

RESEARCH STATEMENT

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General Research Interest

What fosters human cooperation and what breaks it down? This is what lies at the heart of my research agenda. I consider myself an applied microeconomist with research spanning the fields of experimental, behavioral, natural resource and environmental economics. Most of my research have been motivated by how we can manage our natural resources better and limit anthropogenic impacts on the environment. Methodologically, I design economic experiments and search for natural experiments to answer causal questions relevant to my research. My research covers a wide geographical focus. I run lab and field experiments in Southeast Asia, North America, Europe and West Africa. I also analyze observational and survey data from these regions.

One way to get to the core of what fosters human cooperation and what breaks it down is to approach it from different angles. In what follows, I look at how institutions, past experiences, and information affect cooperation, which, in turn, affects resource extraction, coordination behavior, and contributions to public goods provision.

How do institutions affect environmental conservation?

According to the eight design principles of the successful management of the commons identified by Elinor Ostrom, resource users should be included in the group that creates and modifies regulations that govern the management of the commons. This emphasizes the necessity for endogenous rule-making. But is it true that externally imposed regulations really crowd out incentives to manage the commons well? My co-author and I address this debate in the literature on endogenous vs. exogenous regulations in the commons using a novel experimental design. By allowing the *exact same* regulations to be introduced endogenously or imposed exogenously, we are able to disentangle the effects of endogenous rule-making, between-subjects communication and strategic learning. We find that there is no evidence that externally imposed regulations crowd out motivations to refrain from extraction. (with John Lynham, published at the *Journal of Environmental Economics and Management*.)

Whereas endogeneity and exogeneity in rule-making does not appear to affect resource extraction, I found that property rights do correlate to lower resource extraction in the commons. Two of my projects examine the effects of property rights on deforestation. In both projects, I find that secure property rights lead to less deforestation. One paper compares remotely sensed vegetation data close to the boundary of awarded ancestral domain lands in the Philippines. These legal boundaries are set by drawing straight lines from one natural boundary to another. Hence, using a regression discontinuity

design that looks at only the vegetation cover near the boundaries, my co-author and I are able to properly identify the effect of property rights on vegetation by allowing us to get past the fact that these ancestral lands are endogenously chosen by indigenous peoples. **(with Michael Ralph Abrigo, working paper.)**

In another paper, I look at the effect of the Indonesian Transmigration Program on the perception of property rights insecurity and the effect of that on deforestation. The Indonesian Transmigration Program is a government sponsored migration program that moved individuals from the densely populated inner islands to the sparsely populated outer islands. Using archival and remotely sensed data, I find increased deforestation due to the disruption of social cohesion, increased perception of property rights insecurity and increase in population. I also find that the program leads to an increase in illegal logging. **(sole-author, working paper.)**

Apart from rule-making and property rights, I have also examined how resource inflow affects a resource user's extraction level. In a lab experiment that tested the theoretical model presented in Tavoni, et al. (2012), my co-author and I find that individuals extract more when resource inflow is high. We also find that social punishment is more effective at shifting resource extraction from high to low when resource inflow is high. **(with John Lynham, working paper.)**

Would resource users respond differently if a resource were seen as a public good rather than as an extractable common pool resource, i.e. the resource is clean air or better climate instead of fish or forest? In an inter-country laboratory experiment conducted in Denmark, Spain and Ghana, my co-authors and I explore how individual contributions to public goods change when these goods span national borders and traverse time. In a setting where present contributions to a public good affects future generations, we set up our experimental design such that the present can either give the future generations better institutions or higher endowments. Our results show that Danes contribute more to public goods if the future generation gets better institutions while Spaniards contribute more to public goods if the future generation gets higher incomes. Unfortunately, we also find a decrease in individual contribution when the good spans national borders. Having a public good that spans national borders and traverse time, however, leads to increases in allocative decisions for public goods provision. **(with Lea Skræp Svenningsen and Bo Jellesmark Thorsen, working paper.)**

How do past experiences limit present decision making?

Does history matter and are our current set of decisions limited by the past even though these past circumstances no longer seem to matter? Do communication, positive experiences, and negative experiences affect individual decisions? How? In one of my research papers, I look at the effect of prior communication using different communication media on individual allocative decisions to a public good. The aim of this project is to test whether the recent developments in information technology has encouraged better communication through this medium. My co-authors and I find that face-to-face,

Facebook posts, and chat communication increases public goods contribution and trust. **(with John Lynham and Katerina Sherstyuk, submitted.)**

Another research project looks at the effect of positive experiences on decision-making. That is, instructing individuals to pick the highest possible effort level in a minimum effort game in one round leads to better future coordination. These experiments were run in Denmark, Spain and Ghana; and experiment participants were told to pick the highest possible effort level in either rounds 1 and 2 of a 5-round repeated minimum effort game. My co-authors and I find that Danes and Ghanaians coordinate better when this positive experience happens in the first round while Spaniards coordinate better when this positive experience happens in either the first or second rounds. Our results also show that Danes and Spaniards are able to sustain better coordination than Ghanaians. **(with Bo Jellesmark Thorsen, working paper.)**

As with positive experiences, I have also looked at how negative experiences affect individual behavior. Running artefactual field experiments with fishers in an island where half of the island was affected by a typhoon and half was not, my co-author and I find that fishers affected by the typhoon are less fair, more risk loving and more patient. **(with John Lynham, submitted.)**

How does information affect conservation behavior?

According to the philosopher, Francis Bacon, “knowledge is power”. My research on the migratory bird conservation and forest offsets show that individuals behave differently when different kinds of information are given to them. In an inter-country artefactual field experiment conducted in Denmark, Spain and Ghana, my co-authors and I find that all participants contribute close what most Danes, Spaniards, and Ghanaians give when they are shown these numbers. Danes and Ghanaians also tend to give more when they are told that transnational collaboration is required for conservation and that their average donations will be shared to future participants. **(with Mathias Vogdrup-Schmidt, Niels Strange, Jason Shogren, and Bo Jellesmark Thorsen, work in progress.)**

My research on forest offsets also show that information matters. To study whether individuals prefer biodiversity offsets to be implemented either in their own country or in another country, we solicit from these individuals how much forested areas should be created under different scenarios. When we tell them that forested areas are declining either in their own country or in some other country, they tend to choose to create more forest areas in whichever country has a declining forest area. On the other hand, when we tell them that all forested areas are stable, they tend to choose to create more forest areas in their own country. **(with Joseph William Bull and Niels Strange, work in progress.)**

Future Career Plans

My overarching research interest is the study of cooperative human behavior: what fosters it and what breaks it down. To this end, I plan to continue exploring different

mechanisms that influence human behavior, which will in turn allow us to better understand how we can manage our natural resources and environment more effectively. My more immediate project ideas include a series of experiments in fishers in the Philippines to solicit preferences and to examine further the effects of natural disasters, marine protected areas, and government policies on fisher behavior. I also intend to continue my inter-country work to include public goods, other social dilemmas, regulations, and coordination; and utilize eye-tracking to analyze coordination and dishonest behaviors among resource users. In the medium- to long-term, I plan to pursue, as the centerpiece of my scholarly work, a multifaceted, graduated approach to creating and sustaining sustainable institutions to manage resources and to reduce anthropogenic impacts on the environment.

My PhD committee members at the University of Hawai'i at Mānoa have given me invaluable advice on how to design experiments and analyze data. As a postdoctoral researcher at the University of Copenhagen, I had the pleasure of working and learning with individuals both from the social sciences and the natural sciences. I hope to use the lessons I have learned to establish myself as a well-funded and well-published researcher. I also hope to collaborate with individuals both within and outside the field of economics.