Jingru (Jessica) Jia

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Education

University of Illinois at Urbana-Champaign	Champaign, IL
Ph.D. Candidate, Applied Economics.	Aug 2021 - present
Advisor: Paul McNamara, Ph.D.	

Cornell University	Ithaca, NY
M.S., Applied Economics and Management.	Aug 2019 - May 2021
Advisor: David Just, Ph.D.	

Nankai University	Tianjin, China
B.S., Economics.	Aug 2015 - May 2019

Research Area

AI Economics, Large Language Model, Experimental and Behavioral Economics, Causal Inference, Marketing Economics, Machine Learning and Big Data.

Peer-Reviewed Publications

Jia J., Z.Yuan, J.Pan, P.McNamara and D.Chen, "Decision-Making Behavior Evaluation Framework for LLMs under Uncertain Context"
NeurIPS 2024 [link ↗]

Jia J. and P. McNamara, "Impact of Health and Profitability Informational Interventions on Willingness to Pay"
Food Policy, Volume 129, 102760 [link ↗]

Jia J., Snider A., Collishaw A and McNamara P, "Pathways linking WASH access and women's empowerment"
Journal of Rural Studies [link ↗]

Reports and Workshop Papers

Jia J.*, Z.Yuan*(*equal contributors)* , "An Experimental Study of Competitive Market Behavior Through LLMs"
NeurIPS 2024 Workshop on Behavioral Machine Learning [link ↗]

Paul E. McNamara, Anna Snider, **Jingru Jia**, Brian Waters, Emmanuel Tumusiime. Impact Evaluation of World Vision Programs: Build Secure Livelihoods (BSL); Water, Sanitation and Hygiene (WASH); and Empowered World View (EWV).
World Vision Report 2022, 2024.

Professional Experience

Economist Intern	*Seattle, WA*
Amazon	*May 2025 - Aug 2025*

- Conducted research project on optimizing third-party shipping and fulfillment operations at Amazon: developed and implemented an integrated evaluation modeling and analytics pipeline to streamline evaluations and drive business transformation.

Economist Intern	*Seattle, WA*
Amazon	*May 2024 – Aug 2024*

- Conducted research project on the economics of retail decision-making at Amazon: applied causal inference econometrics analysis to assess promotional effectiveness and guide strategic business actions.

Working Papers

The Economic Behavior of AI Agents: Rationality and Reasoning in Large Language Models
Job Market Paper [link ↗]
(A shorter version is under review at NeurIPS 2025)

As large language models (LLMs) take on increasingly consequential roles as autonomous decision-makers, understanding their economic reasoning and fairness is essential. We present a unified behavioral framework that combines experimental economics, game-theoretic analysis, and fairness assessment to rigorously evaluate how LLMs navigate uncertainty, interact strategically, and respond to demographic context. Our study demonstrates that these models consistently display bounded rationality, exhibiting systematic patterns in risk and loss sensitivity, and distinct reasoning depths across a spectrum of strategic settings. Critically, we show that LLMs' decision processes are shaped not only by their underlying architectures but also by contextual factors such as demographic cues, revealing nuanced fairness concerns that go beyond surface-level outputs. By bridging behavioral science with computational evaluation, our approach establishes a robust foundation for diagnosing, comparing, and ultimately aligning the economic behavior of LLMs for real-world applications where both performance and ethical considerations are paramount.

Decomposing SNAP Accessibility: Divergent Effects on Household Food Consuming Behaviors
Jingru Jia, Paul McNamara
This study investigates how accessibility to SNAP-authorized retailers influences household food purchasing behavior among SNAP participants. Using a dynamic panel model and an Almost Ideal Demand System (AIDS) framework, we examine how changes in the local food retail environment measured by new openings and closures of SNAP-authorized stores, affect household spending across food categories. Our analysis finds that increased access to SNAP retailers, especially convenience stores, leads to significant rises in household food expenditures, particularly in dry grocery and frozen foods, while retailer closures have minimal impact due to household adaptation. These findings reveal that consumer spending patterns are highly responsive to improvements in food access, with convenience store openings playing a pivotal role in shaping dietary consumption among low-income households. The results provide new insights for policymakers seeking to improve food security and nutritional outcomes through strategic expansion of SNAP retailer networks.

Learning, Sharing, and Adopting: Behavioral Pathways of Information Dissemination in Technology Adoption
Jingru Jia, Paul McNamara
This study examines how information dissemination shapes smallholder farmers' willingness to pay (WTP) for PICS bags in rural Sierra Leone, leveraging a two-wave randomized controlled trial to capture both immediate and persistent effects. The research explores not only the direct impact of prior informational exposure on sustained WTP but also unpacks the mechanisms through which dissemination operates namely, the breadth of sources, recall of specific benefits, and peer-to-peer sharing. Findings reveal that exposure to diverse communication channels and salient messages significantly increases WTP, while social sharing behaviors further amplify this effect, underscoring the crucial role of community learning and reinforcement in technology adoption. These results suggest that strategic, multi-channel information campaigns combined with peer engagement can enhance long-term behavioral change, with important implications for the design of future agricultural interventions and knowledge diffusion strategies.

Professional Services

Journal Referee
World Development, Journal of Happiness Studies
Conference Reviewer
NeurIPS 2025, MWIEDC 2025

Teaching Experience

Instructor (Discussion):
ACE 251 World Food Economy (Fall 2023)

Teaching Assistant:
ACE 474 Consumer Economics (Spring 2025)
ACE 451 Agriculture in International Development (Spring 2023, 2024)

ACE 476 Behavioral Economics (Fall 2022)

Presentations & Conferences

Agricultural and Applied Economics Annual Meeting, Denver, CO (July 2025)

ASSA 2025 Annual Meeting, San Francisco, CA (Jan. 2025)

NeurIPS 2024, Vancouver, Canada (Dec. 2024)

Agricultural and Applied Economics Annual Meeting, New Orleans, LA (July 2024)

Midwest Economics Association Annual Meeting, Chicago, IL (Mar. 2024)

International Policy and Development (IPAD) Seminar, College of ACES, Urbana, IL (Nov. 2023)

Agricultural and Applied Economics Annual Meeting, Washington, DC (July 2023)

Survey Design and Experimental Methods Workshop, East Lansing, MI (May 2022)

Awards & Fellowships

Excellent Teaching Award, College of ACES, UIUC (2025)

Publication Award, College of ACES (2025)

Conference Travel Award, College of ACES, UIUC (2021, 2022, 2023, 2024, 2025)

AAEA Travel Grant Winner, Agricultural and Applied Economics Association (2024)

Louis Young Fellowship, College of ACES, UIUC (2021–2022)

Ph.D. Qualifying Exam: Pass with Distinction, Department of Agricultural and Consumer Economics, UIUC (2022)

Skills

Python, PySpark, AWS, STATA, Prompting, Vibe Coding, SQL, LaTex, Tableau, Microsoft Office

References

Paul E. McNamara (Chair)
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