

# Tianhao Zhao

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## EDUCATION

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Emory University, <i>Ph.D. in Economics (expected)</i>	2019 — 2025
Emory University, <i>M.A. in Economics</i>	2019 — 2022
Beihang University, <i>B.S. in Economics (Financial Engineering)</i>	2014 — 2018

## RESEARCH INTEREST

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Macroeconomics, International finance, Computational economics

## RESEARCH PAPERS

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### Working papers

- Frictions, net worth shocks, and heterogeneous impacts. (with C. Ding), *Job Market Paper*  
*The wealth effect is a critical channel through which economic shocks propagate. We examine how local financial and nominal frictions amplify the transmission of household net-worth shocks across U.S. counties. Using a new county-level dataset (CountyPlus) and a semi-varying coefficient approach, we find substantial regional heterogeneity: the marginal propensity to consume out of wealth varies from 11 to 3 cents per dollar between low- and high-friction counties, with shock responses amplified 2-5 times when both constraints bind. We propose a tractable two-agent model that demonstrates how the interaction between these frictions generates such heterogeneous responses. Our findings inform the design of regionally targeted stabilization policies. (paper available at [SSRN 4915272](https://ssrn.com/abstract=4915272))*
- Asymmetric impacts of net worth shocks on the U.S. economy: Evidence from U.S. counties.  
*This paper examines the asymmetric effects of net worth shocks on the U.S. economy following the Great Recession, using the CountyPlus dataset covering 2003 to 2019. Employing local projections, the study estimates impulse responses functions by controlling the amplifying effects of downward nominal wage rigidity and collateral constraints at varying magnitudes of net worth shocks. The findings reveal substantial asymmetric impacts of net worth shocks, which are notably more severe during economic busts.*
- Downward nominal wage rigidity and collateral constraints: A theory for post-Great Recession U.S. economy.  
*This paper develops a continuous-time heterogeneous agent model to explain the prolonged downturn of the U.S. economy following the Great Recession. The model incorporates downward nominal wage rigidity, collateral constraints, endogenous idiosyncratic unemployment risk, and illiquid housing wealth. Using the sequence-space Jacobian method for estimation and the CountyPlus dataset, the analysis reveals significant interactions between wage rigidity and collateral constraints, which together contribute substantially to the slow recovery of the recent U.S. economy.*
- Deep learning insights into geographically heterogeneous impacts of net worth shocks on U.S. household balance sheets.  
*This paper examines the spatial-temporal heterogeneity in the loss of U.S. household wealth during the Great Recession, addressing the challenges posed by the endogeneity of household net worth shocks and the interconnectedness of local economies. The study employs a deep neural network model with an embedded structural layer that treats counties as open, interconnected economies. Leveraging a network structure representing economic linkages between U.S. counties, the model estimates the heterogeneous effects of net worth shocks while addressing endogeneity concerns.*

### Work in progress

- Financial dollarization, exchange rate, and macroprudential policy. (with C. Ding, V. Yue, and A. Zaretski)
- China's economic slowdown. (with K. Chen, and K. Zhao)

### Journal articles

- Population aging and its effects on the gap of urban public health insurance in China. (with Y. Jiang and H. Zheng), *China Economic Review*, 2021.
- Socioeconomic status and morbidity rate inequality in China: based on NHSS and CHARLS data. (with Y. Jiang and H. Zheng), *International Journal of Environmental Research and Public Health*, 2019.
- The STIRPAT analysis on carbon emission in Chinese cities: An asymmetric Laplace distribution mixture model. (with S. Wang, H. Zheng, and J. Hu), *Sustainability*, 2017.

## PRESENTATION & AWARDS

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- Brown bag seminar, 2024, Federal Reserve Bank of Atlanta
- Midwest Macroeconomics Meetings, 2024, Purdue University
- International Conference on Empirical Economics, 2024, Pennsylvania State University Altoona
- Professional Development Support Conference Funds, Emory University

## PROFESSIONAL SERVICE

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- Session chair, International Conference on Empirical Economics, 2024, Pennsylvania State University Altoona

## TEACHING

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### Instructor

ECON 112: Principles of Macroeconomics

Fall 2022

*Emory University*

### Teaching Assistant

Multiple courses

2020 — 2024

*Emory University*

- ECON 421: Micro-econometric Data Analytics (Spring 2024)
- ECON 610: Macroeconomic Theory I (Fall 2023)
- ECON 212: Intermediate Macroeconomics (Fall 2023)
- ECON 363: Political Economy of China (Spring 2023)
- ECON 112: Principles of Macroeconomics (Spring 2022)
- ECON 363: Political Economy of China (Spring 2021)
- ECON 363: Political Economy of China (Fall 2020)

## RESEARCH ASSISTANTSHIP

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### Esfandiar Maasoumi

Engaged in the research on the inference of automatic debiased machine learning.

Fall 2023

*Emory University*

### Vivian Yue

Conducted analysis on the development of digital currency.

Spring 2023

*Emory University*

### Kaiji Chen

Undertook empirical research on China's saving rate using survey data.

Fall 2021

*Emory University*

### Mi Luo

Analyzed the spillover effects of school performance on labor market outcomes.

Spring 2021

*Emory University*

### Haitao Zheng

Modeled China's public health system with overlapping generation models.

2017 — 2019

*Beihang University*

## SKILL AND PROJECTS

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- **Programming Languages:** Julia, Python, MATLAB, R, Stata, C, SAS, Fortran, SQL
- **GitHub Repository:** [CountyPlus](#), [AdaptiveSG.jl](#)

## REFERENCES

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### Vivian Yue (Advisor)

*Samuel Candler Dobbs Professor of Economics*  
Department of Economics, Emory University  
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