

Yaoyao Xu

y.xu@ed.ac.uk ◊ +44 (0)7856770686 ◊ <https://sites.google.com/view/yaoyaoxu>

School of Economics, University of Edinburgh, 30-31 Buccleuch Place, Edinburgh, EH8 9JT, UK

EDUCATION

Ph.D. in Economics, University of Edinburgh, UK	2018-2023 (expected)
Supervisors: Dr. Tatiana Kornienko, Professor Ed Hopkins	
M.Sc. Economics (Finance), Distinction, University of Edinburgh, UK	2017-2018
B.A (Hon). Economics, University of Strathclyde, UK	2015-2017
B.A. Management, Jiangxi University of Finance and Economics, China	2013-2017

RESEARCH INTERESTS

Behavioural Economics, Experimental Economics, Behavioural Game Theory

WORKING PAPERS

“Inexact Information, Strategic Sophistication and Equilibrium Transition: A Quasi-continuous-time Experiment”, with Zhi Li and Jianxun Lyu, 2022 (*submitted*). ([LINK](#))

ABSTRACT: This paper provides an experimental investigation of the evolutionary game models which predict transitions among strict Nash equilibria under inexact (inaccurate but unbiased) information of opponents’ behaviors. We design a quasi-continuous-time experiment in which a group of subjects play a coordination game recurrently under either more or less accurate information. We observe that more accurate information facilitates efficiency-improving transitions among strict Nash equilibria than less accurate information, which is in contrast with the evolutionary theory but supports the models of strategic teaching. More accurate information about opponents’ behaviors induces more subjects engaging in persistent strategic deviations from inefficient Nash equilibria that can induce more subjects to deviate in the future, resulting in efficiency-improving equilibrium transitions. When information is less accurate, subjects’ choices are less responsive to changes in the information received. The slow response to the information either blocks or delays efficiency-improving equilibrium transitions.

“Reasoning and Learning in Dominance Solvable Games: An Experimental Study”, 2022.

ABSTRACT: The literature has focused on explaining bounded rationality assuming non-equilibrium beliefs instead of bounded abilities. In this paper I identify subjects’ iterative reasoning ability in dominance solvable games in a simple experimental design, where subjects played games against rational computer players. I further explore whether subjects can learn from a novel tutorial on iterative dominance, and whether subjects perceive the tutorial to be useful by asking them to predict their performance. I find that 90% of the subjects cannot play equilibrium. However, the tutorial has a striking effect on improving reasoning ability that 44% of subjects learn to play equilibrium after the tutorial. In addition, compared to low-cognition subjects, high-cognition subjects are not only endowed with higher reasoning ability but also learn better. Finally, I find that tutorial is believed effective in improving performance, even for subjects who do not have ability improvement. Low-ability subjects tend to over-predict their performance and high-ability subjects tend to under-predict. The tendency cannot be corrected by the tutorial if subjects do not learn to play equilibrium from the tutorial.

“Is Level-k Behavior Bounded by Ability or Belief? An Experimental Study”, 2022

ABSTRACT: Most subjects in level-k literature are found to have low order of rationality. However, it is still unclear whether the identified low levels are due to limited reasoning ability or low order belief about opponents’ rationality. This paper reports a within-subject experiment on Amazon Mechanical Turk (Mturk), where subjects play ring games against two types of opponents simultaneously, other Mturk subjects and themselves. Lk players who are bounded by their ability would exhibit same reasoning depth when facing two types of opponents (ability-bounded Lk), otherwise the players would perform higher reasoning depth when playing against themselves than other participants (belief-bounded Lk). I find that 97% of the subjects do not play Nash equilibrium. 71% of them are ability-bounded Lk players and 13% are belief-bounded Lk player. I further find that subjects with higher cognition has higher ability bounds but not rationality bounds, and are less likely to be ability-bounded Lk players.

WORK IN PROGRESS

“Level-k in Ring Games: Ability Bounds and Incentives”, with Tatiana Kornienko.

“Recommendation System, Belief Formation and Polarization ”, with Alex Kostylev.

RESEARCH GRANTS

The Moray Endowment Fund, University of Edinburgh, UK, 2019 (£2343)

The Scottish Economic Society Small Grants, 2019 (£1000)

SCHOLARSHIPS AND AWARDS

Best Presentation Prize, Scottish Graduate Program in Economics Annual Conference, UK, 2022

Research and Training Studentship, University of Edinburgh, UK, 2018-2022

SGPE Scholarship, University of Edinburgh, UK, 2017-2018

CONFERENCE PRESENTATIONS

Newcastle Economics Research and Development Conference, UK, 2022

Scottish Graduate Program in Economics Annual Conference, UK, 2019, 2020, 2021, 2022

TEACHING AND RESEARCH ACTIVITIES

Tutor, SGPE Summer School Microeconomics (postgraduate), University of Edinburgh

Tutor, Mathematics, Statistics and Econometrics (postgraduate), University of Edinburgh

Tutor, Econometrics 1 (postgraduate), University of Edinburgh

Tutor, Economics 1 (first-year undergraduate), University of Edinburgh

Tutor, Economics 2 (second-year undergraduate), University of Edinburgh

Research Assistant to Dr. Tatiana Kornienko (University of Edinburgh) and Prof. John Duffy (University of California, Irvine), 2021

ADDITIONAL TRAINING

SGPE Machine Learning Summer School, University of St Andrews, UK, 2022
Behavioural Game Theory Summer School, University of East Anglia, UK, 2019
Experimental Econometrics Summer School, University of East Anglia, UK, 2019

LANGUAGE AND COMPUTER SKILLS

Chinese (native), English (fluent)
Stata, Latex, oTree, Python, JavaScript, HTML, R (introductory)

REFERENCES

Dr. Tatiana Kornienko
School of Economics
University of Edinburgh
30-31 Buccleuch Place
Edinburgh, EH8 9JT
tatiana.kornienko@ed.ac.uk

Prof. Ed Hopkins
School of Economics
University of Edinburgh
30-31 Buccleuch Place
Edinburgh, EH8 9JT
e.hopkins@ed.ac.uk

Dr. Mariann Ollár
School of Economics
University of Edinburgh
30-31 Buccleuch Place
Edinburgh, EH8 9JT
mollar@ed.ac.uk

Last updated: September, 2022