

# TRIDEVI CHAKMA

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# HARVARD UNIVERSITY

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## 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  
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## 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 determinants, mortality effects and racial incidence of urban heat islands—neighborhoods with a high concentration of impervious surfaces. Air temperature imputed from the sparse network of weather stations understates local temperatures in impervious neighborhoods. We combine new administrative data for the population of the United States with random shocks in daily air temperature imputed from weather stations, and show that the most impervious neighborhoods experience the largest increase in mortality on hot days. A hot day increases the over 65 mortality by 6 additional deaths per 100,000 in the most impervious tracts compared to the median. Moreover, the increase in Black mortality following a hot day is three times that of White mortality, and more than half of this disparity can be attributed to Black individuals living in more impervious neighborhoods. We then present suggestive evidence that imperviousness is driven by density zoning policies, and document that the racial incidence of density is reflected in a long historical process since the Great Migration.

**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.

**Non-Academic Publications**

'The application of state aid rules in various fora: the role of economic analysis' with Nicole Robins. *Competition Law & Policy Debate*, 4:3. (2018).

'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).

‘State aid scrutiny of corporate tax arrangements’ with James Kavanagh and Nicole Robins. Competition Law Journal, 14:3. (2016)

<b>Affiliations</b>	Special Sworn Status, U.S. Census Bureau, 2022 to present Affiliate, Environmental Inequality Lab, 2022 to present Pre-doctoral Fellow, Harvard Environmental Economic Program (HEEP), 2018 to present
<b>Academic Service</b>	Diversity and Inclusion Committee Co-Chair, HKS PhD student association, 2021 to 2023 Organizer, HKS Applied Microeconomics Seminar, 2020 to 2021 Mentor, HKS PhD peer mentorship program, 2020 to 2023
<b>Languages</b>	English (fluent), Bengali (native), Hindi (basic), French (basic)
<b>Software Skills</b>	R, Stata, SAS, Shell script, GitHub, Slurm, PBS
<b>Personal Information</b>	Citizenship: Bangladesh