# Symposium on Natural Resources Governance for Young Scholars
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## Young Scholars – Abstracts

***Tamma Carleton***, Postdoctoral Scholar, Energy Policy Institute & Becker Friedman Institute for Economics, University of Chicago
tcarleton@uchicago.edu; www.tammacarleton.com

***The Global Water Footprint of Distortionary Agricultural Policy***

**Abstract:** Global demands on freshwater resources are rising as populations grow, diets shift, and climate change redistributes supply. Optimal design of local-level institutions can ensure efficient allocation across local users and over time. However, large distortions in the international market for water-intensive agricultural goods imply that even if local water markets functioned seamlessly, allocation of water use across the world's diverse regions would be inefficient. Often because of data constraints, such global-scale drivers of local water use have rarely been studied. In this paper, I combine novel satellite-derived data measuring changes in total water availability at all points on Earth's surface with a collection of spatial and administrative datasets to provide causally-identified, globally-comprehensive, empirical estimates of the influence of policy distortions in agricultural markets on local water supplies. I find that distortions raising domestic agricultural producer prices above the global market clearing price significantly lower local water availability, particularly for water-intensive crops and in the locations most suitable for those crops. I use these empirical estimates to quantify the impact that the recent liberalization of agricultural markets has had on total water availability. I find that observed policy changes over the satellite record have compressed the global distribution of water losses and gains, relative to a counterfactual of fixed policy. For example, across all locations with declining water availability during the satellite record, about 750 billion cubic meters of freshwater were saved by liberalization, an amount equivalent to 14% of the total water lost. In contrast, among locations with rising water availability, about 60 billion cubic meters were lost due to liberalization of policies that kept productive assets out of agriculture. These findings demonstrate the importance of accounting for and quantifying the role of global agricultural market distortions in determining local freshwater resources.

***Darin Christensen***, Assistant Professor of Public Policy and Political Science, Luskin School of Public Affairs, UCLA
darinc@luskin.ucla.edu; https://darinchristensen.com

***How Does Violence Shape Mining Investment?***

**Abstract:** How does exposure to armed conflict affect mining firms' investment decisions? Past research on instability and investment has generated mixed findings: a third of the studies in our systematic review report null or mixed correlations. A smaller number suggest that conflict boosts investment. We help to explain these varied results, observing that armed conflict can have divergent effects on investment. Conflict can deter investment by disrupting production or raising uncertainty. But conflict can also encourage investment by hampering government taxation and regulation. We argue that these effects operate at different geographic scales and, using unique firm-level data from the mining sector, show how firms with differential exposure to armed conflict change their investment behavior. We find that firms with operations at armed conflict sites dramatically reduce their investments following violence. By contrast, firms operating in the territory surrounding conflict, but at a remove from the fighting, actually increase their investment. Firms well-removed from violence see a small negative effect.

***Jonathan Colmer***, Assistant Professor of Economics, University of Virginia
jonathan.colmer@virginia.edu; https://sites.google.com/site/jonathancolmer/

***The Economics of Marine Conservation***

**Abstract:** The world's oceans provide crucial services that make our planet habitable. However, when access rights are not effectively managed over-fishing and environmental degradation threaten these services. One of the main regulatory instruments used to manage and conserve ocean resources are Marine Protected Areas (MPAs). MPAs are argued to be one of the most effective policies for restoring marine life. However, for an MPA to deliver any economic or environmental benefits it is necessary that they deliver meaningful reductions in fishing activity. Using comprehensive global data on commercial fishing activity we provide systematic evidence to suggest that observed reductions in fishing effort are infra-marginal -- they would have occurred absent policy intervention. The vast majority

of MPAs do not reduce fishing effort at the border and MPAs only go into effect once the return to fishing in a location has declined. Whether MPAs have delivered benefits likely depends on whether they were implemented before irreversible damages were done and, if so, whether monitoring and enforcement efforts are sufficient.

***Eyal Frank***, Assistant Professor, Harris School of Public Policy, University of Chicago
eyalfrank@uchicago.edu; http://www.eyalfrank.com/

***Rebuilding Provisions under the Magnuson-Stevens Act: Impacts on Biomass & Catch***

**Abstract:** Optimal management of renewable resources is becoming more challenging with higher demand from a growing population as well as technology innovations that allow for higher extraction rates, namely in the case of fisheries. Following the 1996 reauthorization of the Magnuson-Stevens Fisheries Conservation and Management Act (MSA), fishery managers are required to reduce allowable catch and implement rebuilding plans if the population of a fish stock dips below a sustainable threshold. The latest reauthorization of this keystone law on U.S. fishing has been held up in Congress for the past six years due to disagreements regarding the efficacy of the policy. We use data on the biomass and catch levels, along with data on the biological reference points that govern the policy. Our analysis exploits both the timing of when stocks enter rebuilding status, as well as the thresholds that determine rebuilding plan assignment. We find that, on average, stock increase in biomass by about 10-30% following the implementation of a rebuilding plan. While the effect is highly heterogeneous across stocks, we observe stocks increasing in their biomass in the years following the new management regime. These findings suggest that overall, the MSA is proving successful in preventing fishery collapses in the U.S.

***Paasha Mahdavi***, Assistant Professor, Political Science, University of California, Santa Barbara
paasha.mahdavi@gmail.com; http://www.paashamahdavi.com/

***Cash Transfers and Political Participation***

**Abstract:** The effects of increased personal income on voter turnout are well documented in political science research. There is little consensus, however, about the specific effects of increased unearned income -- money that individuals receive regularly from non-employment sources, such as government-paid cash transfers. Economic voting theories suggest that any increase in disposable income prompts greater political participation. By contrast, rentier theories posit an acquiescence effect, such that unearned income transfers will suppress civic engagement. This paper proposes a new framework based on political autonomy from the state: individuals receiving unearned income use this windfall to withdraw from public services, thereby removing a key state-citizen linkage that motivates voter participation. This paper leverages a quasi-experimental assignment of cash transfers, individual-level administrative voter data, and a contemporaneous historical survey in 1976 Alaska to test the argument. Individuals receiving oil-to-cash transfers as-if randomly right before an election are roughly 19 to 27 percentage points less likely to vote than those receiving transfers right after the election. These findings bear theoretical implications for the broader study of civic engagement and the political effects of unearned income.

***Dale Manning***, Associate Professor, Agricultural and Resource Economics, Colorado State University
Dale.manning@colostate.edu; https://dare.agsci.colostate.edu/people/faculty/dale-manning/

***Non-market Valuation in Integrated Assessment Modeling: The Benefits of Water Right Retirement***

**Abstract:** The impact of resource management policies on the value of natural capital depends on complex processes that affect resource stocks over space and time. We develop an integrated assessment modeling framework that links econometric estimates of non-market benefits from a resource stock to a spatially explicit model of resource dynamics. Results from a dichotomous choice contingent valuation survey are used to estimate a marginal willingness to pay function for groundwater, which has no market. We use the model to measure the economic benefits to agricultural producers of a program that pays for water right retirement. Under the baseline scenario, the benefits from groundwater stocks in the study region decline in value by $3.6 million dollars over 15 years. Water right retirement leads to groundwater benefits that are $0.55 million higher than in the baseline after 15 years, but benefits vary greatly over space. Comparing this to an explicit program cost of $45 million that has been incurred since 2008 suggests that other social benefits from groundwater stocks must exist to justify the program from a benefit-cost perspective. Generally, valuing the economic benefits from natural capital stocks such as groundwater can inform policy design and provide insight into the value of management in resource and environmental systems.

***Erica Myers***, Assistant Professor of Agricultural and Consumer Economics, University of Illinois
ecmyers@illinois.edu; http://ace.illinois.edu/directory/ecmyers

***Effects of Mandatory Energy Efficiency Disclosure in Housing Markets***

**Abstract:** Mandatory disclosure policies are increasingly prevalent despite sparse evidence that they improve market outcomes. We study the effects of requiring home sellers to provide buyers with certified audits of residential energy efficiency. Using similar nearby homes as a comparison group, we find this requirement increases price capitalization of energy efficiency and encourages energy-saving residential investments. We present additional evidence characterizing the market failure as symmetrically incomplete information, which is ameliorated by government intervention. More generally, we formalize and provide empirical support for seller ignorance as a motivation for disclosure policies in markets with bilaterally incomplete information about quality.

***Jacquelyn Pless***, Assistant Professor of Technological Innovation, Entrepreneurship, and Strategic Management, MIT Sloan School of Management
jpless@mit.edu; http://jacquelynpless.com/

***The Impact of Environmental Regulation on Jobs and Firm Performance in China***

**Abstract:** This paper estimates the effect of environmental regulation on jobs and firm performance in China. We take a heterogeneous difference-in-differences approach to study both directly regulated "dirty" firms (i.e., high-polluting firms in regulated regions) as well as indirectly regulated "clean" firms (i.e., low-polluting firms in regulated regions). This allows us to capture *net* effects and reduce bias that would otherwise exist when taking a triple-difference approach in the presence of spillovers. Perhaps surprisingly, we find that the regulation increases jobs by 5% for dirty firms and 8% for clean firms. Total factor productivity also increases substantially. This is driven primarily by capital-labor substitution and strong economic growth. State-owned dirty firms are non-responsive in comparison to private and foreign firms. We also show that the positive effects are similar despite whether firms are located in wealthy or highly-populated regions, however clean firms with high average wages grow the most.

***Victoria Shen***, Assistant Professor of Environmental Politics, University of Virginia
svshen@virginia.edu; http://svshen.com

***Local Political Regulation Waves***

**Abstract:** Conventional wisdom assumes that regular, Weberian-style regulation delivers consistent policy outcomes and that local policy waves are the result of campaign-style regulation. Instead, I argue that local incentives and priorities can inform and shape regular enforcement, engendering local policy waves in plausibly predictive ways. This local incentive-based explanation draws evidence from a policy initiative in China to control sulfur dioxide emissions as a binding target for top local leaders. I show that the tenure spell of top prefectural leaders induced a gradual, steady increase in the industrial operation of scrubbers to remove sulfur dioxide and, by extension, regulatory stringency. This finding is robust against potential confounding factors, such as the temporal changes in industrial characteristics, the influence of other concurrent policies, and possible manipulation of official statistics. It suggests a "local political regulation wave," where the pattern in regulation is shaped by the career incentives of local leaders rather than centrally led campaigns.

***Gustavo Torrens***, Assistant Professor, Department of Economics, Indiana University
gtorrens@indiana.edu; https://gustavotorrens.com/

***An Economic Analysis of the Domestication of Wild Animals***

**Abstract:** This paper develops an economic approach to the study of the domestication of wild animals. The economic framework combines the economics of property rights, the economics of renewable resources and evolutionary game theory. The evidence from anthropology-archaeology and genetics is summarized and used to motivate the economic approach. The paper develops two formal models of domestication that illustrates the approach. The first model suggests a potential mechanism to explain the domestication of dogs, while the second one explores a mechanism of cattle domestication in which the dog plays a key role. In both cases, domestication is not the intended product of any economic agent, but rather the long run outcome of the selection forces triggered by an innovation in hunting strategies within a hunter-gatherer group. Finally, the paper explores the links between domestication and the emergence of property rights (over animals and habitat), markets and trade.