Varun Mallampalli

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Education

Ph.D. : **Environmental Engineering**, 2020
Duke University ─ Durham, NC
Thesis Title: Essays in environmental and development economics
Primary Fields: Energy & Development Economics, Decision Theory, Statistics
Relevant Coursework: Energy Systems, Development Economics, Natural Resource Economics, Advanced Game Theory, Bayesian Statistics, Causal Inference

Masters in Engineering Management, 2015
Dartmouth College ─ Hanover, NH
Relevant Coursework: Engineering Statistics, Climate Change and Engineering, Decision Making Under Risk and Uncertainty

B.Tech in Industrial Engineering, 2013
Indian Institute of Technology, Roorkee ─ Roorkee, India
Relevant Coursework: Basic Microeconomics, Basic Macroeconomics, Environmental Economics

Projects

Project Leader
September 2016 to June 2017
Bass Connections, Duke
Disaggregating and Projecting Future Electricity Demand in China
- Designed household surveys on energy consumption behaviours in Beijing, China
- Co-ordinated team efforts to build a System Dynamics model of future electricity demand scenarios in China

Expert & Consultant
August 2018 to Current
Central Square Foundation & Govt. of Gujarat ─ India
- Applying predictive analytics and causal inference to determine policy intervention points for improving student learning outcomes in public and private schools
- Capacity building on systems thinking, statistics and causal inference, development economics and predictive modelling

Articles and Publications

Varun Mallampalli, Georgia Mavrommati, Jonathan Thompson, Matthew Duveneck, Spencer Meyer, Arika Ligmann-Zielinska, Caroline Gottschalk Druschke, Kristen Hychka, Melissa A. Kenney, Kasper Kok, Mark E. Borsuk. *Methods for translating narrative scenarios into quantitative assessments of land use change*, Environmental Modeling and Software (2016): 7-20.

Murphy, Mackenzie, Georgia Mavrommati, **Varun Mallampalli**, Richard Howarth, and Mark Borsuk. *Comparing group deliberation to other forms of preference aggregation in valuing ecosystem services,* Ecology and Society 22, no. 4 (2017).

Mingquan Li ,Mauricio Hernandez, Rui Shan, **Varun Mallampalli**, Yue Li. *Fertility matters: China's population peak and an ageing society (submitted)*, Population Research and Policy Review.

Mingquan Li, Rui Shan, Mauricio Hernandez, **Varun Mallampalli**, Dalia Patiño-Echeverri. *Electric appliance adoption in the Chinese residential sector: A provincial scenario analysis towards 2050 (submitted),* Applied Energy.

Works in Progress

Varun Mallampalli. *Natural resource extraction under policy uncertainty: Green paradox vs divestment*

Varun Mallampalli. *Risk sharing agreements and geo-engineering governance*

Varun Mallampalli, Christopher Krapu**.** *Endogenous rainfall responses: Testing the validity of rainfall as an IV*

Sponsored Research

"Disaggregating and Projecting Future Electricity Demand in China (2015- 2050): Temporal and Spatial Features Based on a Bottom-up Approach", 2017 with Dalia Patiño-Echeverri , Ildo Luís Sauer, Ricardo Menezes-Salgado, Mark Borsuk, Lori Bennear, Mingquan Li and Billy Pizer.
Funding Source: Duke Energy Research Seed Fund
Funding Amount: **$39,000**

"Decisions, Risks, and Governance of Geoengineering", 2018 with Mark Borsuk, Jonathan Wiener, Billy Pizer and Drew Shindell, with Tyler Felgenhauer, Khara Grieger, and Varun Mallampalli.
Funding Source: Duke Provost Office
Funding Amount: **$84,100**

Conference Presentations

Varun Mallampalli, Georgia Mavrommati, Mark Borsuk. From Narrative to Simulation with Stakeholders. Scenarios to Simulations Workshop, Scenarios, Services, and Society Research Coordination Network (S3 RCN), Harvard Forest. February, 2016, Hanover, NH, USA

Varun Mallampalli, Mark Borsuk. Technological Change and Carbon Leakage. Environmental Economics, Management, and Governance Occasional Seminar Series. November, 2015, Dartmouth College, Hanover, NH, USA

Varun Mallampalli, Joan David Tabara, Diana Mangalagiu, Marco Grasso, Jill Jager, Andrea Roventini, Mark Borsuk, Francesco Lamperti, Robert Lempert. Assessing integrated climate strategies beyond two degrees: A transformative agent-based modelling approach. Transformations, September, 2015, Stockholm, Sweden

Varun Mallampalli, Michael Gerst, Mark Borsuk, Peng Wang. Agent Based Modelling of Climate Change Negotiations. Impressions, January 2015, Barcelona, Spain

Recognitions and Sponsored Participation

Summer school: Empirical research methods in econometrics, data science, networks and remote sensing for sustainable development, Columbia University, 2018
Winter School: Uncertainty and Dynamics in Environmental Economics Modelling, ETH Zurich, 2018
D-SIGN, Duke University, 2017, $7000
Bass Connections Fellowship, Duke University, 2017, $18399
Winner, Oliver Wyman Case Competition, 2015, $1000
Outstanding Graduate Student Teacher, Dartmouth College, 2014

Leadership

Student Leader, Modelling Health and Environment Graduate Working Group, Duke University

Elected Representative, Dartmouth Graduate Student Council

Treasurer, Thayer Council, Thayer School of Engineering, Dartmouth

Skills

Academic: Statistics, Numerical & Dynamic Optimization, Stochastic Analysis, System Dynamics, Agent Based Modelling, Causal Inference
Languages:
English(native), Hindi(native), Telugu(native), French(intermediate), Spanish(beginner)
Computing: R, MATLAB, Python, Stella, Minitab, LATEX, Microsoft Office

Memberships

International Association for Energy Economics
International Environmental Modelling and Software Society
Association of Environmental and Resource Economists
European Association of Environmental and Resource Economists

Refereeing

Regional Environmental Change

Teaching Experience

Dartmouth
Fluid Mechanics
January 2014 to April 2014
- Conducted weekly review sessions and graded assignments and exams

Dartmouth
Heat & Mass Transfer
April 2014 to June 2014
- Designed exams, conducted review sessions and held weekly office hours
- Taught lectures on heat transfer in fluids

Dartmouth
Decision Making Under Risk and Uncertainty
September 2015 to December 2015
- Conducted weekly review sessions, graded exams and assignments
- Taught a lecture on game theory

Dartmouth
Energy Systems
- Pre-solved and led problem solving sessions for assignments
- Graded assignments and final reports

Mentorship Experience

Chulalongkorn University, Thailand
Bachelors Thesis Mentor
August 2014 to December 2014, Waris-sara Buajeeb
Thesis: Statistical Analysis of Expert Judgements about Future Climate Change damages

Duke University, Durham, NC
Independent Study
January 2018 to present, Daniel Kai Sheng Boey
Project 1: Dynamic optimisation in beach nourishment
Project 2: Improving student learning outcomes in India: Insights from machine learning and causal inference

Course Development

Duke University
Modelling Health & Environment
September 2017 to Current
- Leading bi-weekly workshops on System Dynamics Modelling
- Developing a course on the use of System Dynamics modelling in health and environmental systems to guide policy making and system intervention