

W. MATTHEW ALAMPAY DAVIS

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EDUCATION

Columbia University Dept. of Economics, GSAS <i>Ph.D</i> Economics (2025)	University of Oxford Nuffield College <i>M.Phil</i> Economics (2019)	New York University Stern School of Business <i>B.Sc</i> Business & Political Economy (2015)
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RESEARCH

Development Economics · Environmental/Climate Economics · Political Economy

Job market paper CLIMATE INEQUALITY

This paper characterizes the relationship between anthropogenic climate change and global inequality, a subject intersecting two of the defining challenges of the 21st century but which remains virtually unstudied at subnational levels. To make overdue progress addressing this research gap, I improve upon frontier methods for estimating climate impacts to overcome outstanding methodological limitations and apply these refinements to fine-scaled data on globally representative income distributions. Next, I document new evidence that temperature shocks significantly and persistently impact distributions of income within countries, an effect driven by concentrations of harm onto the lowest income-earners in warm climates as well as a surprising vulnerability of the top 1% in these countries to environmental shocks. Integrating these inequality effects over observed distributions of income and the spatial incidence of global warming, I find that climate change between 1981 and 2016 regressively redistributed global shares in a reduced stock of income both between and within countries largely by depriving the world's poorest of economic opportunity that would otherwise have been available. Altogether, these results constitute the most comprehensive evidence yet of the regressive impact of climate change on global inequality.

Work in progress POLITICAL TRANSITION UNDER ENVIRONMENTAL STRESS

ECONOMIC DISRUPTION, CULTURAL ANTI-PERSISTENCE, AND INTIMATE-PARTNER VIOLENCE
with Tanushree Goyal

ELITE CAPTURE AND IDENTITY POLITICS: A FORMAL MODEL OF SUBSTANTIVE REPRESENTATION

Publications LARGE POTENTIAL REDUCTION IN ECONOMIC DAMAGES UNDER UN MITIGATION TARGETS *with Marshall Burke, Noah S. Diffenbaugh* *Nature* (2018)

We present a probabilistic framework for assessing aggregate economic impacts of anthropogenic warming. Our construction decomposes uncertainty associated with mid-century and end-of-century country-level projections into error associated with i) econometric estimation of the economic effects of environmental change, ii) climate models of the spatial distribution of anthropogenic warming, iii) the projected schedule of greenhouse gas concentrations associated with radiative forcings, and iv) the social discounting regime of choice. We apply this framework to characterize the economic benefits of climate policy, emphasizing how achieving the most ambitious mitigation targets of the 2015 Paris Agreement would obviate essentially certain economic calamity concentrated in developing countries.

COMBINING SATELLITE IMAGERY AND MACHINE LEARNING TO PREDICT POVERTY *with Neal Jean, Marshall Burke, Michael Xie, David B. Lobell, Stefano Ermon* *Science* (2016)

We demonstrate a scalable method to address the scarcity and prohibitive expense of collecting disaggregated welfare data in the developing world by extracting economic information from an unconventional but abundant data source with increasingly frequent and near-global coverage: daytime satellite photography. Our “transfer learning” pipeline proceeds by first assigning a convolutional neural network model pre-trained for generic image classification the task of identifying features in georeferenced satellite images predictive of night-time luminosity, a crude proxy for economic activity. In effect, the CNN learns to produce a nonlinear mapping from

high-resolution unstructured image data to low-dimensional vector representations of their most economically relevant features. Ridge regression models are then trained on survey data to refine the feature selection for out-of-sample predictive performance. In an exploratory application to five diverse sub-Saharan African countries—Nigeria, Tanzania, Uganda, Malawi, and Rwanda—our open-source models trained on publicly available data are found to explain up to 75% of the variation in village-level consumption and asset wealth measured by traditional household surveys.

Referee service *Journal of Development Economics*

TEACHING GRADUATE TEACHING FELLOW at Columbia University (nine semesters, 2020–2024)
 Research consultant to all UG/MA economics thesis writers and research assistants
 ECON-4999 – Senior honors thesis workshops (design and instruction)
 ECON-3412 – Introduction to econometrics (TA)
 ECON-3211 – Intermediate microeconomics (TA)
 ECON-2257 – The global economy (TA)

PAST AFFILIATIONS RESEARCH ASSOCIATE at Climate Econometrics (2017–2019)
 Nuffield College, University of Oxford
 supervised by David F. Hendry, Elizabeth Baldwin
 PRE-DOCTORAL SCHOLAR at Center on Food Security and the Environment (2015–2017)
 Dept. of Earth System Science, Stanford University
 supervised by Marshall Burke, David Lobell

HONORS PROGRAM FOR ECONOMIC RESEARCH SUMMER FELLOWSHIP (2024)
 Columbia economics department award supporting summer research activities
 WUELLER FOURTH-YEAR PRE-DISSERTATION AWARD (2023)
 Columbia economics department runner-up best dissertation proposal
 UC BERKELEY AND SLOAN FOUNDATION DIVERSITY FELLOWSHIP (2022)
 Awarded to five doctoral students in environmental and energy economics
 COLUMBIA GSAS DEAN’S FELLOWSHIP AND DISSERTATION FELLOWSHIP (2019)
 Full-tuition scholarship and living stipend for up to six years of graduate study at Columbia
 OXFORD M.PHIL TOP-SCORING ECONOMICS THESIS (2019)
 Department’s first ‘exceptional’ (mark of 80+) thesis in at least four years
 NUFFIELD COLLEGE–DEPARTMENT OF ECONOMICS JOINT STUDENTSHIP (2017)
 Full-tuition scholarship and living stipend for up to four years of graduate study at Oxford

PLACEMENT

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PERSONAL

Background Philippines (nationality) · Indonesia (13 years) · Vietnam
Study and career United States · United Kingdom · China
Immediate family Philippines · Australia · Canada