

Research/Extension Program Overview

Wendong Zhang

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AEM7030, November 2, 2023



Dyson
Cornell
SC Johnson College of Business

Research & Extension Program Themes

- **Theme I: Agriculture & the Environment**
- **Theme II: Land Value, Land Ownership, Land Tenure, Land Use**
- **Theme III: Chinese Agriculture & its Global Trade Implications**
- Other Useful information:

Appointment: 50% Research & 50% Extension

Joined Cornell Dyson School & Cornell Cooperative Extension in July 2022

Faculty Affiliate, Cornell Institute for China Economic Research (CICER)

Faculty Fellow, Cornell Atkinson Center for a Sustainable Future

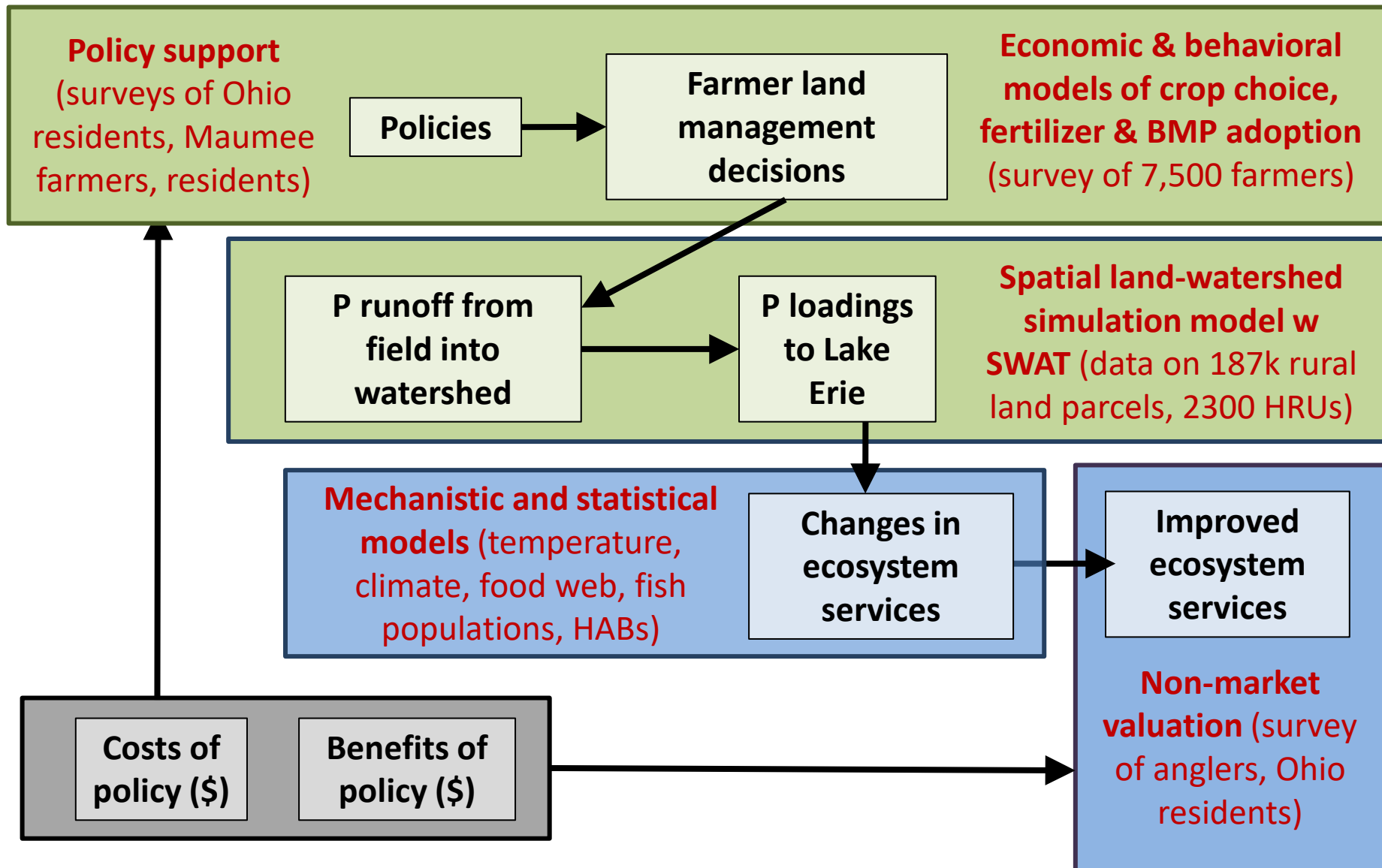
Led Iowa land value survey; co-founded the ISU China Ag Center

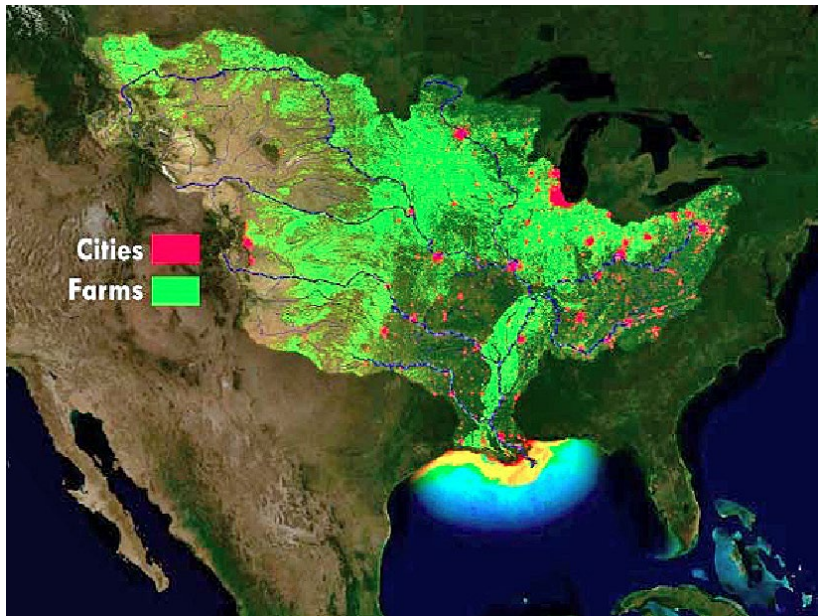
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Recent Publications

- Land 41. Lu, Qinan, Nieyan Cheng, **Wendong Zhang**, and Pengfei Liu. 2023. Disamenity or Premium: Do Electricity Transmission Lines Affect Farmland Values and Housing Prices Differently? Forthcoming at *Journal of Housing Economics* (Corresponding Author)
- L 40. Mykel R. Taylor, **Wendong Zhang**, and Festus Attah. 2023. "Foreign Interests in U.S. Agricultural Lands: The Missing Conversations about Leasing." Forthcoming at *Choices*
- C 39. Xiong, Tao, **Wendong Zhang**, and Fangxiao Zhao. 2023. "When China Strikes: Quantifying Australian Companies' Stock Price Responses to China's Trade Restrictions", forthcoming at *Australian Journal of Agricultural and Resource Economics* (Corresponding Author) (published version)
- C 38. Li, Minghao, and Xi He, **Wendong Zhang**, Lulu Rodriguez, James M Gbeda, Shuyang Qu. 2023. Farmers' Reactions to the US-China Trade War: Perceptions Versus Behaviors. Forthcoming at *Journal of AAEA* (Corresponding Author) (published version)
- L 37. Lee, Jun Yeong, Grant Durbahn, Peter F. Orazem, and **Wendong Zhang**. 2023. "The Roles of Risk Preferences, Selection, and Uncertain Returns on Land Contracts", Forthcoming at *Agricultural Economics* (published version)
- E 36. Howard, Gregory, **Wendong Zhang**, Adriana Valcu-Lisman, and Philip Gassman. 2023. Evaluating the Tradeoff between Cost-Effectiveness and Participation in Agricultural Conservation Programs. Forthcoming at *American Journal of Agricultural Economics* (Corresponding Author) (published version)
- L 35. Maule, Beatrice, **Wendong Zhang**, and Qing Liu, 2023. Of Women and Land: How Gender Affects Successions and Transfers of Iowa Farms. Forthcoming at *Applied Economic Policy and Perspectives* (Corresponding Author) (Winner of the 2021 AAEA Undergraduate Paper Competition)
- E 29 Mei, Yingdan, Li Gao, **Wendong Zhang**, and Feng-an Yang. 2021. Will Homeowners Benefit When Coal-fired Power Plants Switch to Natural Gas? Evidence from Beijing, China. *Journal of Environmental Economics and Management*, 110:102566. (published version)
- C 28. Xiong, Tao, **Wendong Zhang**, and Chen-Ti Chen. August 2021. A Fortune from Misfortune: Evidence from Hog Firms' Stock Price Responses to China's African Swine Fever. *Food Policy*, 105: 102150 (published version)

Theme I: Agriculture & the Environment

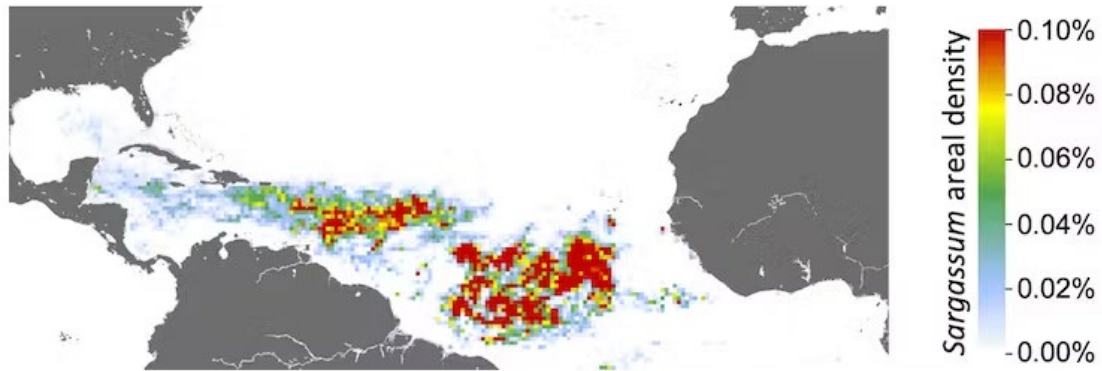




Harmful algal blooms in Finger Lakes



Taughannock Falls State Park closed swimming areas multiple times owing to toxic algae outbreaks. Photo: Jeff Katris



Top: Dead Zone in the Gulf of Mexico
 Bottom: Great Atlantic Sargassum Belt in the Caribbeans

Farmer Decision Making

Land Economics

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Institution: IOWA STATE UNIV

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Full Text (PDF)

Hongxing Liu, Wendong Zhang, Elena Irwin, Jeffrey Kast, Noel Aloysius, Jay Martin, and Margaret Kalcic

Best Management Practices and Nutrient Reduction: An Integrated Economic-Hydrologic Model of the Western Lake Erie Basin

Land Economics November 2020 96:510-530;

American Journal of
Agricultural Economics



ARTICLE | [Full Access](#)

Evaluating the tradeoff between cost effectiveness and participation in agricultural conservation programs

Gregory Howard, Wendong Zhang , Adriana Valcu-Lisman, Philip W. Gassman

First published: 22 February 2023 | <https://doi.org/10.1111/ajae.12397> | Citations: 1

Funding information: Iowa Nutrient Research Center, Grant/Award Number: 2017-07 GS-140136; USDA National Institute of Food and Agriculture Hatch, Grant/Award Number: IOW04099



ELSEVIER

Land Use Policy

Volume 79, December 2018, Pages 609-621



Do farmers adopt fewer conservation practices on rented land? Evidence from straw retention in China

Li Gao ^a , Wendong Zhang ^b , Yingdan Mei ^a  , Abdoul G. Sam ^c , Yu Song ^d , Shuqin Jin ^e 

Non-market valuation: valuing ecosystem services

American Journal of
Agricultural Economics



Article | [Full Access](#)

Do U.S. Anglers Care about Harmful Algal Blooms? A Discrete Choice Experiment of Lake Erie Recreational Anglers

Wendong Zhang  Brent Sohngen

First published: 23 March 2018 | <https://doi.org/10.1093/ajae/aay006> | Citations: 23

Abstract

Despite the growing awareness of harmful algal blooms (HABs) in the United States and abroad, estimates of welfare losses due to their presence are missing from the literature. Using a mail survey of 767 Ohio Lake Erie recreational angler respondents and a choice experiment, this study provides the first empirical quantification of the economic impacts of HABs on U.S. recreational anglers. Our results demonstrate a significant and substantial willingness to pay by anglers for reduction in HABs, beyond the benefits associated with conventional water quality measures such as catch rates and water clarity. For instance, we find that anglers are willing to pay \$8 to \$10 more per trip for one less mile of boating through HABs en route to a fishing site. This finding suggests that explicit measures of HABs need to be collected and considered when valuing water quality in nutrient-rich bodies of water. We evaluate the welfare improvements resulting from several nutrient reduction policies, and find that anglers are willing to pay on average \$40 to \$60 per trip for a policy that cuts upstream phosphorus loadings by 40%. The majority of welfare gains for anglers result from improving the non-catchable component of the fishing experience, notably water clarity and HAB reduction, as opposed to better chances of angler success.

First Placements of Former PhD Students

- [Nieyan Cheng](#): Assistant Professor, China University of Petroleum – Beijing (2022)
- [Xibo Wan](#): Postdoc, MIT Center for Energy Policy (2021)
- [Wenran Fan](#): Postdoc, Duke Public Policy (2023)
- [Wendiam Sawadgo](#): Assistant Professor, Auburn U Ag Econ

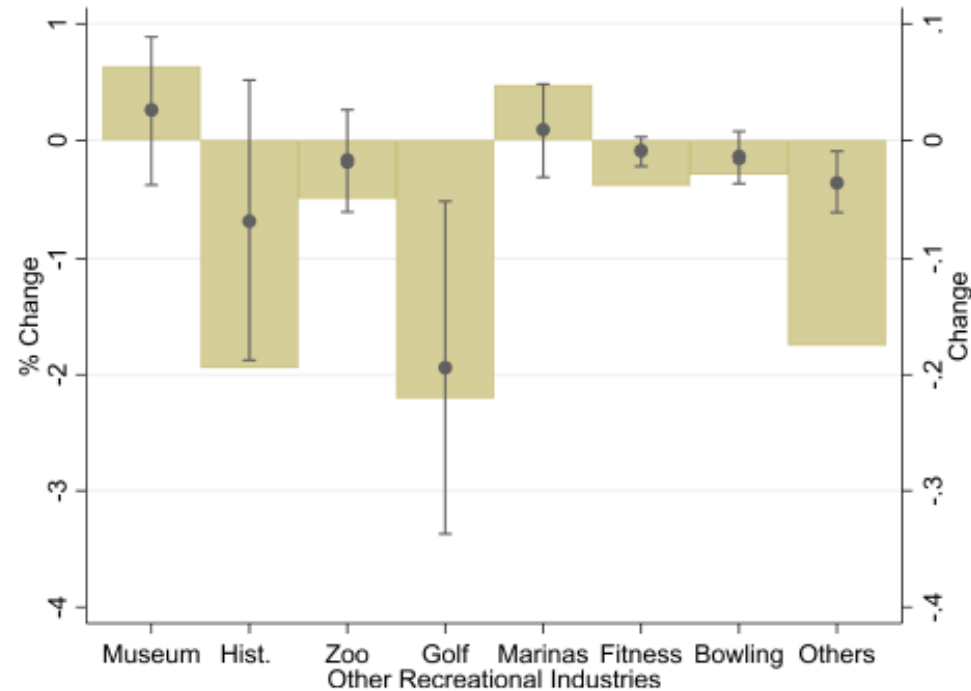
First Placements of Former Postdocs:

[Xi He](#): Assistant Professor, Virginia Tech Ag Econ

[Minghao Li](#): Assistant Professor, New Mexico State Economics

Selected New Projects

Wildfire & Recreation using cellphone foot traffic data



Significant impact of wildfire smoke and air pollution on outdoor recreation:
50% increase in smoke days in a week is associated with a 2-3% reduction in
recreational visits; # visitors; how long you stay → \$6 billion loss in recreational value

New projects incorporates experimental design in farmer surveys



IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences
Iowa Nutrient Research Center

Search

Main Menu

Home » Projects » 2017

Improving the Effectiveness of Conservation Programs through Innovative Reverse Auctions and Sensible Enrollment Restrictions

Date: Sep 2017

Investigators: Wendong Zhang, Gregory Howard

Cleaner Water Begins with You!


Edge-of-field Conservation Practices Benefit Water Quality and Wildlife

Cleaner Water Begins with You!

Edge-of-field Conservation Practices Improve Water Quality

↓52%

Water quality enhancement wetlands decrease nitrogen going into surface water by an average of 52 percent, depending on the size of the wetland.



Numerous species of birds, insects, mammals, reptiles, and amphibians—including **species of greatest conservation need**—rely on wetlands as valuable habitat.




Edge-of-field practices could work for you and for the watershed!


No one practice is ideal for all sites, so talk to your local conservation or Extension team—they can point you to science-based tools that will help with your decision. You'll be helping to strengthen the overall health of your watershed and improving water quality in Iowa and beyond.

↓52%

Water quality enhancement wetlands decrease nitrogen going into surface water by an average of 52 percent, depending on the size of the wetland.



Restored oxbows decrease nitrogen entering surface water by an average of 56 percent.



Wetlands, especially oxbows, also provide additional water storage on the landscape.

Project Pitches

Conservation Easements' Water Quality and Biodiversity Impacts

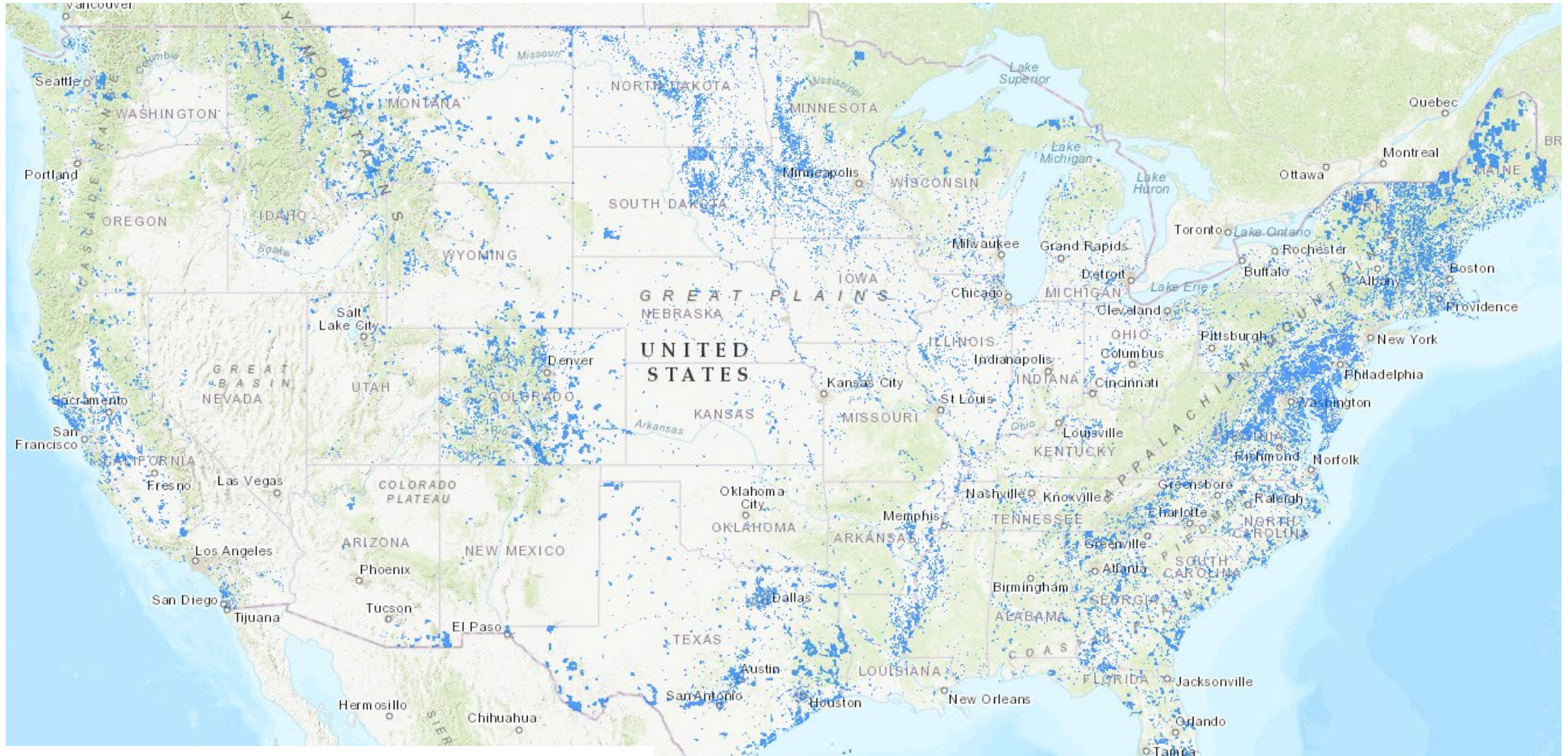
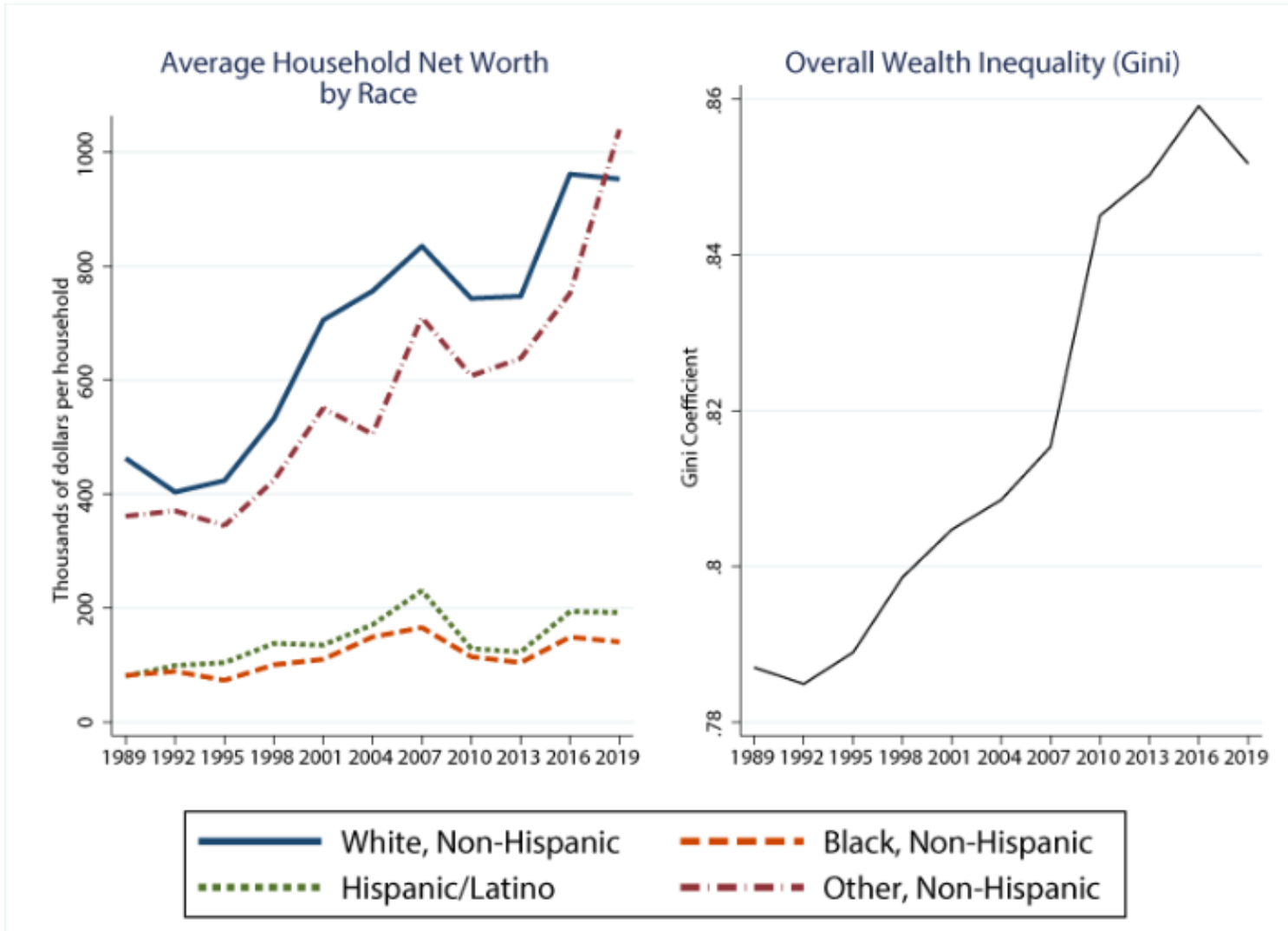


Figure 1. Household net worth and income, by race and ethnicity



Source: Survey of Consumer Finances.

October 22, 2021

Wealth Inequality and the Racial Wealth Gap

Aditya Aladangady, and Akila Forde

Project Pitches

Farmer's Wealth Gap

Use USDA ARMS & TOTAL survey data to quantify the wealth gap by

- farm size
- farm type (crop/livestock mix)
- indebtedness

US citizen probably will have easier data access

ARMS: Ag & Resource Management Survey
TOTAL: Tenure, Ownership, and Transition of Ag Land 2014

Project Pitches

Organic Cucurbit Growers' Technology Adoption & Crop Mix Choices

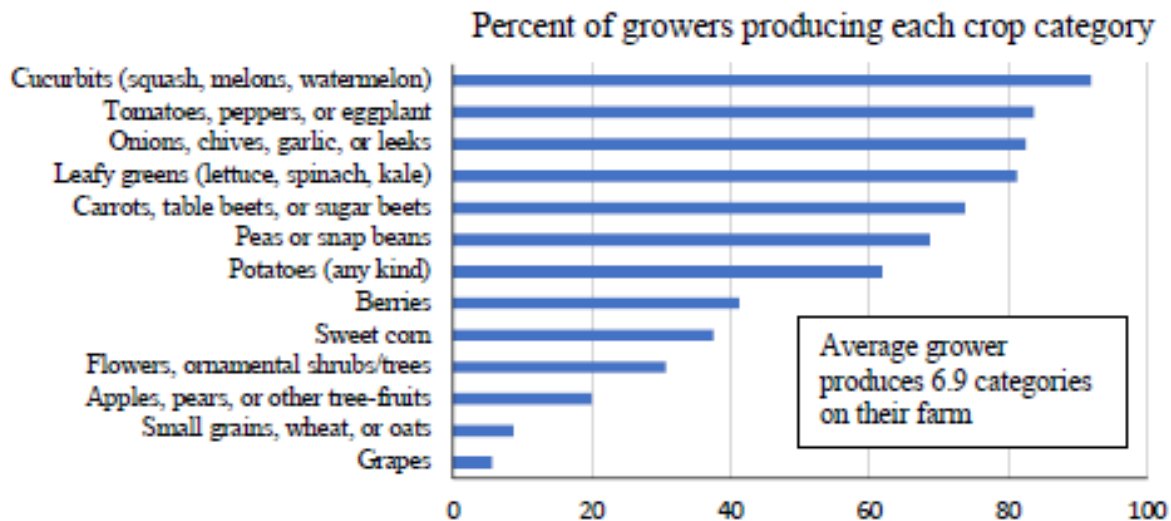


Figure 1. Crop categories grown by organic specialty crop growers of the Southeast, Midwest, and Northeast (Cheng and Zhang unpublished).

Has survey data already
Now has a new \$3.5 mil. grant

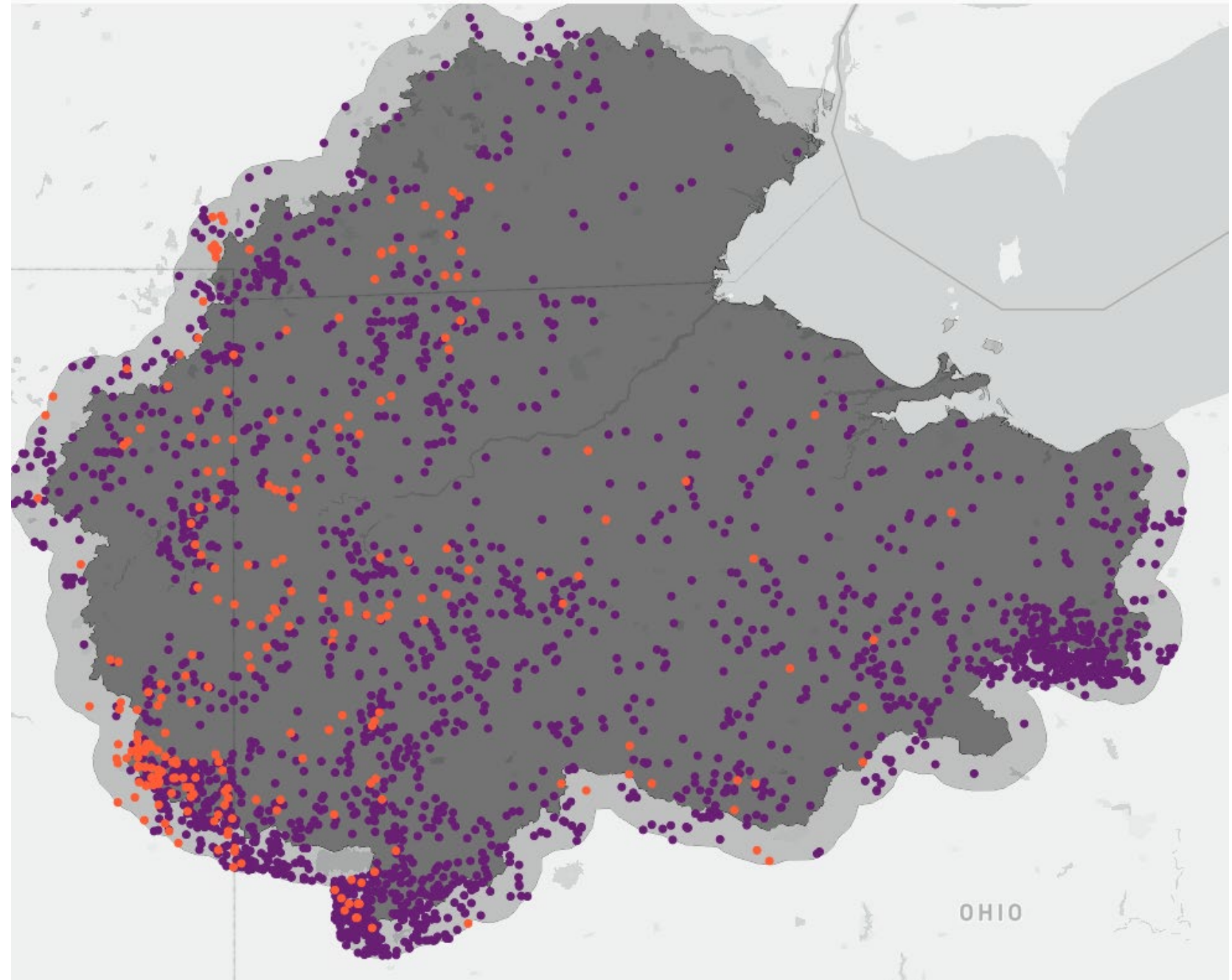


Figure 6. Left: Mesotunnel System 1 with living mulch. Right: Mesotunnel System 2 with landscape fabric.

Project Pitches CAFO and Farmland Values

- Concentrated Animal Feeding Operation needs to deal with manure to satisfy its nutrient management plan requirements
- thus could competitively bid nearby farmland parcels because it is costly to ship manure beyond certain distance (e.g., 8 miles)
- could result in higher farmland values

Locations of animal feeding operations in the Western Lake Erie Basin



Practical Tips for Writing and Publishing Applied Economics Papers

Timothy Beatty & Jay P. Shimshack
UC Davis University of Virginia

https://static1.squarespace.com/static/55e8ab64e4b0b55649c4ab64/t/59d73b99f43b5586a0484a22/1507277732282/beatty_shimshack_applied_econ_papers.pdf

How to Write Applied Papers in Economics*

Marc F. Bellemare[†]

September 7, 2020

Abstract

How does one write good research papers? Though many research economists instinctively know how to do so, most have spent too little time thinking about how one writes good research papers, and even the most successful economists often have a hard time articulating a clear answer to that question. This is due to both (i) what economists read and (ii) how they read it. The goal of this paper is to teach readers how to write applied economics papers that will eventually be published in a peer-reviewed journal. The various components of an applied economics paper are discussed in as much detail as possible, roughly in the order in which they are tackled in the context of the typical research project.

Keywords: Applied Economics, Applied Microeconomics, Methodology

JEL Codes: A2, B4

Three projects involving MS students

Fangyao Wang:

- Do households in disadvantaged communities experience less restaurant diversity?
- The capitalization effects of restaurant diversity on housing prices

Nico Ma:

- The impact of large-scale solar facilities on nearby farmland values

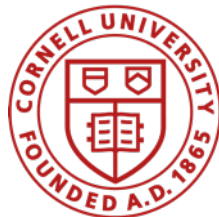
Yuhui Zhao:

- The impacts of invasive species on nearby Northeast housing prices

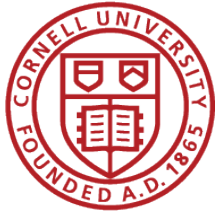
Thank you!

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AEM 7030 Short Presentation

Fangyao Wang

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About Me

- Research Assistant
- Graduated from the MS Program at Dyson
 - Advisor: David Just & Vicki Bogan
 - Thesis: “Exploring the Relationship Between Mask-wearing and Risk Preference, Evidence from Lab Experiments,” (with D.R. Just and V.I. Bogan)
 - Area: Behavioral & Experimental Economics
 - Lab Experiments
- Current Work: Food, Agriculture, and Environment

Current Research

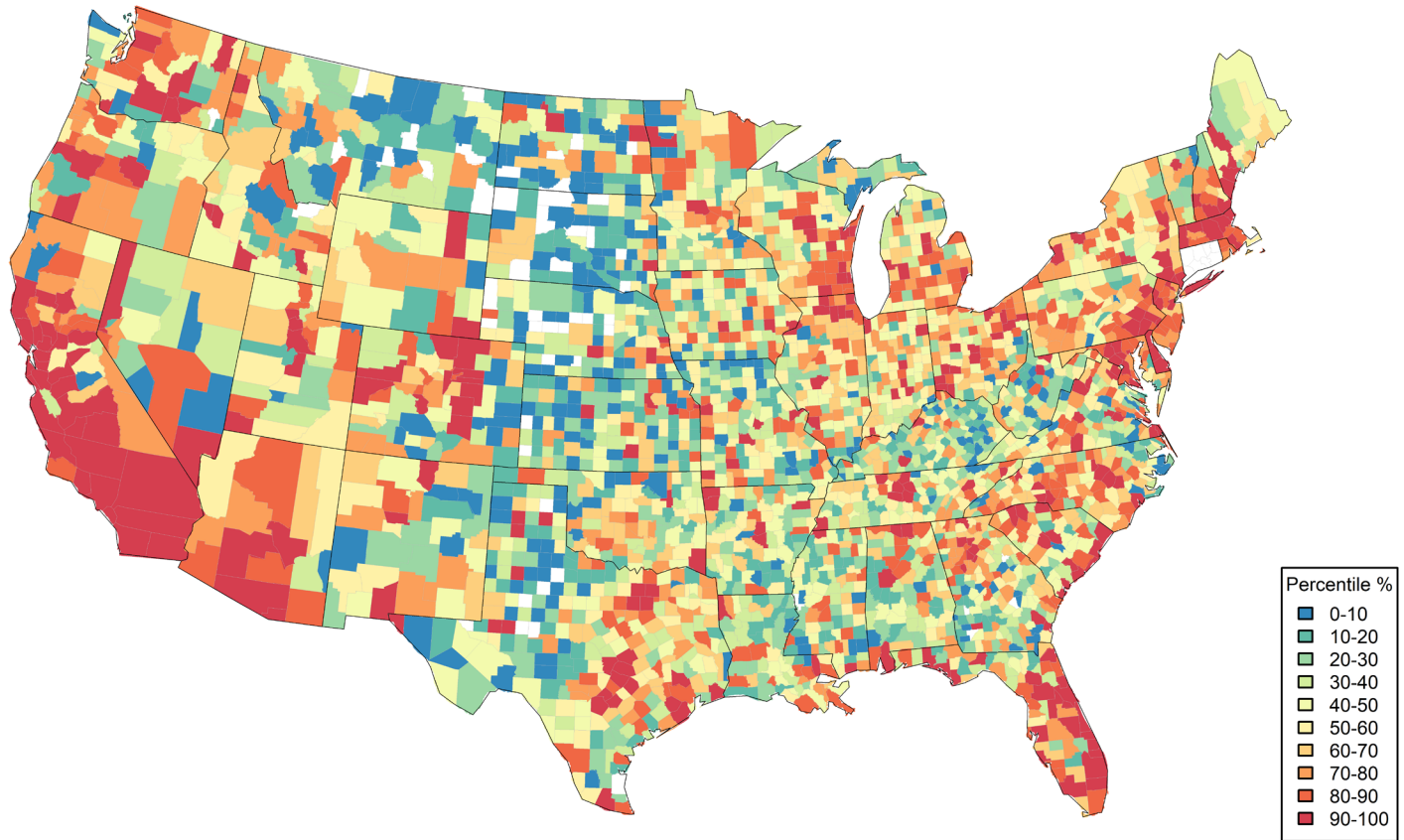
- “Developing a New Urban Amenity Measure of Restaurant Diversity Using Safegraph Cellphone Location Data,” (with W. Zhang and P. Liu)
- “The impact of Homeowner-Experienced Restaurant Diversity on Residential Housing Prices,” (with W. Zhang and P. Liu)
- “Does People Value Natural Amenities with Better Environmental Quality? A Study Using Bird Richness and Abundance as Indicators,” (with L. Esprabens, W. Zhang, C.L. Kling, and Cornell Lab of Ornithology)

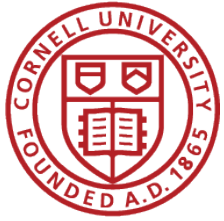
Frequently Used Data and Tools

- Safegraph/Advan foot traffic data
 - Weekly/Monthly foot traffic to every point of interest in the U.S.
 - Spending Pattern and Characteristics also included for some limited POIs
 - Raw data: 550 GB
- ATTOM real estate data
 - Tax Accessor: property characteristics, property values and taxes
 - Recorder: buyer and seller information, sell price and date, loan and mortgage
 - Raw data: 300 – 400 GB
- Cloud Computation
 - Red Cloud
 - Virtual Server: Storage and Computation
 - Developed by Cornell Center for Advanced Computing
 - BioHPC
 - Linux Operating System
 - Developed by Cornell Institute of Biotechnology
- Other Useful Tools: R, Python, GIS (Geographic Information System)

Method 3: Combined

Simpson's Diversity Index





Thank you!



The impact of large-scale solar facilities on nearby farmland values

Nico Ma | Dr. Wendong Zhang



About me...

- Second-year AEM MS
- Food Econ Track (FAE) but go to EERE's events a lot
- RA for Dr. Zhang & BIOG 1500 lab instructor



About RA...

- Reach out to Profs the sooner the better!
- Weekly or bi-weekly meeting
- One or two ongoing projects depending on your plan on PhD



About Solar Project ...



Pros?

Cons?



About Data ...

- Sale Data: NY salesweb
- Solar Panel Data: NYSERDA
- Soil Characteristics: gSSURGO



About Model...

- Hedonic Model
- Difference in Differences

The impacts of invasive species on nearby Northeast housing prices

Motivation:

Invasive species are non-native species which can be harmful to local environment, surrounding residents, and even more.

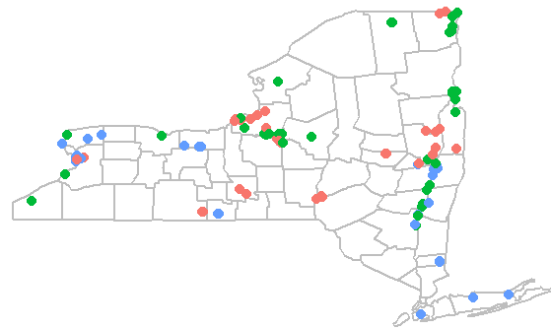
As the frequency of international trade increases, so does the rate of invasive species introduction.

Invasive species map in NY from 2002 to 2020



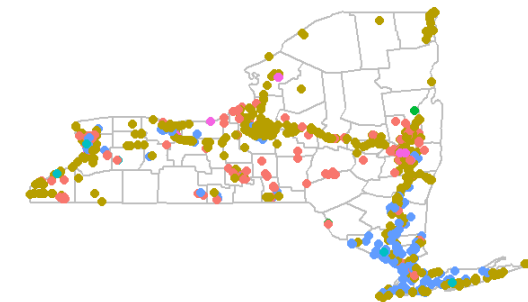
● Graminoid
● Tree

Before 2010



● Forb/Herb
● Graminoid
● Tree

2011-2015



● Forb/Herb
● Graminoid
● Others
● Shrub
● Tree
● Vine

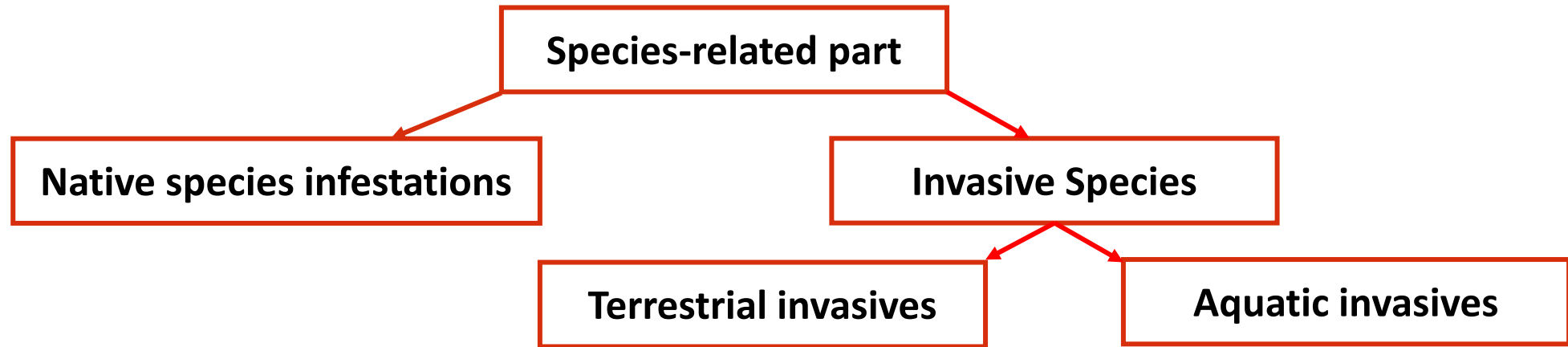
2016-2020

The impacts of invasive species on nearby Northeast housing prices

Literature Overview:

Applying hedonic model to measure WTP for environmental disturbances

Nicholls (2019) summarize literature that focusing on applying hedonic model to measure WTP for environmental occurrence, especially for invasive species and wildfire.



The impacts of invasive species on nearby Northeast housing prices

Roadmap:

Basic Motivation:

- There is no market for “natural occurrences” (e.g. Fire, Flood). How can we measure the willingness-to-pay for surrounding environment remediation?
- Spatial variation in amenities can be capitalized into housing prices.
- Taking advantage of housing prices changes in different time breaks to reveal willingness-to-pay for certain “natural occurrences”.

Key challenges in our research: a practice to apply the hedonic model

- High-resolution property data: needed in econometrics
- Dealing with government actions: Difference-in-Differences (Staggered DID)/event study
- Matching amenities with houses: K-nearest neighbor matching/Create a distance buffer

The impacts of invasive species on nearby Northeast housing prices

Identification Strategy: Difference-in-Differences

- Applying hedonic model to reveal WTP
Referring to “treatment” as government actions to avoid invasive species
- **Difference-in-Difference with fixed effect**

$$P_{itk} = \beta_0 + \beta_1 TREAT_{ik} + \beta_2 POST_{itk} + \beta_3 TREAT_{ik} \times POST_{itk} + X'_{itk} \delta + u_{itk}$$

where TREAT = 1 represents the residential property lies in the treatment group.

POST = 1 represents the transaction happens after the treatment.

Since the treatment time across different areas isn't the same, we may apply staggered-DiD in the future study.

The impacts of invasive species on nearby Northeast housing prices

Identification Strategy: Matching

Maybe we need some adjustments to the basic DID approach, since invasive species can only influence surrounding residential housing prices.

$$P_{itk} = \beta_0 + \beta_1 TREAT_{ik} + \beta_2 POST_{itk} + \beta_3 TREAT_{ik} \times POST_{itk} + X'_{itk} \delta + u_{itk}$$

The adjusted estimates for β_3

$$\beta_3 = \frac{1}{N_t} \sum_{i=1}^{N_t} \left(P_{itk} - \frac{1}{K} \sum_j P_j^{(itk)} \right) - \frac{1}{\tilde{N}_t} \sum_{i=1}^{\tilde{N}_t} \left(P_{itk} - \frac{1}{K} \sum_j \tilde{P}_j^{(itk)} \right)$$

Thank you!

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