

# RAAHIL MADHOK

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## RESEARCH AREAS

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Environmental Economics, Development Economics

## EDUCATION

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2017 - 2023      Ph.D., Food and Resource Economics, Faculty of Land and Food Systems, UBC

*Advisors:* Sumeet Gulati (LFS), Patrick Baylis (Economics)

*Committee:* Siwan Anderson (Economics), Frederik Noack (LFS)

2015              M.A., Economics, University of British Columbia

2012              B.A., Economics, Environmental Studies, McGill University

## SELECTED FELLOWSHIPS AND AWARDS

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2022              Delegate to Lindau Nobel Laureate Meetings

2021-22          Fellow, Institute for Asian Research, UBC School of Public Policy

2020              Nehru Humanitarian Award in Indian Studies

2019-            SSHRC Joseph-Armand Bombardier Doctoral Fellowship

2015              W. Erwin Diewert Graduate Prize for Best Economics Masters Thesis

## WORKING PAPERS

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1. "[Infrastructure, Institutions, and the Conservation of Biodiversity in India](#)" (Job Market Paper)

*Abstract:* Biodiversity in the tropics is severely threatened by land use change. This paper studies the extent to which infrastructure development degrades biodiversity in India and, secondly, the role of local institutions in mitigating the tradeoff. Combining new data on infrastructure-driven deforestation with one million birdwatching diaries, and exploiting within-observer travel for identification, I document a sizeable infrastructure-biodiversity tradeoff. Transport, irrigation, resettlement camps, and mining projects account for 20% of national species loss. The tradeoff is more than halved under institutions that include indigenous groups in development planning. Informed consent is a key mechanism, underscoring the importance of grassroots institutions for balancing development and conservation.

2. "[Rural-Urban Migration and the Re-organization of Agriculture](#)" with Frederik Noack, Mushfiq Mobarak, and Olivier Deschenes

*Abstract:* This paper studies how food needs are met when labour moves from farms to cities. Using household micro data from India and exogenous variation in migration induced by urban income shocks, we document sharp declines in food production among migrant-sending households residing near cities. Surprisingly, these households do not substitute labour with capital-intensive production, nor do they adopt new agricultural machinery. Instead, they divest from agriculture altogether and cultivate less land. In contrast, we find that food production surges and technology modernizes in remote regions where households are unaffected by labour loss. These findings are consistent with a two-sector general equilibrium model in which the incidence of direct and indirect effects depend on the spatial organization of the economy. Counterfactual simulations show that over half of the aggregate food shortage driven by the labour channel is mitigated by indirect spatial spillovers.

3. “The Long-Term Health Impacts of Power Plants” with Rohini Pande, Kevin Rowe and Anish Sugathan

*Abstract:* This paper quantifies the long-run effects of India’s dramatic expansion of coal-fired electric power plants from 1970 to 2017 on neonatal, infant, and child health. We use a particle trajectory model that draws wind-driven patterns of emissions dispersion from power plants to construct an exogenous measure of cumulative pollution exposure over three decades. Our measure of historic power plant exposure predicts present-day air quality three to six times better than conventional wind-direction instruments in the literature. A one standard deviation increase in long-run exposure to power plant emissions increases neonatal, infant, and child deaths by 0.6 (2 percent of the mean), 0.9 (1.9 percent), and 1.3 (2.2 percent) per 1000 live births, respectively. These effects are largely driven by exposure in-utero, as well as exposure to private power plant clusters forming between 1992-2005. We find no evidence of differential economic development between more- and less-exposed districts, ruling out adaptation, and underscoring pollution as the main mechanism.

## **PUBLICATIONS**

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1. “[Ruling The Roost: Avian Species Reclaim Urban Habitat During India’s COVID-19 Lockdown](#) (with Sumeet Gulati)”. *Biological Conservation* (2022), Vol. 271: 109597.
2. “[Saving the world from your couch: The heterogeneous medium-run benefits of COVID-19 lockdowns on air pollution](#) (with Jean-Philippe Bonardi, Quentin Gallea, Dimitrija Kalanoski, Rafael Lalive, Frederik Noack, Dominic Rohner, and Tommaso Sonno)” *Environmental Research Letters* (2021), 16(7): 074010.

## **OTHER WRITING**

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1. “Water Pollution and Public Health in India: The Potential for a Market-Based Approach” (with Michael Greenstone, Rohini Pande, and Hardik Shah). 2013. *Health and South Asia Digital Handbook*.

## **PRESENTATIONS (\* Scheduled)**

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2022	NBER Summer Institute (Environment & Energy Economics), UBC Vancouver School of Economics, PacDev, OSWEET, Columbia IPWSD, WEAI, AERE, CREEA
2021	Camp Resources, AERE, CREEA (Best Paper Prize), Columbia IPWSD, UBC CFREE
2020	UBC CFREE, TWEEDS (postponed)
2019	Berkeley/Sloan Summer School, UBC CFREE, UBC LFS Graduate Conference

## **RESEARCH EXPERIENCE**

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2019	Consultant, Metro Vancouver, Environmental Regulation & Enforcement
2015 - 2016	Pre-Doctoral Fellow to Rohini Pande, Harvard Kennedy School
2012 - 2014	Research Assistant to Michael Greenstone, Rohini Pande, Nick Ryan, and Anant Sudarshan, J-PAL South Asia
2012	Short-Term Consultant, The World Bank

## **TEACHING**

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### **Instructor of Record**

FRE 460: Economics of Food Consumption (Winter 2022)

### **Teaching Assistant**

International Macroeconomics (GPP 502, Fall 2019), Graduate Microeconomic Theory (LFS 500, Winter 2018), Intermediate Macroeconomics (ECON 302, Winter 2017), Intro. Microeconomics (ECON 101, Winter 2014), Intro. Macroeconomics (ECON 102, Fall 2015)

## **PROFESSIONAL ACTIVITIES**

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Referee for: *Environment and Development Economics, Environmental Research Letters*

## **SKILLS**

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Software: Stata, R, Python

Languages: English (Native), Hindi (Conversational), Spanish (Conversational)

## **PERSONAL INFORMATION**

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Born: September 27, 1990

Citizenship: Canada, USA

Hobbies: Hiking, hip hop, Improv

## **REFERENCES**

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