

JUNNAN ZHANG

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EDUCATION

Australian National University Jan 2017–June 2021 (Expected)
PhD Candidate in Economics
Thesis: “Topics in Dynamic Programming”
Panel: John Stachurski (Chair), Simon Grant, Ruitian Lang, Ronald Stauber

Graduate School of Chinese Academy of Social Sciences 2013–2016
M.M. in Technical Economics and Management

Peking University 2009–2013
B.S. in Physics

FIELDS OF INTEREST

- Primary: Computational Economics, Mathematical Economics
- Secondary: Macroeconomics

RESEARCH PAPERS

Dynamic Programming with State-Dependent Discounting (Job Market Paper)

John Stachurski and Junnan Zhang
Journal of Economic Theory, forthcoming

Abstract: This paper extends the core results of discrete time infinite horizon dynamic programming to the case of state-dependent discounting. We obtain a condition on the discount factor process under which all of the standard optimality results can be recovered. We also show that the condition cannot be significantly weakened. Our framework is general enough to handle complications such as recursive preferences and unbounded rewards. Economic and financial applications are discussed.

Coase Meets Bellman: Dynamic Programming for Production Networks

Tomoo Kikuchi, Kazuo Nishimura, John Stachurski, and Junnan Zhang
R&R at *Journal of Economic Theory*

We show that, for a range of models related to production networks, competitive equilibria can be recovered as solutions to dynamic programs. Although these programs fail to be contractive, we show that they are fully tractable when matched with the right tools of analysis. These tools add analytical power and open new avenues for computation. As an illustration, we cover applications related to Coase’s theory of the firm, including equilibria in linear production chains with transaction costs and other kinds of frictions, as well as equilibria in production networks with multiple partners. We show how the same techniques also extend to other equilibrium and decision problems, such as the distribution of management layers within firms and the spatial distribution of cities.

PUBLICATIONS

Yu, Meng, and Junnan Zhang. 2019. “Equilibrium in Production Chains with Multiple Upstream Partners.” *Journal of Mathematical Economics* 83: 1-10.

Cai, Yuezhou and Junnan Zhang. 2015. “The Substitution and Pervasiveness Effects of ICT on China’s Economic Growth” (in Chinese with English abstract). *Jingji Yanjiu/Economic Research Journal* 50 (12): 100-114.

TEACHING EXPERIENCE

TA, ECON8011, Microeconomic Theory	2020
TA, EMET3004, Econometrics II: Econometric Modelling	2019
TA, EMET2007, Econometrics I: Econometric Methods	2019
TA, EMET3007, Business and Economic Forecasting	2018

HONORS AND AWARDS

Australian Government Research Training Program Scholarships, ANU	2017–2020
2011–2015 Young Scholar Innovation Award on Information Economics in China	2016

CONFERENCE PRESENTATIONS

Chinese Technical Economics Forum, Nanjing, 2015.

RESEARCH VISITS

Nanyang Technological University, Singapore, January, 2019.

TECHNICAL SKILLS

- Proficient in Python, R, \LaTeX , and Linux.
- Familiar with Julia, Matlab, and Stata.

PERSONAL INFORMATION

Gender: Male

Nationality: Chinese

Date of Birth: Dec 24, 1992