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Academic Appointments	Harvard University (2023 – Present) Postdoctoral Fellow, Environment and Natural Resources Program, Harvard Kennedy School Belfer Center & Salata Institute for Climate and Sustainability <ul style="list-style-type: none">• Project: <i>Decarbonizing aviation with sustainable aviation fuel</i> Carnegie Mellon University (2022 – 2023) Postdoctoral Associate, Department of Engineering and Public Policy Visiting Researcher, Institute of Energy, Environment, and Economy, Tsinghua University (Field research in China as part of the CMU appointment, Summer 2023) <ul style="list-style-type: none">• Project: <i>Sustainable supply chains for multinationals with plants in China</i>	
Education	Massachusetts Institute of Technology Ph.D. in Social and Engineering Systems (2017 – 2022) Dissertation: <i>Local official and polluter accountability in China's environmental inspections</i> M.Fin. in Finance (2015 – 2017) Zhejiang University B.S. in Applied Mathematics (2011 – 2015)	
Fields	Environmental Economics, Agricultural and Resource Economics Quantitative Policy Analysis	
References	Professor James H. Stock Harvard Department of Economics 79 John F. Kennedy St, Belfer 504 Cambridge, MA 02138 james_stock@harvard.edu	Professor Valerie Karplus CMU Department of Engineering and Public Policy 5123 Scott Hall, 5000 Forbes Ave Pittsburgh, PA 15213 vkarplus@andrew.cmu.edu
	Professor Aaron Smith UC Berkeley Department of Agricultural and Resource Economics 207 Giannini Hall Berkeley, CA 94720 AaronSmith@berkeley.edu	Henry Lee Harvard Kennedy School 79 John F. Kennedy St Cambridge, MA 02138 henry_lee@hks.harvard.edu
Fellowships	MIT Presidential Fellowship, 2017	
Teaching	Science, Technology and Public Policy, Massachusetts Institute of Technology Teaching assistant for Professor Noelle Selin and Professor Kenneth A. Oye, Spring 2021 and Spring 2020	
Publications	Dynamic responses of SO₂ pollution to China's environmental inspections (2023) [link] with Valerie J. Karplus, <i>Proceedings of the National Academy of Sciences</i> 120(17) We evaluate the effect of rotating inspections carried out by China's central government in 2016 to 2017 in response to the country's air pollution crisis on the environmental performance of targeted cities and coal power plants. Using a staggered difference-in-differences (DID) design,	

we find that during one-month inspections concentrations of sulfur dioxide (SO_2) at coal power plants in targeted cities are on average lower by 25 to 52% compared to not-yet-inspected cities but revert by 54 to 62% on average once scrutiny ends. Following inspections, SO_2 pollution increases more quickly at state-owned plants accountable to the central government, compared to state-owned plants accountable to the local (city or below) government. Our results suggest that for most plants SO_2 concentration changes during inspections may have been due primarily to the operation of end-of-pipe SO_2 removal devices, while following inspections local state-owned plants may have reduced output.

Working Papers

Policy Options to Achieve US Sustainable Aviation Fuel Targets [\[link\]](#)

(with Kristen McCormack, William A. Scott, Aaron Smith, Jingran Zhang, and James H. Stock)

Decarbonizing aviation in the short term will likely entail replacing large quantities of petroleum jet fuel with sustainable aviation fuels (SAFs), which are predominantly biofuels. In the United States, biofuels are currently used as substitutes for gasoline and diesel in road transportation and are supported by a complex set of federal and state policies including the Renewable Fuel Standard (RFS), state low carbon fuel standards, and state and federal tax credits. Policies promoting SAF therefore interact with surface transport biofuel policies. In this paper, we use a new detailed partial equilibrium model of road and air transportation fuel markets to compare various policy options designed to achieve a target of 3 billion gallons of SAF by 2030. Our results suggest that the target is attainable with current technology but not with current policy. Several potential federal policies, including modifications to the existing RFS, a federal SAF tax credit, or a clean aviation standard could meet the 3 billion gallon target with similar emissions reductions and costs but different incidence. The lowest cost policy we study entails replacing all current biofuels policies with a modest carbon tax on fossil transportation fuels paired with a SAF tax credit.

Effects of citizen scrutiny on polluter behavior in China [\[link\]](#)

(with Valerie J. Karplus)

We investigate the determinants of citizen engagement in bottom-up environmental monitoring using a unique dataset of citizen complaints and administrative records from prefecture-level cities in China. We employ logistic regression models to estimate the effects of prior contact with local bureaucrats and characteristics of cities and plants on subsequent citizen participation. Our analysis yields three main findings. First, cities with lower baseline environmental performance experience significantly higher per capita complaint rates during inspections. Second, while overall complaint volume is higher in these cities, citizen reports do not reliably target the most polluting plants, underscoring the technical complexity of environmental monitoring. Third, using a natural experiment with two inspection rounds, we find that citizen complaint rates in the follow-up round decline when air pollution measures revert to baseline, suggesting that the persistence of official intervention is necessary to sustain citizen engagement. Our results imply that, without additional training or resources to enhance citizen reporting accuracy, bottom-up monitoring programs may have limited effectiveness in identifying non-compliance.

Why participate? Understanding the drivers of citizen complaints during China's environmental inspections [\[link\]](#)

(with Valerie J. Karplus and Lily L. Tsai)

We investigate the determinants of citizen engagement in bottom-up environmental monitoring using a unique dataset of citizen complaints and administrative records from prefecture-level cities in China. We employ logistic regression models to estimate the effects of prior contact with local bureaucrats and city and plant characteristics on subsequent citizen participation. There are three main findings. First, cities with lower baseline environmental performance experience significantly higher per capita complaint rates during inspections. Second, while overall complaint volume is higher in these cities, citizen reports do not reliably target the most polluting plants, underscoring the technical complexity of environmental monitoring. Third, using a natural experiment with two inspection rounds, we find that citizen complaint rates in the follow-up round decline when air pollution measures revert to baseline, suggesting that the persistence of official intervention is necessary to sustain citizen engagement. Our results imply that without additional training or resources to enhance citizen reporting accuracy, bottom-up monitoring programs may have limited

effectiveness in identifying non-compliance.

Papers in Progress	Towards credible and cost-effective options for sourcing green power for supply chains in China. <i>Policy brief</i> for the Tsinghua Round Table
In this study, I investigate credible and cost-effective options for sourcing green power within supply chains in China, using a mixed-methods approach. I conduct in-depth interviews with key stakeholders, including corporate sustainability leaders and energy market experts, to identify practical barriers to green power procurement, such as costs, certification hurdles, and concerns about credibility. To contextualize these challenges, I undertake a comparative case analysis with established U.S. frameworks, focusing on California's cap-and-trade system and renewable electricity certificate markets. By integrating qualitative insights from stakeholder perspectives with institutional comparisons, I highlight structural differences, policy designs, and incentive mechanisms between China and the United States. Based on these methods, I offer evidence-based recommendations for policymakers and firms, emphasizing the importance of robust accounting standards, transparent certification, and the adaptation of international best practices to enhance the effectiveness and trustworthiness of green power sourcing in China's supply chains.	

Seminars & Conferences	2025 Regional SAF Workshop for Massachusetts and New England 2024 North American SAF conference and Expo, ASSA Annual Meeting 2023 ARCS Annual Research Conference; Roundtable on Corporate Carbon Neutrality Strategies held by Institute of Energy, Environment and Economy, Tsinghua University 2022 Northeast Workshop on Energy Policy and Environmental Economics 2021 2021 Annual Environmental Politics and Governance Conference; Duck Family Graduate Workshop; China Research Group Doctoral Symposium; Interdisciplinary Ph.D. Workshop in Sustainable Development 2020 ETH Academy on Sustainability and Technology; Institutional and Organizational Economics Academy; Annual Duck Family Graduate Workshop in Environmental Politics and Governance
Academic Service	Student organizer, Sloan China Seminar Series, MIT (2017–2020)
Languages	English (fluent), Chinese (native)
Software skills	Python, Stata, R, MATLAB, L ^A T _E X