Peilin Yang

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School of Finance
Nankai University

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Education

2021-2022 Predoctoral Research Fellow, Stanford University, *Graduate School of Business*

2017-2021 B.A. in Economics, Nankai University, *School of Finance*

With Highest Honor of College
With Highest Honor in Economics Research
Thesis*:* Rare Disaster Element in HANK

Publications

1. "Numerical solution and parameter estimation for uncertain SIR model with application to COVID-19 pandemic." With Xiaowei Chen, Jing Li, Chen Xiao**.** 2020**.** *Fuzzy Optimization and Decision Making.*

Working Papers

1. "Shock Response of Fully Funded System: HANK Framework." Peilin Yang. 2020. [link]

2. "Social Planner, Industrial Structure and Uncertainty for COVID-19." With Xiaowei Chen. 2020. *Revise and Resubmit at SIAM Journal on Control and Optimization.* [link]

3. "China's Policy Instruments: Tax Reduction, Retirement Prolonging and Welfare Changes." Peilin Yang. 2019. [link]

Work in Progress

4. "Rare Disaster Element in HANK", Peilin Yang. 2021.

The rare disaster factor has become a powerful factor explaining the mystery of equity premium. This paper studies a heterogeneous new Keynesian model (HANK) in which rare disaster pricing factors are nested. This factor can effectively explain the excess risk premium and business cycle, and I have made a detailed comparison with the representative New Keynesian model (RANK). It proves that due to the existence of heterogeneous marginal propensity to consume (MPC), HANK has greater volatility and explains more asset premiums. In other words, inequality in the economy will lead to greater economic fluctuations.

5. Bayesian Estimation of Heterogeneous Firms Distribution Dynamics, Peilin Yang. 2021.

I present a method for estimating dynamic HANK models using Bayesian estimation. The method combines the projection and perturbation solution method developed by Reiter (2009) with Bayesian estimation techniques. This combination allows the estimation procedure to incorporate in the estimation dataset time series of moments of the cross-sectional distribution of agents. I showed how the heterogeneous stochastic shock of TFP on the firms affects the micro and macro moment in the firms' distribution dynamics.

Research Experience

Princeton University, *Department of Economics* &. Stanford University, *Graduate School of Business*, Research Fellow, Adrien Matray and Chenzi Xu and, Nov. 2020 - Presented.

- Local Projection and SVAR

*Harvard University***,** *Department of Economics*, Research Assistant to David Yang, Mar. 2020 – Presented.

- China's AI Companies (2020)
- Bureaucracy and Innovation (2020)
- China's Science Innovation (2021)

Morgan Stanley, *Sales &. Trading Division*, *Quantitative Trader Internship*, Jul. 2020 – Aug. 2020

University of Illinois at Urbana-Champaign, *Department of Mathematics*, Research to Runhuan Feng, Sep. 2020 - Nov. 2020.

- Reinforcement Learning and High-Dimension Dynamics Programming

Asian Development Bank, *ADB TA PRC# 3148: China Pension Reform Project*, Jul. 2019 - Oct. 2019.

WorldQuant, Independent researcher, Oct. 2018 - Sep. 2019.

- Machine Learning and NLP

Fellowships, Awards, and Honors

2018 *Chinese Mathematical Modeling Competition Award*
I build a model about quantitative the attractive force of a city by using methods PCA and neural networks.

2018 *China Undergraduate Mathematical Contest in Modeling Award*
I build a model about the heat transfer in different media. The main problem is about PDE numerical algorithm of finite difference.

2018 *Chinese College Students Mathematics Competition Award*
Mathematical Analysis and algebra.

2018 *American College Students Mathematical modeling competition Award*
I build a model about environmental costs. The main problem is about ODE dynamic system and continuous-time optimal control.

Teaching Experience

Nankai University Graduate Advanced Macroeconomics I (TA, Spring 2019)
Graduate Stochastic Analysis and Optimal Control Theory **(**TA, Spring 2020**)**

Presentations and Seminars

2021 Operations Research Society of China, Tsinghua University, Simple planning problem of industrial structure during pandemic.

2020 Operations Research Society of China, Tsinghua University, Numerical solution to higher dimensional differential equations.

2019 Operations Research Society of China, Tsinghua University, Uncertainty CRRA Model and Risk Aversion.

2019 Summer Seminars of Computation and Economics, Shanghai University of Finance and Economics.

Computer Skills and language

Highly Proficient: Python (Data Processing, Plot, ArcGIS, Numerical Computation, Web Scraper), MATLAB, Stata, LaTex, R *(ArcGIS, GeoDa)*, Julia, SQL

Familiar: ArcGIS, C++, GAUSS, HTML, Linux