COVID-19 Movement Restrictions and Domestic Violence: Evidence from the U.S.

Bilge Erten* Pinar Keskin† and Silvia Prina‡

May 11, 2020

Motivation and research question: Intimate partner violence is widely recognized as a major social problem associated with poor health and economic outcomes for women and their children. In the United States, where 1 out of 4 women experience domestic abuse, the lifetime economic costs of intimate partner violence amount to $3.6 trillion, with $1.3 trillion attributed to productivity losses (Peterson et al. 2018). Recent anecdotal evidence suggests that there has been a considerable increase in cases of domestic violence in several countries after the introduction of movement restrictions to slow the spread of COVID-19 (New York Times, April 6 2020). In April 2020, the United Nations Population Fund speculated that for every 3 months the lockdown continues, an additional 15 million additional cases of gender-based violence are expected (UNFPA 2020). However, no research has rigorously estimated the causal impacts of such policies.

We aim to fill this gap by quantifying the effects of mandated movement restrictions at the county and state level due to COVID-19, as well as of compliance with those restrictions, on domestic violence. Social isolation can generate adverse consequences for domestic violence experienced by women for several reasons. First, stay-at-home orders force women to spend more time with their potential perpetrators and cause an increase in intimate partner violence mechanically. Second, social isolation and economic uncertainty associated with COVID-19 is likely to act as an additional stressor and worsen individuals' mental health. Third, since women are predominantly employed in contact-intensive service sectors, they have experienced greater losses in employment and income. The decline in the ratio of female to male income reduces bargaining power of women in the household. We will try to tease out these differential channels using baseline heterogeneity in various socioeconomic measures among U.S. counties.

Findings from this study will contribute to better understand the costs associated with movement restrictions, which go beyond the financial losses caused by the economic shutdown. If more women and children's lives are in danger and the victims suffer from long-term psychological problems, these consequences call for additional policy interventions to accompany COVID-19 related lockdown policies.

Data: Our analysis uses several sources of data at the state and county level over time. First, we have compiled a detailed dataset of movement restrictions implemented. These movement restrictions allow us to test the differential effects of imposing these policies earlier and more strictly in some places compared to others. Second, we use two types of data to document the effects of local movement restrictions on individuals' mobility: the Social Distancing Scoreboard data from UNACAST and the "time outside home" variable from the Opportunity Insights economic tracker (Chetty et al. 2020)[1]. These variables measure population compliance with movement restriction policies. Third, we use Google Trends Data to examine the impact of movement restrictions on Google searches related to experiencing domestic violence and seeking help in response to it, such as "domestic violence hotline". Fourth, we use data from police calls related to domestic violence. In particular, taking advantage of the Police Data Initiative[2] we are in the process of extracting the total number of calls related to domestic violence and the share to total calls received by each police department. Fifth, we use data on labor market indicators from the Opportunity Insights economic tracker to examine the effects of social distancing policies on employment and income of men and women. This allows us to examine the labor market channel, and in particular, to test whether we observe larger effects on domestic violence in places where women were disproportionately lost their jobs or experienced declines

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[1]https://tracker.opportunityinsights.org

[2]https://www.policedatainitiative.org

in their income relative to men. Sixth, in order to capture the effects on mental health, we use Google Trends data focusing on searches related to stress, anxiety and mental disorders, including somatic indicators (e.g. sleep disorders).

Our research study avoids collecting survey data for several reasons. First, we want to avoid putting potential victims in danger by contacting them. Even in phone interviews, the male partner–now in much closer proximity due to confinement–could hear or get suspicious about his female partner's doing. This upset trigger alone could lead to a violent outburst. Second, since survey data is self-reported, there is considerable underreporting of both the incidence and severity of violence (Aguero et al. 2020).

To check whether the Google trends data capture the extent of the domestic violence problem, we ran several validity tests. Figure 1(a) depicts the daily Google Trend searches for the keyword *"domestic violence hotline"* alongside a 14 days simple moving average (red line): there is a steep increase in searches from the second week of March to the beginning of April. This increase is sustained throughout the entire month of April. Furthermore, these results are corroborated by a Chow-test to detect structural breaks (Figure 1(b)). We conducted the test daily from February 15th to April 15th. For several dates between the last week of February and the third week of April, we reject the hypothesis of structural stability. Similar results are produced for domestic violence police calls (Figures 1(c) and 1(d)).

Methodology: The response to the spread of COVID-19 in the United States varied by county, with some introducing movement restrictions much earlier and relatively stricter than others. We take advantage of this variation across space and time to study the impact of social isolation on the risk of experiencing domestic violence. Our empirical strategy follows a difference-in-difference approach as we compare county-level outcomes related to domestic violence before and after the implementation of movement restriction measures. The identifying assumption is that counties followed parallel trends in the outcomes of interest prior to the implementation of these policies. We use the following specification:

$$y_{ct} = \alpha + \beta restrictions_{ct} + \mu_t + \gamma_c + \delta_c t + \epsilon_{ct} \tag{1}$$

where y_{ct} denotes outcomes that proxy for the risk of experiencing domestic violence (e.g. Google trends searches for domestic violence hotline) measured in county c at time period t and $restrictions_{ct}$ is an index of the severity of movement restrictions implemented in county c at time period t. We also includes time period fixed effects μ_t to control for any macroeconomic shocks at the national level that coincide with movement restrictions: county fixed effects γ_c to account for changes in time trends specific to each county over time; and county-specific linear trends $\delta_c t$ to control for any time-invariant heterogeneity across counties. The main parameter of interest is the coefficient on movement restrictions, with a positive coefficient implying that an increase in social isolation is associated with an increase in the probability of the outcome tested.

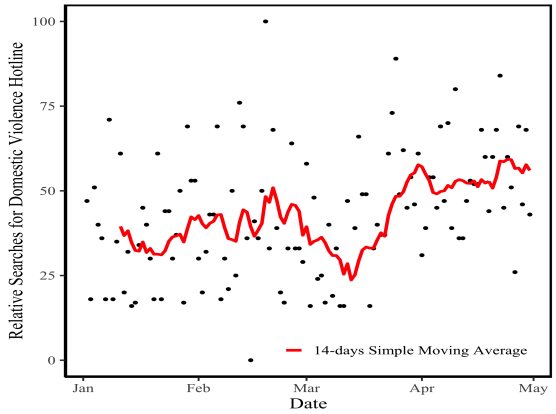
We complement these estimates with an event-study design that uses the leads and lags of local movement restrictions to study changes in the outcome variable prior to and following the policy changes. This specification allows us to test the common trends assumption focusing on the placebo treatment leads. In particular, we estimate the following specification:

$$y_{c,t} = \alpha + \sum_{i=-1}^{-9} (\beta_i restrictions_{c,t+i}) + \beta_0 restrictions_{c,t=0} + \sum_{i=1}^{5} (\beta_i restrictions_{c,t+i}) + \mu_t + \gamma_c + \epsilon_{c,t} \tag{2}$$

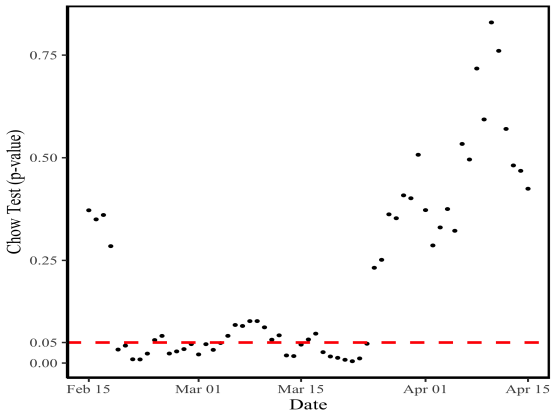
Using the shelter-in-place policy changes implemented at the state level, we provide preliminary evidence in Figure 2 using event-study estimates of movement restrictions on social movement (using the average distance traveled from UNACAST) and domestic violence hotline searches (using Google trends). We observe a sharp decline in social movement in the days following the implementation of shelter-in-place policies, whereas the searches for domestic violence hotline increase in the weeks following the same restrictions.

In the upcoming months, we plan to keep collecting, updating and expanding our datasets, to polish these preliminary analyses, and to study the underlying reasons for why social distancing policies generated the observed effects on the risk of domestic violence. We also aim to expand our investigation to evaluate the changes in child abuse. Finally, our study will try to pin point the causal channels underlying the effects of movement restrictions on various forms of domestic abuse and violence.

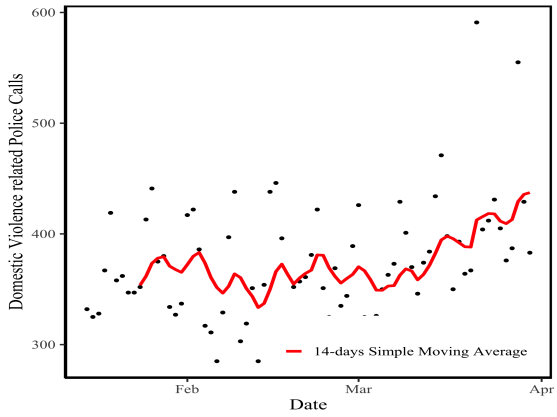
Figure 1: Structural Break Test



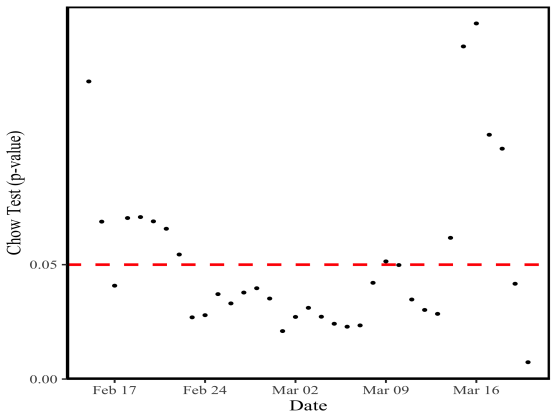
(a) Google Trends Relative Searches for *Domestic Violence Hotline* and moving average.



(b) Chow Test (p-value) for dates Feb 15th - Apr 15th

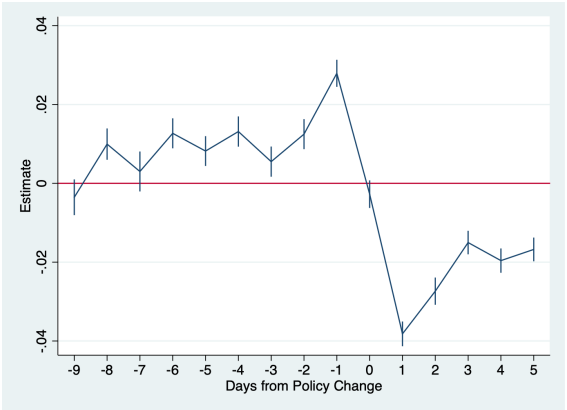


(c) Domestic Violence related Police Calls and moving average.

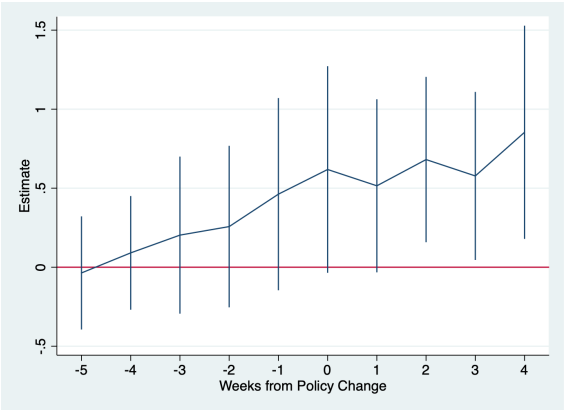


(d) Chow Test (p-value) for dates Feb 15th - Apr 15th

Figure 2: Event-Study Results



(a) Changes in Social Movement (UNACAST data)



(b) Google Trends Searches for *Domestic Violence Hotline*

Budget

We request $19,968 to pay for two graduate research assistants (RAs) for three months and one undergraduate research assistant for 100 hours. All research assistants will be involved in the collection, updating, and expanding of datasets on mandated restrictions at the county and state level and domestic violence (Google trends and police phone calls). Particularly, regarding police phone calls data, the RAs will access data from individual police departments belonging to the Police Data Initiative and then will expand on non-affiliated police departments across the country. In addition, the graduate research assistants will be in charge of cleaning, formatting, and merging the data. They will also help the researchers with the data analysis.

The hourly cost of one graduate RA, including fringe benefits, is of $37.85. The total cost of two graduate RAs for 20 hours a week for 3 months is $18,168. The hourly cost of one undergraduate RA is $18. The total cost of 100 undergraduate RA hours is $1,800.

Item	Quantity	Length	Total (including fringe benefits)
Graduate RAs	2	3 months	$18,168
Undergraduate RA	1	100 hours	$1,800
TOTAL			$19,968

BILGE ERTEN

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PRIMARY ACADEMIC APPOINTMENTS

Assistant Professor, Department of Economics and International Affairs Program, Northeastern University, 2014-present.
Postdoctoral Research Scholar, Committee on Global Thought, Columbia University, 2012-2014.
Visiting Assistant Professor, Department of Economics, Drew University, 2010-2011.

AFFILIATIONS

Associate Editor, *Feminist Economics*, October 2018-.
Research Fellow, Institute for the Study of Labor (IZA), October 2019-.
Faculty Affiliate, Gender and Development Initiative, Northeastern University, 2014-.

EDUCATION

University of Massachusetts Amherst, Ph.D., Economics, 2010; M.A., Economics, 2006.
Middle East Technical University, Turkey, B.A. (High Hons.), Economics, Minor in Political Science, 2004.

PUBLISHED ECONOMICS PAPERS

"Exporting out of Agriculture: the Impact of WTO Accession on Structural Transformation and Growth in China" (with Jessica Leight) accepted at *the Review of Economics and Statistics*, 2019.

"Breaking the Cycle? Education and the Intergenerational Transmission of Violence," (with Pinar Keskin) accepted at *the Review of Economics and Statistics*, 2019.

"Capital Controls: Theory and Evidence" (with Anton Korinek and José Antonio Ocampo) accepted at the *Journal of Economic Literature*, 2019.

"Trade Liberalization and Local Labor Market Adjustment in South Africa" (with Jessica Leight and Fiona Tregenna) *Journal of International Economics*, 118: 448–467, 2019.

"Compulsory Schooling for Whom? The Role of Gender, Poverty, and Religiosity" (with Pinar Keskin) – *Economics of Education Review*, 72: 187–203, 2019.

"The Real Exchange Rate, Structural Change, and Female Labor Force Participation" (with Martina Metzger) *World Development*, 117: 296–312, 2019.

"For Better or for Worse?: Education and the Prevalence of Domestic Violence in Turkey" (with Pinar Keskin) *American Economic Journal: Applied Economics*, 10 (1): 64–105, 2018.

"Output Effects of Global Food Commodity Shocks" (with Kerem Tuzcuoglu) *Journal of Globalization and Development*, 9 (1): 1–18, 2018.

"Macroeconomic Effects of Capital Account Regulations" (with José Antonio Ocampo) *IMF Economic Review*, 65 (2): 193–240, 2017.

"Proposal for a Global Fund for Women through Innovative Finance" (with Nilufer Cagatay) *Feminist Economics*, 23 (4): 170–200, 2017.

"Super Cycles of Commodity Prices since the Mid-Nineteenth Century," (with José Antonio Ocampo), *World Development* 44, 14–30, 2013.

"Macroeconomic Transmission of Eurozone Shocks to Emerging Economies," *International Economics* 131, 43–70, 2012.

"North-South Terms of Trade Trends from 1960 to 2006," *International Review of Applied Economics*, 25 (2): 171–184, 2011.

WORKING PAPERS

"Does Knowledge Empower? Education, Legal Awareness and Intimate Partner Violence," (with Pinar Keskin) [submitted].

"Female Employment and Intimate Partner Violence: Evidence from Syrian Refugee Inflows to Turkey" (with Pinar Keskin) [submitted].

"Trade-offs? The Impact of WTO Accession on Intimate Partner Violence in Cambodia" (with Pinar Keskin)

"The Gender of Caste: Identity, Political Reservations and Access to Water Resources in Rural India" (with Pinar Keskin)

"Rethinking Unconditional Convergence in Manufacturing in the Age of New Technologies" (with Oliver Schwank)

TEACHING EXPERIENCE

2014-2019	Northeastern University: Applied Econometrics (Undergraduate), Applied Development Economics (Undergraduate), Principles of Macroeconomics (Undergraduate), International Economic Development (Graduate)
2013 Spring	Barnard College, Department of Economics: Development Economics (Undergraduate)
2013 Fall	Columbia University, School of International and Public Affairs: Macroeconomics of Development (Graduate)
2010-2011	Drew University: Money and Banking; International Trade; History of Economic Thought; Intermediate Macroeconomics; Introductory Macroeconomics; International Business (Undergraduate)
2007-2008	University of Massachusetts Amherst, Instructor: Development Economics; Intermediate Macroeconomics (Undergraduate)

FELLOWSHIPS AND AWARDS

2020	Humanities Center Faculty Fellowship on the theme of "Disruption and Displacement," Northeastern University
2019	World Bank Economic Review Excellence in Refereeing Award
2018	World Bank Economic Review Excellence in Refereeing Award
2017	World Bank Economic Review Excellence in Refereeing Award
2015	CeMENT Fellow, Organized by Committee on the Status of Women in the Economics Profession (CSWEP).
2015 – 2016	Tier 1 Grant ("Democracy, Development, and Women's Empowerment" with Val Moghadam and Catalina Herrera Almanza), Northeastern University – $50,000

2015 – 2016 Humanities Center Grant (with Val Moghadam, Bill Dickens, and Catalina Herrera Almanza), Northeastern University – $5,000
2014 – 2015 Research Development Initiative Award, Northeastern University – $3,750
2014 – 2015 Mutual Mentoring Advancement Program (with Catalina Herrera Almanza), Northeastern University – $3,000
2013 – 2016 National Science Foundation DITE Fellowship
2012 – 2014 Columbia University, Committee on Global Thought Postdoctoral Fellowship
2012 Institute for New Economic Thinking (INET), Young Scholar
2010 African Programme on Rethinking Development Economics (APORDE) Fellow
2010 Political Economy Research Institute (PERI) Dissertation Research Grant
2004 – 2009 Graduate School Teaching Fellowship, University of Massachusetts Amherst

RESEARCH PRESENTATIONS

2020: AEA Meetings in San Diego, EEA Meetings in Boston (upcoming), Trinity College (upcoming).
2019: Levy Institute Gender and Macroeconomics: Inequality, Development, and Growth Conference; University of Michigan Sustainability and Development Conference; Boston University Applied Microeconomics Lunch Series; Education, Health and Worker Productivity Conference at Koc University, Turkey.
2018: AEA Meetings in Philadelphia, Eastern Economic Association (EEA) Meetings in Boston, International Association for Feminist Economics Annual Conference, Bentley University.
2017: Boston University Applied Microeconomics Lunch Series, IMF Gender and Macroeconomics Conference, North East Universities Development Consortium (NEUDC).
2016: Tufts University, University of Massachusetts Boston, University of Connecticut, AEA Meetings in San Francisco, EEA Conference, Columbia University, Levy Institute Gender and Macroeconomics Conference, Conference on China-LAC Development Collaboration organized by Columbia University and Fudan University.
2015: AEA Meetings; Conference on Global Governance and Inequality, Initiative for Policy Dialogue (IPD), Columbia University; Gender and Development Meeting, Faculty Works in Progress, and NUES Meeting, Northeastern University; Economics of Education Meeting, Spain; International Association for Feminist Economics Conference, Germany; Education, Health and Worker Productivity Conference at Koc University, Turkey; Bogazici University, Sabanci University, Turkey; RIDGE Conference, University of Buenos Aires, Argentina.
2014: Managing Financial Globalization in China Seminar, Boston University; International Economic Association World Congress, Jordan; Wesleyan University; University of Utah; Northeastern University.
2013: IWG-GEM Summer Seminar, Poland; First World Keynes Conference, Turkey; Faculty at the NEH Summer Institute on the History of Political Economy, Duke University; NBER DITE Workshop, Duke University; Eastern Economic Association Annual Conference, New York; the World Bank, Poverty Reduction and Economic Management (PREM) (with José Antonio Ocampo).
2012: Centre for International Economics (CEPII), France; Columbia University.
2011: Barnard College; Eastern Economic Association Annual Conference; United Nations Department of Economic and Social Affairs.

PROFESSIONAL SERVICE

Referee: *American Economic Journal: Applied Economics, Review of Economics and Statistics, Journal of International Economics, Journal of Labor Economics, Journal of Human Resources, Journal of Economic Growth, Journal of Population Economics, Labour Economics, Journal of Comparative Economics, IMF Economic Review, World Bank Economic Review, World Development, Economics of Education Review, Economics Letters, Journal of Development Studies, Journal of African Economies, Feminist Economics, Gender and Women's Studies, Review of Keynesian Economics, Resources Policy, Journal of Globalization and Development, Applied Economics, German Economic Review*

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EMPLOYMENT

Wellesley College — July 2011 – present
Assistant Professor of Economics
Wesleyan University — July 2010 – June 2011
Assistant Professor of Economics
Harvard University — September 2009 – August 2010
Giorgio Ruffolo Post-doctoral Fellow in Sustainability Science

VISITING POSITIONS AND AFFILIATIONS

Boston University — January 2017 – June 2017
Visiting Researcher in Institute for Economic Development
Toulouse School of Economics — September 2016 – December 2016
Visiting Scholar
Harvard University — September 2010 – August 2012
Research Fellow in Women and Public Policy Program
Harvard University — November 2009 – August 2010
Post-Doctoral Affiliate in Environmental Economics Program

EDUCATION

Ph.D., Economics, Yale University, May 2009
Fields: Development, Environmental, and Labor Economics
Committee: Mark Rosenzweig, Christopher Udry, Ahmed Mushfiq Mobarak
M.Phil., Economics, Yale University, December 2006
M.A., Economics, Yale University, May 2005
B.A., Economics, *summa cum laude*, Bilkent University, May 2003

PUBLICATIONS

- "The Evolving Impact of the Ogallala Aquifer: Agricultural Adaption to Groundwater and Climate," with Richard Hornbeck, *American Economic Journal: Applied Economics*, 2014, 6(1), 190-219.
- "Does Agriculture Generate Local Economic Spillovers? Short-run and Long-run Evidence from the Ogallala Aquifer," with Richard Hornbeck, *American Economic Journal: Economic Policy*, 2015, 7(2), 192-213.
- "Water Quality Awareness and Breastfeeding: Evidence of Health Behavior Change in Bangladesh," with Gauri Kartini Shastry and Helen Willis, *Review of Economics and Statistics*, 2017, 99(2), 265-280.
- "For Better or Worse?: Education and Prevalence of Domestic Violence in Turkey," with Bilge Erten, *American Economic Journal: Applied Economics*, 2018, 10(1), 64-105.
- "Breaking the Cycle: Education and Intergenerational Transmission of Violence," with Bilge Erten, October 2018, forthcoming in the *Review of Economics and Statistics*.
- "Compulsory Schooling for Whom? The Role of Gender, Poverty, and Religiosity," with Bilge Erten, June 2019, forthcoming in the *Economics of Education Review*.

WORKING PAPERS

- "Female Employment and Intimate Partner Violence: Evidence from Syrian Refugee Inflows to Turkey," with Bilge Erten, *submitted*.
- "Does Knowledge Empower? Education, Legal Awareness and Intimate Partner Violence," with Bilge Erten, *submitted*.
- "Trade-offs? The Impact of WTO Accession on Female Empowerment in Cambodia," with Bilge Erten.
- "The Gender of Caste: Identity, Political Reservations and Access to Water Resources in Rural India," with Bilge Erten.
- "Thirsty Factories, Hungry Farmers: Intersectoral Impacts of Industrial Water Demand."

TEACHING EXPERICENCE *(including scheduled)*

- Principles of Microeconomics, Wellesley College (Spring 2012, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2017, Fall 2018, Fall 2019)
- Introduction to Probability and Statistics, Wellesley College (Fall 2011, Spring 2014, Spring 2015)
- Environmental and Resource Economics, Wellesley College (Spring 2012, Spring 2014, Fall 2014, Spring 2018, Spring 2019, Spring 2020)
- Environmental Issues in Developing Countries, Wellesley College (Spring 2018, Spring 2019, Spring 2020)
- Topics in Environmental and Resource Economics, Wesleyan University (Spring 2011)
- The Economics of Developing Countries, Wesleyan University (Fall 2010)
- Intermediate Microeconomic Analysis, Wesleyan University (Fall 2010, Spring 2011)
- Introduction to Stata, Centre for Micro Finance, IFMR (December 2006)

HONORS, FELLOWSHIPS, AND AWARDS

- LAC-DEV Post-Conference Collaboration Award with Julia Berazneva (Middlebury College), 2018
- University of Virginia Global Research Program of Distinction Grant on "Costs and Remediation of Groundwater Contamination" with David Glick (Brown) and Sheetal Sekhri (Virginia), 2016
- University of Virginia College and Graduate School of Arts and Sciences Seed Grant on "The Economics of Groundwater Contamination in Rajasthan" with David Glick (Brown), Garrick Louis (Virginia), Sheetal Sekhri (Virginia) and Kirsten Wells (Virginia), 2015
- IGC Grant for data collection in Rajasthan, India on "Markets for Drinking Water: How They Function and Consequences for Welfare" with David Glick (Brown), Sriniketh Nagavarapu (Brown), Sheetal Sekhri (Virginia), 2013
- Wellesley College, Social Sciences Summer Research Program, 2012, 2013, 2014 and 2015
- Wellesley College, Faculty Research Award, 2011 and 2018
- Wesleyan University Project Grant on "The Gender of Caste: Identity, Political Reservations and Access to Water Resources in Rural India," 2010
- IGC Grant for field work in Bihar, India on "Strengthening Capacity of Women Leaders in Rural India," with Lori Beaman (Northwestern), Esther Duflo (MIT), and Rohini Pande (HKS), 2010
- Harvard Sustainability Science Program Research Grant on "Long-run Adjustment to Water Availability: Evidence from the Ogallala Aquifer," with Richard Hornbeck (Harvard), 2010-2012
- Harvard University Center for Environment Grant on "Long-run Adjustment to Water Availability: Evidence from the Ogallala Aquifer," with Richard Hornbeck (Harvard), 2010
- Harvard University, Giorgio Ruffolo Post-doctoral Fellowship, 2009-2010
- Yale University, Dissertation Fellowship, Fall 2008
- Yale University, Graduate School of Arts and Sciences, John F. Enders Fund, Summer 2007
- Ryoichi Sasakawa Fellowship, 2006-2007
- Yale University, Economic Growth Center Field Research Prize, Fall 2006
- Yale University, Summer Fellowship, 2004, 2005 and 2006
- Yale University, Doctoral Fellowship, 2003-2007
- Bilkent University, Merit Scholarship (full tuition and expenses), 1999-2003

ADDITIONAL INFORMATION

Refereeing: American Economic Journal: Applied Economics, American Economic Review, Canadian Journal of Economics, Economic Development and Cultural Change, Economics and Human Biology, Israel Science Foundation, Journal of Agricultural and Applied Economics, Journal of Development Economics, Journal of Economic Geography, Journal of Economic Growth, Journal of Environmental Economics and Management, Journal of Human Resources, Journal of Population Economics, Legislative Studies Quarterly, NSF, Quarterly Journal of Economics, Review of Economics and Statistics, Review of Economic Studies, United States-Israel Binational Science Foundation, The World Bank Economic Review

Presentations (including scheduled):

2009 University of California-San Diego, University of Wisconsin-Madison, Wesleyan University, City University of New York-Hunter College, University of Edinburgh, University of Essex, Oxford University, University of London-Royal Holloway, IFPRI, European Economic Association Summer Meeting (Barcelona, Spain), Harvard University, Dalhousie University, NEUDC (Tufts University)

2010 Harvard University, Universitat Autònoma de Barcelona, BREAD (Alba di Canazei, Italy), Mellon 23 Workshop in Economic History and Development (Williams College), NEUDC (MIT)

2011 Wellesley College, The Fletcher School of Law and Diplomacy (Tufts University), Williams College, Royal Economic Society Annual Conference (University of London), Wesleyan University, North American Summer Meeting of Econometric Society (Washington University in St. Louis), NEUDC (Yale)

2012 Harvard University, Clark University, MIT (Workshop on Gender, Technology and Development), Wellesley College (Science Faculty Seminar Series)

2013 Middlebury College (Conference on the Politics of Freshwater: Access and Identity in a Changing Environment), LAC-Development Conference (Amherst College)

2014 Eastern Economic Association Annual Conference (Boston), Columbia University (NIEHS Superfund Research Program), IGC Growth Week (LSE), NEUCD (Boston University)

2015 Northeastern University, Hamilton-Colgate Economics Seminar (Hamilton College)

2016 Sustainability Science Symposium (Harvard University), Toulouse School of Economics, Université Paris-Dauphine (DIAL)

2017 Boston University, LAC-Development Conference (Hamilton College), Galatasaray University (Annual Istanbul Conference on Human Capital), NEUCD (Tufts University)

2018 Eastern Economic Association Annual Conference, Dartmouth College, Southern Economic Association Annual Conference

2019 Williams College, Eastern Economic Association Annual Conference, Bates College

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APPOINTMENTS AND POSITIONS

2018-	Associate Professor, Department of Economics, Northeastern University
2017-2018	Visiting Scholar, Inter-American Development Bank, Research Department
2016-2018	Associate Professor (tenured), Department of Economics, Case Western Reserve University
2013-2016	Associate Professor (untenured), Department of Economics, Case Western Reserve University
2007-2013	Assistant Professor of Economics, Department of Economics, Case Western Reserve University

EDUCATION

2007	Ph.D. in Economics, Boston University
2005	M.A. in Economics, Boston University
2002	B.A. in Economics, *magna cum laude*, Università degli Studi Milano-Bicocca, Italy

PUBLISHED AND FORTHCOMING PAPERS

"A Theory of Occupational Choice with Endogenous Fertility," with Dilip Mookherjee and Debraj Ray, *American Economic Journal - Microeconomics*, 2012, 4(4): 1–34.

"The Effect of Social Programs and Exposure to Professionals on the Educational Aspirations of the Poor," with Carlos Chiapa and José Luis Garrido, *Economics of Education Review*, 2012, 3(1): 778–798.

"Who Benefited More from NAFTA: Small or Large Farmers? Evidence from Mexico," *Review of Development Economics*, 2013, 17(3): 594–608.

"The Importance of Parental Knowledge and Social Norms: Evidence from Weight Report Cards in Mexico," with Heather Royer, *Journal of Health Economics,* 2014, 37: 232–247.

"Effects of Border Price Changes on Agricultural Wages and Employment in Mexico," *Journal of International Development*, 2015, 27(1): 112–132.

"Banking the Poor via Savings Accounts: Evidence from a Field Experiment," *Journal of Development Economics,* 2015, 115: 16–31.

"Delivering Conditional Cash Transfers via Savings Accounts," *IPC-UNDP One Pager*, 2015, 292. ISSN: 2318-9118.

"The Effect of Savings on Risk-Taking and Intertemporal Choice Behavior," with Leandro Carvalho and Justin Sydnor, *Journal of Development Economics*, 2016, 120(5): 41-52.

"The Effects of Financial Inclusion on Children's Schooling, and Parental Aspirations and Expectations," with Carlos Chiapa and Adam Parker, *Journal of International Development*, 2016, 28(5): 683-696.

"CCTs and Financial Access: Increasing the Bang for Each Transferred Buck?" with Carlos Chiapa, *Development Policy Review*, 2017, 35(1): 23-38.
"When Incentives Backfire: Spillover Effects in Food Choice," with Manuela Angelucci, Heather Royer, and Anya Savikhin, *American Economic Journal: Economic Policy*, 2019, 11(4): 66-95.

"Treatment Effect Accounting for Network Changes," with Margherita Comola, forthcoming, *Review of Economics and Statistics*.

"Migration, Money Transfers and Mobile Money: Evidence from Niger," with Jenny Aker, and Jamilah Welch, forthcoming, *American Economic Review, Papers & Proceedings*.

"Tailored Health Information and Eating Behavior: Effects of a Health Risk Assessment on Employees with Different Ex-Ante Awareness of their Health Risks" with Mariana Carrera and Ayesha Hasan, accepted, *Journal of Economic Behavior and Organization*.

SUBMITTED AND WORKING PAPERS

"Saving Accounts' Interplay with Network-based Financial Arrangements: Evidence from a Field Experiment," with Margherita Comola.

"Income Changes and Consumption Smoothing: The PIH holds," with Manuela Angelucci, Carlos Chiapa and Irvin Rojas.

"Too fast too furious? Digital credit speed and repayments rates," with Alfredo Burlando and Michael Khun.

WORKS IN PROGRESS

"Slowing Down Digital Credit," with Alfredo Burlando and Michael Khun.

"Milking It for All It's Worth: Digital Credit and Payments in the Dairy Sector," with Alfredo Burlando and Jessica Goldberg.

"Financial Diaries for the Youth," with Veronica Frisancho.

"Health-Care Specialization, Obesity, and C-Sections," with Catalina Herrera-Almanza and Fernanda Marquez-Padilla.

"Incentives and Participation in Health Risk Assessments: Money Matters, But More Is Not Always Better," with Mariana Carrera.

"The Effect of Mobile Money on Adopters' Social Networks," with Alfredo Burlando and Cynthia Kinnan.

GRANTS AND RESEARCH SUPPORT

External grants

2019-20 BBVA, Center for Financial Education and Capability	$10,000
2018-19 BBVA, Center for Financial Education and Capability	$10,000
2017-20 Digital Credit Observatory (DCO), Center for Effective Global Action (CEGA)	$260,318
2017-20 Digital Credit Observatory (DCO), Center for Effective Global Action (CEGA)	$76,130
2014-26 Grand Challenges Explorations grant, Bill and Melinda Gates Foundation	$100,000
2014-16 University of Michigan, Office of Research (UMOR), 2014-2016	$10,000
2014-16 Institute for Money, Technology, and Financial Inclusion (IMTFI)	$20,000
2013-14 Population Studies Center, University of Michigan – Small Grant	$10,000
2013-14 Inter-American Development Bank - Domestic Savings in Latin America and the Caribbean	$60,000
2013-14 Institute for Money, Technology, and Financial Inclusion (IMTFI)	$20,000
2013-14 Northwestern University - Equality Development and Globalization Studies (EDGS)	$24,959
2012-15 Citi Foundation & Innovation for Poverty Action (IPA) - Financial Capability Research Fund	$150,000
2012-15 Ford Foundation, International Development Research Center (IDRC), Proyecto Capital, Fundación Capital	$150,000
2011-12 Innovation for Poverty Action (IPA) and Yale University - Microsavings and Payments Innovation Initiative	$26,180
2009-10 Russell Sage Behavioral Economics Small Grant	$5,000

Internal grants

2016-17 Weatherhead School of Management, Case Western Reserve University	$5,000
2014-16 Weatherhead School of Management, Case Western Reserve University	$10,000
2014-15 Weatherhead School of Management, Case Western Reserve University	$5,000
2013-14 Weatherhead School of Management, Case Western Reserve University	$2,500
2010-11 Weatherhead School of Management, Case Western Reserve University - Thematic Area grant	$7,700
2008-10 Weatherhead School of Management, Case Western Reserve University - Thematic Area grant	$16,900
2007-08 NSF-Advance grant, Case Western Reserve University	$11,636

HONORS AND AWARDS

2015 Undergraduate Teaching Award Nomination, Weatherhead School of Management
2015 Teaching Award, Wolstein Society
2014 Undergraduate Teaching Award Nomination, Weatherhead School of Management
2011 Carl F. Wittke Award for Excellence in Undergraduate Teaching Nomination, Case Western Reserve University
2011 Banamex Economic Prize for the paper "The Effect of Social Programs and Exposure to Professionals on the Educational Aspirations of the Poor," with Carlos Chiapa and José Luis Garrido
2011 Victor Urquídi, Economic Prize for the paper "The Effect of Social Programs and Exposure to Professionals on the Educational Aspirations of the Poor," with Carlos Chiapa and José Luis Garrido

TEACHING

Development Economics, Northeastern University, Fall 2018, Fall 2019.
Economics of Developing Countries, Case Western Reserve University, Fall 2007-Fall 2014, Fall 2016.
Intermediate Microeconomics, Case Western Reserve University, Fall 2008, Fall 2009, Fall 2016.
Principles of Microeconomics, Case Western Reserve University, Fall 2007-Fall 2014, Spring 2016, Fall 2016.

SEMINARS AND CONFERENCES (last 10 years)

2020: AEA Meetings, San Diego.
2019: Northeastern University, Essen Health Conference, NEUDC (Northwestern University).
2018: Trinity College, Financial Inclusion and Resilience conference (IFPRI).
2017: Third Annual Researcher Gathering on Financial Inclusion and Social Protection (Northwestern University), NEUDC (Tufts University), Inter-American Development Bank, University of Southern California, American University, Inter-American Development Bank, International Food and Policy Research Institute, Consumer Financial Protection Bureau, Tulane University, Northeastern University.
2016: Ohio State University, University of Zurich, Field Days: Experiments Outside the Lab (WZB Berlin Social Science Center, Berlin), Federal Deposit Insurance Corporation.
2015: Public Affairs Discussion Lunch (Case Western Reserve University), CIDE (Mexico City), NBER Summer Institute – Behavioral Economics, Nutrition and Health.
2014: AEA Meetings (Philadelphia), International Food Policy Research Institute, Inter-American Development Bank, University of Pittsburgh, 11th MIEDC (Minnesota), University of Southern California, LACEA and LAMES (Sao Paulo, Brazil).
2013: Yale University, Oberlin College, 10th MIEDC (University of Wisconsin-Madison), World Bank, Banco de México, Mexican Ministry of Development, SEDESOL, EALE (Turin, Italy), NEUDC (Harvard University).
2012: AEA Meetings (Chicago), Michigan University, Pacific Conference for Development Economics (UC-Davis), ITAM, UC-Santa Cruz, Paris School of Economics, 9th MIEDC (Minnesota), Banco de México, Innovation for Poverty Action Impact and Policy Conference (Bangkok), EALE (Bonn, Germany), NEUDC (Dartmouth College).
2011: AEA Meetings (Denver), Fifth Annual Research Conference on Population, Reproductive Health and Economic Development (Marseille, France), Pacific Conference for Development Economics (UC-Berkeley), UC-Davis, World Bank Conference on New Ideas in Business Growth, Akron University, 8th MIEDC, (University of Wisconsin-Madison), Royal Economic Society Annual Conference, 3rd IZA Workshop on Child Labor in Developing Countries (Mexico City), University of Milan-Bicocca, El Colegio de México, Center for European Research in Microfinance (Brussels), NEUDC (Yale University), Tecnológico de Monterrey (Mexico City), Oberlin College.
2010: NBER – Children and Education Spring Meeting (Boston), Kent State University, Annual Bank Conference in Development Economics (Stockholm, Sweden), Mexican Chapter of the LACEA-Network on Inequality and Poverty (El Colegio de México, Mexico City, Mexico) NEUDC (MIT), LACEA (Medellín, Colombia).

REFEREEING ACTIVITY

American Economic Journal: Applied Economics, American Economic Review, American Economic Review – Insights, B.E. Journal of Economic Analysis and Policy, BMJ – Open, Demography, Development Policy Review, Economic Development and Cultural Change, Economics of Education Review, Economic Journal, Economics Letters, Health Economics, Journal of African Economies, Journal of Banking and Finance, Journal of Development Economics, Journal of the European Economic Association, Journal of Health Economics, Journal of International Economics, Journal of Public Economic Theory, Management Science, PLOS Medicine, PLOS One, Quarterly Journal of Economics, Review of Economics and Statistics, Review of Economic Studies, World Bank Economic Review, World Development.
Grant reviewer: 3ie, BASIS –USAID, NSF, IZA, DFID, ESRC, the Swiss National Foundation, and the World Bank.