

Bei Yang

Department of Economics
University of Illinois
214 David Kinley Hall
1407 West Gregory Drive
Urbana, IL 61801

Phone: (217) 402-4349
Email: beiyang2@illinois.edu
<https://sites.google.com/view/beiyang>

Education

Ph.D. Candidate Economics, University of Illinois at Champaign Urbana, [Expected May 2021]
Master of Science in Policy Economics, University of Illinois at Urbana-Champaign, 2014
B.S. Economics, Huazhong University of Science and Technology, 2010

Research Interests

Climate Change, Game Theory, Mechanism Design

Working Papers

“Global Green Deal: International Climate Cooperation on Net-Zero Carbon Emission” with Chenghao Ding and Clifford Singer (Job Market Paper)

Book Chapters

Research monograph in preparation with Nuole Chen, Chenghao Ding, and Clifford Singer:

Chapter 1: “Global Physical Balances”

Chapter 2: “Climate Economic Impact Model: Consequences of Failure to Limit Greenhouse Gas Emissions”

Chapter 3: “Global and Regional Extrapolation of CO₂ Emissions: with an Example of Possible Security Benefits to the European Union of Reduced Fossil Fuel Imports”

Chapter 4: “Economic Measure of Welfare Impact of a Green Deal and other Climate Policy Options”

Work in Progress

“Strategic Options of Solar Radiation Management”

“A Computational Model of Global Climate Game”

“Buyer’s Optimal Pre-Auction Mechanism”

“Screening Behavior in the Continuous Double Auction with One-Sided Incomplete Information”

Teaching Experience

Instructor, Econ 437: Game Theory, Spring 2018 - Spring 2020

- For advanced undergraduate students | Designing course structure, preparing all lectures and grading all coursework. Transitioning to full-online structure during Spring 2020 semester.

Instructor, Econ 199: Intro to Game Theory, Fall 2017

- For undergraduate students at all level | Designing course structure, preparing all lectures and grading all coursework.

Teaching Assistant, Econ 103: Macroeconomic Principles, Spring 2015, Spring 2016, Fall 2016

Teaching Assistant, Econ 102: Microeconomic Principles, Fall 2015

Teaching Assistant, Econ 303: Intermediate Macroeconomics, Fall 2014

Honors, Fellowships, & Awards

List of Teachers Ranked as Excellent by Students, Fall 2019

Summer Research Fellowship, Department of Economics, University of Illinois, 2015

Omicron Delta Epsilon, International Economics Honor Society, 2014

Other Information

Languages: English (fluent), Mandarin (native)

Softwares: Mathematica, Matlab, R, Stata, Latex.

References

Professor Steven Williams (Chair)
Department of Economics
University of Melbourne
steven.williams@unimelb.edu.au
+61-3-9035-4639

Professor Dan Bernhardt
Department of Economics
University of Illinois at Urbana-Champaign
danber@illinois.edu +1-217-244-5708

Professor Stefan Krasa
Department of Economics
University of Illinois at Urbana-Champaign
skrasa@illinois.edu
+1-217-333-7698

Professor Jorge Lemus
Department of Economics

University of Illinois at Urbana-Champaign
jalemus@illinois.edu
+1-217-244-7468

Professor Clifford Singer
Department of Nuclear, Plasma, and Radiological Engineering, and of Political Science
University of Illinois at Urbana-Champaign
csinger@illinois.edu

Description of Research

“Global Green Deal: International Climate Cooperation on Net-Zero Emission” with Chenghao Ding and Clifford Singer (Job market paper)

We develop and estimate an integrated model of climate and the economy to study international cooperation on net-zero carbon emission among sixteen geographic regions. We find that achieving net-zero emission by mid-century reduces global social welfare loss by up to 35%, accounting for the emission reduction cost. However, we show that the economic benefit of free-riding may entice each region to quit the cooperation at low emission reduction rate. We demonstrate that trigger strategies are not effective in stabilizing the cooperation and would quickly lead the world to the punishment phase. We also demonstrate that a global transfer-payment program could sustain cooperation, but the budget of the program would be in deficit until the middle of next century. These results suggest that global effort on achieving net-zero carbon emission by mid-century is desirable, but the required international cooperation may be difficult to sustain.

“Strategic Options of Solar Radiation Management” with Clifford Singer (In progress)

We study strategic options by the use of solar radiation management (SRM) techniques. SRM has relatively inexpensive direct cost and has the potential to quickly control the global mean temperature increase. In this paper we identify and characterize opportunities and challenges that SRM brings to the climate change problem and its strategic impact on international cooperation of carbon emission reduction. This paper contributes to the expanding literature on studying SRM in strategic context by using an integrated climate-economic model, which makes our results informative for policy-makers.

“A Computational Model of Global Climate Game” (In progress)

In this paper, I study a piecewise linear dynamic climate game in which each country controls its own emission reduction policy. I formally characterize the globally optimal outcome and a simple subgame perfect equilibrium. I show that trigger strategies may improve the noncooperative outcome but its effectiveness may be compromised when participants climate change impacts are highly heterogenous. I also characterize the equilibrium outcome when a global market exists that allows participants to trade emission reduction burden with others. Currently, I am investigating whether transfer payments can stabilize cooperation on the globally optimal outcome.

“Buyer’s Optimal Pre-Auction Mechanism” (In progress)

This paper studies buyer's optimal trading mechanism when the seller cannot commit to the auction mechanism in presence of new buyers if the preceding trading mechanism fails to achieve transaction.

"Screening Behavior in the Continuous Double Auction with One-Sided Incomplete Information"

This paper studies a discrete-time model of continuous double auction with one-sided offers. We extended the insights from the literature of sequential bilateral bargaining with one-sided information. We discovered that the successive skimming property is embedded in the equilibrium of our model. Through the analysis of a simple example of two traders on each side, we characterized the stationary equilibrium and provided a set of sufficient conditions for its existence.