

# Yajie Wang

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Department of Economics  
University of Rochester  
Harkness Hall  
Rochester, NY 14627, USA.

Phone: (585) 351-4816  
E-mail: [yajie.wang@rochester.edu](mailto:yajie.wang@rochester.edu)  
Website: [www.yajiewang.info](http://www.yajiewang.info)  
Citizenship: China (F1 Visa)

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## Education

Ph.D. in Economics, University of Rochester, USA, 2017-2023 (expected)  
B.A. in Economics and B.S. in Mathematics, Renmin University of China, China, 2017

## Research Interests

Macroeconomics, Labor, and Finance

## Working Papers

- “Uncertainty and Unemployment Revisited: The Consequences of Financial and Labor Contracting Frictions”, *Job Market Paper*, September 2022
- “Automation and the Rise of Superstar Firms”, with Hamid Firooz and Zheng Liu, *Federal Reserve Bank of San Francisco Working Paper*, April 2022

## Work In Progress

- “Borrowing From Workers: How Firms Backload Wages in Financial Distress”, *Federal Statistical Research Data Center (FSRDC) Project 2652*

## Presentations

Conferences and Seminars

- 2022: University of Rochester, the Federal Reserve Bank of Philadelphia, Midwest Macro (Logan), North America Summer Meeting (Miami), Asian Meeting of the Econometric Society (Tokyo), Young Economist Symposium (Yale)

Discussions

- “Uncertainty, Liquidity Constraint, and Entrepreneurship” by Pengfei Wang, Daniel Yi Xu, Sichuang Xu, and Zhiwei Xu, *China International Conference in Macroeconomics*, June 2022

## Fellowships, Scholarships, and Awards

2021-2023	NSF Doctoral Dissertation Research Improvement Grants, PI is Professor Yan Bai
2022-2023	Dean’s Post-Field Research Dissertation Completion Fellowship, University of Rochester
2021	Tapan Mitra Prize, Best 5th-Year Paper in Empirical Economics, University of Rochester

2019 Summer Research Grant, University of Rochester  
2017-2022 Graduate Fellowship and Tuition Scholarship, University of Rochester  
2015-2016 National Scholarship, Renmin University of China

## Research Experience

- Special Sworn Status (SSS) Researcher, U.S. Census Bureau, 2021-Present
- Research Assistant for Professor Yan Bai, University of Rochester, 2019-2021
- Research Assistant for Professor George Alessandria, University of Rochester, 2020

## Teaching Experience

- Instructor, Department of Economics, University of Rochester
  - ECO 108 Principles of Economics (Summer 2021), Overall Rating: 4.6/5.0
  - ECO 108 Principles of Economics (Summer 2020), Overall Rating: 4.3/5.0
- Teaching Assistant, Department of Economics, University of Rochester
  - ECO 211 Money, Credit & Banking, Professor Narayana Kocherlakota (Spring 2020, 2021)
  - ECO 207 Intermediate Microeconomics, Professor Steven Landsburg (Fall 2019, 2020, 2021)
- Teaching Assistant, Simon Business School, University of Rochester
  - STR 427 Organizational Behavior, Professor Barry A. Friedman (Fall 2020)
  - STR 401 Managerial Economics, Professor Heikki Rantakari (Fall 2019, Fall 2020)

## Skills

**Languages:** Mandarin (native), English (fluent)

**Computer Skills:** Fortran, MATLAB, Python, Stata, R,  $\text{\LaTeX}$ , and SPSS

## References

### **Professor Yan Bai (Co-Advisor)**

Department of Economics  
University of Rochester  
Rochester, NY 14627, USA.  
Phone: 585-275-4196  
E-mail: yan.bai@rochester.edu

### **Professor Mark Bills**

Department of Economics  
University of Rochester  
Rochester, NY 14627, USA.  
Phone: 585-738-8859  
E-mail: mark.bills@rochester.edu

### **Professor Narayana Kocherlakota (Co-Advisor)**

Department of Economics  
University of Rochester  
Rochester, NY 14627, USA.  
Phone: 585-275-4991  
E-mail: nkocherl@ur.rochester.edu

### **Dr. Zheng Liu**

Economic Research Department  
Federal Reserve Bank of San Francisco  
San Francisco, CA 94105, USA.  
Phone: 415-974-3328  
E-mail: Zheng.Liu@sf.frb.org

## **Uncertainty and Unemployment Revisited: The Consequences of Financial and Labor Contracting Frictions**

*(Job Market Paper)*

I build a novel search model to study how uncertainty shocks to firm-level productivity affect unemployment through the financial channel of incomplete labor contracts. The model's core is a labor contracting friction that implies wage insensitivity to firm-level idiosyncratic shocks. Hence, wage bills are debt-like commitments by firms to workers, which firms are less likely to take on when high uncertainty raises firm default risks. Therefore, when uncertainty is high, firms hire fewer workers, and unemployment increases. Quantitatively, I find that, on top of aggregate productivity shocks, uncertainty shocks generate 26% of the increases in unemployment during past recessions. The effect of uncertainty shocks diminishes greatly if the financial or labor contracting friction is absent. I then use the model to analyze the impact of labor market policies under elevated uncertainty. Increasing unemployment benefits, such as in the U.S., makes it more expensive and risky for firms to pay wages, thus amplifying the recession. Subsidizing firms' wage bills, such as in Germany, performs better by insuring firms from idiosyncratic risk, but it still causes inefficiency since the misallocation losses of labor hoarding outweigh the gains of providing insurance.

## **Automation and the Rise of Superstar Firms**

*(with Hamid Firooz and Zheng Liu)*

During the past two decades, a rising share of production in the United States has been concentrated in a small number of superstar firms. We document evidence that the rise in automation technology has contributed to the rise in industry concentration. To illustrate the mechanism that links automation to industry concentration, we construct a general equilibrium model with heterogeneous firms, endogenous automation decisions, and variable markups. Firms choose between two types of technologies: one uses workers only, and the other uses both workers and robots subject to an idiosyncratic fixed cost of robot operation. Larger firms are more profitable and thus more likely to use the automation technology. Our calibrated model does well in matching the observed distribution of automation usage across firms with different sizes. The model predicts that a decline in the relative price of robots raises both the robot adoption rate and sales concentration, in line with the data. The employment share of superstar firms also increases with automation usage, but it rises less than the sales share because robots substitute for workers. This is also consistent with empirical evidence. The model highlights a tradeoff for policy interventions: increased automation raises aggregate productivity, and it also raises industry concentration and average markup. Under our calibration, a modest subsidy for automating firms improves welfare relative to the benchmark economy without policy intervention.

## **Borrowing From Workers: How Firms Backload Wages in Financial Distress**

A considerable amount of empirical research has shown that firms provide partial insurance to workers against shocks to their productivity. This paper asks about the opposite direction: do workers insure firms against shocks during their times of financial distress? I use the U.S. employer-employee matched data and find that workers in financially constrained firms do have lower earnings growth first and higher growth later when there is a volatility shock. And the earnings decline is larger for firms with expected longer employment relationships. My findings imply that financially constrained firms borrow from workers through long-term employment relationships by back-loading wages.