

SAYANTAN (SUNNY) MITRA

Contact Information	sayantan_mitra@berkeley.edu Personal Website		
Doctoral Studies	University of California, Berkeley PhD, Agricultural and Resource Economics [Expected completion May 2025] PRIMARY FIELDS: Development Economics, Environmental & Resource Economics SECONDARY FIELDS: Agricultural Economics, Labor Economics, International Trade		
References	<u>Professor Aprajit Mahajan</u> aprajit@berkeley.edu Agricultural & Resource Economics, UC Berkeley	<u>Professor Maximilian Auffhammer</u> auffhammer@berkeley.edu Haas School of Business UC Berkeley	<u>Professor Edward Miguel</u> emiguel@berkeley.edu Department of Economics UC Berkeley
Job Market Paper	<p><i>“The Environment-Development Trade-off: Evaluating Local Distributional Impacts of Clearing Forests for Infrastructure”</i> [World Bank Development Impact blog post]</p> <p><u>Abstract</u>: The trade-off between natural environmental resources and economic development has long been a subject of academic and policy concern. One such trade-off is related to the clearing of forests for infrastructure, which accounts for 80% of deforestation in India and 10% globally. In this paper I estimate the local causal effects of such infrastructure-induced forest clearing in India using the staggered timing of project approvals as a source of identifying variation. Using a large household level panel, I document five main findings. First, forest-dependent tribal households, for whom the loss of forests represents a negative shock, experience a decline in their employment in retail trade and increased engagement in subsistence agriculture. Second, while there is no change in household incomes and consumption on average, there is considerable heterogeneity. Both incomes and consumption rise for poorer households but not for richer households. Third, household size increases for poorer households as migrants return, but not for richer households. Fourth, occupational structure changes as households move into retail trade. Fifth, employment in skill-intensive services declines for educated households. These findings are consistent with the predictions of a standard Heckscher-Ohlin model of opening up to trade with a skill-abundant external economy as a result of infrastructure-induced reduction in trade costs. While there are no economic benefits for the average household, a back-of-the-envelope calculation with the economic benefits to only poorer households also shows that they do not outweigh the costs if we consider the equity-adjusted social cost of carbon (SCC) of \$1300/ton. Even if the EPA SCC estimates of \$190/ton are used, the benefits to local poorer households outweigh the costs only for projects smaller than 95 hectares located where there are more than 25 households per square kilometer.</p>		
Education	College of Wooster	B.A., Economics and Mathematics (with honors)	2016
Research Grants as PI	2024	Berkeley Institute for South Asia Studies- Bhattacharya Graduate Research Fellowship (\$1,500)	
	2023	UC Berkeley- Lau Graduate Fellowship in Climate Equity (\$9,000), Giannini Foundation for Agricultural Economics- Research Grant (\$35,000)	
	2022	Middlebury College- Davis Project for Peace Award (\$10,000), Giannini Foundation for Agricultural Economics- Research Grant (\$30,000)	
	2021	MIT Poverty Action Lab (J-PAL) Gender & Economic Agency Initiative (\$20,000),	
	2020	J-PAL- King Climate Action Initiative Research Award (\$50,000), UC Berkeley- Graduate Remote Instruction Innovation Fellowship (\$5,000)	
	2019	Giannini Foundation for Agricultural Economics- Exploratory Research Grant (\$60,000)	
	2015	Clinton Global Initiative (University)- Commitment to Action Fellowship (\$10,000)	
	2014	The College of Wooster- APEX Fellowship (\$6,000)	
Research Grants as Co-PI	2024	J-PAL- King Climate Action Initiative (\$300,000), Center for Effective Global Action (CEGA)- Development Economics Challenge (\$8000)	
	2023	Centre for Economic Policy Research (CEPR)- PEDL Exploratory Research Grant (£40,000)	
	2022	J-PAL Agricultural Technology Adoption Initiative (\$75,000)	
	2020	Consultative Group for International Agricultural Research (CGIAR)- SPIA Grant (\$600,000)	

**Research
Papers**

“Is Afforestation Really Compensatory? Long-Term Effects of Mandated Compensatory Afforestation on Forest Cover” (*draft available on request*)

Abstract: Numerous countries have designed policies that mandate afforestation to compensate for approved deforestation, though the impact of these mandates on actual forest cover is largely unexplored. Using government data on applications for deforestation in India, I test the causal effects of the approval of deforestation that mandates compensatory afforestation on the forest cover in India. I find no significant effects on forest cover at the district-level in the years immediately after the approval. However, there is evidence of a significant reduction in forest cover after 9 years from the year of approval raising doubts over long-term survival rate of planted forests.

“Impact of Agricultural Mechanization on Female Labor: Experimental Evidence from India” with Aprajit Mahajan and Swamikannu Nedumaran (*draft available on request*)

Abstract: Mechanization in agriculture is becoming increasingly common in developing countries, but the impacts of the same on female agricultural labor are not entirely understood in an experimental setting. We use a randomised controlled trial conducted in India to evaluate the impacts of agricultural mechanization induced by the adoption of Machine Harvestable Chickpea (MHC) on local female agricultural workers. Harvester usage is higher for MHC among treatment farmers along with the lowering of costs from using harvesters. We find that the proportion of female agricultural workers engaged in chickpea harvesting and threshing falls in treatment villages. In trying to understand adaptation strategies for female agricultural workers, we find that they engage in agricultural labor at distances further away from their own village, travelling there in larger groups. We also find that females who are decision-makers with respect to household matters and their own work are more likely to remain engaged in chickpea harvesting, pointing to the role of social norms even in a context with depleted opportunities due to mechanization.

**Research
in Progress**

“Studying the Role of Farm-to-School Grants in the Spread of Climate-Smart Practices among Historically Disadvantaged Farmers in California” with Timothy Bowles and Federico Castillo (*midline data collection*)

Abstract: With the California Department of Food & Agriculture prioritizing climate-smart agriculture and historically disadvantaged groups in their Farm-to-School grants to farmers, these grants have the potential to catalyze an increase in adoption of climate-smart practices among historically disadvantaged farmers. Using data from applicants and their social networks and exploiting discontinuity in reviewer scores, we aim to identify the factors which drive adoption and the barriers to large-scale adoption of climate-smart practices among historically-disadvantaged farmers.

“Paying Smallholder Farmers to Increase Carbon Sequestration by Changing Agricultural Practices” with Aprajit Mahajan and Shuo Yu (*piloting completed, starting multi-year RCT*)

Abstract: This project incentivizes smallholder farmers in rural India to adopt agricultural practices that improve soil carbon sequestration. Through a randomized controlled trial that pays farmers as a function of measured improvements in soil organic content in a context with liquidity constraints, we lay the groundwork for developing a larger scale program that links small farmers to commercial firms providing carbon credits. The project also explores the potential of satellite data to validate the adoption and impact of regenerative agricultural practices, which will be important for any scale-up.

“Testing Models of Payment for Ecosystem Services to Prevent Deforestation in India” (*piloting completed, seeking funding for full RCT*)

Abstract: Deforestation is a first-order policy concern in developing countries like India along with a lack of adequate resources among owners of forest land, causing a vicious cycle of deforestation and poverty. Payment for ecosystem services (PES) for prevention of deforestation has the potential to solve this dual problem. While its potential has been tested in a number of developing countries, this project attempts to design a PES program to prevent deforestation in the Indian context where infrastructure causes a majority of the deforestation and community-level forest protection has been a proven success.

**Past
Research**

“Holding Hands Against the Unknown: Using Markov Chains to Model Informal Insurance Arrangements in Developing Societies” (undergraduate senior thesis) (*available on request*)

“A Coin Box for Health: Evidence from a Randomized Experiment of Commitment Savings as Health Insurance” with Kartikeya Batra (*available on request*)

“Helping a Microfinance Institution Select its Clients: A Risk Analysis using Social Networks” with Varunavi Newar (*available on request*)

Refereeing

Advances in Statistical Climatology, Meteorology and Oceanography

Research Talks	2024	Camp Resources , Center for Environmental & Resource Economic Policy, NC State University	
		Energy & Environmental Economics Fest , Energy Institute, UC Berkeley	
	2020 2016	Sloan Summer School in Environmental Economics , Haas School of Business, UC Berkeley International Growth Centre (IGC) Growth Conference , Indian Statistical Institute, Kolkata	
Teaching	UC Berkeley	<i>Economics of Natural Resources</i> , Larry Karp <i>Economics of Water Resources</i> , David Sunding	Fall 2020, Fall 2021 Spring 2021
	College of Wooster	<i>Intermediate Macroeconomic Theory</i> , Amyaz Moledina <i>Linear Algebra</i> , James Hartman <i>Multivariate Calculus</i> , Mary-Jo Kreuzman <i>Principles of Economics</i> , Shu-Ling Wang	Spring 2016 Fall 2015 Spring 2014 Fall 2013
Research Mentoring	2024 - 2025	Research Mentor, Energy and Environmental Economics Mentoring Program , Opportunity Lab & Energy Institute at Haas School of Business, UC Berkeley	
	2023 - 2025	Research Mentor, Social Sciences Research Pathways , Institute for Research on Labor & Employment, Goldman School of Public Policy, UC Berkeley	
	2023 - 2025	Graduate School Admissions Mentor, Economists for Equity at Berkeley	
	2021 - 2025	Mentor, Sponsored Projects for Undergraduate Research , Department of Agricultural & Resource Economics, Rauser College of Natural Resources, UC Berkeley	
Research Assistance	UC Berkeley	<u>Environmental Science, Policy & Management</u> - Timothy Bowles	2023 - 2025
		<u>Development Economics</u> - Aprajit Mahajan	2021 - 2024
		<u>Environmental Economics</u> - Larry Karp	2020 - 2021
		<u>Agricultural Economics</u> - Ethan Ligon	2019 - 2020
	Harvard University	<u>Evidence for Policy Design</u> - Rohini Pande	2016 - 2019
College of Wooster	<u>Mathematics & Statistics</u> - Robert Wooster	2013 - 2014	
Research Internships	2015	Maragoli Community Development Foundation, Vigna (Kenya)	
	2014	Center for Microfinance at IFMR LEAD, Chennai (India)	
	2013	Grameen Bank and Grameen Trust, Dhaka (Bangladesh)	
Institutional Service	2024	Co-Lead Organizer- Giannini Foundation of Agricultural Economics Student Conference	
	2023 - 2024	Assistant Director- Student Parent Food Donations Program , UC Berkeley	
	2021 - 2023	Graduate Student Representative- Committee on Courses of Instruction , UC Berkeley	
	2021 - 2022	Funding Officer- Graduate Assembly , UC Berkeley	
	2020 - 2021	Vice Chair, Academic Mission Committee- Board of Trustees , College of Wooster	
	2016	Lead Student Organizer- Senior Research Symposium , College of Wooster	
	2015 - 2016 2013 - 2016	President- Student Government Association , College of Wooster Student Representative- Educational Policy Committee , College of Wooster	