Tao Wang

Last update: December 16, 2021

CONTACT INFORMATION

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RESEARCH INTEREST

- **Behavioral macroeconomics**: expectation formation
- **Heterogeneous-agent macroeconomics:** household behaviors and macroeconomic dynamics

EDUCATION

Johns Hopkins University, Baltimore, MD — 2017– 2023 (expected)

- M.A. and Ph.D. candidate in Economics
- Advisor: Prof. Christopher Carroll
- Coursework: Time Series Econometrics, Asset Pricing, Decision Making under Uncertainty, Computational Macroeconomics, Information in Economics and Finance, International Finance, Advanced Macroeconomics I & II

Cornell University, Ithaca, NY — 2013–2015

- M.P.A. in Cornell Institute for Public Affairs
- Thesis: *Chinese Macroeconomic Policies, Restrictive Central Bank Independence, and Market Expectations*, advisor: Prof. Assaf Razin

Renmin University of China, Beijing, China — 2009–2013

- B.A. in Economics
- Thesis: *Economic Behaviors of Local Governments*

WORK IN PROGRESS

1. *"How Do Agents Form Inflation Expectations? Evidence from Cross-moment Estimation and the Uncertainty"*, working paper, 2021.

   Abstract: Density forecasts of macroeconomic variables provide one additional moment restriction, uncertainty, for testing and exploring the implications of theories about how people form expectations differently from full-information rationality benchmark. This paper first documents the persistent dispersion in inflation uncertainty of professionals and households, and how it conveys different in- formation from the widely used proxies to uncertainty such as cross-sectional disagreement and forecast errors. Second, utilizing the panel data structure of both surveys, I provide additional reduced-form test results as well as structural estimates for three workhorse theories of "irrational expectation": sticky expectations (SE), noisy information (NI), and diagnostic expectations (DE) by jointly accounting for its predictions for different moments. This is a natural extension of Coibion and Gorodnichenko (2012), which examines different moments separately. Also, motivated by the time-varying pattern of the uncertainty observed from surveys, I considers an alternative inflation process featuring stochastic volatility. These extensions allow me to match the joint dynamics of inflation and forecast moments in better goodness of fit. It also testifies how incorporating higher moments from survey data helps understand both the expectation formation mechanisms and inflation dynamics.

2. *"Perceived Income Risks"*, working draft, 2021.

   Abstract: Workhorse incomplete-market macro models typically assume that agents have a perfect understanding of the size and nature of income risks that econometricians estimate from past income data. This paper examines if risk perceptions from a representative density survey align with these assumptions. I found that people have reasonable clues about income risks, in that the differences in risk perceptions can be partly explained by between-group differences in income volatility. Perceived earning risks are always lower than the standard estimates based on realized income volatility, suggesting the role of superior information. At the same time, there remains a large degree of heterogeneity. There is robust evidence for state dependence and past dependence. Risk perceptions countercyclically react to recent realizations and negatively correlated with the experiences of macro labor market outcomes. People also extrapolate their own recent experiences of earning volatility and unemployment when forming risk perceptions. These features in risk perceptions have three macroeconomic consequences. First, lower perceived risks on average helps account for the concentration of low liquid wealth holding among the population. Second, the heterogeneity in risk perceptions leads to additional heterogeneity in saving behavior and marginal propensity to consume (MPC). Third, state-dependent income risk perceptions induce additional precautionary saving motives, and depending on its cyclicality, could further amplify or dampen the business cycle fluctuations of aggregate consumption. My ongoing work explores the quantitative importance of these predictions in a general-equilibrium incomplete market model.

3. *"Learning from Friends in a Pandemic: Social Networks and the Macroeconomic Response of Consumption"*, working paper, with Christos Makridis, 2020.

   Abstract: This paper studies how local shocks can have aggregate effects through interpersonal influences on expectations via social networks. We identified these effects empirically by looking into the the consumption effect of COVID-19 infections in geographically distant but socially connected regions. Using daily consumption data across U.S. counties and Facebook's Social Connectedness Index (SCI), we find that a 10% rise in SCI-weighted cases and deaths is associated with a 0.18% and 0.23% decline in consumption expenditures. These effects are concentrated among consumer goods and services that rely more on social-contact. Second, we augment a quantitative consumption/saving model of an incomplete market with social learning. The model is general enough to nest many workhorse theories of expectation formations featuring overreaction, rational updating or stickiness. It shows that the presence of social communication could either amplify or mute the local shocks in aggregation depending on the interplay between individual and social learning. We also show how the dynamic and average size of aggregate responses depend on the location of the initial shocks and the structure of the network. We briefly discuss the welfare implications of social influence in this environment.

4. *"Epidemiological Expectations in Economics"*, working paper, in preparation for *Handbook of Economic Expectations*, with Christopher Carroll, 2021.

   Abstract: 'Epidemiological' models of belief formation put social interactions at their core; such models are the main (almost, the only) tool used by non-economists to study the dynamics of beliefs in populations. We survey the (comparatively) small literature in which economists attempting to

model the consequences of beliefs about the future – 'expectations' – have employed a full-fledged epidemiological approach to explore an economic question. We draw connections to related work on 'contagion,' narrative economics, news/rumor spreading, and the spread of online content. We conclude by arguing that a number of independent developments have converged in ways that may make EE modeling more feasible and more appealing in the past.

Conference

- Yale SOM, NBER Behavioral Macro Research Bootcamp.

Awards

- Joel Dean Undergraduate Teaching Award, 2019-2020 and 2020-2021, Johns Hopkins University
- Sylvia and Wilifried Prewo Fellowship, 2020-2021, Johns Hopkins University

Research Assistant Experience

- **Heterogeneous-agent macroeconomic modeling** 2019
  Econ-ARK Project led by Prof. Christopher Carroll
  - Authored Python codes/Jupyter Notebook that evaluates, illustrates and visualizes the dimension-reduction in sovling high-dimension general equilibrium models by Bayer and Luetticke (2018).
  - Contributed to the Jupyter notebook replicating Krusell-Smith (1998) algorithm via HARK toolkit.
- **Tutorials on quantitative economic modeling** 2017
  Quantitative Economics, Prof. Thomas Sargent (New York University)
- **Capital account liberalization and exchange rate dynamics** 2015
  Prof. Eswar Prasad (Cornell University)

Employment Experiences

- **International Monetary Fund** 2016-2017
  Research Assistant in the Research Department
- **The Brookings Institution** 2015-2016
  Research Analyst in Global Economy and Development Program

Technical Skills

- *Programming Languages*: Python, Matlab, Stata

Policy Publication

1. **A Sy and T Wang** . *"De-risking, Renminbi Internationalization and Regional Integration: Evidence from Payment Flows of Sub-Saharan Africa"*. Brookings Working Paper, 2016.

References

- Prof. **Christopher Carroll** (JHU), ccarroll@jhu.edu
- Prof. **Jonathan Wright** (JHU), wrightj@jhu.edu