

# Behavioral Development Economics

Chapter prepared for the Handbook of Behavioral Economics (Vol 2)  
[With edits from Vojtěch Bartoš; see original on Gautam Rao's website]

Michael Kremer (Harvard and NBER)

Gautam Rao (Harvard and NBER)

Frank Schilbach (MIT and NBER)

May 31, 2019

# The rise of behavioral development economics

- **Historical views of development:** People were thought to be very different before and after the advent of “modernity”. e.g.
  - Pre-capitalist vs. capitalist (Marx and Engels, 1848)
  - Tradition vs. rationalism (Weber and Durkheim)
  - Mechanical vs. organic solidarity
  - Modernization theory: modernization as a process of radical social change but also change in ways of thinking and seeing the world
- **Development economics:** emerged as a critical response to this view.
  - Sees farmers as essentially rational capitalists (but maybe facing market failures)
  - Rejects seemingly non-falsifiable cultural explanations (e.g. “Hindu rate of growth”)

## The rise of behavioral development economics (cont'd)

- The dominant view in development economics up to about the 1990s is that the poor are “poor but efficient” (Schultz, 1964)
- This view started to change during the past two decades.
  - With rise of behavioral economics, a more psychologically realistic view of human behavior has entered development economics
  - Systematic deviations from standard models in preferences, beliefs, and decision-making
  - So far, relies mostly on “universal” insights from psychology about human behavior
  - Some attention to differences in psychology across cultures or across rich and poor
  - Studies of the interaction of behavioral biases with the institutions and markets specific to developing economies.

# Caveats and critiques of behavioral development economics

Behavioral development economics...

- (1) Attempts to augment and improve, and not supplant, existing models.
- (2) Does not deny the importance of institutions for development
- (3) Is sometimes critiqued for dismissing real incentives and constraints that apparently “irrational” actions reflect (e.g. Rosenzweig and Udry (2014)) The best research in this subfield overcomes this challenge by testing specific behavioral mechanisms rather than simply identifying an apparent failure of the standard model.

## Caveats and critiques of behavioral development economics (cont'd)

Behavioral development economics...

- (4) Does not “blame the poor” for their poverty since it is (i) typically concerned with universal psychological factors and (ii) does not stipulate that behavioral biases are blameworthy.
- (5) Critique that behavioral econ proposes paternalistic policies that restrict individual choices. There is truth to this critique. But weigh this concern against bad policy outcomes that can result from misunderstanding human behavior.
- (6) Occasionally rejects robust lab-experimental results which are found to be less important in the real world (e.g. Cohen and Dupas (2010); Ashraf et al. (2010))

# Topics covered (organized by behavioral concepts)

- **Non-standard preferences**

- Time preferences (present bias)
- Risk preferences (loss aversion, reference dependence)
- Social preferences

- **Non-standard beliefs**

- Naivete, projection bias
- Motivated reasoning

- **Non-standard decision-making**

- Limited attention and memory
- Default effects

# Topics covered

- (1) Introduction
- (2) High rates of return without rapid growth (Euler equation puzzle)
- (3) **Health**
  - (A) Under-investment in preventive health
  - (B) Present bias
  - (C) Biased beliefs
  - (D) Incorrect mental models
- (4) Savings
- (5) Risk and insurance
- (6) Technology adoption
- (7) Labor
- (8) Firms
- (9) Social preferences, culture, and development
- (10) The psychology of poverty

## Under-investment in preventive health

- Widely studied case of under-investment in high-return opportunities: low investment in preventive health (e.g. vaccinations, deworming, bed nets, water treatment, hypertension)
- Recent literature established several stylized facts regarding health behavior in developing countries (Dupas, 2011; Kremer and Glennerster, 2011; Dupas and Miguel, 2017).
  - (1) Low willingness to pay (WTP) for preventive health
  - (2) High expenditures for treatments of acute conditions
  - (3) High sensitivity of health investments to price and convenience

# Demand for preventative health: low WTP and high price sensitivity

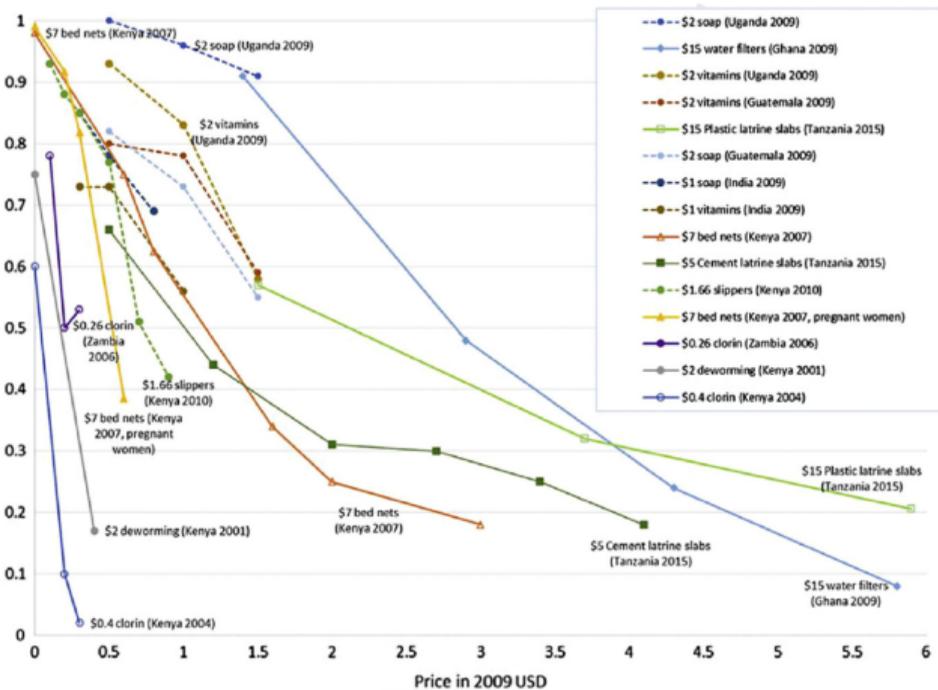


Figure: Share of individuals taking up the product as function of price (from Dupas and Miguel (2017))

# High price sensitivity of demand for preventative health investments

- High price-sensitivity even in cases of substantial long-run benefits:
  - Deworming medication (Miguel and Kremer, 2004); mosquito nets (Cohen and Dupas, 2010); water treatment (Ashraf et al., 2010).
  - Example: estimated private financial benefit of deworming is \$142 (Baird et al., 2016), yet \$0.30 per child cost-sharing fee decreased take up 80 percent (Miguel and Kremer, 2004).
- High sensitivity also for monetary and non-monetary incentives:
  - Large impacts of small (and time-limited) incentives (lentils) for vaccination (Banerjee et al., 2010) or collecting HIV tests (Thornton, 2008)
  - Prima facie evidence against liquidity constraints (though not conclusive)
- If individuals are given more time to purchase, then lower price sensitivity, but demand still fairly sensitive to price (Dupas, 2011a).

## Significant expenditures on acute conditions

- Arguably excessive treatment for some acute conditions
- Lower price sensitivity for acute care (Cohen et al., 2015)
- Suggests liquidity constraints cannot fully explain low demand for preventative health

## Knife-edge balance between benefits and costs?

- One possible explanation: some people are (close to) indifferent between investing and not investing.
- Small changes in prices or incentives can alter behavior.
- Unlikely explanation given that it requires that many people in different settings happen to be (close to) exactly indifferent.



**Figure:** Source: Kremer and Glennerster (2011); Baird et al. (2016)

# Can present bias explain under-investment in health?

- Two ways present bias may generate this under-investment:
  - (1) Procrastination
  - (2) Liquidity constraints due to present bias

# Present bias and procrastination

- Driven by the immediate *utility costs* of the investment:
  - Examples: hassle and psychic costs of going to doctor, walking to farther-away water source, using dilute chlorine solution, changing diet, learning painful news about health status, taking medication.
  - Not financial costs unless severely liquidity constrained
- Procrastination requires both present bias and some degree of naivete.
  - Prefer to do painful task tomorrow, mis-predict that they will do it tomorrow.
- Consistent with:
  - (i) effect of time-limited incentives: e.g. Banerjee et al. (2010)
  - (ii) effect of reducing hassle costs: e.g. water dispensers (Ahuja et al., 2010)
- *Note:* Would not procrastinate on acute condition, since benefits immediate

# Present bias and liquidity constraints

- Present bias can lead to liquidity constraints (Angeletos et al., 2001)
- Once liquidity-constrained:
  - High-return preventive investments may be left unexploited.
  - Monetary expenditures might now translate into (almost) immediate utility costs, since need to cut back on other consumption in order to, e.g. pay for doctor visit.
- Consistent with:
  - Evidence on effects of increased liquidity (Dupas and Robinson, 2013)
  - High impact of small discounts to fertilizer around time of harvest (Duflo et al., 2011)

## Present bias and commitment contracts

- Demand for commitment is “smoking gun” evidence of present bias (Ashraf et al., 2006; Giné et al., 2010; Kaur et al., 2015; Schilbach, 2019; Casaburi and Macchiavello, 2019).
- But commitment contracts only work well with high degree of sophistication
  - Naivete → low demand for commitment
  - Partial naivete → systematic failure of commitment, with plausibly negative effects on welfare if people incur the costs without the intended benefit (John, 2019; Bai et al., 2017).
- Uncertainty also implies low demand for commitment (Laibson, 2015; Amador et al., 2006).
- More promising approach may be to reduce hassle costs, provide direct time-limited incentives, ease liquidity constraints

## Present bias, sophistication, and deadlines

- The effect of naivete versus sophistication about one's present bias will depend on the nature of the investment in question.
- Distinguish between 2 cases of high-return health investments:
  - (I) Case I: Investments without deadlines
    - Naive → repeated decisions to procrastinate
    - Sophisticated → may delay for a few time periods but will eventually make investment therefore no major welfare losses (O'Donoghue and Rabin, 2001).
  - (II) Case II: One-shot investments with deadlines (but negligible monetary costs)
    - Even fairly present-biased agents will make the investment since there is no way to procrastinate.
- While present bias can help explain some of the patterns in Case I, other decisions (especially in Case II) cannot be explained by present bias alone.
  - Need other (additional) reasons than present bias to explain low demand, e.g. biased beliefs

## Biased beliefs

- Making good decisions regarding health requires forming accurate beliefs about numerous variables. Difficult due to uncertainty and heterogeneity across individuals (Arrow, 1963).
- Inaccurate beliefs (e.g. misperceived returns to health investments) could help explain under-investment in health. Some evidence of inaccurate beliefs regarding health in developing societies (e.g. Delavande and Kohler (2009); Godlonton et al. (2016)).
- Information interventions appear to have large impacts on health outcomes in some contexts and small to null in others Dupas (2011); Dupas and Miguel (2017).
  - Other behavioral biases might be at play in situations of low impacts of info.
  - Motivated beliefs (e.g. deriving utility from belief that one is healthy) could matter as well.
  - More work is required to understand the determinants of success in various contexts.

## Incorrect causal theories or mental models

- Individuals may interpret what they observe through the wrong causal model or theory (Schwartzstein, 2014; Gagnon-Bartsch et al., 2018).
- Incorrect mental models that may be important for health outcomes in developing societies include superstitious beliefs or beliefs in magical theories of sickness and health which include witchcraft.
- Ashraf et al. (2017) illustrate this issue in the case of maternal risk in Zambia and a wide-spread belief about marital infidelity and complications during childbirth
- Parents across the world confidently hold wrong beliefs about need to re-hydrate children in response to diarrhea. Datta and Mullainathan (2014): 30 to 50 percent of women in their sample (in India) recommended *decreasing* fluid intake of infants to treat diarrhea

# Evidence against importance of some ideas from psychology in the field

- Little evidence for real-world development importance of some psychological effects frequently invoked by practitioners to justify policy:
  - **Sunk-cost fallacy:** No evidence that higher prices cause greater product use Ashraf et al. (2010); Cohen and Dupas (2010).

# Topics covered

- (1) Introduction
- (2) High rates of return without rapid growth (Euler equation puzzle)
- (3) Health
- (4) **Savings**
- (5) Risk and insurance
- (6) Technology adoption
- (7) Labor
- (8) Firms
- (9) Social preferences, culture, and development
- (10) The psychology of poverty

## “Standard” barriers to saving

- Savings are necessary to self-insure against risks and to finance lumpy investments
- “Standard” barriers to savings include:
  - Lack of access to formal savings products
  - Prohibitive costs of opening a banking account etc.
- Dupas et al. (2018) find small effects of providing bank accounts to poor individuals, suggesting other (potentially behavioral) constraints may play a role in reducing savings

## Commitment savings devices

- A key prediction of present bias: households accumulate few liquid savings over time, while building up substantial illiquid wealth. Consistent with savings patters across the world (Angeletos et al., 2001; Banerjee and Duflo, 2007; Morduch et al., 2009)
- Ashraf et al. (2006): evidence for demand for commitment devices in the domain of savings which evidences present-bias
- A key open question surrounding the usefulness of commitment devices is the optimal trade-off between commitment and flexibility. Too stringent commitment reduces take-up and too flexible commitment does not overcome self-control problems.
- Dupas and Robinson (2013) find that a softer savings device increases spending on preventative care relative to a control group and a more stringent alternative.

## Designing financial products for behavioral agents: Default effects

- Setting default choices is a cheap but often highly powerful tool in changing behavior.
- For instance, setting the default to automatic enrollment as opposed to non-enrollment has substantial impacts on individuals' retirement choices, particularly for lower-income individuals (Chetty, 2015; Chetty et al., 2014; Madrian and Shea, 2001)
- Blumenstock et al. (2018): setting opt-in defaults increase the savings of Afghanistan workers. Additionally, they argue the underlying mechanism involves present bias as well as the hassle costs of thinking through different options.

# Designing financial products for behavioral agents: Attention

- Inattention can distort individuals' decision making in spheres ranging from savings to medical adherence and as such can have large costs.
- Karlan et al. (2016) study the impact of reminders on savings and consumption choices and find that reminders increase the salience of savings goals.
- Many reminder interventions in health (e.g. Pop-Eleches and et al. (2011))
- Potential negative externalities if attention is a limited resource. Need more evidence on whether reminders remain effective in the long term

# Topics covered

- (1) Introduction
- (2) High rates of return without rapid growth (Euler equation puzzle)
- (3) Health
- (4) Savings
- (5) **Risk and insurance**
- (6) Technology adoption
- (7) Labor
- (8) Firms
- (9) Social preferences, culture, and development
- (10) The psychology of poverty

# Risk sharing

- Major topic in development economics
  - Large literature on informal risk sharing
  - Literature on how risk considerations affect input choices, migration, marriage, etc.

## Low take-up of insurance

- Many people in developing countries exposed to very risky income streams (e.g. farming)
- Yet low take up of actuarially fair weather insurance (Cole et al., 2013).
  - Basis risk? (Clarke, 2016; Mobarak and Rosenzweig, 2012; Giné et al., 2008)
- Low take-up of health insurance (Thornton et al., 2010)
  - Administrative issues?

## Potential explanations for low demand: Non-standard preferences

- Casaburi and Willis (2018): insurance meant to shift resources across states, yet most actual insurance contracts involve transferring resources over time
  - Eliminating the intertemporal component increases insurance take-up dramatically.
  - Important role for liquidity constraints, present bias

## Potential explanations for low insurance demand: non-standard beliefs

- **Projection bias:** In good states of the world, agents may underestimate their marginal utility in bad states of the world (Loewenstein et al., 2003).
- **Recency effects:** Agents might place disproportionate weight on events from the recent past (Hogarth and Einhorn, 1992; Fuster et al., 2010; Chang et al., 2018; Karlan et al., 2014).
- **Motivated reasoning:** If individuals directly derive utility from beliefs about their future well-being, they may seek to maintain biased beliefs about their current health or the likely future state of the world.
- **Beliefs in higher powers:** Individuals' beliefs might deviate in more dramatic ways from standard probability assessments. Beliefs in higher powers might suppress insurance demand (Auriol et al., 2018).

# Topics covered

- (1) Introduction
- (2) High rates of return without rapid growth (Euler equation puzzle)
- (3) Health
- (4) Savings
- (5) Risk and insurance
- (6) Technology adoption
- (7) Labor
- (8) Firms
- (9) **Social preferences, culture, and development**
- (10) The psychology of poverty

# Trust, cooperation, and development

- Trust and cooperation important for economic and political outcomes
  - e.g. Algan and Cahuc (2014) review
- Developing countries have lower levels of trust and positive reciprocity
  - Falk et al. (2018) using global survey
- Is this a cause or consequence of development?

## Trust, cooperation, and development (cont'd)

- Good reasons to think that variation in trust and reciprocity have deep historical roots
  - Enke (2018): historical tightness of kinship predicts modern-day in-group favoritism, willingness to cheat on and distrust outsiders, local rather than broader institutions.
  - Nunn and Wantchekon (2011): long-term consequences of slave trade
  - Henrich et al. (2010): evolution of fairness and punishment facilitated trust and cooperation, allowing for large-scale societies
    - E.g., moralizing gods and cooperation with strangers?
    - Market integration and fairness; community size and punishment
- But likely also in part a consequence of development, e.g. market exposure and well-functioning legal institutions might themselves increase trust.

# Social image and norms

- Frontier of behavioral research on (pro)social behavior is on social image
  - Desire to conform to social norms
  - And also to impress (in socially sanctioned ways)
  - Visibility of actions can matter a great deal
- Some recent applications
  - Bursztyn et al. (2018b) on conspicuous consumption in Indonesia
  - Chandrasekhar et al. (2018, 2015); Banerjee et al. (2018) on social learning
- Much more work to be done in developing-country settings
  - Including on how norms change, e.g. gender norms

# Shaping social preferences and norms

- Important to understand policies which can improve inter-group behaviors
  - Rao (2019) on integration in schools
  - Blouin and Mukand (2017) on post-conflict Rwanda
  - Lowe (2018) on different types of contact: collaborative vs. adversarial
  - Miguel (2004) on national identity in Tanzania vs. tribal identity in Kenya
  - Role of policy and culture (Miguel and Gugerty, 2005)
- And policies which can influence certain social norms
  - La Ferrara et al. (2012); Jensen and Oster (2009): TV effects on fertility, gender attitudes
  - Bursztyn et al. (2018a) on female labor force participation in Saudi Arabia

# Topics covered

- (1) Introduction
- (2) High rates of return without rapid growth (Euler equation puzzle)
- (3) Health
- (4) Savings
- (5) Risk and insurance
- (6) Technology adoption
- (7) Labor
- (8) Firms
- (9) Social preferences, culture, and development
- (10) **The psychology of poverty**

# Poverty and decision making

- Recent work suggests poverty may *directly* affect cognitive function and economic behaviors, thus potentially exacerbating behavioral biases and deepening poverty (Haushofer and Fehr, 2014; Schilbach et al., 2016).
- One proposed channel is via scarcity (Mullainathan and Shafir, 2013; Mani et al., 2013).
- Other channels (e.g. stress) empirically difficult to distinguish

## Scarcity and cognitive function

- Mullainathan and Shafir (2013) argue that poverty impedes cognitive function through scarcity. They argue scarcity engenders an increased focus on money and as such the “bandwidth” available for other tasks is reduced.
- Mani et al. (2013): empirical evidence in support of this hypothesis
  - Lab study: inducing thoughts about money lowered the cognitive function of the poor and not the wealthy.
  - Complementary field study exploited within person variation; sugar cane farmers in India had significantly worse cognitive performance before harvest as in contrast to right after harvest.
- Potentially very important results but methodological limitations (e.g. potential learning effects in second study) and (so far) lack of successful replications
  - Carvalho et al. (2016): no differences in cognitive function and decision-making around payday among US workers

## Other poverty-induced deprivations

- Poverty engenders other deprivations beyond money, including:
  - Malnutrition (Food and of the United Nations , FAO; Schofield, 2014)
  - Higher levels of stress (Haushofer and Fehr, 2014)
  - Sleep deprivation (Grandner et al., 2010; Patel et al., 2010)
  - Noise pollution and heat (Harlan et al., 2006; Dean, 2018)
  - Stigma, social exclusion (Hall et al., 2014; Ghosal et al., 2017; Chandrasekhar et al., 2018)
- Research in other fields often establish the impact of each of these deprivations on health and cognitive function (Dean et al., 2018).
- Need for more evidence on the connection to economic outcomes e.g. Schofield (2014) on effort discounting, Bessone et al. (2018) and Kaur et al. (2018) on productivity

## Poverty and mental health

- Income and consumption do not correlate with mental health (Das et al., 2007), but some other measures of economic hardship (e.g. poor housing/ financial stress) do (Patel and Kleinman, 2003; Lund et al., 2010).
- Prevalence of mental health conditions in developing countries is significant, but diagnosis and treatment levels tend to be low.
  - 3,600 psychiatrists serve a population of 1.2 billion people in India!
- Simple psychotherapy interventions can be effective in treating depression in low-income contexts (Bolton et al., 2003; Patel et al., 2017) and impact economic decisions (e.g. Baranov et al. (2017))
- Many open questions: Mechanisms? How should depression be modeled? Interaction with economic opportunities?

# Poverty and aspirations

- Some researchers argue that aspirations are not evenly distributed amongst rich and poor (Appadurai, 2004). Low levels of aspiration and hope can limit social mobility and contribute to a poverty traps (Ray, 2006; Dalton et al., 2015; Genicot and Ray, 2017).
- One challenge in this literature is modeling aspirations.
  - Recent work has made progress on this challenge but many open questions remain (Dalton et al., 2015; Genicot and Ray, 2017; Lybbert and Wydick, 2018).
  - Particular challenge: mapping theory into empirical objects that can be measured.
- Promising results on boosting aspirations, e.g. Bernard et al. (2014)

# Conclusion

- Ideas from behavioral economics help explain important puzzles in development, with important limitations
- Taking behavioral development economics seriously will involve testing specific mechanisms and providing calibrations and estimations where possible (DellaVigna, 2018).
- Many unanswered questions remain and we hoped to have pointed at some of those in the preceding slides. So much more exciting work to be done!
- We did not cover some important topics in development to which behavioral economics may be fruitfully applied (e.g. education, political economy, economics of the family).

# References I

- Ahuja, Amrita, Michael Kremer, and Alix Peterson Zwane**, “Providing Safe Water: Evidence from Randomized Evaluations,” *Annual Review of Resource Economics*, 2010, 2, 237–256.
- Algan, Yann and Pierre Cahuc**, “Trust, Growth, and Well-Being: New Evidence and Policy Implications,” in “Handbook of Economic Growth,” Vol. 2, Elsevier, 2014, pp. 49–120.
- Amador, Manuel, Iván Werning, and George-Marios Angeletos**, “Commitment vs. Flexibility,” *Econometrica*, 2006, 74 (2), 365–396.
- Angeletos, George-Marios, David Laibson, Andrea Repetto, Jeremy Tobacman, and Stephen Weinberg**, “The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation,” *Journal of Economic Perspectives*, 2001, 15 (3), 47–68.
- Appadurai, Arjun**, “The Capacity to Aspire: Culture and the Terms of Recognition,” in Vijayendra Rao and Michael Walton, eds., *Culture and Public Action*, Stanford: Stanford University Press, 2004.
- Arrow, Kenneth J.**, “Uncertainty and the Welfare Economics of Medical Care,” *American Economic Review*, 1963, 53 (5), 941–973.
- Ashraf, Nava, Dean Karlan, and Wesley Yin**, “Tying Odysseus to the Mast: Evidence From a Commitment Savings Product in the Philippines,” *Quarterly Journal of Economics*, 2006, 121 (2), 635–672.
- , **Erica Field, Giuditta Rusconi, Alessandra Voena, and Roberta Ziparo**, “Traditional Beliefs and Learning About Maternal Risk in Zambia,” *American Economic Review*, 2017, 107 (5), 511–515.

## References II

- , **James Berry**, and **Jesse M. Shapiro**, “Can Higher Prices Stimulate Product Use? Evidence From a Field Experiment in Zambia,” *American Economic Review*, 2010, 100 (5), 2383–2413.
- Auriol, Emmanuelle, Julie Lassebie, Amma Panin, Eva Raiber, and Paul Seabright**, “God Insures Those Who Pay? Formal Insurance and Religious Offerings in Ghana,” *Toulouse School of Economics Working Paper*, 2018.
- Bai, Liang, Benjamin Handel, Edward Miguel, and Gautam Rao**, “Self-Control and Demand for Preventive Health: Evidence From Hypertension in India,” *NBER Working Paper No. 23727*, 2017.
- Baird, Sarah, Joan Hamory Hicks, Michael Kremer, and Edward Miguel**, “Worms at Work: Long-Run Impacts of a Child Health Investment,” *Quarterly Journal of Economics*, 2016, 131 (4), 1637–1680.
- Banerjee, Abhijit, Emily Breza, Arun G. Chandrasekhar, Benjamin Golub, and He Yang**, “When Less is More: Experimental Evidence on Information Delivery During India’s Demonetization,” *mimeo*, 2018.
- Banerjee, Abhijit V. and Esther Duflo**, “The Economic Lives of the Poor,” *Journal of Economic Perspectives*, 2007, 21 (1), 141–168.
- , — , **Rachel Glennerster, and Dhruva Kothari**, “Improving Immunisation Coverage in Rural India: Clustered Randomised Controlled Evaluation of Immunisation Campaigns With and Without Incentives,” *BMJ: British Medical Journal*, 2010, 340, c2220.
- Baranov, Victoria, Sonia R. Bhalotra, Pietro Biroli, and Joanna Maselko**, “Maternal Depression, Women’s Empowerment, and Parental Investment: Evidence From a Large Randomized Control Trial,” *IZA Discussion Paper*, 2017.

## References III

- Bernard, Tanguy, Stefan Dercon, Kate Orkin, and Alemayehu Taffesse**, “The Future in Mind: Aspirations and Forward-Looking Behaviour in Rural Ethiopia,” *mimeo*, 2014.
- Bessone, Pedro, Gautam Rao, Frank Schilbach, Heather Schofield, and Mattie Toma**, “Sleepless in Chennai: The Economic Effects of Sleep Deprivation among the Poor,” *mimeo*, 2018.
- Blouin, Arthur Thomas and Sharun W. Mukand**, “Erasing Ethnicity? Propaganda, Nation Building and Identity in Rwanda,” *mimeo*, 2017.
- Blumenstock, Joshua, Michael Callen, and Tarek Ghani**, “Why Do Defaults Affect Behavior? Experimental Evidence from Afghanistan,” *American Economic Review*, 2018, *108* (10), 2868–2901.
- Bolton, Paul, Judith Bass, Richard Neugebauer, Helen Verdeli, Kathleen F. Clougherty, Priya Wickramaratne, Liesbeth Speelman, Lincoln Ndogoni, and Myrna Weissman**, “Group Interpersonal Psychotherapy for Depression in Rural Uganda: A Randomized Controlled Trial,” *Journal of the American Medical Association*, 2003, *289* (23), 3117–3124.
- Burszty, Leonardo, Alessandra L. González, and David Yanagizawa-Drott**, “Misperceived Social Norms: Female Labor Force Participation in Saudi Arabia,” *NBER Working Paper No. 24736*, 2018.
- , **Bruno Ferman, Stefano Fiorin, Martin Kanz, and Gautam Rao**, “Status Goods: Experimental Evidence from Platinum Credit Cards,” *The Quarterly Journal of Economics*, 2018.
- Carvalho, Leandro S., Stephan Meier, and Stephanie W. Wang**, “Poverty and Economic Decision-Making: Evidence from Changes in Financial Resources at Payday,” *American Economic Review*, 2016, *106* (2), 260–284.

## References IV

- Casaburi, Lorenzo and Jack Willis**, “Time vs. State in Insurance: Experimental Evidence From Contract Farming in Kenya,” *American Economic Review*, 2018, 108 (12), 3778–3813.
- **and Rocco Macchiavello**, “Demand and Supply of Infrequent Payments as a Commitment Device: Evidence From Kenya,” *American Economic Review* (forthcoming), 2019.
- Chandrasekhar, Arun G., Benjamin Golub, and He Yang**, “Signaling, Shame, and Silence in Social Learning,” *NBER Working Paper No. 25169*, 2018.
- , **Horacio Larreguy, and Xandri Juan Pablo**, “Testing Models of Social Learning on Networks: Evidence from a Lab Experiment in the Field,” *NBER Working Paper No. 21468*, 2015.
- Chang, Tom Y., Wei Huang, and Yongxiang Wang**, “Something in the Air: Projection Bias and the Demand for Health Insurance,” *Review of Economic Studies*, 2018, 85 (3), 1609–1634.
- Chetty, Raj**, “Behavioral Economics and Public Policy: A Pragmatic Perspective,” *American Economic Review*, 2015, 105 (5), 1–33.
- , **John N. Friedman, Søren Leth-Petersen, Torben Heien Nielsen, and Tore Olsen**, “Active vs. Passive Decisions and Crowd-Out in Retirement Savings Accounts: Evidence From Denmark,” *Quarterly Journal of Economics*, 2014, 129 (3), 1141–1219.
- Clarke, Daniel J.**, “A Theory of Rational Demand for Index Insurance,” *American Economic Journal: Microeconomics*, 2016, 8 (1), 283–306.

## References V

- Cohen, Jessica and Pascaline Dupas**, “Free Distribution or Cost-Sharing? Evidence from a Randomized Malaria Prevention Experiment,” *Quarterly Journal of Economics*, 2010, 125 (1), 1–45.
- , — , and **Simone Schaner**, “Price Subsidies, Diagnostic Tests, and Targeting of Malaria Treatment: Evidence From a Randomized Controlled Trial,” *American Economic Review*, 2015, 105 (2), 609–645.
- Cole, Shawn, Xavier Giné, Jeremy Tobacman, Petia Topalova, Robert Townsend, and James Vickery**, “Barriers to Household Risk Management: Evidence From India,” *American Economic Journal: Applied Economics*, 2013, 5 (1), 104–135.
- Dalton, Patricio S., Sayantan Ghosal, and Anandi Mani**, “Poverty and Aspirations Failure,” *Economic Journal*, 2015, 126 (590), 165–188.
- Das, Jishnu, Quy-Toan Do, Jed Friedman, David McKenzie, and Kinnon Scott**, “Mental Health and Poverty in Developing Countries: Revisiting the Relationship,” *Social Science & Medicine*, 2007, 65 (3), 467–480.
- Datta, Saugato and Sendhil Mullainathan**, “Behavioral Design: A New Approach to Development Policy,” *Review of Income and Wealth*, 2014, 60 (1), 7–35.
- Dean, Emma Boswell, Frank Schilbach, and Heather Schofield**, “Poverty and Cognitive Function,” in Christopher B. Barrett, Michael R. Carter, and Jean-Paul Chavas, eds., *The Economics of Poverty Traps*, Chicago: University of Chicago Press, 2018.
- Dean, Joshua T.**, “Noise, Cognitive Function, and Worker Productivity,” *mimeo*, 2018.

## References VI

- Delavande, Adeline and Hans-Peter Kohler**, “Subjective Expectations in the Context of HIV/AIDS in Malawi,” *Demographic Research*, 2009, 20, 817–874.
- DellaVigna, Stefano**, “Structural Behavioral Economics,” *NBER Working Paper No. 24797*, 2018.
- Duflo, Esther, Michael Kremer, and Jonathan Robinson**, “Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya,” *American Economic Review*, 2011, 101 (6), 2350–2390.
- Dupas, Pascaline**, “Health Behavior in Developing Countries,” *Annual Review of Economics*, 2011, 3 (1), 425–449.
- , “What Matters (And What Does Not) in Households’ Decision to Invest in Malaria Prevention?,” *American Economic Review Papers and Proceedings*, 2011a, 99 (2), 224–230.
- **and Edward Miguel**, “Impacts and Determinants of Health Levels in Low-Income Countries,” in Abhijit V. Banerjee and Esther Duflo, eds., *Handbook of Economic Field Experiments*, Vol. 2, Amsterdam: Elsevier, 2017, pp. 3–93.
- **and Jonathan Robinson**, “Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya,” *American Economic Journal: Applied Economics*, 2013, 5 (1), 163–192.
- , **Dean Karlan, Jonathan Robinson, and Diego Ubfal**, “Banking the Unbanked? Evidence from Three Countries,” *American Economic Journal: Applied Economics*, 2018, 10 (2), 257–297.
- Enke, Benjamin**, “Kinship, Cooperation, and the Evolution of Moral Systems,” *NBER Working Paper No. 23499*, 2018.

## References VII

- Falk, Armin, Anke Becker, Thomas Dohmen, Benjamin Enke, David Huffman, and Uwe Sunde**, “Global Evidence on Economic Preferences,” *Quarterly Journal of Economics*, 2018, 133 (4), 1645–1692.
- Ferrara, Eliana La, Alberto Chong, and Suzanne Duryea**, “Soap Operas and Fertility: Evidence from Brazil,” *American Economic Journal: Applied Economics*, 2012, 4 (4), 1–31.
- Food and Agriculture Organization of the United Nations (FAO)**, “The State of Food Security and Nutrition in the World 2018: Building Climate Resilience for Food Security and Nutrition,” 2018.
- Fuster, Andreas, David Laibson, and Brock Mendel**, “Natural Expectations and Macroeconomic Fluctuations,” *Journal of Economic Perspectives*, 2010, 24 (4), 67–84.
- Gagnon-Bartsch, Tristan, Matthew Rabin, and Joshua Schwartzstein**, “Channeled Attention and Stable Errors,” *mimeo*, 2018.
- Genicot, Garance and Debraj Ray**, “Aspirations and Inequality,” *Econometrica*, 2017, 85 (2), 489–519.
- Ghosal, Sayantan, Smarajit Jana, Anandi Mani, Sandip Mitra, and Sanchari Roy**, “Stigma, Discrimination and Self-Image: Evidence From Kolkata Brothels,” *mimeo*, 2017.
- Giné, Xavier, Dean Karlan, and Jonathan Zinman**, “Put Your Money Where Your Butt Is: A Commitment Contract for Smoking Cessation,” *American Economic Journal: Applied Economics*, 2010, 2 (4), 213–235.
- , **Robert Townsend, and James Vickery**, “Patterns of Rainfall Insurance Participation in Rural India.,” *World Bank Economic Review*, 2008, 22 (3).

## References VIII

- Godlonton, Susan, Alister Munthali, and Rebecca Thornton**, “Responding to Risk: Circumcision, Information, and HIV Prevention,” *Review of Economics and Statistics*, 2016, 98 (2), 333–349.
- Grandner, Michael A., Nirav P. Patel, Philip R. Gehrman, Dawei Xie, Daohang Sha, Terri Weaver, and Nalaka Gooneratne**, “Who Gets the Best Sleep? Ethnic and Socioeconomic Factors Related to Sleep Complaints,” *Sleep Medicine*, 2010, 11 (5), 470–478.
- Hall, Crystal C., Jiaying Zhao, and Eldar Shafir**, “Self-Affirmation Among the Poor: Cognitive and Behavioral Implications,” *Psychological Science*, 2014, 25 (2), 619–625.
- Harlan, Sharon L., Anthony J. Brazel, Lela Prashad, William L. Stefanov, and Larissa Larsen**, “Neighborhood Microclimates and Vulnerability to Heat Stress,” *Social Science & Medicine*, 2006, 63 (11), 2847–2863.
- Haushofer, Johannes and Ernst Fehr**, “On the Psychology of Poverty,” *Science*, 2014, 344 (6186), 862–867.
- Henrich, Joseph, Jean Ensminger, Richard McElreath, Abigail Barr, Clark Barrett, Alexander Bolyanatz, Juan Camilo Cardenas, Michael Gurven, Edwina Gwako, Natalie Henrich, Carolyn Lesorogol, Frank Marlowe, David Tracer, and John Ziker**, “Markets, Religion, Community Size, and the Evolution of Fairness and Punishment,” *Science*, 2010, 327 (5972), 1480–1484.
- Hogarth, Robin M. and Hillel J. Einhorn**, “Order Effects in Belief Updating: The Belief-Adjustment Model,” *Cognitive Psychology*, 1992, 24 (1), 1–55.
- Jensen, Robert and Emily Oster**, “The Power of TV: Cable Television and Women’s Status in India,” *Quarterly Journal of Economics*, 2009, 124 (3), 1057–1094.

## References IX

- John, Anett**, “When Commitment Fails—Evidence from a Field Experiment,” *Management Science* (forthcoming), 2019.
- Karlan, Dean, Margaret McConnell, Sendhil Mullainathan, and Jonathan Zinman**, “Getting to the Top of Mind: How Reminders Increase Saving,” *Management Science*, 2016, 62 (12), 3393–3411.
- , **Robert Osei, Isaac Osei-Akoto, and Christopher Udry**, “Agricultural Decisions after Relaxing Credit and Risk Constraints,” *Quarterly Journal of Economics*, 2014, 129 (2), 597–652.
- Kaur, Supreet, Michael Kremer, and Sendhil Mullainathan**, “Self-Control at Work,” *Journal of Political Economy*, 2015, 123 (6), 1227–1277.
- , **Sendhil Mullainathan, Suanna Oh, and Frank Schilbach**, “Does Poverty Lower Productivity?,” *mimeo*, 2018.
- Kremer, Michael and Rachel Glennerster**, “Improving Health in Developing Countries: Evidence from Randomized Evaluations,” in Mark V. Pauly, Thomas G. McGuire, and Pedro P. Barros, eds., *Handbook of Health Economics*, Vol. 2, Amsterdam: Elsevier, 2011, pp. 201–315.
- Laibson, David**, “Why Don’t Present-Biased Agents Make Commitments?,” *American Economic Review*, 2015, 105 (5), 267–272.
- Loewenstein, George, Ted O’Donoghue, and Matthew Rabin**, “Projection Bias in Predicting Future Utility,” *Quarterly Journal of Economics*, 2003, 118 (4), 1209–1248.

## References X

- Lowe, Matt**, “Types of Contact: A Field Experiment on Collaborative and Adversarial Caste Integration,” *mimeo*, 2018.
- Lund, Crick, Alison Breen, Alan J. Flisher, Ritsuko Kakuma, Joanne Corrigan, John A. Joska, Leslie Swartz, and Vikram Patel**, “Poverty and Common Mental Disorders in Low and Middle Income Countries: A Systematic Review,” *Social Science & Medicine*, 2010, 71 (3), 517–528.
- Lybbert, Travis J. and Bruce Wydick**, “Poverty, Aspirations, and the Economics of Hope,” *Economic Development and Cultural Change*, 2018, 66 (4), 709–753.
- Madrian, Brigitte C. and Dennis F. Shea**, “The Power of Suggestion: Inertia in 401(K) Participation and Savings Behavior,” *Quarterly Journal of Economics*, 2001, 116 (4), 1149–1187.
- Mani, Anandi, Sendhil Mullainathan, Eldar Shafir, and Jiaying Zhao**, “Poverty Impedes Cognitive Function,” *Science*, 2013, 341 (6149), 976–980.
- Marx, Karl and Friedrich Engels**, *The Communist Manifesto*, London: Penguin Publishers, 1848.
- Miguel, Edward**, “Tribe or Nation? Nation Building and Public Goods in Kenya Versus Tanzania,” *World Politics*, 2004, 56 (3), 327–362.
- **and Mary Kay Gugerty**, “Ethnic Diversity, Social Sanctions, and Public Goods in Kenya,” *Journal of Public Economics*, 2005, 89 (11-12), 2325–2368.
- **and Michael Kremer**, “Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities,” *Econometrica*, 2004, 72 (1), 159–217.

## References XI

- Mobarak, Ahmed Mushfiq and Mark R Rosenzweig**, “Selling formal insurance to the informally insured,” 2012.
- Morduch, Jonathan, Stuart Rutherford, Orlanda Ruthven, and Daryl Collins**, *Portfolios of the Poor: How the World’s Poor Live on \$ 2 a Day*, Princeton, NJ: Princeton University Press, 2009.
- Mullainathan, Sendhil and Eldar Shafir**, *Scarcity: Why Having Too Little Means So Much*, New York: Macmillan, 2013.
- Nunn, Nathan and Leonard Wantchekon**, “The Slave Trade and the Origins of Mistrust in Africa,” *American Economic Review*, 2011, 101 (7), 3221–3252.
- O’Donoghue, Ted and Matthew Rabin**, “Choice and Procrastination,” *Quarterly Journal of Economics*, 2001, 116 (1), 121–160.
- Patel, Nirav P., Michael A. Grandner, Dawei Xie, Charles C. Branas, and Nalaka Gooneratne**, “‘Sleep Disparity’ in the Population: Poor Sleep Quality Is Strongly Associated With Poverty and Ethnicity,” *BMC Public Health*, 2010, 10 (1), 475.
- Patel, Vikram and Arthur Kleinman**, “Poverty and Common Mental Disorders in Developing Countries,” *Bulletin of the World Health Organization*, 2003, 81, 609–615.
- , **Benedict Weobong, Helen A. Weiss, Arpita Anand, Bhargav Bhat, Basavraj Katti, Sona Dimidjian, Ricardo Araya, Steve D. Hollon, Michael King, Lakshmi Vijayakumar, A-La Park, David McDaid, Terry Wilson, Richard Velleman, Betty R. Kirkwood, and Christopher G. Fairburn**, “The Healthy Activity Program (HAP), a Lay Counsellor-Delivered Brief Psychological Treatment for Severe Depression, in Primary Care in India: A Randomised Controlled Trial,” *The Lancet*, 2017, 389 (10065), 176–185.

## References XII

- Pop-Eleches, Cristian and et al.**, “Mobile Phone Technologies Improve Adherence to Antiretroviral Treatment in a Resource-Limited Setting: A Randomized Controlled Trial of Text Message Reminders,” *AIDS*, 2011, 25 (6), 825–834.
- Rao, Gautam**, “Familiarity Does Not Breed Contempt: Diversity, Discrimination and Generosity in Delhi Schools,” *American Economic Review (forthcoming)*, 2019.
- Ray, Debraj**, “Aspirations, Poverty, and Economic Change,” in Abhijit V. Banerjee, Roland Benabou, and Dilip Mookherjee, eds., *Understanding Poverty*, New York: Oxford University Press, 2006.
- Rosenzweig, Mark R. and Christopher Udry**, “Rainfall Forecasts, Weather, and Wages Over the Agricultural Production Cycle,” *American Economic Review*, 2014, 104 (5), 278–283.
- Schilbach, Frank**, “Alcohol and Self-Control: A Field Experiment in India,” *American Economic Review (forthcoming)*, 2019.
- , **Heather Schofield, and Sendhil Mullainathan**, “The Psychological Lives of the Poor,” *American Economic Review*, 2016, 106 (5), 435–440.
- Schofield, Heather**, “The Economic Costs of Low Caloric Intake: Evidence From India,” *mimeo*, 2014.
- Schultz, Theodore W.**, *Transforming Traditional Agriculture (Studies in Comparative Economics 3)*, New Haven: Yale University Press, 1964.
- Schwartzstein, Joshua**, “Selective Attention and Learning,” *Journal of the European Economic Association*, 2014, 12 (6), 1423–1452.

## References XIII

**Thornton, Rebecca L.**, “The Demand For, and Impact Of, Learning HIV Status,” *American Economic Review*, 2008, 98 (5), 1829–1863.

**Thornton, Rebecca, Laurel Hatt, Erica Field, Mursaleena Islam, Freddy Diaz, and Martha Gonzalez**, “Social Security Health Insurance for the Informal Sector in Nicaragua: A Randomized Evaluation,” *Health Economics*, 2010, 19, 181–206.