XIAOYAN ZHOU

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EDUCATION

Purdue University, Daniels School of Business — West Lafayette, IN
- M.S. in Economics — 2021
- Ph.D. in Economics (GPA: 3.99/4.0) — 2019 - present
  Committee: Yong Bao (Co-chair), Joshua Chan (Co-chair), Kevin Mumford, Ralph Siebert, Justin Tobias

Duke University — Durham, NC
- M.A. in Economics (GPA: 3.97/4.0) — 2017 – 2019

Renmin University of China — Beijing, China
- B.A. in Economics (GPA: 3.88/4.0) — 2013 - 2017

RESEARCH INTERESTS

Spatial econometrics, Bayesian econometrics, Real estate economics, Industrial Organization, Urban economics, Labor economics

PUBLICATIONS

[1] Selection of Spillover Channels in Spatial Dynamic Panel Models Using Heterogeneous Shrinkage on Spatial Parameters, *(With Yong Bao)*, Accepted at *Spatial Economic Analysis*, (PDF; Appendix).

[2] Heterogeneous Spatial Dynamic Panel Models with an Application to US Housing Data. *Spatial Economic Analysis*, 2023, 18(2): 259-285, (*With Yong Bao*) (link).

[3] Consumption Upgrade or Consumption Downgrade. *China Industrial Economics*, 2019, 7: 42-60, (*With Mingming Shi, Zhou Jiang*) (Mandarin, link).

WORKING PAPERS

[1] Spillover in U.S. Housing Market, (PDF; Appendix).

[2] The Measurement of Spatial Competition: Evidence from the Real Estate Market, *(With Ralph Siebert)*, Under Review at *The RAND Journal of Economics*, (PDF).

WORK IN PROGRESS

[1] A Bayesian Approach to A Spatial Autoregressive Type-III Tobit Model, *(With Yong Bao, Xiaotian Liu)*.

[2] A Spatial Autoregressive Type-III Tobit Model with an Application to Labor Supply and Wages, *(With Yong Bao, Kevin Mumford)*.

[3] Occupancy rate and spatial price competition in the Airbnb market, *(With Yong Bao, Ralph Siebert)*.

[4] Heterogeneous Spatial Ordered Probit Models with an Application to Retirement Savings in China, *(With Yong Bao, Xiaotian Liu, Xueping Xiong)*.

[5] The Heterogeneous Spillover of Bike-Sharing System on Public Transit Usage, *(With Sisi Zhou)*.

TEACHING EXPERIENCE

Instructor

- Macroeconomics (undergraduate, online) — Summer 2021
- Principles of Economics (undergraduate, in-person recitation teaching) — Fall 2019

Teaching Assistant

- Topics in Panel and Spatial Econometrics (Ph.D.) — Spring 2023-24
- Time Series Econometrics (Ph.D.) — Spring 2022-24
- Financial Econometrics (master) — Spring 2022-24, Summer 2022
- Econometrics (undergraduate) — Spring 2022-23
- Microeconomics (undergraduate) — Spring 2020-21
- Microeconomics I (Ph.D.) — Fall 2020
- Personnel Economics (master) — Fall 2020
- Intermediate Microeconomic Theory (undergraduate) — Spring 2020, Fall 2020
- Principles of Economics (undergraduate) — Fall 2019

HONORS AND AWARDS

Summer 2024 Research Grant Award — Summer 2024
SEA Graduate Student Award — Fall 2023
Krannert Doctoral Student Research Fund ($3,173, $1,158) — 2023, 2024
Krannert School Doctoral Fellowship Awards for Excellence in Research — 2022-23
Krannert Certificate for Distinguished Teaching — Summer 2021
Summer 2020 Research Grant Award — Summer 2020
Krannert Certificate for Outstanding Recitation Teaching — Fall 2019
M.A. Merit Scholar Award from the Department of Economics, Duke University — Fall 2018
M.A. Merit Scholar Award from the Department of Economics, Duke University — Spring 2018
Outstanding Graduate of Renmin University of China — Spring 2017
RUC Outstanding Dissertation of Bachelor's Degree–1st Prize — Spring 2017
National Scholarship — Fall 2015

CONFERENCE TALKS

International Association for Applied Econometrics Annual Conference, Xiamen, China — June 2024
Southern Economic Association 93rd Annual Meeting, New Orleans, LA — November 2023
Canadian Econometrics Study Group 38th Annual Meeting, Hamilton, ON (Poster) — October 2023
Midwest Econometrics Group 33rd Annual Meeting, Cleveland, OH — October 2023
The 96th International Atlantic Economic Conference, Philadelphia, PA — October 2023
China Forum of Bayesian Econometrics, Online — December 2022

PROFESSIONAL ACTIVITIES

Referee: Journal of Quantitative Economics, Annals of Applied Statistics
Programming: Matlab (main), R, Stata, Python, LaTeX

Abstracts

Heterogeneous Spatial Dynamic Panel Models with an Application to US Housing Data

coauthored with Yong Bao, published at *Spatial Economic Analysis*

This paper proposes two models that incorporate both heterogeneity and multiple sources of spatial correlation for dynamic panels. One uses convex combinations of them to form a single weight matrix. The second one includes explicitly different spatial weight matrices to form a higher order model. We use a Bayesian scheme for model estimation by deriving the full conditional distributions of heterogeneous parameters. Our Monte Carlo experiments demonstrate their finite-sample performance relative to a baseline model. In our empirical study we find the importance of including both geographical and non-geographical information in capturing correlations in real house price growth in the United States.

Selection of Spillover Channels in Spatial Dynamic Panel Models Using Heterogeneous Shrinkage on Spatial Parameters

coauthored with Yong Bao, accepted at *Spatial Economic Analysis*

This paper proposes a Bayesian approach to estimating heterogeneous spatial dynamic panel models, subject to possible shrinkage on spatial dependence parameters. This amounts to heterogeneous selection of candidate spatial weight matrices that represent different spillover channels. The shrinkage methods include both the traditional and more flexible ones that allow the shrinkage strength to vary across spatial parameters. Monte Carlo results indicate that when the true model has a relatively low proportion of nonzero spatial parameters, flexible shrinkage in general leads to lower average root mean squared errors in estimating these parameters. An empirical study using this approach shows that there exists substantial heterogeneity in spillover channels across counties that determine the correlation patterns of county COVID-19 vaccination rates in four states in the United States.

Spillover in U.S. Housing Market

(Job market paper)

This paper investigates the heterogeneous selection of house price spillover channels among metropolitan areas in the United States. I propose a Bayesian approach to incorporating shrinkage on groups of spatial dependence parameters in a heterogeneous higher-order spatial dynamic panel model. Results from Monte Carlo experiments demonstrate that including group-level shrinkage would lead to better finite-sample performance in estimating the spatial dependence parameters when there exists group-structured sparsity in the true model. Empirical results using the Bayesian approach show that the geographic proximity, followed by the migration channel, makes the greatest contributions to the correlation pattern in regional house price growth.

The Measurement of Spatial Competition: Evidence from the Real Estate Market

coauthored with Ralph Siebert, under review at *The RAND Journal of Economics*

This study provides a test for measurement of spatial competition in residential real estate markets. Several alternative spatial competition measures are tested. We employ a Bertrand oligopoly model with differentiated products and adopt a Spatial Autoregressive model using a two stage least squares estimator. Our results show that commonly used count-based measures using the number of competitors in specific geographic radii are outperformed by price-based measures using prices of nearest competing neighbors. The main reason is that the latter measure accounts for heterogeneous neighborhood density of competitors. The measure captures the decaying pattern of spatial price competition over distance. The measure also stands out in capturing heterogeneous spatial price competition effects. We find that spatial price competition is more intense among high-value homes within the five nearest competing houses.