MIT Economics

ARIEL ZUCKER

OFFICE CONTACT INFORMATION
UC Berkeley Agricultural and Resource Economics
714 University Hall
Berkeley, CA 94720
adzucker@berkeley.edu
http://economics.mit.edu/grad/adzucker

HOME CONTACT INFORMATION
2832 Stanton St.
Berkeley, CA 94702
Mobile: 510-332-3059

MIT PLACEMENT OFFICER
Professor Robert Townsend
rtownsen@mit.edu
617-452-3722

MIT PLACEMENT ADMINISTRATOR
Ms. Julia Martyn-Shah
jmshah@mit.edu
617-253-8787

CURRENT POSITION
Ciriacy-Wantrup Postdoctoral Research Fellow (UC Berkeley) 2018-present

DOCTORAL STUDIES
Massachusetts Institute of Technology (MIT)
PhD, Economics, September 2018
DISSERTATION: " Essays on Behavior Change in Development Economics"

DISSERTATION COMMITTEE AND REFERENCES

Professor Abhijit Banerjee
MIT Department of Economics
77 Massachusetts Avenue, **E52-540**
Cambridge, MA 02139
617-253-8855
banerjee@mit.edu

Professor Esther Duflo
MIT Department of Economics
77 Massachusetts Avenue, **E52-544**
Cambridge, MA 02139
617-253-7013
eduflo@mit.edu

Professor Edward Miguel
UC Berkeley Department of Economics
Evans Hall, **No. 3880**
Berkeley, CA 94720
510-642-4361
emiguel@berkeley.edu

Professor Rebecca Dizon-Ross
The University of Chicago Booth School of Business
5807 South Woodlawn Avenue
Chicago, IL 60637
773-702-3265
rdr@chicagobooth.edu

PRIOR EDUCATION
Columbia University in the City of New York 2009
B.A., *cum laude*, Economics (with honors)

CITIZENSHIP USA **GENDER** Female

LANGUAGES English (fluent)

FIELDS

Primary Fields: Development Economics, Public Finance

Secondary Fields: Environmental Economics and Health Economics

TEACHING EXPERIENCE

Energy Economics and Policy (graduate, MIT Sloan School of Management course 15.037) Teaching Assistant to Professor Chistopher Knittel	2018
Principles of Microeconomics (undergraduate, MIT course 14.01) Teaching Assistant to Professor Jonathan Gruber	2017
Foundations of Development Policy (undergraduate, MIT course 14.74) Teaching Assistant to Professors David Donaldson and Benjamin Olken	2017
Intermediate Microeconomics (undergraduate, Columbia course ECON 3211) Teaching Assistant to Professor Anna Caterina Musatti	2008

RELEVANT POSITIONS

Research Assistant to Professor Tavneet Suri (MIT)	2012-13
Research Assistant to Professors Abhijit Banerjee (MIT) and Rohini Pande (Harvard)	2011-12
Research Assistant, Federal Reserve Bank of New York	2009-2011

FELLOWSHIPS, HONORS, AND AWARDS

Weiss Family Program Fund Grant (with Rebecca Dizon-Ross and Seema Jayachandran)	2020
Becker Friedman Institute (BFI) Grant (with Rebecca Dizon-Ross and Seema Jayachandran)	2020
Global Poverty Research Lab Grant (with Rebecca Dizon-Ross and Seema Jayachandran)	2020
International Growth Centre Grants (with Nick Hagerty)	2020, 2018
Weiss Family Program Fund Grant (with Nick Hagerty and Jeremy Magruder)	2019
George and Obie Shultz Fund Grant	2018
University of Chicago Tata Center for Development Grants (with Rebecca Dizon-Ross)	2018, 2017
International Growth Centre Grant (with Nick Hagerty and Michael Greenstone)	2017
Abdul Latif Jameel World Water and Food Security Lab Grant (with Nick Hagerty)	2017
J-PAL Health Care Delivery Initiative Grant (with Rebecca Dizon-Ross)	2017
India Trust Grant (Rebecca Dizon-Ross and Shilpa Aggarwal)	2017
Fellow, Tata Center for Technology and Design	2014-2016
MIT Presidential Fellow	2013-2014
J-PAL Urban Services Initiative Grant (with Rebecca Dizon-Ross	2015

and Shilpa Aggarwal)
Weiss Family Program Fund Grant (with Nick Hagerty) 2015
National Science Foundation Graduate Research Fellowship Program: Honorable Mention 2011

PROFESSIONAL ACTIVITIES

Referee: *American Economic Review, American Economic Journal, Quarterly Journal of Economics*

Presentations:

Cities and Development Workshop, University of Chicago 2020
Development Workshop, UC Davis 2020
Economics Seminar, UC Merced 2020
Health and Labor Market Effects of Public Policy, UC Santa Barbara 2019
Environmental Market Solutions Lab, UC Santa Barbara 2019
North East Universities Development Consortium (NEUDC), Cornell University 2018

RESEARCH PAPERS

"Can price discrimination incentivize behavioral change? Evidence from a randomized field experiment" (Job Market Paper)
With Rebecca Dizon-Ross
Incentives for health behaviors are an increasingly important policy tool in both developed and developing countries, and there is widespread interest in improving the effectiveness of incentive contracts. However, people are different, and no one contract is most effective for everyone. The theory of price discrimination offers two promising strategies to effectively customize contracts: tagging on observables (i.e., 3rd-degree price discrimination), and offering a menu of contract choices (i.e., 2nd-degree price discrimination). However, a key concern is that participants might manipulate information to take advantage of the principal. We adapt each of these strategies to customize incentive contracts for walking. Using a randomized controlled trial among more than 5,000 adults in urban India, we show that both mechanisms increase physical activity, leading to a 60% increase in steps walked relative to a one-size-fits-all benchmark. Moreover, we find that the concern about incentives to manipulate is not only misplaced, but exactly backwards. Instead, a common force in health behavior settings - commitment motives - leads agents to self-sort into more effective contracts under both mechanisms. In particular, sophisticated time inconsistent agents demand contracts that commit their future selves to walk more, bringing their preferences in partial alignment with the principal and improving the effectiveness of customization.

"Incentivizing Behavioral Change: The Role of Time Preferences"
With Shilpa Aggarwal and Rebecca Dizon-Ross
How should the design of incentives vary with agent time preferences? We develop two predictions. First, ``bundling" the payment function over time – specifically

by making the payment for future effort increase in current effort – is more effective if individuals are impatient over effort. Second, increasing the frequency of payment is more effective if individuals are impatient over payment. We test the efficacy of time-bundling and payment frequency, and their interactions with impatience, using a randomized evaluation of an incentive program for exercise among diabetics in India. Consistent with our theoretical predictions, bundling payments over time meaningfully increases effort among the impatient relative to the patient. In contrast, increasing payment frequency has limited efficacy, suggesting limited impatience over payments. On average, incentives increase daily steps by 1,266 (13 minutes of brisk walking) and improve health outcomes.

"Does Micro-irrigation Save Energy? An Investigation in Gujarat, India"
With Nick Hagerty
Energy efficiency is a global priority, but investments in energy efficiency do not always deliver the expected benefits. This paper studies micro-irrigation systems (MIS), a technology thought to reduce the energy required for irrigation by as much as 70 percent. We installed individual meters to directly measure the energy consumption of several hundred farmers in Gujarat, India, and linked this meter data with survey data to yield a comprehensive view into energy use patterns in smallholder agriculture. We document two facts. One, energy use varies widely across farmers, and this variation is unexplained by factors such as farm area or village geography. Two, MIS users in our sample consume 30 to 40 percent more energy than nonusers of MIS. This difference does not appear to be explained by observable differences across farmers nor by rebound effects, suggesting that the energy impacts of MIS under real-world conditions may be disappointing. While these findings are not causal, they highlight a need for increased attention to details of implementation and further research into the actual benefits of resource-conserving technologies.

RESEARCH IN PROGRESS

"Encouraging Abstinence Behavior in an Opioid Epidemic: Incentivizing Inputs and Outcomes"
With Rebecca Dizon-Ross
Combatting the rise of the opioid epidemic is a central challenge of U.S. health care policy. A promising approach for improving welfare and decreasing medical costs of people with substance abuse disorders is offering incentive payments for healthy behaviors. This approach, broadly known as "contingency management" in the medical literature, has repeatedly shown to be effective in treating substance abuse. However, the use of incentives by treatment facilities remains extremely low. Furthermore, it is not well understood how to design optimal incentives to treat opioid abuse. This project will conduct a randomized evaluation of two incentive schemes for people with opioid use disorders, one incentivizing "inputs" to abstinence, and one incentivizing the "outcome" of abstinence. Both schemes are implemented with a novel "turnkey" mobile application, making them uniquely low-cost, low-hassle, and scalable. Effects will be measured on abstinence outcomes, including longest duration of abstinence and the percentage of negative drug tests, and the persistence of the effects will be assessed. In combination with survey data, variation from the experiment will shed light on the barriers to abstinence more broadly and inform

our understanding of optimal incentive design. A randomized pilot at the Aurora Health Adult Behavioral Program in Milwauke, Wisconsin is currently under way (AEA Registry Record No. AEARCTR-0005000.)

"De-biasing over-optimism about personal COVID-19 health risk"
With Rebecca Dizon-Ross and Seema Jayachandran
Providing people with information about their health risk is an important part of the policy response to a public health crisis. However, the most effective way to present such information is unknown, particularly in light of behavioral biases people have. One such bias is over-optimism about one's health risk (i.e., a tendency to believe that one's risk is lower than it is), which has been documented in many settings and shown to lead to riskier behaviors. This study aims to test whether interventions that offset people's over-optimism can improve the effectiveness of information provision. We do so in the context of the COVID-19 pandemic, among a population that is particularly vulnerable to severe complications from COVID-19, namely diabetics, pre-diabetics and hypertensives, who represent a large and growing segment of the population in India. Fieldwork is completely remote and expected to be completed in spring 2021.

"Paying for Prevention: The Role of Incentives in Eliminating Care Gaps"
An important aspect of the Affordable Care Act was an increased focus on quality-of-care. The act created new quality measures that emphasize closing gaps in care and decreasing the use of costly acute care through preventive services. While insurance providers now have substantial stake in encouraging their members to close preventive care gaps, there is limited evidence on the most effective means to do so. We conduct a randomized controlled trial among members of a large health insurance provider in a midwestern state who had one of seven critical care gaps in 2018. Members either receive a letter with an incentive to close their (or their child's) care gap, a letter with information regarding the gap, or no letter. We find that while incentives are effective for encouraging closure of children and teens' care gaps, the do not improve care gap closures for adults – and may even discourage gap closure among this population. Information regarding existing care gaps has no detectable effect on closures.

" Measuring Demand for Groundwater Irrigation: Experimental Evidence from Conservation Payments"
With Nick Hagerty
We measure the price response of demand for groundwater and electricity in irrigated agriculture in Gujarat, India, where both resources are scarce and largely unregulated. To do so, we install meters and offer payments for voluntary conservation in a randomized controlled trial. First, we use the price variation introduced by this program to estimate the price elasticity of groundwater demand, a key parameter required for efficient regulation by any means. Then, we evaluate conservation payments as a potentially useful policy tool given political constraints, measuring its treatment effects, spillovers, and cost-effectiveness. Pilot evidence confirms that conservation payments are feasible

and suggests effects on water use may be large. The full experiment is scheduled to launch as soon as health conditions allow safe in-person fieldwork.

"The Optimal Assessment Period for Transfer Programs: Evidence from Cape Town's Electricity Subsidies"
With Kelsey Jack and Yael Borofsky
Policymakers targeting means-tested transfers to credit-constrained households face a tradeoff when selecting the assessment period: longer assessment period enable a more precise measure of household well-being, but shorter assessment periods enable transfers to be delivered to households quickly at the time of most need. Despite the near universality of this tradeoff, the public finance literature has remained nearly silent on how policymakers should choose assessment periods. We first formalize this trade-off in a simple model of heterogeneous credit-constrained households facing uncertain consumption streams. We then empirically assess the targeting performance of different assessment periods for subsidized electricity transfers in Cape Town, South Africa – a country where subsidized utility provision forms a large portion of government transfers. In particular, we compare three targeting regimes that Cape Town has used to deliver subsidized electricity: increasing block tariffs (assessed monthly), volumetric tariffs (assessed annually), and property-value-based means-tested tariffs (assessed every five years).