

TRIDEVI CHAKMA

tchakma@g.harvard.edu
Cell 617-955-0740
www.tridevichakma.com



HARVARD UNIVERSITY

124 Mt Auburn St., Suite 175S
Cambridge MA 02138

Placement Director: Marcella Alsan
Administrative Director: Nicole Tateosian

marcella_alsan@hks.harvard.edu
nicole_tateosian@hks.harvard.edu

617-384-0016
617-495-1190

Education

Harvard University

Ph.D. Public Policy 2018 to 2024 (expected)

London School of Economics, United Kingdom

MSc in Finance and Economics, 2013 to 2014

Australian National University, Australia

Bachelor of Finance, 2008 to 2011

Fields

Environmental Economics, Public Economics

References

Professor Nathaniel Hendren
(co-chair)
MIT
nhendren@mit.edu

Professor Joseph Aldy
(co-chair)
Harvard Kennedy School
joseph_aldy@hks.harvard.edu

Professor Marcella Alsan
Harvard Kennedy School
marcella_alsan@hks.harvard.edu

Fellowships & Awards

Harvard Joint Center for Housing Studies Grant, 2023
Washington Center for Equitable Growth Doctoral Grant, 2022 to 2023
Diversity Fellowship, Berkeley Summer School, 2022
Harvard Certificate of Teaching Excellence, Derek Bok Center, 2021 and 2022
Jennifer Perini and Jim Cunningham Dissertation Fellowship, 2018 to 2019
Australian Development Scholarship, AusAID, 2008 to 2011

Teaching

Resources, Incentives, and Choices I (Microeconomics), Harvard Kennedy School
Teaching fellow for Pinar Dogan and Janina Matuszeski, 2021 to 2022

Using Big Data to Solve Economic and Social Problems, Harvard College
Teaching fellow for Professor Raj Chetty, 2022

Principles of Economics, Harvard College
Teaching fellow for Professors David Laibson and Jason Furman, 2020 to 2021

Employment

Oxera Consulting LLP, United Kingdom
Consultant, 2015 to 2018
Analyst, 2014 to 2015

Mott MacDonald, Bangladesh
Junior Consultant, 2012 to 2013

Research

Research assistant for Professor Alex MacKay, Harvard Business School, 2019

Seminars & Conferences

Harvard Environmental Economics Seminar, 2023
Harvard Economics and Social Policy Seminar, 2023
Occasional Workshop in Environmental and Resource Economics, UCSB (egg-timer), 2023
Association of Environmental and Resource Economists (AERE) summer conference, 2023
Heartland Workshop on Environmental and Resource Economics at Illinois, 2022
Northeast Workshop on Energy Policy and Environmental Economics, 2022
Berkeley/Sloan Summer School in Environmental and Energy Economics (egg-timer), 2022
Association of Environmental and Resource Economists (AERE) summer conference, 2022

Job Market Paper**The Causes and Consequences of Urban Heat Islands**, with Jonathan Colmer and John Voorheis

This paper studies the mortality effects and determinants of urban heat islands—neighborhoods with a high concentration of impervious surfaces—and their racial incidence. Air temperature imputed from the sparse network of weather stations understates local temperatures in impervious neighborhoods. Combining new administrative data for the near population of the United States with random shocks in daily temperature, we show that the most impervious neighborhoods experience the largest increase in mortality on hot days, even within counties. Relative to the median, the over 65 mortality increases by 6 additional deaths per 100,000 in the most impervious tracts on hot days. In contrast, we do not find any relationship between mortality and imperviousness on cold days. The increase in Black mortality following a hot day is three times that of White mortality. Around half of this disparity can be attributed to Black individuals living in more impervious neighborhoods, suggesting that these patterns have deep historical roots. We show that Black neighborhoods experienced a greater increase in density in during the Great Migration, and were subsequently zoned for higher density use. We present suggestive evidence that zoning affects imperviousness, tree cover, and temperature in areas with high regulated density.

Working Papers**Where does Air Quality Matter? New Evidence from the Housing Market**, with Eleanor Krause

Estimating the value of improved environmental quality is of central interest to policymakers weighing the costs and benefits of environmental regulations. Under the standard hedonic valuation approach, researchers estimate the demand for environmental improvements from changes in housing prices. However, in a general equilibrium setting with elastic housing supply, amenity improvements may yield an expansion of the housing market (the 'quantity' effect), muting the capitalization of the amenity into housing prices (the 'price' effect), such that inferring benefits solely from price changes underestimates the true willingness-to-pay. We demonstrate how the elasticity of the local housing market affects valuations of amenity changes in the context of local air quality improvements induced by the Clean Air Act's PM2.5 standards. We present consistent empirical evidence that the price capitalization of air quality improvements is substantially lower in places with more elastic housing markets, as increased demand is absorbed by expansions in housing supply. We present a model of spatial equilibrium of local prices, populations, and wages as functions of local amenities. Estimates from the model suggest that willingness-to-pay for air quality improvements are larger than the those produced by the standard hedonic approach.

Individual-Level Heat Disparities in the United States, with Jonathan Colmer and John Voorheis

Temperatures can vary substantially over short distances due to differences in land cover—a phenomenon known as the urban heat island effect. Little is known, however, about how the distribution of surface temperatures varies across individuals, how this has evolved over time, or the underlying drivers of disparities. Combining 20 years of high-resolution satellite-derived land surface temperature data, measured over 9 billion cells, with new individual-level data containing detailed demographic, residential, and economic information for every citizen and permanent resident of the contiguous United States between 2000 and 2019 (\$6 billion individual-level observations), we provide the most comprehensive and systematic evaluation of surface temperature disparities to date. We document that within the same commuting-zone, Non-Hispanic Black individuals are exposed to higher surface temperatures than Non-Hispanic White individuals at every percentile of the income distribution. This pattern is stable over time and space. We show that individual economic circumstances can account for approximately 30 percent of the Black-White temperature gap, providing suggestive evidence that race rather than class is more important in determining heat disparities in the United States.

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| Non-Academic Publications | <p>‘The application of state aid rules in various fora: the role of economic analysis’ with Nicole Robins. Competition Law & Policy Debate, 4:3. (2018).</p> <p>‘State Aid in Energy under the Spotlight: the Implications of the Hinkley Point Decision’ with Nicole Robins. European State Aid Law Quarterly, 15:2. (2016).</p> <p>‘State aid scrutiny of corporate tax arrangements’ with James Kavanagh and Nicole Robins. Competition Law Journal, 14:3. (2016)</p> |
| Affiliations | <p>Special Sworn Status, U.S. Census Bureau, 2022 to present</p> <p>Affiliate, Environmental Inequality Lab, 2022 to present</p> <p>Pre-doctoral Fellow, Harvard Environmental Economic Program (HEEP), 2018 to present</p> |
| Academic Service | <p>Diversity and Inclusion Committee Co-Chair, HKS PhD student association, 2021 to 2023</p> <p>Organizer, HKS Applied Microeconomics Seminar, 2020 to 2021</p> <p>Mentor, HKS PhD peer mentorship program, 2020 to 2023</p> |
| Languages | English (fluent), Bengali (native), Hindi (basic), French (basic) |
| Software skills | R, Stata, SAS, Shell script, GitHub, Slurm, PBS |
| Personal information | Citizenship: Bangladesh |