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Citizenship: China, F-1 Visa

Fields of Concentration:

Economic Theory
Game Theory
Mathematical Economics

Desired Teaching:

General Equilibrium Theory, Game Theory, Microeconomic Theory

Comprehensive Examinations Completed:

Oral: Microeconomic Theory (2016), Finance (2016)
Written: Microeconomics (2015), Macroeconomics (2015)

Dissertation Title: *Essays in Economic Theory*

Committee:

Professor Truman Bewley (co-chair)
Professor John Geanakoplos (co-chair)
Professor Johannes Hörner
Professor Stefan Steinerberger

Expected Completion Date: May 2020

Degrees:

Ph.D., Economics, Yale University, 2020 (expected)
M.Phil., Economics, Yale University, 2018
M.A., Economics, Yale University, 2018
M.A., Mathematics, Johns Hopkins University, 2014
B.A., Mathematics, Johns Hopkins University, 2014

Fellowships, Honors and Awards:

Carl Arvid Anderson Prize Fellowship in Economics, Cowles Foundation, 2019

University Dissertation Fellowship, Yale, 2019
Cowles Foundation Fellowship, 2014 - 2018
University Fellowship (Malcolm Urban Fellow, Hoffman Fellow), 2014 - 2019
J.J. Sylvester Award, JHU, 2014
6-th place, Virginia Tech Regional Mathematics Contest, 2013
Mr. & Mrs. Lam Wing-Tak Scholarship, CUHK, 2012
Mr. Chan Che Ho Memorial Scholarship, CUHK, 2011, 2012
Mr. Charles Leung Scholarship, CUHK, 2010
Good Earth Foundation Scholarship, CUHK, 2010
Zhi Yuan Fellowship, Chinese Soong Ching Ling Foundation, 2009

Teaching Experience:

Teaching Assistant at Yale University:

Optimization Techniques, by Sekhar Tatikonda, Spring 2017, Fall 2017, Fall 2018
Mathematical Economics: Game Theory, by Eduardo Faingold, Spring 2018
Digital Design in Economics, by Glen Weyl, Fall 2016

Teaching Assistant at Johns Hopkins University:

Differential Equations with Applications, instructed by Lu Wang, Spring 2014
Differential Equations with Applications, instructed by Carl McTague, Fall 2013

Research Experience:

Research Assistant to Prof. Donald Brown, 2017
Research Assistant to Prof. John Geanakoplos, 2015 - 2016
Research Assistant to Prof. Dirk Bergemann, 2015 - 2016

Visiting Position:

Visiting Scholar, University of Naples Federico II, Feb. 2019 - March 2019

Working Papers:

“Small Group Cooperation in Games and Economies”, (September 2019), *Job Market Paper*

“Small Income Effects in Economies with a Large Number of Commodities and Patient Consumers”, (March 2019)

“Walrasian Tatonnement Stability near Autarchy without Differentiability and Interiority”, (September 2018)

“Second Order Secret Love”, (March 2018)

Seminar and Conference Presentations:

2019: University of Naples Federico II, East Asian Game Theory Conference (China),
Central European Program in Economic Theory (Italy), SAET Ischia (Italy), Annual
Meeting of the Italian Association for Mathematics Applied to Economic and Social

Sciences (Italy), Strategic Interactions and General Equilibrium: Theories and Applications (France, Scheduled)

2018: Central European Program in Economic Theory (Italy), International Conference on Game Theory (USA), The UECE Lisbon Meetings in Game Theory and Applications (Portugal), Strategic Interactions and General Equilibrium: Theories and Applications (France)

2017: East Asian Game Theory Conference (Singapore), 3rd Workshop on Algorithmic Game Theory at IJCAI (Australia), The UECE Lisbon Meetings in Game Theory and Applications (Portugal), Strategic Interactions and General Equilibrium: Theories and Applications (France)

Languages:

Chinese (native), English (fluent)

References:

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Dissertation Abstract: *Essays in Economic Theory*

Small Group Cooperation in Games and Economies (Job Market Paper)

In this paper, we study games and exchange economies with transferable utility and a continuum of agents, who may be of different types and can interact only in small groups.

Firstly, we study a game with a continuum of agents who form small groups in order to share group surpluses. Group sizes are exogenously bounded by natural numbers or percentiles. We prove that there exists a stable assignment, where no group of agents can jointly do better. Conceptually, our work provides the only existence result to this problem on our level of generality as well as a uniform way to understand diverse solution concepts, such as stable matching, fractional core, f-core, and epsilon-sized core. Computationally, when there are finitely many types of players and group sizes are finite, we reduce the number of unknowns in the problem of finding stable assignments from about I^N to about I , where I is the number of player types, N is the maximum size of the small group and I is much larger than N . We achieve this reduction by reformulating the welfare maximization problem as a symmetric transport problem.

Secondly, we study an exchange economy with finitely many goods and a continuum of agents who can exchange commodities only within small groups of some bounded finite sizes. By introducing the idea of a nonlinear price in which expenditures on traded quantities are defined by the same nonlinear function in every group, we prove the existence of a competitive equilibrium with a potentially nonlinear market price, provided that agents have quasi-linear utility functions. It appears that only nonlinear market prices are compatible with models in which all trade surplus might go to one of the trading parties. Therefore, our result suggests that market segmentation might lead to price nonlinearity. This work fills in gaps in the work of Hammond, Kaneko and Wooders (1989) on economies with small groups of arbitrary finite sizes.

Small Income Effects in Economies with a Large Number of Commodities and Patient Consumers

We prove that, at any equilibrium of an economy with additively separable utility functions, when the number of commodities is sufficiently large and all agents are sufficiently patient, all entries in the income derivative of the demand are arbitrarily small. By dropping the assumption that prices are uniformly bounded from below by a positive number, we extend the intuition in Vives (1987) on small income effects from partial equilibrium models to general equilibrium models. In addition, we propose a definition of sufficiently patient for non-separable utility functions.

Walrasian Tatonnement Stability near Autarchy without Differentiability and Interiority

We prove that, when the initial endowment is close to a Pareto optimal allocation, there is a locally tatonnement stable equilibrium, provided that the utility functions are strictly increasing and strictly concave, and every good is indispensable to some consumer.

Second Order Secret Love

Sometimes, when choosing among strategies that maximize their own payoff, agents choose the strategy that is best for their friends. To study this phenomenon, we study games with lexicographic externalities. The novel ingredient is a set of players' preference lists, which represent the order in which players care about the others. The collection of preference lists maps a base game to a game with a lexicographic externality, in which payoff functions are vector-valued and agents compare outcomes according to the lexicographic order. We prove that, for any given preference lists, if the base game has discrete outcomes and upper semi-continuous payoff functions, a Nash equilibrium always exists. In addition, we discuss the efficiency of equilibria in a model with public bads and the epsilon-variations of our formalization.