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Carnegie Mellon University

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PROFESSIONAL APPOINTMENTS

Associate Professor of Economics and Public Policy (<i>with tenure</i>)	(July 2023 – Present)
Associate Professor of Economics and Public Policy (<i>without tenure</i>)	(July 2020 – June 2023)
Assistant Professor of Economics and Public Policy Carnegie Mellon University (CMU), Heinz College	(Aug 2013 – June 2020)
Visiting Scholar, United Nations University – World Institute for Development Economics Research (UNU-WIDER), Helsinki, Finland	(May & June 2023)
Visiting Assistant Professor of Economics, University of Chicago Energy Policy Institute (EPIC) and Department of Economics	(Winter/Spring 2015)
Research Associate, National Bureau of Economic Research (NBER) Environment and Energy Economics (EEE), Children, & Development of the American Economy (DAE) Faculty Research Fellow	(Sep 2022 – present) (May 2021 – Sep 2022)
Research Affiliate, Institute of Labor Economics (IZA)	(Mar 2013 – present)

EDUCATION

Ph.D., Economics, University of California at Berkeley (UC Berkeley) (2013)
Advisors: Profs. David Card (chair), Enrico Moretti, and Patrick Kline
M.Sc., Economics, Pontifical Catholic University of Rio de Janeiro (PUC-Rio) (2007)
Advisor: Prof. Sergio Firpo
B.A., Economics (*summa cum laude*), University of São Paulo (USP) (2004)

GRANTS, HONORS AND AWARDS

2023-2025	National Science Foundation, “ <i>PIRE: Deeply Decarbonizing Global Industrial Supply Chains: Technology, Organizational Practices, and Institutional Design,</i> ” January 1, 2023-December 31, 2025, with Valerie Karplus (PI), Paulina Jaramillo, and Petrus Pistorius, OISE 2230743, \$1,499,635
2023	Property and Environment Research Center (PERC)’s Lone Mountain Fellowship
2016-2020	National Science Foundation, “ <i>Air Pollution Externalities: Evidence from U.S. Electricity Generation over the Twentieth Century,</i> ” July 1, 2016-June 30, 2020, with Karen Clay, SES 1627432, \$238,235
2017-2018	Scott Institute Seed Grant, \$10K

2014, 2017	Berkman Faculty Development Fund, \$5,180 (2014), \$5K (2017)
2014	Carnegie Mellon Electricity Industry Center, with Karen Clay, \$10K
2011, 2012	Graduate Division Summer Grant, UC Berkeley
2010-2011	Dean's Normative Time Fellowship, UC Berkeley
2009	Outstanding Graduate Student Instructor Award, UC Berkeley
2007-2008	Departmental Scholarship, UC Berkeley
2005-2007	CAPES Graduate Scholarship, PUC-Rio

PUBLISHED & ACCEPTED PAPERS

“The Historical Impact of Coal on Cities,” joint with Karen Clay and Joshua Lewis, *Forthcoming at Regional Science and Urban Economics* – Commissioned for the Special Issue on Urban Economics and the Environment (NBER Working Paper No. 31365, IZA Discussion Paper No. 16229).

“Does LEED Certification Save Energy? Evidence from Retrofitted Federal Buildings,” joint with Karen Clay and Xiaochen Sun, *Journal of Environmental Economics and Management* 121: 102866, 2023 (NBER Working Paper No. 28612, IZA Discussion Paper No. 14211).

“A Unifying Approach to Measuring Climate Impacts and Adaptation,” joint with Antonio Bento, Noah Miller, and Mehreen Mookerjee, *Journal of Environmental Economics and Management* 121: 102843, 2023 (NBER Working Paper No. 27247, IZA Discussion Paper No. 13290).

“Incidental Adaptation: The Role of Non-Climate Regulations,” joint with Antonio Bento, Noah Miller, and Mehreen Mookerjee, *Forthcoming at Environmental and Resource Economics* (NBER Working Paper No. 28783, IZA Discussion Paper No. 14355, previously circulated as *Time is of the Essence: Climate Adaptation Induced by Non-Climate Existing Institutions*).

“Timing Matters: Shifting Economic Activity and Intra-day Variation in Ambient Ozone Concentrations,” joint with David Adler, *Journal of Public Economics* 223: 104905, 2023 (NBER Working Paper No. 31069, IZA Discussion Paper No. 13428).

“The Value of Health Insurance during a Crisis: Effects of Medicaid Implementation on Pandemic Influenza Mortality,” joint with Karen Clay, Joshua Lewis, and Xiao Wang, *forthcoming at Review of Economics and Statistics* (NBER Working Paper No. 27120, IZA Discussion Paper No. 13200).

“Canary in a Coal Mine: Infant Mortality and Tradeoffs Associated with Mid-20th Century Air Pollution,” joint with Karen Clay and Joshua Lewis, *forthcoming at Review of Economics and Statistics* (NBER Working Paper No. 22155, IZA Discussion Paper No. 9884).

“The Power of Hydroelectric Dams: Historical Evidence from the United States over the 20th Century,” *Economic Journal* 133(649): 420-459, 2023 (IZA Discussion Paper No. 8082).

“Assortative Matching or Exclusionary Hiring? The Impact of Employment and Pay Policies on Racial Wage Differences in Brazil,” joint with François Gerard, Lorenzo Lagos, and David Card, *American Economic Review* 111(10): 3418-57, 2021 (NBER Working Paper No. 25176, IZA Discussion Paper No. 11923).

- “Toxic Truth: Lead and Fertility,” joint with Karen Clay and Margarita Portnykh, *Journal of the Association of Environmental and Resource Economists* 8(5): 975-1012, 2021 (NBER Working Paper No. 24607, IZA Discussion Paper No. 11541).
- “Climate-Induced Tradeoffs in Planning and Operating Costs of a Regional Electricity System,” joint with Francisco Fonseca, Michael Craig, Paulina Jaramillo, Mario Berges, et al., *Environmental Science & Technology* 55(16): 11204-11215, 2021.
- “‘Placebo Tests’ for the Impacts of Air Pollution on Health: The Challenge of Limited Healthcare Infrastructure”, joint with Bruna Guidetti and Paula Pereda, *AEA Papers and Proceedings* 111: 371-375, 2021 (IZA Discussion Paper No. 14080).
- “Effects of Climate Change on Capacity Expansion Decisions of an Electricity Generation Fleet in the Southeast U.S.,” joint with Francisco Fonseca, Michael Craig, Paulina Jaramillo, Mario Berges, et al. *Environmental Science & Technology* 55(4): 2522-2531, 2021.
- “Using Machine Learning to Predict Retrofit Effects for a Commercial Building Portfolio,” joint with Yujie Xu and Vivian Loftness, *Energies* 2021, 14, 4334.
- “Short- and Long-Run Impacts of Rural Electrification: Evidence from the Rollout of the U.S. Power Grid,” joint with Joshua Lewis, *Journal of Development Economics* 143 (2020): 102412 (IZA Discussion Paper No. 11243).
- “Considering the Nuclear Option: Hidden Benefits and Internalized Social Costs of Nuclear Power in the U.S. Since 1970,” joint with David Adler and Akshaya Jha, *Resource and Energy Economics*. 59 (2020): 101127.
- “What Explains Cross-City Variation in Mortality during the 1918 Influenza Pandemic? Evidence from 440 U.S. Cities,” joint with Karen Clay and Joshua Lewis, *Economics & Human Biology* 35 (2019): 42-50 (IZA Discussion Paper No. 12177).
- “Seasonal Effects of Climate Change on Intra-day Electricity Demand Patterns,” joint with Francisco Fonseca, Paulina Jaramillo, and Mario Berges, *Climatic Change* 154(3-4): 435-451, 2019.
- “The Legacy Lead Deposition in Soils and Its Impact on Cognitive Function in Preschool-Aged Children in the United States,” joint with Karen Clay and Margarita Portnykh, *Economics & Human Biology* 33 (2019): 181-192 (IZA Discussion Paper No. 12178).
- “The Unintended Impact of Ecosystem Preservation on Greenhouse Gas Emissions: Evidence from Environmental Constraints on Hydropower Development in the United States,” *PLoS ONE* 14(1): e0210483, 2019.
- “Pollution, Infectious Disease, and Mortality: Evidence from the 1918-1919 Spanish Influenza Pandemic,” joint with Karen Clay and Joshua Lewis, *Journal of Economic History* 78(4): 1179-1209, December 2018 (NBER Working Paper No. 21635, IZA Discussion Paper No. 9399).

“‘Ticking Bomb’: The Impact of Climate Change on the Incidence of Lyme Disease,” joint with Igor Dumic, *Canadian Journal of Infectious Diseases and Medical Microbiology*, Article 5719081 (2018) (special issue on *Climate Change Connected to Infectious Human Diseases*).

“A Retrospective Analysis of the Market Price Response to Distributed Photovoltaic Generation in California,” joint with Michael T. Craig, Paulina Jaramillo, Bri-Mathias Hodge, and Nathaniel J. Williams, *Energy Policy* 121 (2018): 394-403.

“The Local Socio-Economic Impacts of Large Hydropower Plant Development in a Developing Country,” joint with Felipe de Faria, Alex Davis, and Paulina Jaramillo, *Energy Economics* 67 (2017): 533-544.

“Impacts of Nuclear Plant Shutdown on Coal-fired Power Generation and Infant Health in the Tennessee Valley in the 1980s,” *Nature Energy* 2, 17051 (2017).

- Featured in the accompanying “News and Views” by Michael Shellenberger (2017). “Nuclear Power: Unexpected Health Benefits,” *Nature Energy* 2, 17058 (2017).

PUBLICATIONS (In Portuguese)

“O Efeito do Ensino Profissionalizante sobre a Probabilidade de Inserção no Mercado de Trabalho e sobre a Renda no Período Pré-PLANFOR” (“The Effect of Vocational School Training on the Probability of Insertion in the Labor Market and Earnings in the Pre-PLANFOR Period”), joint with Verônica I. F. Orellano, *Economia* 11(1): 155-174, Jan/Apr 2010.

“O Impacto da Violência nas Escolas sobre a Proficiência dos Alunos” (“The Impact of School Violence on Students’ Proficiency”). In: *Prêmio IPEA-CAIXA 2006 – Monografias Premiadas*. Brasília: IPEA, 2007, Categoria Demais Profissionais, Tema 2 – Distribuição de Renda e Inclusão Econômica e Social, 2º Lugar, pp. 237-266.

“O Impacto do Ensino Profissionalizante sobre a Inserção no Mercado de Trabalho na Década de 1990” (“The Impact of Vocational School Training on the Insertion in the Labor Market in the 1990s”). In: *Prêmio IPEA-CAIXA 2005 – Monografias Premiadas*. Brasília: IPEA, 2006, Categoria Estudantes de Graduação, Tema 2 – Emprego e Informalidade, 1º Lugar, pp. 575-619.

ICPSR DATASET

Bailey, Martha, Karen Clay, Price Fishback, Michael Haines, Shawn Kantor, Edson Severnini, and Anna Wentz. *U.S. County-Level Natality and Mortality Data, 1915-2007*. ICPSR36603-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2016-10-27.

WORKING PAPERS

“Health Shocks under Hospital Capacity Constraint: Evidence from Air Pollution in Sao Paulo, Brazil,” joint with Bruna Guidetti, and Paula Pereda, *3rd round revisions requested at Economic Journal (IZA Discussion Paper No. 13211)*.

“Air Pollution and Adult Cognition: Evidence from Brain Training,” joint with Andrea La Nauze, *Revisions resubmitted at Journal of the Association of Environmental and Resource Economists (NBER Working Paper No. 28785, IZA Discussion Paper No. 14353)*.

“Bridging the Gap: Mismatch Effects and Catch-Up Dynamics in a Brazilian College Affirmative Action,” joint with Rodrigo Oliveira and Alei Santos, *Revisions resubmitted at Economics of Education Review (NBER Working Paper No. 31403, IZA Discussion Paper No. 16239, UNU-WIDER Working Paper 2022/31, previously circulated as *Affirmative Action With No Major Switching: Evidence from a Top University in Brazil*)*.

“Impacts of the Clean Air Act on the Power Sector from 1938-1994: Anticipation and Adaptation,” joint with Karen Clay, Akshaya Jha, and Joshua Lewis, *(NBER Working Paper No. 28962, IZA Discussion Paper No. 14494)*.

“The Impact of Lead Exposure on Fertility, Infant Mortality, and Infant Birth Outcomes,” joint with Karen Clay and Alex Hollingsworth, *(NBER Working Paper No. 31379, IZA Discussion Paper No. 16236)*.

“Climate Change Will Unravel Air Quality Regulations,” joint with David Adler, Antonio Bento, and Noah Miller.

WORK IN PROGRESS

“Price Stabilization Policy, Gasoline Consumption, and Health Externality: Evidence from Brazil,” joint with Andre Ribeiro.

“Impact of a Cap-and-Trade Program on Local Air Pollution: Evidence from the Acid Rain Program,” joint with Karen Clay and Xiaochen Sun.

“Airborne Lead Pollution and Infant Mortality,” joint with Karen Clay and Xiao Wang.

“The Economics of Local Air Quality Alerts,” joint with David Adler and Sarah Taylor.

“Industrial Activity and Land Degradation: Evidence from Slaughterhouse Openings in Brazil,” joint with Daniel Da Mata and Mario Dotta.

“Impacts of Affirmative Action in Higher Education on Labor Market Outcomes: Evidence from Brazil,” joint with Rodrigo Oliveira.

TEACHING

Instructor, Heinz College, Carnegie Mellon University

PhD Econometrics I (Spring 2016/2017, Fall 2017/2018/2019/2020/2021/2022)
 Applied Econometrics I (Fall 2016/2017/2018/2019/2020/2021/2022, Spring 2017)
 Applied Econometrics II (Spring 2017 – Minis 3 and 4, Fall 2017)
 Urban Economics - Masters (Spring 2014, Fall 2014)
 Cost-Benefit Analysis - Masters (Fall 2013/2014/2015, Spring 2014/2016)
 Systems Synthesis I (Fall 2017, Spring 2020, Spring 2023)
 Teaching Assistant, Department of Economics, UC Berkeley
 Graduate Econometrics (Fall 2009, Spring 2010, Fall 2012, Spring 2013)
 Introduction to Econometrics (Summer/Fall 2008, Spring/Summer 2009, Spring 2012)

PRESENTATIONS

- 2023 California Institute of Technology, Duke University (Sanford), Helsinki Graduate School of Economics (Aalto University, Hanken School of Economics, and University of Helsinki), Nova School of Business and Economics (Lisbon, Portugal), University of Maryland (AREC), U.S. Census Bureau (Virtual, Center for Economic Studies – CES), The Property and Environment Research Center (PERC), Baltic Connections (Conference in Social Science History)
- 2022 ASSA Meetings (Virtual, AEA LGBTQ+ Committee Session), Carnegie Mellon University, University of Pennsylvania (Wharton), New York University (Wagner), University of Toronto (Munk), Oberlin College, Brazilian Econometric Society Applied Micro Seminar (Virtual), NBER Summer Institute - Development of the American Economy (DAE), 9th IZA Workshop: Environment, Health and Labor Markets, Annual Summer Conference of the Association of Environmental and Resource Economists (AERE), Annual Meeting of the Economic History Association, Fall Meeting of the Association for Public Policy Analysis & Management (APPAM), Annual Meeting of the Brazilian Econometric Society
- 2021 ASSA Meetings (Virtual), Arizona State University, Columbia University – SIPA, University of Arizona, University of Manchester – UK (Virtual), Federal University of Juiz de Fora (Virtual), Energy Fest (University of Chicago, Northwestern University, and UIUC, Virtual), 43rd Annual Meeting of the Brazilian Econometric Society (Virtual), 5th Brazilian Stata Conference (Virtual)
- 2020 University of Michigan H2D2 (Seminar Series in Health, History, Demography, and Development, Virtual), NBER Summer Institute – Development of the American Economy (DAE, Virtual), Energy Fest (University of Chicago, Northwestern University, and UIUC, Virtual), RAND Corporation (Pittsburgh, Virtual), Williams College (Virtual), Insper – São Paulo (Virtual), Annual Meeting of the Southern Economic Association (Virtual), Brazilian Econometric Society Applied Micro Seminar (Virtual), 42nd Annual Meeting of the Brazilian Econometric Society (Virtual)
- 2019 ASSA Meetings in Atlanta, Vanderbilt University, University of Michigan H2D2 (Seminar Series in Health, History, Demography, and Development), Bowdoin College, Northeast Workshop on Energy Policy and Environmental Economics (Harvard University), Summer Applied Micro Conference (Vanderbilt University), 2nd IZA/World Bank/NJD Conference on Jobs and Development: Improving Jobs Outcomes in Developing Countries, Annual Meeting of the Southern Economic Association
- 2018 ASSA Meetings in Philadelphia, Yale University, Cornell University, Annual Meeting of the Economic History Association, Annual Meeting of the Urban Economics Association, 6th World Congress of Environmental and Resource Economists, 11th International Workshop on Empirical Methods in Energy Economics, Energy Fest (Northwestern University), Northeast Workshop on Energy Policy and Environmental Economics (Columbia University), 17th Occasional Workshop in Environmental and Resource Economics at UCSB, 40th Annual Meeting of the Brazilian Econometric Society, Economics of Low-Carbon Markets Workshop (University of São Paulo)

- 2017 ASSA Meetings in Chicago, NBER Spring Meetings – Energy and Environmental Economics (EEE), Vanderbilt University, University of California – Santa Barbara, Simon Fraser University, Columbia University, Penn State University, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Annual Summer Conference of the Association of Environmental and Resource Economists (AERE), SEEPAC Research Workshop: Advances in Estimating Economic Effects from Climate Change Using Weather Observations (SIEPR – Stanford University), 10th International Workshop on Empirical Methods in Energy Economics (EMEE), Heartland Environmental and Resource Economics Workshop at Illinois (UIUC), 5th IZA Workshop: Environment and Labor Markets, Annual Meeting of the Social Science History Association, Annual Meeting of the Urban Economics Association
- 2016 University of Southern California, University of California – Irvine, Clemson University, Carnegie Mellon University, NBER Spring Meetings – Future of Energy Distribution, NBER Summer Institute – Development of the American Economy (DAE), NBER Summer Institute – Energy and Environmental Economics (EEE), Annual Summer Conference of the Association of Environmental and Resource Economists (AERE), Annual Meeting of the Economic History Association, APPAM Fall Research Conference in Washington DC, U.S. Environmental Protection Agency (EPA), RAND Corporation (Washington, DC), Resources for the Future (RFF), Sao Paulo School of Economics – FGV, University of Sao Paulo (USP)
- 2015 ASSA Meetings in Boston, UCLA, University of Chicago – EPIC, University of Illinois at Urbana-Champaign, Carnegie Mellon University, Colby College, NBER Summer Institute - Children, 3rd IZA Workshop: Labor Market Effects of Environmental Policies, Annual Meeting of the Population Association of America, 3rd Northeast Workshop on Energy Policy and Environmental Economics, 8th International Workshop on Empirical Methods in Energy Economics, 27th Conference of the International Society for Environmental Epidemiology “Addressing Environmental Health Inequalities”, 15th Occasional Workshop in Environmental and Resource Economics at UCSB, 50th Anniversary Canadian Network for Economic History (CNEH) Conference, 10th Meeting of the Urban Economics Association, 37th Annual Meeting of the Brazilian Econometric Society, 3rd Economics of Low-Carbon Markets Workshop at the University of São Paulo (Ribeirão Preto)
- 2014 ASSA Meetings in Philadelphia, University of California at Berkeley – Labor Lunch, Carnegie Mellon University, Cornell University, University of Montreal, University of Pittsburgh, 61st Annual North American Meetings of the Regional Science Association International, 36th Annual Meeting of the Brazilian Econometric Society, 2nd Economics of Low-Carbon Markets Workshop at the University of São Paulo (Ribeirão Preto)
- 2013 Carnegie Mellon University, London School of Economics, NBER Summer Institute - Development of the American Economy (DAE), Toulouse School of Economics, George Washington University, Case Western Reserve University, University of Calgary, 8th Meeting of the Urban Economics Association, World Bank, Inter-American Development Bank, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Getulio Vargas Foundation (EPGE), 35th Annual Meeting of the Brazilian Econometric Society, Cornerstone Research
- 2012 University of California at Berkeley

DISCUSSIONS

- 2022 NBER Environment and Energy Economics (EEE) Spring Meetings, Annual Meeting of the Economic History Association in La Crosse-WI
- 2021 ASSA Meetings (virtual), Annual Meeting of the Economic History Association in Tucson-AZ

- 2019 ASSA Meetings in Atlanta, Annual Meeting of the Economic History Association in Atlanta-GA, Annual Meeting of the Southern Economic Association
- 2017 Annual Meeting of the Social Science History Association in Montreal
- 2016 ASSA Meetings in San Francisco
- 2015 ASSA Meetings in Boston, Annual Meeting of the Urban Economics Association in Portland-OR, Annual Meeting of the Economic History Association in Nashville-TN, CIREQ Montreal Applied Economics Conference
- 2014 ASSA Meetings in Philadelphia, Annual Meeting of the Economic History Association in Columbus-OH

ORGANIZATIONAL COMMITTEES

- 2023 Annual Meeting of the Latin American Economic Association (LACEA) and Latin American Meeting of the Econometrics Society (LAMES)
- 2023 Annual Meeting of the Economic History Association in Pittsburgh, PA
- 2022 44th Annual Meeting of the Brazilian Econometric Society
- 2022 Northeast Workshop on Energy Policy and Environmental Economics
- 2022/23 ASSA Program Committee, Economic History Association & Cliometrics Society
- 2018 40th Annual Meeting of the Brazilian Econometric Society
- 2017 AERE Summer Conference
- 2015/16/17/18/19 Economics of Low-Carbon Markets Workshop at the University of São Paulo
- 2014 36th Annual Meeting of the Brazilian Econometric Society

DIVERSITY SERVICE

- 2022-2023 Mentor for the AERE Scholars Program
- 2022-2023 Mentor for the ECONecta Program (to foster women in Economics in Brazil)
- 2020-2023 Mentor for the AEA Committee on the Status of LGBTQ+ Individuals in the Economics Profession (CSQIEP)
- 2017/18/19 Convening LGBTQ+ Faculty Meetings under the Office of the Vice Provost for Faculty

REFEREE ACTIVITIES

American Economic Review, Quarterly Journal of Economics, Journal of Political Economy, Review of Economic Studies, American Economic Review: Insights, Journal of the European Economic Association, American Economic Journal: Applied Economics, American Economic Journal: Economic Policy, American Economic Journal: Macroeconomics, Journal of Political Economy: Microeconomics, Economic Journal, European Economic Review, Journal of Economic History, Explorations in Economic History, Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, Journal of Urban Economics, Journal of Public Economics, Journal of Development Economics, Journal of Health Economics, Journal of Labor Economics, Journal of Human Resources, Energy Economics, Health Economics, Economic History Review, Economic Development and Cultural Change, Economic Inquiry, Economics and Human Biology, Nature Energy, Economics of Energy & Environmental Policy, Energy Journal, Energy Policy, National Tax Journal, Sustainability, Nature Human Behavior, Science of the Total Environment, BMC Public Health, and Economia Aplicada

Grant proposals: US National Science Foundation (NSF), UK Research and Innovation (UKRI), Swiss National Science Foundation (SNSF), Health Effects Institute (HEI)

OTHER INFORMATION

Affiliations: American Economic Association, Economic History Association, Association of Environmental and Resources Economists

Languages: English (fluent), Portuguese (native), Spanish (intermediate), Italian (basic)

Citizenship: Brazil, Portugal, US Permanent Resident (Green Card Holder)