

**EDUCATION**

*Ph.D.*, Economics

University of Pittsburgh, Pittsburgh, PA, expected 2022

**Thesis Committee:** Prof. Osea Giuntella (co-chair), Prof. David Huffman (co-chair), Prof. Randall Walsh, Prof. Karen Clay, Prof. Andrea La Nauze (see References section on last page for contact information)

**RESEARCH**

**Job Market Paper**

[Learning About Subjective Uncertainty: Overinference from Observable Characteristics in Disaggregated Data](#)

**Publications**

[Lifestyle and Mental Health Disruptions During COVID-19](#) (with Osea Giuntella, Silvia Saccardo, and Sally Sadoff) (*Proceedings of the National Academy of Sciences*, 2021)

[Pandemics, Economic Freedom, and Institutional Tradeoffs](#) (with Vincent Geloso and Ilia Murtazashvili) (*European Journal of Law and Economics*, 2021)

**Works in Progress**

[The Regressive Costs of Drinking Water Contaminant Avoidance](#)

[Water Availability and Heat-Related Mortality: Evidence from South Africa](#)

[Drinking Water Contamination and COVID-19 Mortality in the United States](#)

[Heat Exposure and Dietary Choices](#)

[Gender-Specific Shocks & Household Bargaining Power: A Machine Learning Approach To Scanner Data](#) (with Osea Giuntella and Rania Gihleb)

[Living Jerrycan to Jerrycan: The Cost of Drinking Water in Urban Nigeria](#)

[Replication and Extension of “Conveniently Upset: Avoiding Altruism by Distorting Beliefs About Others’ Altruism”](#) (Di Tella et al., *The American Economic Review*, 2015) (with Lise Vesterlund, Alistair Wilson, Kanatip Winichakul, Logan Bialik, Yufei Chen, Neil Silveus, Taylor Weidman, and Liyang Zhou)

**GRANTS**

National Science Foundation Doctoral Dissertation Research Improvement Grant (Co-PI), \$62,600, July 2020

**PRESENTATIONS**

Health Policy and Management Seminar, University of Pittsburgh, October 2021

American Society of Health Economists (ASHEcon) Annual Conference, June 2021

Population Association of America Annual Meeting, May 2021  
1<sup>st</sup> Applied Microeconomics Workshop (AMIE), March 2021  
North American Regional Sciences Council (NARSC) Annual Meeting,  
November 2020  
IESR-GLO Conference on COVID-19, June 2020  
American Society of Health Economics (ASHEcon) Annual Conference,  
June 2020<sup>1</sup>  
Stanford Rosenkranz Global Health Policy Symposium, April 2020<sup>1</sup>  
Centre for the Study of African Economies: Economic Development in  
Africa (University of Oxford), March 2020<sup>1</sup>  
Population Health Sciences Research Workshop (University of Pennsylva-  
nia), December 2019  
Camp Resources (North Carolina State University CEnREP), August 2019  
American Society of Health Economists (ASHEcon) Annual Conference,  
June 2019  
Population Association of America Annual Meeting, April 2019  
Advancing Research through Computing (University of Pittsburgh Center  
for Research Computing), March 2019  
Grad Expo (University of Pittsburgh Graduate Student Organization),  
March 2019

## **TEACHING**

### **Instructor**

Health Economics (undergraduate), University of Pittsburgh, Summer 2020

### **Teaching Assistantships**

Math Methods for Economists (graduate), Professor Roe Teper, Fall 2018  
Introduction to Microeconomic Theory (undergraduate), Instructor Mal-  
lory Avery, Summer 2018

Introduction to Macroeconomic Theory (undergraduate), Professor James  
Kenkel, Spring 2018

Advanced Microeconomic Theory I (graduate), Professor Luca Rigotti, Fall  
2017

## **AWARDS**

Agora Fellowship, Center for Governance and Markets, University of Pitts-  
burgh, Fall 2021

ASHEcon Diversity Fellowship, June 2020

Best Second Year Paper Award, University of Pittsburgh, September 2019

Andrew W. Mellon Predoctoral Fellowship, 2019

Student Poster Contest Winner, Advancing Research through Computing,  
March 2019

Summer Research Fellowship, University of Pittsburgh, Summer 2018

Slesinger Fellowship, University of Pittsburgh, Fall 2016

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<sup>1</sup>Cancelled or postponed due to COVID-19.

### **Learning About Subjective Uncertainty: Overinference from Observable Characteristics in Disaggregated Data (Job Market Paper)**

Individuals facing uncertainty frequently use information at varying levels of (dis)aggregation about others' realized outcomes in similar environments to form subjective beliefs about their own prospects. The use of disaggregated information introduces another level of subjectivity: the individual's beliefs about the informativeness of signals based on the category to which they pertain. Across a tightly controlled lab experiment and a companion survey on health outcomes, I find that individuals have poorly calibrated beliefs about the relative informativeness of disaggregated signals, systematically overestimating the informativeness of in-group signals and underestimating the informativeness of out-group signals. As a result, when they receive noisy disaggregated information, their posterior frequently features exaggerated differences across categories, especially when the information reinforces a preexisting misperception in their prior. When these incorrect beliefs pertain to their own category, individuals subsequently acting on these beliefs take on a different level of risk than their risk preferences imply they would if their beliefs had been correct. These results suggest that providers of information that may influence individuals' risky behaviors should carefully select a level of (dis)aggregation which balances personal relevance with statistical precision.

### **Water Availability and Heat-Related Mortality: Evidence from South Africa**

Rising global surface temperatures threaten to reduce precipitation and evaporate surface freshwater in areas already experiencing water stress. In this paper, I demonstrate that higher upstream water availability significantly reduces the slope of the temperature-mortality relationship during the hot season. This suggests investment in water infrastructure is an effective community-level adaptation to climate change, especially where the status quo of water access is relatively poor. As an example of such investment, I show a transnational water transfer project both increased water availability and reduced hot-season mortality in receiving districts.

### **The Regressive Costs of Drinking Water Contaminant Avoidance**

Up to 45 million Americans in a given year are potentially exposed to contaminated drinking water, increasing their risk of adverse health outcomes. Existing literature has demonstrated that individuals respond to drinking water quality violations by increasing their purchases of bottled water and filtration avoidance, thereby avoiding exposure to contaminants. This paper demonstrates that poorer households, for whom the costs of avoidance comprise a greater share of disposable income, bear disproportionate costs of water quality violations in the United States. Following a health-based water quality violation, poor households expenditure on nutritious grocery products in a nationally representative panel differentially decreases by

approximately \$7 per month. This is associated with a decrease of about 1,500 calories per household member per day, placing these individuals at a higher risk of food insecurity. This finding suggests that the indirect costs of drinking water contamination through economic channels exacerbate health disparities associated with poverty.

### **Drinking Water Contamination and COVID-19 Mortality in the United States**

Over 185,000 deaths have been attributed to the COVID-19 pandemic in the United States as of September 2020. There is growing evidence that the composition of these deaths reflects multiple long-standing health disparities, including environmental quality. In this paper, a county-day level panel of confirmed COVID-19 case and death counts, water quality violations, and demographic variables is constructed to estimate the association between risk of exposure to drinking water contaminants and the COVID-19 case fatality rate (CFR). Counties with more recent violations among major community water systems than average (treated) are matched to control counties on key demographic and environmental variables using coarsened exact matching (CEM). Three categories of water quality violations are considered: acute health-based violations, which pose an immediate health threat to exposed individuals; health-based violations involving contaminants shown in prior literature to increase the risk of cardiovascular disease (lead, arsenic, cadmium, and copper); and all health-based violations regardless of type. The county-level COVID-19 CFR is significantly associated with acute and cardiovascular-associated health-based violations. On average, the CFR is about 18% higher (0.48 percentage points;  $p < 0.01$ ) in counties more affected by acute violations than average and about 15% higher (0.42 percentage points;  $p = 0.037$ ) in counties more affected by cardiovascular-associated violations. There is suggestive evidence of a linear association between the dose of violation exposure (the sum of the estimated percentages of the population affected by each respective violation) and the CFR.

### **Lifestyle and Mental Health Disruptions During COVID-19** (with Osea Giuntella, Silvia Saccardo, and Sally Sadoff) (*Proceedings of the National Academy of Sciences*, 2021)

Using a longitudinal dataset linking biometric and survey data from several cohorts of young adults before and during the pandemic ( $N=682$ ), we document large disruptions to physical activity, sleep, time use, and mental health. At the onset of the pandemic, average steps decline from 10,000 to 4,600 steps per day, sleep increases by 25-30 minutes per night, time spent socializing declines by over half to less than 30 minutes, and screen time more than doubles to over 5 hours per day. Over the course of the pandemic from March to July 2020, the proportion of participants at risk of clinical depression ranges from 46% to 61%, up to a 90 percent increase in depression rates compared to the same population just prior to the pandemic. Our analyses suggest that disruption to physical activity is a leading risk

factor for depression during the pandemic. However, restoration of those habits through a short-term intervention does not meaningfully improve mental well-being.

**Gender-Specific Shocks & Household Bargaining Power: A Machine Learning Approach To Scanner Data** (with Osea Giuntella and Rania Gihleb)

We examine the effect of several gender-specific labor market shocks documented in the literature on the consumption of heterosexual married couples in the United States. Using machine learning and text analysis techniques, we construct a score of relative gender preference at the product UPC level, culminating in an overall score of each households consumption. We find that within households, negative shocks to male labor demand increase the relative share of female-preferred goods, and vice versa, suggesting women gain intra-household bargaining power following these shocks. These effects are mirrored in consumption of childrens goods by gender, suggesting an improved bargaining position for the mother proportionally benefits daughters.

**REFERENCES**

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