

# NATALIE R. LODUCA

Email: [loducana@msu.edu](mailto:loducana@msu.edu)  
Website: [natalieloduca.com](http://natalieloduca.com)  
LinkedIn: [linkedin.com/in/natalieloduca](https://linkedin.com/in/natalieloduca)

## FIELDS OF INTEREST

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Environmental and Resource Economics, Sustainable Agriculture, Conservation Policy

## EDUCATION

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<b>PhD</b>	Agricultural, Food, and Resource Economics, Michigan State University Major Field: Environmental and Resource Economics Advisor: Dr. Scott Swinton	2024
<b>MS</b>	Agricultural Economics, Purdue University Major Field: Natural Resource Economics Advisor: Dr. Carson Reeling	2020
<b>BS</b>	Managerial Economics, University of California, Davis Minor in Statistics	2016

## JOB MARKET PAPER

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**“Farmer Risk Aversion to Changing Weather”** with Scott M. Swinton. [In progress](#). Target journal: *American Journal of Agricultural Economics*.

As farmers adapt to changing climate, they modify practices and technologies to manage evolving production risk. Understanding farmers' risk attitudes is critical to predicting their decisions about climate change adaptation. This research empirically estimates utility functions to measure the risk preferences of Michigan corn-soybean farmers. We elicit from farmers their choices between paired lotteries in both a general and an agricultural domain. Aggregate results show that farmers are risk averse and tend to be more risk averse toward agricultural investment decisions than general risky gambles. Estimating individual farmer constant relative risk aversion (CRRA) utility functions reveals greater heterogeneity of risk preferences in the agricultural domain than in the general one. Determinants of CRRA preferences point to decreasing relative risk aversion based on crop acreage as a measure of wealth.

## SELECTED ONGOING PROJECTS

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**“The Influence of Farmers' Risk Preferences and Crop Yield Beliefs on Climate Change Adaptation Decisions”** with Scott M. Swinton. [In progress](#). Target journal: *Journal of Agricultural Economics*.

Agricultural producers' risk preferences and perceptions of climate change risks significantly shape their adaptation decisions. This research delves into the relationship between farmer risk preferences, perceived crop yield distributions, and climate change adaptation decisions among Michigan corn and soybean growers. Based on interviews with 44 farmers, we discover that participants anticipate future crop yield distributions to shift upwards with increased variances. Participants with higher levels of risk aversion perceive higher crop yield variances and are more likely to adopt irrigation technology in the future. Participants prefer to adopt adaptive technologies that they perceive as increasing expected crop yield or decreasing the variance of crop yield. These findings highlight the complex interplay between risk preferences, subjective probabilities, and the perceived effectiveness of adaptive inputs, providing policymakers and stakeholders with insights into the drivers of climate change adaptation decisions.

**“Exploring the Influence of NRCS Cost-share Programs on Cover Crop Adoption in the Midwest”**  
with James Sears. In progress. Target journal: *Applied Economic Perspectives & Policy*.

Cover crops offer multiple public ecological benefits and private benefits to farmers. The cost-share payments from the Natural Resource Conservation Service (NRCS) allow farmers to bridge the gap between the public and private benefits of conservation practices. This study analyzes the impact of NRCS cover crop cost-share percentage levels on adoption rates at the county-level in the Midwest, employing fixed effects and contract-type controls to understand drivers of cover crop adoption in agriculture. By decomposing the per-acre payments into their cost-share proportions and per-acre costs, we isolate the marginal effect of increasing the cost-share proportion on enrolled cover crop acreage. We find that the basic single species contract is the most popular contract type, and higher adoption corresponds to lower precipitation levels in the previous growing season. Additionally, we find complementarity in adopting cover crops and conservation tillage practices using remote sensing data. These findings contribute to understanding the factors influencing the adoption of cover crops and offer insight into the role of government incentives in increasing sustainable agricultural practices.

## **PAPERS UNDER REVIEW**

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“The Changing Values of the U.S. Farm Workers’ Legal Status and Labor Quality Adjustment: A Hedonic Price Analysis,” with Sun Ling Wang. Forthcoming at *Applied Economic Perspectives and Policy*.

## **RESEARCH EXPERIENCE**

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<b>Research Assistant</b> , Michigan State University, East Lansing, MI	2020-2024
Advisor: Dr. Scott M. Swinton	
<b>Intern</b> , U.S. Department of Agriculture Economic Research Service, Remote	2023
Advisor: Dr. Sun Ling Wang	
<b>Research Assistant</b> , Purdue University, West Lafayette, IN	2018-2020
Advisor: Dr. Carson J. Reeling	

## **HONORS AND AWARDS**

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<b>A. Allan Schmid Fellowship in Institutional Economics</b>	2023
Dept. of Agricultural, Food, and Resource Economics, Michigan State University	
<b>KBS-LTER Graduate Research Fellowship</b>	2022
Kellogg Biological Station, Michigan State University	
<b>Agricultural Economics’ Outstanding Thesis</b>	2021
Dept. of Agricultural Economics, Purdue University	
<b>Agricultural Research Graduate Diversity Research Fellowship</b>	2018-2019
Dept. of Agricultural Economics, Purdue University	

## **INVITED PRESENTATIONS**

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<i>Agricultural &amp; Applied Economics Association Annual Meeting</i> , New Orleans, LA	2024
<i>Allied Social Science Associations Annual Meeting</i> , San Antonio, TX	2024
<i>Agricultural &amp; Applied Economics Association Annual Meeting</i> , Washington, D.C.	2023
<i>NSF Long-Term Ecological Research All-Scientist Meeting</i> , Monterey, CA	2022
<i>Agricultural &amp; Applied Economics Association Annual Meeting</i> , Virtual	2020
<i>US-China Young Professional Forum</i> , West Lafayette, IN	2019

## OUTREACH MATERIAL

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Swinton, S. and N. Loduca 2024. “[Michigan farmers expect higher yields, more variability as weather changes](#).” *Michigan Farm News* 101(3): 11 (online Jan. 26, 2024; in print February 15, 2024).

## PROFESSIONAL SERVICE

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<b>Graduate Student Representative</b> , Committee on Women in Agricultural Economics Agricultural & Applied Economics Association	2021-2023
<b>Social Media Team</b> , Committee on Women in Agricultural Economics Agricultural & Applied Economics Association	2020-2023
<b>Award Committee</b> , Department of Agricultural Economics Purdue University	2019-2020

## PROGRAMS

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Stata, RStudio, Excel

## REFERENCES

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**Dr. Scott Swinton**  
Distinguished Professor  
Dept. of Agricultural, Food, and  
Resource Economics  
Michigan State University  
446 W. Circle Dr.  
East Lansing, MI 48824  
(517) 353-7218  
[swintons@msu.edu](mailto:swintons@msu.edu)

**Dr. James Sears**  
Assistant Professor  
Dept. of Agricultural, Food, and  
Resource Economics  
Michigan State University  
446 W. Circle Dr.  
East Lansing, MI 48824  
(517) 353-4518  
[searsja1@msu.edu](mailto:searsja1@msu.edu)

**Dr. Sun Ling Wang**  
Senior Economist  
Economic Research Service  
United States Department of  
Agriculture  
1400 Independence Ave, SW  
Washington DC 20250  
(202) 694-5460  
[sunling.wang@usda.gov](mailto:sunling.wang@usda.gov)