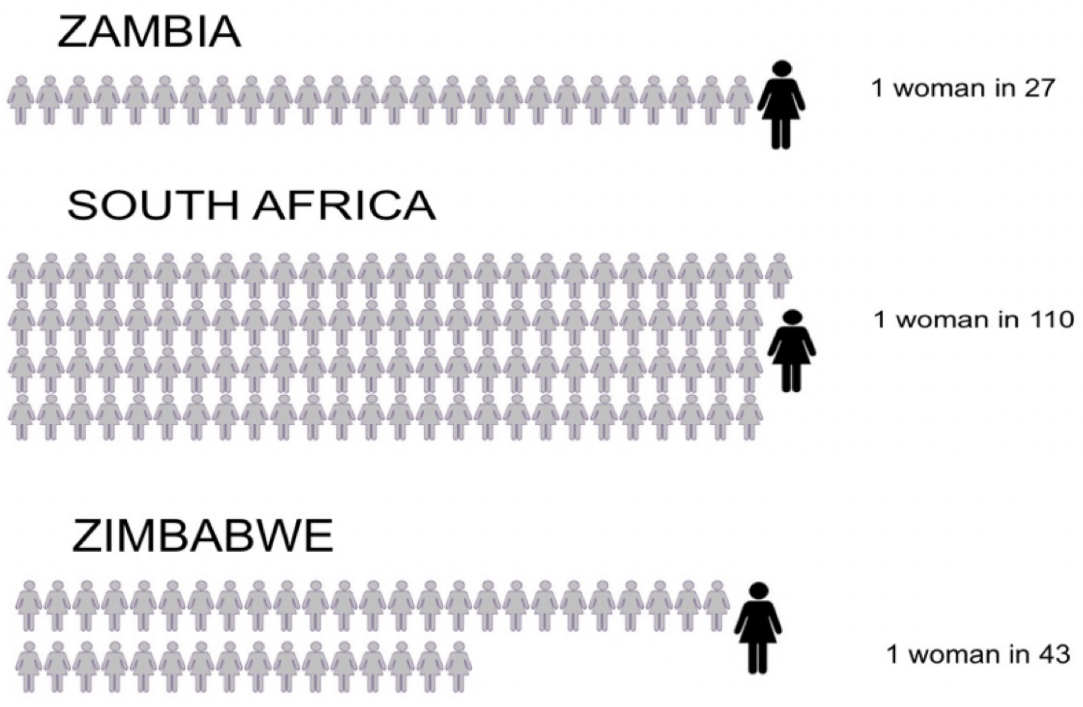


Learning about Maternal Mortality Risk



Gendered Spheres of Learning and Household Decision Making over Fertility Ashraf, Field, Voena, and Ziparo [2022]

- Typically both members of the household decide whether to have children
- **Yet** partners are often exposed to different information sets
  - Childbirth is v gendered domain, particularly where men do not accompany their wives into the labor ward.
  - Small differences in preferences or incentives lead to communication frictions
  - potential for fertility outcomes that depart from the joint optimum.

Gendered Spheres of Learning and Household Decision Making over Fertility

- **Experiment:** Randomly vary exposure to maternal health risk information to either the husband or the wife.

- Collect novel data on beliefs about maternal health costs from both men and women.

Gendered Spheres of Learning and Household Decision Making over Fertility

Providing information to husbands about maternal mortality halves the number of pregnancies

Wife Surveyed	(1) Currently pregnant
Husband Treated	-0.055*
	(0.029)
Wife Treated	-0.043
	(0.030)
Stratification Variables	Yes
Demographic Controls	Yes
Hus Treat=Wife Treat(F-test pval)	0.68
Outcome Mean in Control Group	0.12
Observations	534

Gendered Spheres of Learning and Household Decision Making over Fertility

Possible mechanisms:

- decreases desired fertility
- corrects belief about wives' preferences

Panel A: Husband Surveyed	(1) Want another child	(5) Believe spouse wants
Husband Treated	-0.070*	-0.13***
	(0.037)	(0.035)
Wife Treated	0.030	-0.028
	(0.035)	(0.040)
Stratification Variables	Yes	Yes
Demographic Controls	Yes	Yes
Husband Treated=Wife Treated(F-test pval)	0.01	0.02
Outcome Mean in Control Group	0.67	0.75
Observations	516	503

Gendered Spheres of Learning and Household Decision Making over Fertility

Possible mechanisms:

- Increases relationship quality

	(1) Positive Interaction	(2) Marriage Quality (Diagram)	(3) Happy with Own Marriage	(4) Very Happy with Own Marriage
Panel A: Husband Sample				
Husband Treated	0.043	0.27**	0.065*	0.10**
	(0.068)	(0.13)	(0.038)	(0.047)
Wife Treated	-0.0038	0.16	0.077*	0.067
	(0.073)	(0.16)	(0.039)	(0.054)
Stratification Variables	Yes	Yes	Yes	Yes
Demographic Controls	Yes	Yes	Yes	Yes
Husband Treated=Wife Treated(F-test pval)	0.53	0.33	0.73	0.47
Outcome Mean in Control Group	2.68	6.06	0.81	0.54
Observations	516	502	502	502

Today's Talk

The Question of Crowd Out

- **Titmuss [1970]**
- **Deci [1971]**
- **Gneezy and Rustichini [2000a]**
  - Introducing a fine on parents who are late to pick their children up from day care increases the number of late-comers and removing the fine has no effect
- **Gneezy and Rustichini [2000b]**
- **Ariely, Bracha, and Meier [2009]**

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- **Gneezy and Rustichini [2000b]**
- **Ariely, Bracha, and Meier [2009]**
- **Policy Discourse**: Paying (more) for pro-social activity (and public service delivery) will crowd out altruism and reduce performance.
  - ”What Money can’t Buy: the moral limit of markets” - Michael Sandel, 2012

"No Margin, No Mission? A Field Experiment on Incentives for Public Services Delivery" (Ashraf, Bandiera and Jack, 2014)

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Incentive and Experimental Design

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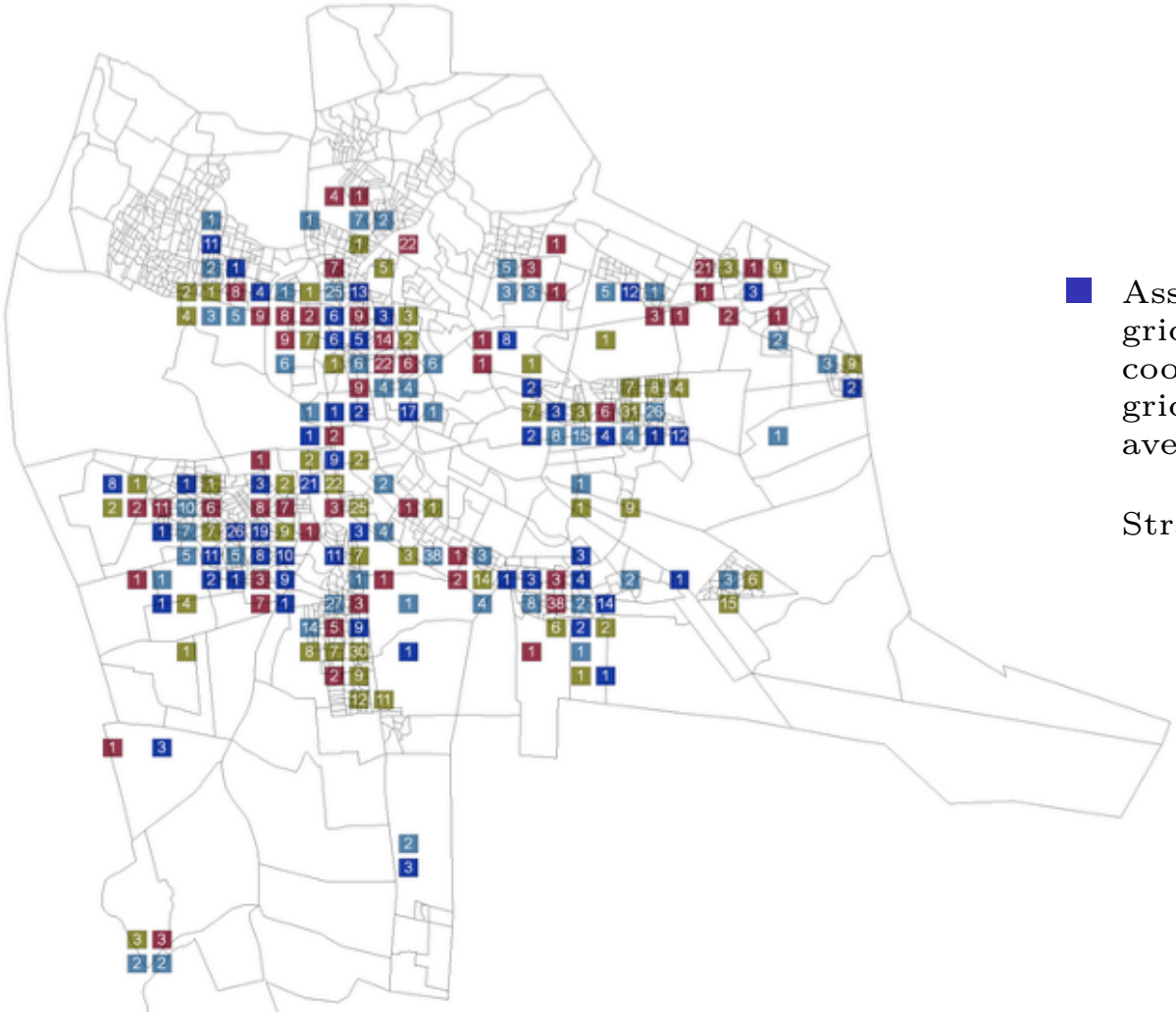
Randomization



- Assign treatment based on gridcell location via GPS coordinates of salons: c. 200 gridcells, 500sqm each, with an average of 14 salons/gridcells

  Stratified:
  - type of salon
  - presence of bar
  - manager's assets
  - index of altruism
  - number of employees
  - number of products sold

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    1. Low Financial Rewards
    2. High Financial Rewards
    3. Volunteer
    4. Non Monetary Rewards

Non-Monetary Incentives

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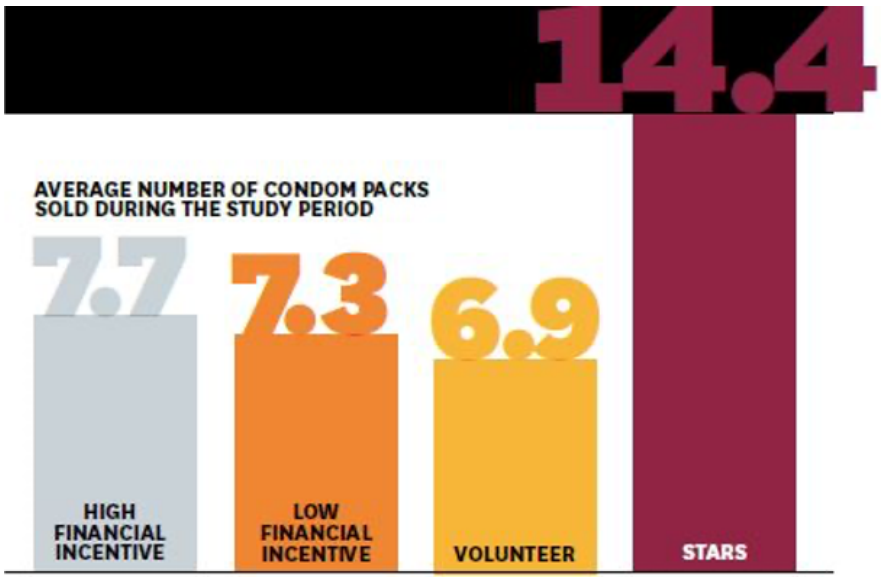
2. **Randomize:** Randomly assign 1200 salons to four treatments
    1. Low Financial Rewards
    2. High Financial Rewards
    3. Volunteer
    4. Non Monetary Rewards
3. **Train and Measure Pro-Sociality** (Adapted Dictator Game)
4. **Track Sales** of Female Condoms

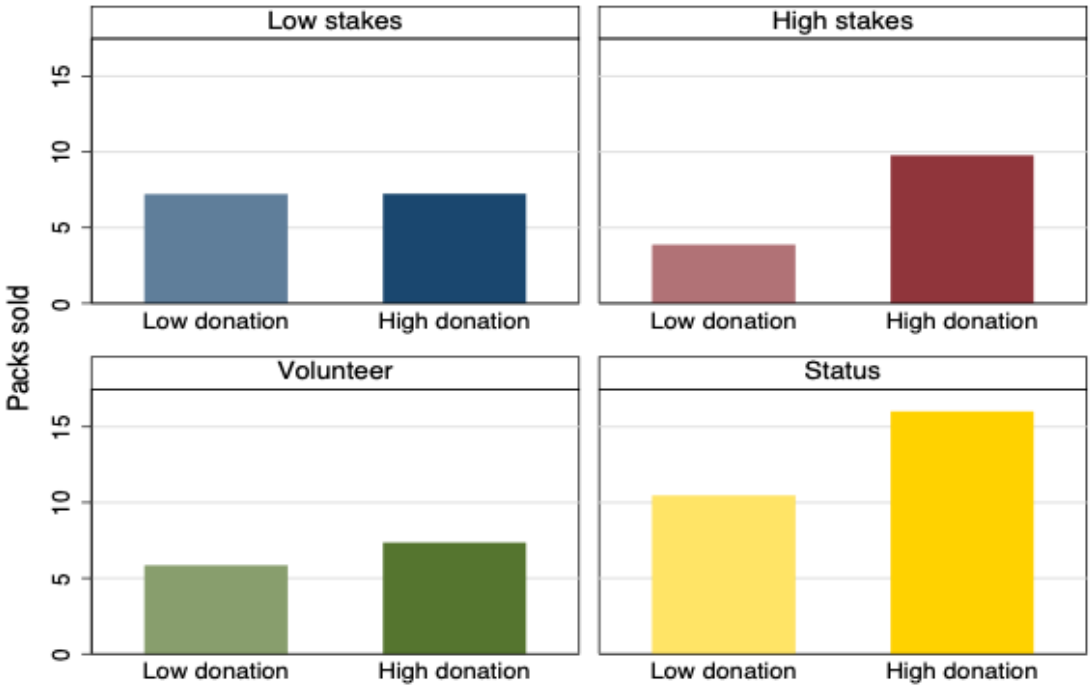
No Margin, No Mission?

Ashraf, Bandiera, and Jack [2014]



- Stars (non-financial rewards) are much more effective than financial incentives in this setting.
- Seems to be driven by warm-glow effect and social comparison

Incentives reinforce existing altruistic motivation: Crowd in!



Incentives in public service delivery - Extensive Margin

Dal Bó, Finan, and Rossi [2013]

- Evaluated the effect of financial incentives in the recruitment of public sector employees in 167 marginalized Mexican municipalities
- Randomized at two stages:
  - Different salaries across recruitment sites
  - Job offers
- Higher wages help attract better candidates, both in terms of quality and motivation, showing no crowding out of prosocial traits
- Moreover, higher wages led to more applications and job offers accepted
- No evaluation of subsequent performance

Ashraf, Bandiera, Davenport, and Lee [2020]

Losing Prosociality in the Quest for Talent? Sorting, Selection, and Productivity in the Delivery of Public Services

- Field experiment within Zambian Ministry of Health's new Health Workers recruitment strategy
- Goal: Train 5,000 new CHAs by 2015 (note: in 2010 only 6,000 nurses in the country)
- Design a recruitment strategy that both leverages motivation and incentivizes performance

Ashraf, Bandiera, Davenport, and Lee [2020]

- Vary the salience of a career in civil service at the recruitment stage, whilst all factors such as application requirements and earnings expectations are kept equal

Recruitment Campaigns

Community-oriented recruitment poster

REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH

DESIGNATED HEALTH CENTRE:	FOR POSTING AT:

TRAINING OPPORTUNITY

ONE-YEAR COURSE IN COMMUNITY HEALTH

The Ministry of Health is launching a new national Community Health Worker (CHW) program and invites qualified persons to participate in the initial training of community health workers.

The training will begin on _____ and will be held at the Provincial level for selected applicants. All training costs, including transportation, meals and accommodation during the one-year training program, will be covered by the Ministry of Health.

BENEFITS:

- Learn about the most important health issues in your community
- Gain the skills you need to prevent illness and promote health for your family and neighbors
- Work closely with your local health post and health centre
- Be a respected leader in your community

QUALIFICATIONS:

- Zambian National
- Grade 12 completed with a minimum of two O-Levels
- Age 18-45 years
- Endorsed by Neighborhood Health Committee within place of residence
- Preference will be given to women and those with previous experience as a CHW

APPLICATION METHOD:

Submit to the **DESIGNATED HEALTH CENTRE** indicated above:

- Completed application form with necessary endorsements. If no blank forms are attached to this notice, kindly obtain a blank one at the nearest health centre.
- Photocopy of school certificate documenting completion of Grade 12 and a minimum of two O-Levels.
- Photocopy of Zambian national registration card.

For more information: Contact the Designated Health Centre indicated above.

APPLICATION CLOSING DATE: _____

Shortlisted candidates will be announced at the Designated Health Centre on _____

Career-oriented recruitment poster

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BENEFITS:

- Become a highly trained member of Zambia's health care system
- Interact with experts in medical fields
- **Access future career opportunities including:**
  - **Clinical Officer**
  - **Nurse**
  - **Environmental Health Technologist**

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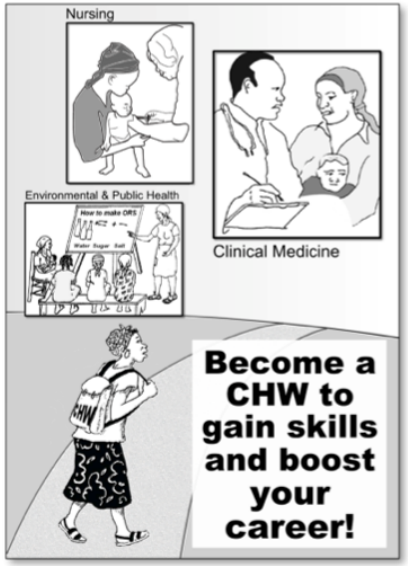

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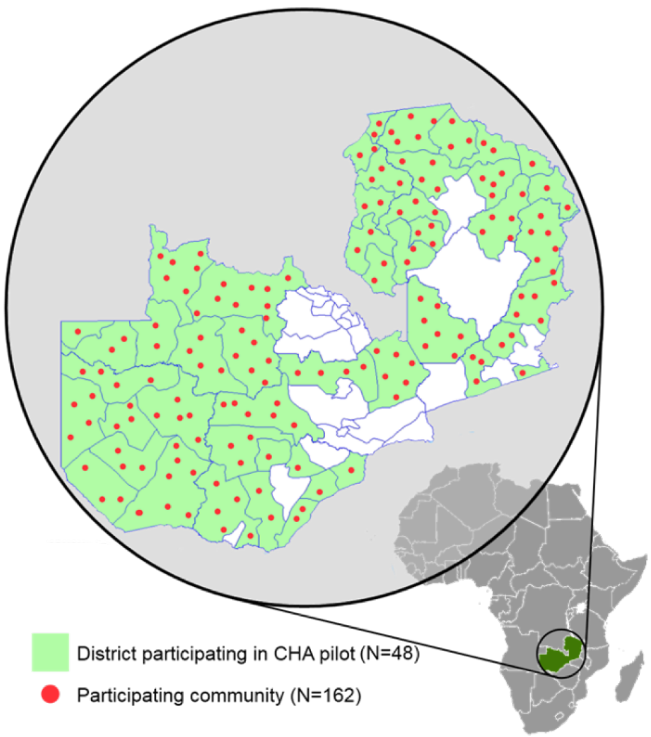
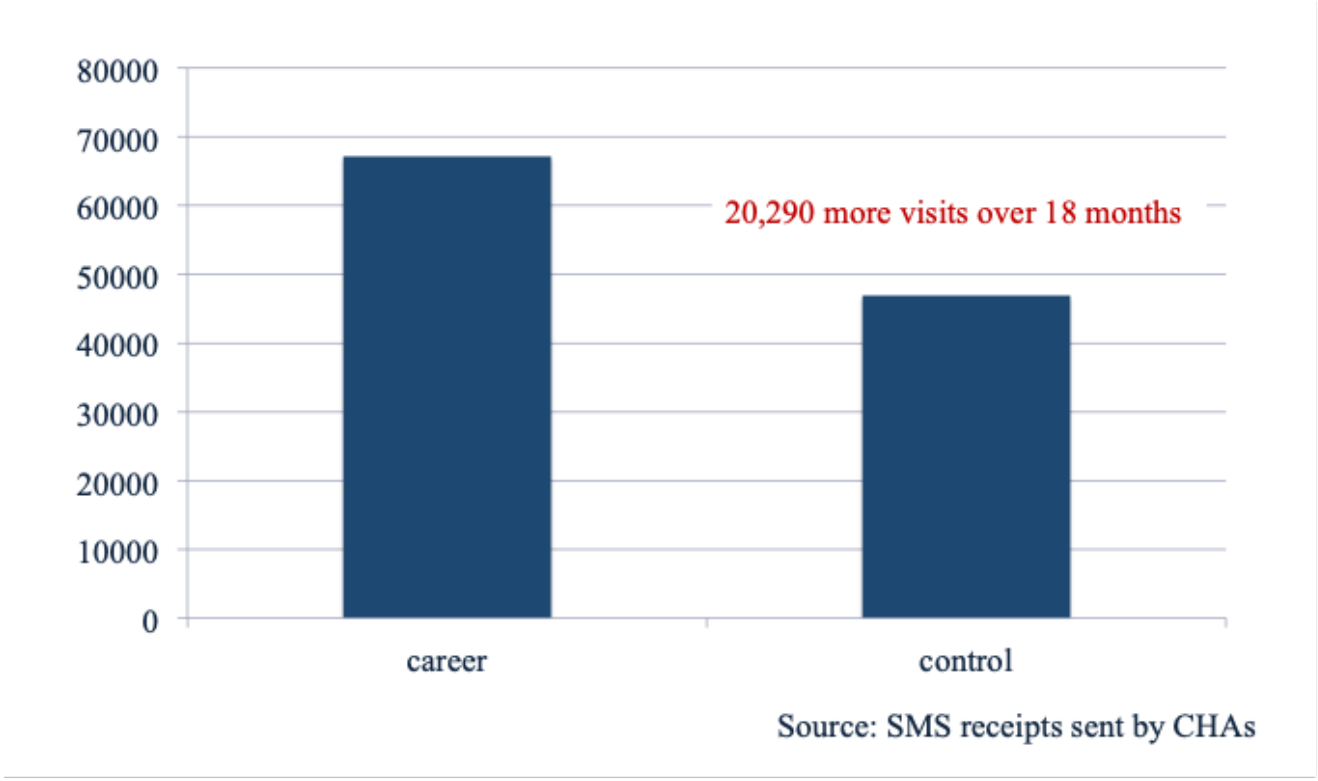
Ashraf, Bandiera, Davenport, and Lee [2020]

- 162 communities in 48 districts in 7 provinces
- 2 CHAs nominated per community
- Randomized at district level
- Stratified:
  - Province
  - Rate of high school attainment



Ashraf, Bandiera, Davenport, and Lee [2020]

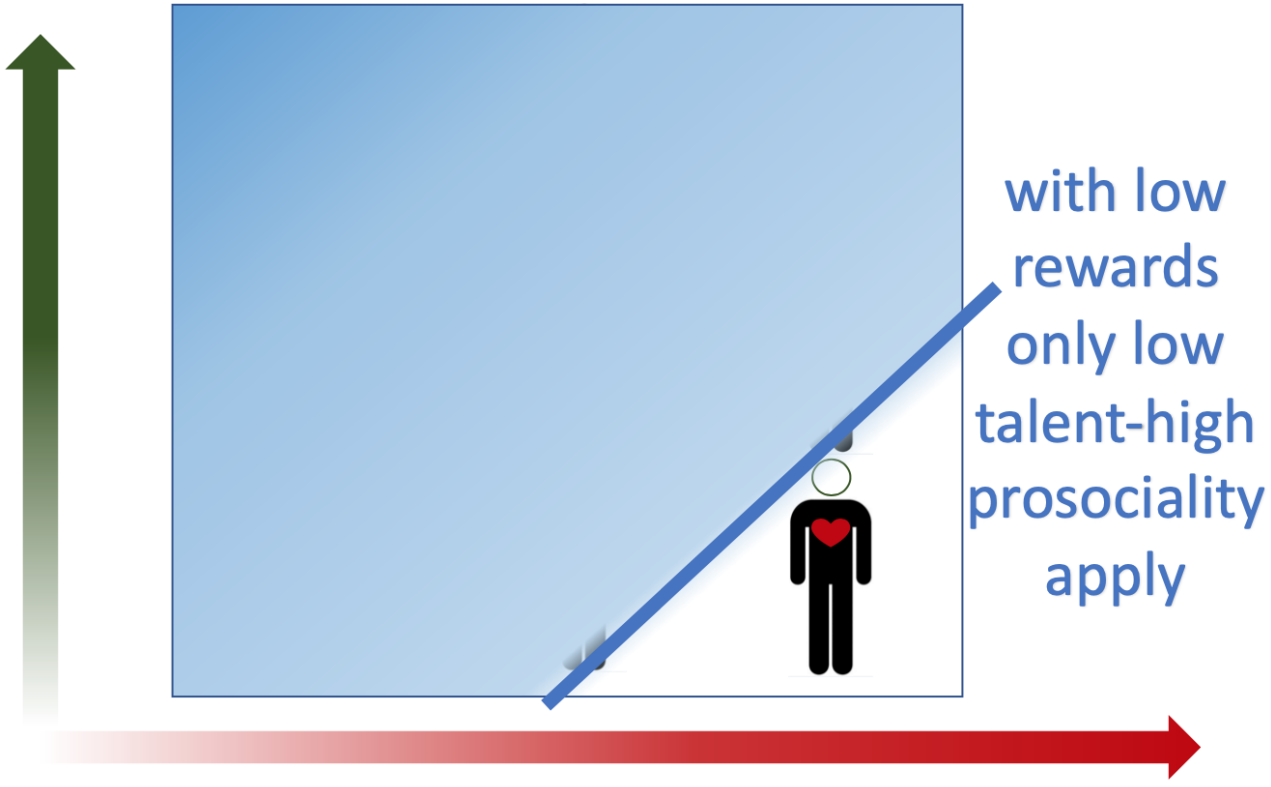


Ashraf, Bandiera, Davenport, and Lee [2020]

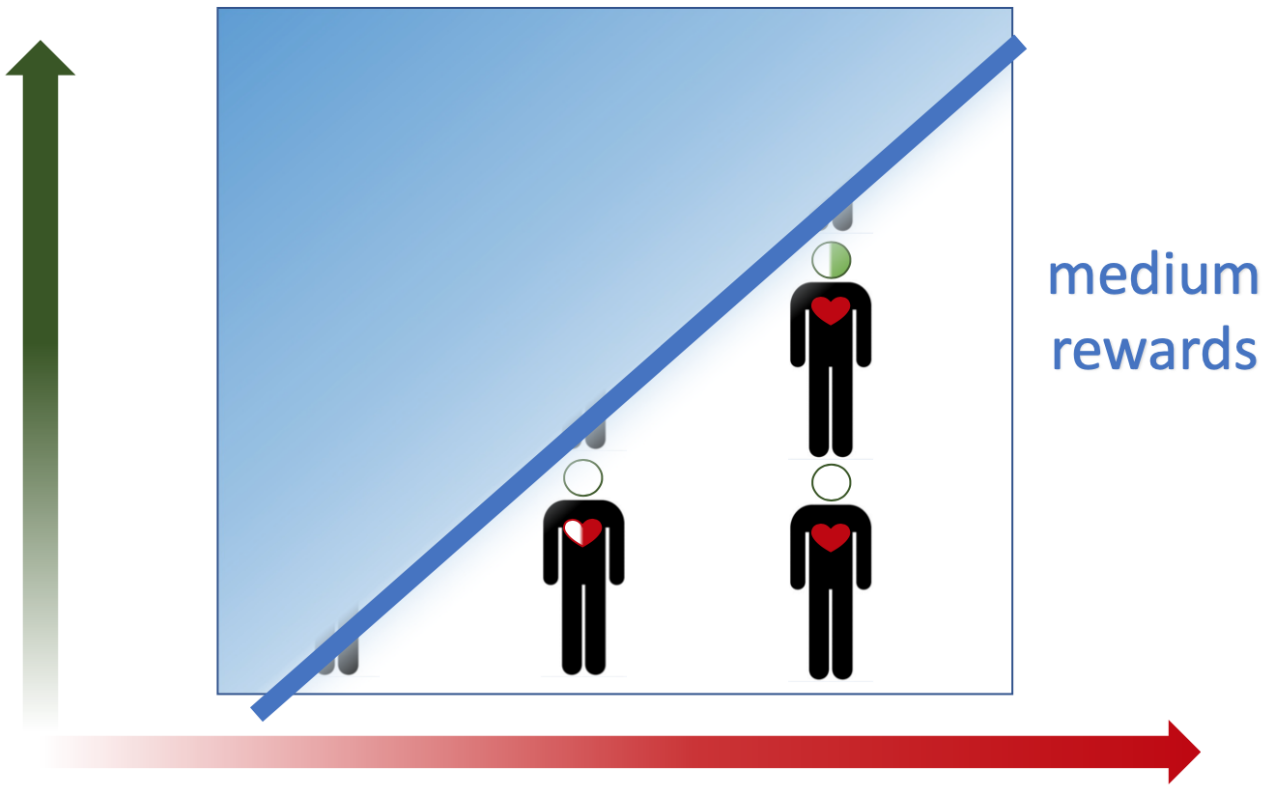
Does the control group outperform on other dimensions?

- Do more community mobilisation/work at HP? ***No***
- Remain in post longer? ***No***
- Focus on hard-to-reach households? ***No***
- Longer visits? ***No***
- Better targeting within households? ***No***
- Work longer hours doing something else? ***No***
- More responsive to emergencies? ***No***

Prosociality and Talent



Prosociality and Talent



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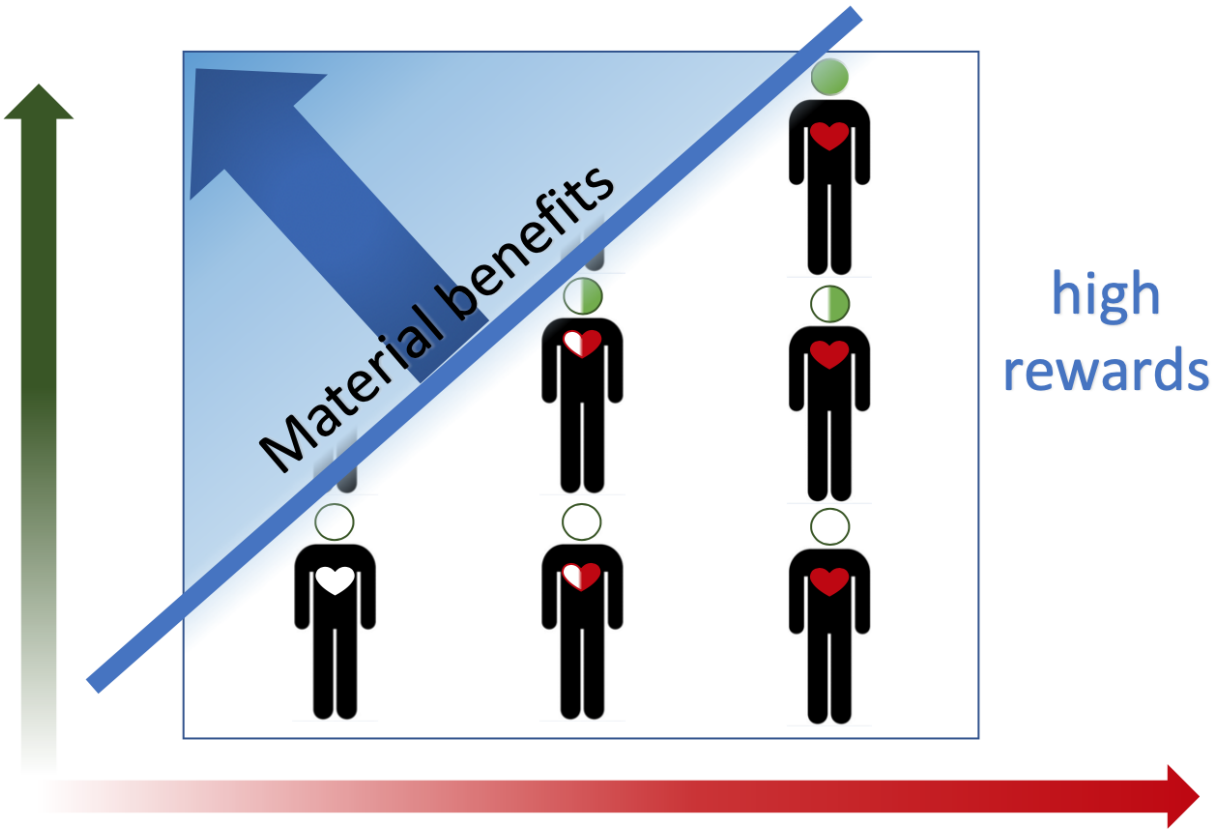

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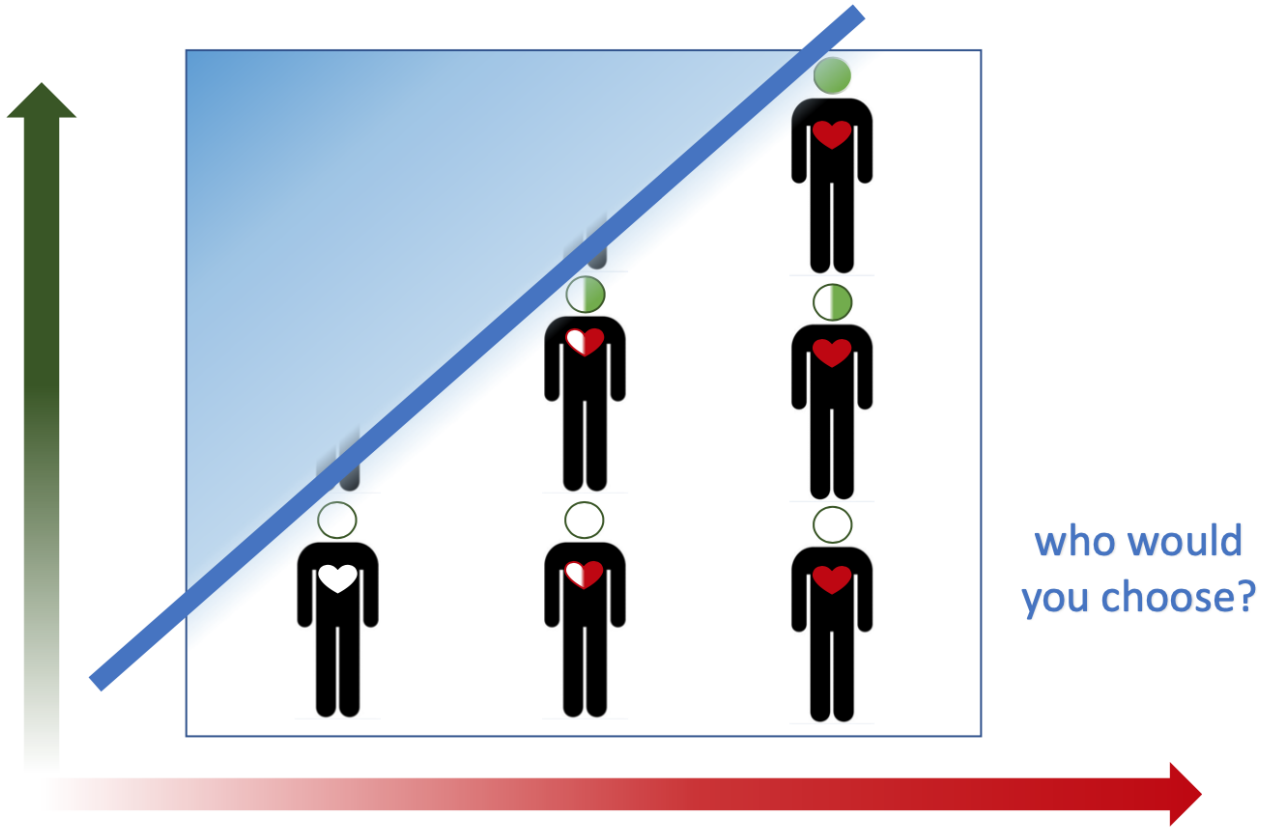

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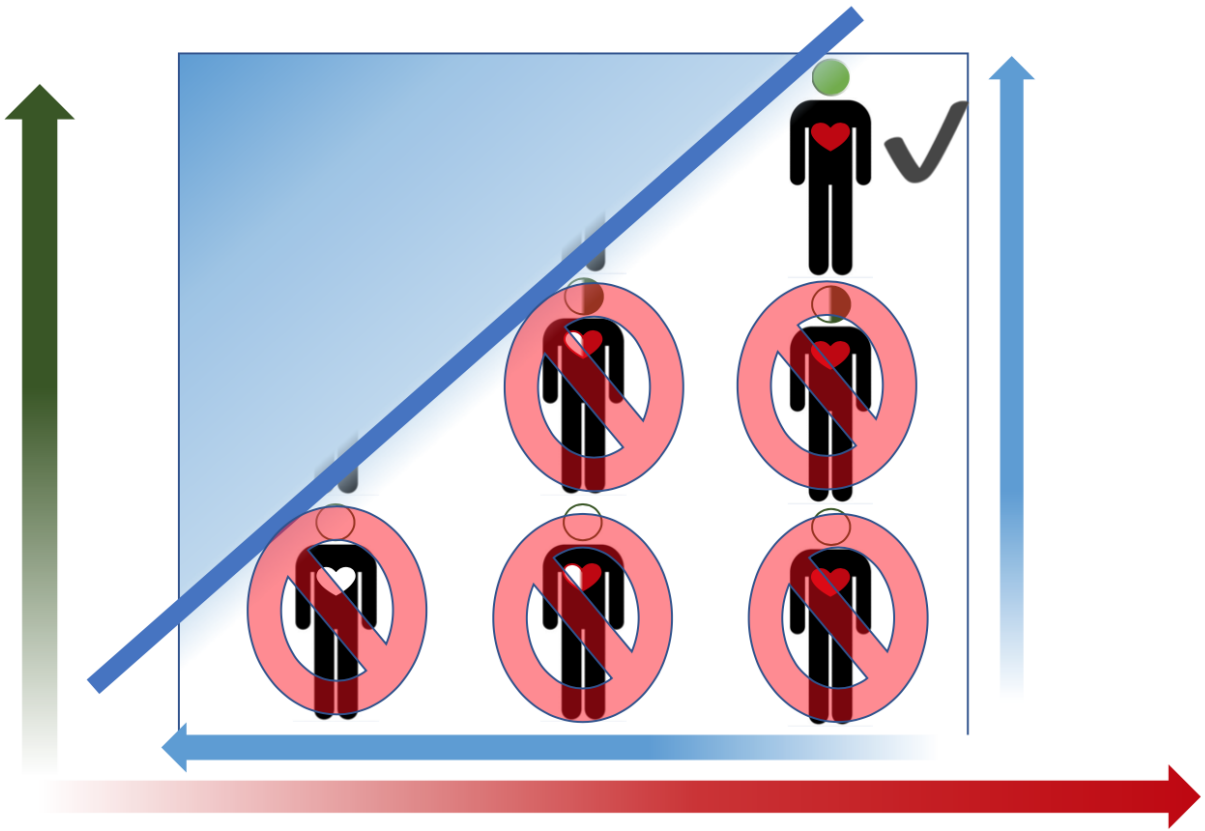

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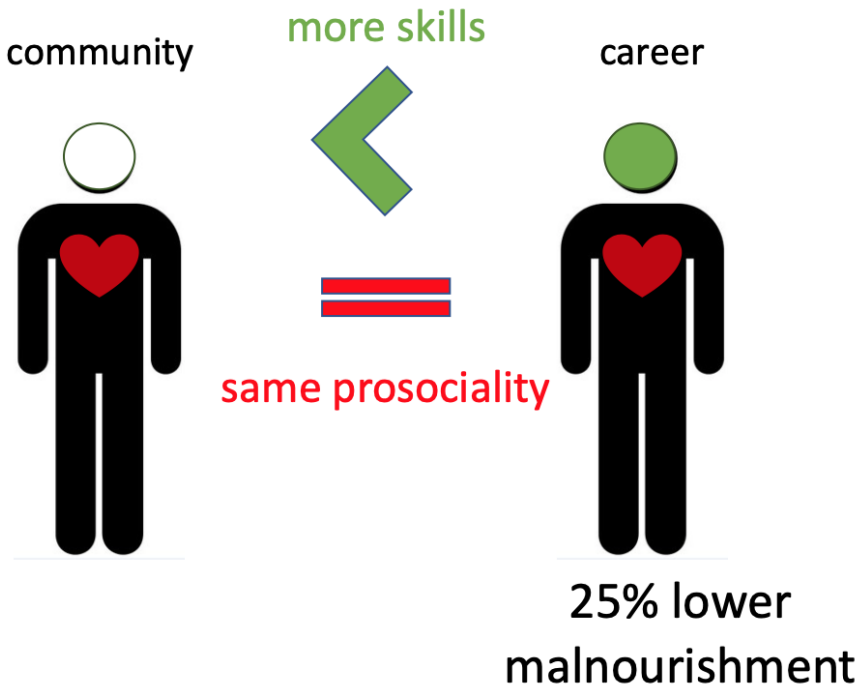

Today's Talk

Summary

- Two-way dialogue between development and behavioral theory
- Most has been development applying behavioral ideas, rather than feeding back into theory
  - One domain: exogenous, fixed preferences?
- beliefs, not preferences
- attention, not preferences
- Endogenous preferences:
  - Preferences as Constrained Choices from a set of Worldviews [Bernheim, Braghieri, Martínez-Marquina, and Zuckerman, 2021]
  - Or as an asset:
    - Capacity to Imagine the Future
    - "Altruistic Capital" [Ashraf and Bandiera, 2017]

Thank You!

References I

Dan Ariely, Anat Bracha, and Stephan Meier. Doing good or doing well? image motivation and monetary incentives in behaving prosocially. *American economic review*, 99(1):544–55, 2009.

Nava Ashraf and Oriana Bandiera. Altruistic capital. *American Economic Review*, 107(5): 70–75, 2017.

Nava Ashraf, Dean Karlan, and Wesley Yin. Tying odysseus to the mast: Evidence from a commitment savings product in the philippines. *The Quarterly Journal of Economics*, 121 (2):635–672, 2006.

Nava Ashraf, Oriana Bandiera, and B. Kelsey Jack. No margin, no mission? a field experiment on incentives for public service delivery. *Journal of Public Economics*, 120:1–17, 2014.

Nava Ashraf, Erica Field, Giuditta Rusconi, Alessandra Voena, and Roberta Ziparo. Traditional beliefs and learning about maternal risk in zambia. *American Economic Review*, 107(5):511–15, 2017.

Nava Ashraf, Oriana Bandiera, Edward Davenport, and Scott S Lee. Losing prosociality in the quest for talent? sorting, selection, and productivity in the delivery of public services. *American Economic Review*, 110(5):1355–94, 2020.

Nava Ashraf, Gharad Bryan, Alexia Delfino, Emily A Holmes, Leonardo Iacovone, and Ashley Pople. Learning to see the world's opportunities: The impact of visualization on entrepreneurial success. In *The 2021 Behavioral Economics Annual Meeting (BEAM 2021)*, 2021.

Nava Ashraf, Erica Field, Alessandra Voena, and Ashley Ziparo, Roberta. Gendered spheres of learning and household decision making over fertility. 2022.

Liang Bai, Benjamin Handel, Edward Miguel, and Gautam Rao. Self-control and demand for preventive health: Evidence from hypertension in india. *Review of Economics and Statistics*, 103(5):835–856, 2021.

References II

Gary S Becker and Casey B Mulligan. The endogenous determination of time preference. *The Quarterly Journal of Economics*, 112(3):729–758, 1997.

B Douglas Bernheim, Luca Braghieri, Alejandro Martínez-Marquina, and David Zuckerman. A theory of chosen preferences. *American Economic Review*, 111(2):720–54, 2021.

Lorenzo Casaburi and Jack Willis. Time versus state in insurance: Experimental evidence from contract farming in kenya. *American Economic Review*, 108(12):3778–3813, 2018.

Ernesto Dal Bó, Frederico Finan, and Martín A Rossi. Strengthening state capabilities: The role of financial incentives in the call to public service. *The Quarterly Journal of Economics*, 128(3):1169–1218, 2013.

Edward L Deci. Effects of externally mediated rewards on intrinsic motivation. *Journal of personality and Social Psychology*, 18(1):105, 1971.

Esther Duflo, Pascaline Dupas, and Michael Kremer. Peer effects, teacher incentives, and the impact of tracking: Evidence from a randomized evaluation in kenya. *American economic review*, 101(5):1739–74, 2011.

Xavier Gabaix. Behavioral inattention. In *Handbook of Behavioral Economics: Applications and Foundations 1*, volume 2, pages 261–343. Elsevier, 2019.

Xavier Gabaix and David Laibson. Myopia and discounting. Technical report, National bureau of economic research, 2017.

Xavier Giné, Dean Karlan, and Jonathan Zinman. Put your money where your butt is: a commitment contract for smoking cessation. *American Economic Journal: Applied Economics*, 2(4):213–35, 2010.

Uri Gneezy and Aldo Rustichini. A fine is a price. *The journal of legal studies*, 29(1):1–17, 2000a.

References III

Uri Gneezy and Aldo Rustichini. Pay enough or don't pay at all. *The Quarterly journal of economics*, 115(3):791–810, 2000b.

Emily A Holmes and Andrew Mathews. Mental imagery and emotion: a special relationship? *Emotion*, 5(4):489, 2005.

Emily A Holmes, Andrew Mathews, Tim Dalgleish, and Bundy Mackintosh. Positive interpretation training: Effects of mental imagery versus verbal training on positive mood. *Behavior therapy*, 37(3):237–247, 2006.

Supreet Kaur, Michael Kremer, and Sendhil Mullainathan. Self-control at work. *Journal of Political Economy*, 123(6):1227–1277, 2015.

Birgit Kleim and Anke Ehlers. Reduced autobiographical memory specificity predicts depression and posttraumatic stress disorder after recent trauma. *Journal of consulting and clinical psychology*, 76(2):231, 2008.

Birgit Kleim, Belinda Graham, Sonia Fihosy, Richard Stott, and Anke Ehlers. Reduced specificity in episodic future thinking in posttraumatic stress disorder. *Clinical Psychological Science*, 2(2):165–173, 2014.

A Langenhoff and S Srinivasan. Reconsidering the scarcity mindset: Greater focus and attentional neglect? 2022.

Andrew Mathews, Valerie Ridgeway, and Emily A Holmes. Feels like the real thing: Imagery is both more realistic and emotional than verbal thought. *Cognition & emotion*, 27(2): 217–229, 2013.

Richard J McNally, Natasha B Lasko, Michael L Macklin, and Roger K Pitman. Autobiographical memory disturbance in combat-related posttraumatic stress disorder. *Behaviour research and therapy*, 33(6):619–630, 1995.

References IV

Sally A Moore and Lori A Zoellner. Overgeneral autobiographical memory and traumatic events: an evaluative review. *Psychological bulletin*, 133(3):419, 2007.

Joel Pearson, Thomas Naselaris, Emily A Holmes, and Stephen M Kosslyn. Mental imagery: functional mechanisms and clinical applications. *Trends in cognitive sciences*, 19(10): 590–602, 2015.

Fritz Renner, Fionnuala C Murphy, Julie L Ji, Tom Manly, and Emily A Holmes. Mental imagery as a "motivational amplifier" to promote activities. *Behaviour Research and Therapy*, 114:51–59, 2019.

Frank Schilbach. Alcohol and self-control: A field experiment in india. *American economic review*, 109(4):1290–1322, 2019.

Richard Titmuss. *The gift relationship: From human blood to social policy*. Policy Press, 1970.

Endel Tulving. Episodic memory: From mind to brain. *Annual review of psychology*, 53(1):1–25, 2002.