Danchen Zhao

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CONTACT INFORMATION

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RESEARCH FIELDS

Macroeconomics, Economics of Climate Change, Computational Economics, International Trade

EDUCATION

University of Notre Dame — Notre Dame, IN
Ph.D. in Economics — 2024

The University of Texas at Austin — Austin, TX
B.A. in Economics — 2019

WORKING PAPERS

Technology Choice, Energy Efficiency, and Second-Best Climate Policy (Job Market Paper), 2024

Abstract:
I study the effectiveness of subsidies as an alternative to carbon taxes in reducing carbon emissions in a quantitative climate-economy model. An energy firm uses brown and green energy inputs to produce energy. A representative firm-household then uses energy, capital, and labor to produce final goods. The short-run elasticity between energy and other inputs is low. However, higher energy prices encourage higher energy efficiency, leading to a higher elasticity in the long run. The key weakness of green energy subsidies, as an alternative to carbon taxes, is that they cannot promote higher energy efficiency. Thus, in the baseline model, the optimal green subsidies result in a modest 1.0% decrease in emissions by the end of the century relative to cumulative emissions in the business-as-usual scenario. However, if the government subsidizes green energy usage and energy-saving technical change simultaneously, the optimal subsidies are nearly as effective in reducing emissions as the first-best taxes on carbon emissions. Under this approach, 90% of the emission reductions and 88% of the welfare gains achievable through optimal carbon taxes can be realized.

Investing in Climate Adaptation under Trade and Financing Constraints: Balanced Strategies for Food Security (with Chen Chen and Koralai Kirabaeva, IMF working paper), 2024

Agriculture, Relative Prices, and Climate Policy, 2023

WORK IN PROGRESS

Small (not Big) Data: A Machine Learning Approach for Structural Dynamic Economies (with Zachary Stangebye)

EXTERNAL PRESENTATIONS

2024: The Chinese Economists Society North America Annual Conference, The Society for Computational Economics Annual Conference, European Association of Environmental and Resource Economists Annual Conference
2022: 20th Annual GEP/CEPR Postgraduate Conference
2021: Berkeley/Sloan Summer School in Environmental and Energy Economics

TEACHING

Instructor:

Principles of Microeconomics — Fall 2024

Teaching Assistant:

Statistics for Economics Tutorial — Fall 2021
Principles of Microeconomics — Spring and Fall 2020, Spring and Fall 2021 Fall 2022, Spring 2023

RESEARCH EXPERIENCES

University of Notre Dame — Notre Dame, IN
Research Assistant to Dr. Robert Johnson — Fall 2023-Fall 2024

International Monetary Fund — Washington, DC
Fund Intern Program — Summer 2023

The University of Texas at Austin — Austin, TX
Research Assistant to Dr. Olivier Coibion — Fall 2017

COMPUTATIONAL SKILLS

MATLAB, Python, Julia, Stata

PERSONAL

Citizenship: China
Work Authorization: USA - 3 year OPT starting Aug 2024 (STEM designation)

REFERENCES

Professor Nelson Mark
Alfred C. DeCrane Jr. Professor of Economics
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Professor Zachary Stangebye
Assistant Professor of Economics
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