

JIAQI REN

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EDUCATION

Pennsylvania State University
Ph.D. Candidate in Economics

University Park, PA
2021 – May 2027 (Expected)

Hong Kong University of Science and Technology
Bachelor of Science in Mathematics and Economics, First Class Honors

Clear Water Bay, Hong Kong
2017 – 2021

Harvard University
Visiting Undergraduate Student

Cambridge, MA
Jan 2020 – May 2020

London School of Economics and Political Science
Summer School Student

London, UK
July 2019

FIELDS OF INTEREST

Econometrics, Industrial Organization, Applied Microeconomics

REFERENCES

Keisuke Hirano (Co-chair)
Professor of Economics
Pennsylvania State University
kuh237@psu.edu

Joris Pinkse (Co-chair)
Professor of Economics
Pennsylvania State University
joris@psu.edu

Marc Henry
Professor of Economics
Pennsylvania State University
marc.henry@psu.edu

RESEARCH PAPERS

“Testing Firm Conduct with Cost Information” (Job Market Paper)

- *Abstract:* The standard demand approach to testing firm conduct in Industrial Organization uses markup-shifting instruments. When such instruments are weak or unavailable, existing methods have limited power to distinguish among competing hypotheses. This paper develops a novel conduct test that does not require markup-shifting instruments. Instead, it uses data to construct bounds on marginal costs and turns conduct testing into a test of linear inequality restrictions on an implied marginal cost vector. I adapt the conditional chi-square approach of Cox and Shi (2023) to this setting and establish the uniform asymptotic validity of the resulting test. In a Monte Carlo study, I show that my test controls size and has high power. It also remains valid when markup-shifting instruments are weak or invalid, settings in which conventional instrument-based tests may be inconclusive or select the wrong model. In an application to ready-to-eat cereal, an aggregate cost bound from the 2012 Economic Census alone rejects the common ownership hypothesis, the same conclusion as the instrument-based test of Backus et al. (2021).

“Identification of Peer Effects in Censored Networks” (Neil Wallace Best Third-Year Paper Award)

- *Abstract:* This paper studies the identification and estimation of the linear-in-means model of peer effects when network links are censored. I show identification in a general setting imposing no restrictions on link formation other than the standard exogeneity requirement and allowing the censoring of links to be correlated with unobservable determinants of the outcome. Specifically, I propose three identification strategies by developing censoring-adjusted instrumental variables for groups of individuals whose observability is unaffected by censoring. I then construct three 2SLS estimators and combine them for more efficient point estimation using an adaptive approach. In a simulation study, I show that ignoring network censoring attenuates peer-effect estimates by 45% and that the proposed estimators reduce this bias.

“Dams and Violence in Africa”, with Li Han and Yabin Yin (*Accepted at the 2025 AEA Annual Meeting*)

- *Abstract:* This paper examines how hydropower dams trigger conflict incidence in Africa. Combining data on 54 dams commissioned between 2001 and 2022 with georeferenced conflicts, we employ a difference-in-differences approach comparing areas near dam-affected versus unaffected river branches before and after dam completion. We find dams significantly increased monthly conflict incidence by 0.8 percentage points, corresponding to a 114% increase relative to baseline in downstream areas, with effects emerging after two years and persisting in the long run. These effects were mostly concentrated near national borders and were more likely to involve larger-scale conflicts by organized armed groups. No such effect was observed for upstream regions. A major mechanism is reduced downstream water availability, intensifying competition for scarce domestic water resources.

INDUSTRY EXPERIENCE

Amazon | Economist Intern

May 2026 – Aug 2026

Improving the 72-Hour Policy for WebLab (A/B Test) Latency Monitoring

- Collaborated with engineers to build distributed SQL/PySpark pipelines on AWS EMR, producing analysis-ready experiment-day data for 40,000+ A/B tests across marketplaces and page experiences (e.g., Homepage Desktop).
- Led the first power analysis of WebLab’s 72-hour policy in 8 years, using simulation and multiple-testing correction across metrics and days to determine when experiments reach sufficient power to detect latency regressions.
- Developed a Bayesian decision framework to optimize the tradeoff between detection risk and monitoring cost, replacing the fixed 72-hour rule with marketplace-specific monitoring durations (e.g., 12 days for the U.S.).
- Authored science and business documents and presented recommendations to 20+ engineers, scientists, and product managers; used a matching-based causal inference method to estimate \$54.1M in annual U.S. savings.

RESEARCH EXPERIENCE

Research Assistant for Prof. Keisuke Hirano

Penn State

Topic: Adaptive Experiments and Batched Bandits

Aug 2025 – Present

- Implemented Thompson sampling and exploration sampling for batched bandits in Julia using Gauss–Hermite quadrature.
- Computed worst-case welfare regret for two post-experiment assignment rules across 3–6 arms and 3–17 batches.
- Developed a best-arm test, calibrating critical values via adaptive grid search with up to 100K Monte Carlo replications per design, and validating performance of the test via distributed HPC simulations using Julia.

Research Assistant for Prof. Patrik Guggenberger

Penn State

Topic: Subvector Inference in Linear Instrumental Variables Regression

May 2022 – Aug 2022

Research Assistant for Prof. Guojun He

HKUST

Topic: Locusts and Infant Mortality in Africa

Jan 2021 – May 2021

- Constructed georeferenced data linking locust infestations, birth records, weather, and infrastructure across Africa using ArcGIS and R.
- Used difference-in-differences and wind speed and direction as instrumental variables to estimate the causal effect of prenatal locust exposure on infant mortality.
- Found robust evidence that prenatal exposure to nearby locust plagues significantly increased infant mortality.

TEACHING EXPERIENCE

Teaching Assistant

Penn State

Economic Forecasting (Undergraduate) for Prof. Keisuke Hirano

Spring 2025

Econometrics (Ph.D.) for Prof. Patrik Guggenberger

Spring 2024

- Led a weekly one-hour recitation for 20 students.

Environmental Economics (Undergraduate) for Prof. Patrik Guggenberger

Fall 2023, Fall 2022

Economics of Matching (Undergraduate) for Prof. Ran Shorrer

Spring 2022

Introductory Economics (Undergraduate) for Prof. Dave Brown

Spring 2022, Fall 2021

SEMINARS AND CONFERENCES

Optimization-Conscious Econometrics Summer School and Conference at the University of Chicago (2024), Cornell–Penn State Conference on Econometrics and IO (2023, 2022), New Faces in International Economics Conference (2023), Conference on Poverty and Inequality at Harvard Kennedy School (2020).

HONORS AND AWARDS

Rosenberg Liberal Arts Centennial Scholarship	Penn State, 2024 – 2025
Graduate Assistantship	Penn State, 2021 – Present
The Joseph Needham Merit Scholarship Programme	HKUST, 2021 – Present
The S.S. Chern Class of Elite and Talented Students in Mathematics	HKUST, 2018 – 2021
Dean's List	HKUST, 2018 – 2021
The University Scholarship for Continuing Undergraduate Students	HKUST, 2017 – 2021

SKILLS AND LANGUAGES

Programming & Data: Python (NumPy, Pandas, scikit-learn), SQL, R, Julia, PySpark, Stata; AWS, Git, HPC.
Languages: English (fluent), Mandarin (native)

Last Update: October 11, 2026