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**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  
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The University of Chicago Booth School  
of Business  
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**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)

<b>FIELDS</b>	Primary Field: Development Economics	
	Secondary Fields: Health Economics, Environmental Economics	
<b>TEACHING EXPERIENCE</b>	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
<b>RELEVANT POSITIONS</b>	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
<b>FELLOWSHIPS, HONORS, AND AWARDS</b>	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-	2015

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

**PROFESSIONAL ACTIVITIES** **Referee:** *American Economic Review, American Economic Journal: Applied Economics, 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 75% 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 Milwaukee, 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 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, they 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.