

Zhihao Han

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Education

([†] Indicates expected)

2021–2026[†] Ph.D., Economics, National University of Singapore
2019–2021 M.A., Economics, Duke University
2015–2019 B.A., Economics, Nankai University

Awards & Fellowship

K.R. Chou PhD Scholarship in Economics	2025
Top 10 VSAE Econometric Game	2025
National University of Singapore PhD Research Incentive Award	2023
National University of Singapore PhD Research Scholarship	2021-2025
Duke University M.A. Economics Merit Scholar Award	2020
Nankai University Undergraduate Student with Distinction	2019
Outstanding Undergraduate Thesis of Nankai University	2019
China National Scholarship	2017, 2018
Nankai University Su Wukang Scholarship	2017, 2018
Nankai University First-tier Scholarship	2016

Teaching

Teaching assistant at National University of Singapore

Econ 3303, Econometrics I, with Dr. Kelvin Seah Kah Cheng	2025 Spring
Econ 3303, Econometrics I, with Dr. VU Thanh Hai	2024 Fall
PhD Math Camp	2024 Summer
Econ 3303, Econometrics I, with Dr. Kelvin Seah Kah Cheng	2023 Fall
Econ 6103, Econometric Modelling and Applications II, with Prof. Seo Juwon	2023 Spring

Working Papers

- [1] “[The Road to Cleaner Transit: Shaping Preferences for Electric Buses through Household Education](#)” (with [Alberto Salvo](#), [Timothy Wong](#), and [Wai Yan Leong](#)), *Job Market Paper*

Abstract: Decarbonizing public transport requires electrifying the urban bus fleets that currently run on diesel. We implemented an education campaign with 1200 households over four months, repeatedly highlighting the co-benefits of investing in cleaner technology while tracking use of public transport. Education covered the private benefits of electric buses such as reduced noise and fumes, along with social benefits like improved neighborhood air quality and climate mitigation. Our intervention significantly enhanced households’ awareness of bus engine types and perceived advantages of electric buses. Hypothetical choice experiments indicate that education raises willingness to pay for electric buses by ten cents per trip. The shift in preferences is observed in real behavior, with transit payments showing a persistent rise in electric bus ridership among treated households, particularly the majority who do not own cars and residents nearby bus lines served by electric buses. Our findings suggest that repeated exposure to relatively cheap educational campaigns can effectively shape environmental preferences and widen support for environmental protection.

- [2] “[The Challenge of Regulating Dirty New Industries: Evidence from Cryptocurrency Mining](#)” (with [Siddharth George](#) and [Alberto Salvo](#)) *Submitted*

Abstract: We evaluate two major efforts to decarbonise energy-intensive cryptocurrency mining. First, we analyse the impacts of China’s cryptomining ban using a difference-in-differences design. The ban decreased electricity consumption in mining-intensive Chinese provinces by 5% and shifted electricity generation towards non-fossil sources. While effective within China, the ban induced a global relocation of mining activity, with China exporting and the US importing more cryptomining equipment. This relocation increased electricity consumption and fossil generation in mining-heavy US states, diluting the global impact of China’s ban by 30-40%. Second, we examine Ethereum’s transition to Proof-of-Stake, a cleaner production technology. Using a regression discontinuity design, we find that Ethereum’s switch reduced US electricity consumption. However, miners redeployed their equipment to mine other cryptocurrencies, offsetting the impact of Ethereum’s transition by 30%. Our findings illustrate the difficulty of decarbonising energy-intensive industries with mobile, redeployable production factors.

- [3] “[Revisit the Unintended Effects of Diesel Trucks Circulating Inside the Sao Paulo Megacity](#)” (with [Alberto Salvo](#) and [Nelson Gouveia](#))

Abstract: This paper assembles universal death records from São Paulo—covering fatalities in public and private hospitals and at home—together with highly granular population data to construct measures of residents’ exposure to air pollution. Linking exposure to mortality rates, we estimate the elasticity of cardiorespiratory mortality with respect to nitrogen oxides (NO_x). A 10 ppb increase in NO_x is associated with an increase of 0.2 deaths per 100,000 people per month, a magnitude smaller than reported in much of the prior literature. Heterogeneity analyses indicate larger effects among non-Hispanic whites and individuals with higher educational attainment. These findings contrast with evidence from the United States, where disadvantaged groups are typically found to be more vulnerable. Overall, the results contribute new evidence from a developing-country setting and highlight the role of local demographic and socioeconomic context in shaping pollution–health gradients.

Work in progress

- [1] “Construction Noise Pollution and Housing Rental Market” (with [Yaming Lei](#))
- [2] “Contingent Valuation on Electric Buses”
- [3] “Smart Road Pricing” (with [Alberto Salvo](#), [Kwok-Hao Lee](#), [Binglin Wang](#), and [Esther, Tay Wen Hsin](#))

Conference & Presentation

2025

VSAE Econometric Game Final Presentation, NUS International Behavioural Public Policy Workshop (IBPPW), Sustainability Forum with Fudan University and Korea University, Bridging Transportation Researchers (BTR) Conference, Sustainable Asia Conference, NUS Applied Economics Student Workshop

2024

Columbia University Interdisciplinary Ph.D. Workshop in Sustainable Development (IPWSD), NUS Environmental Economics Workshop, Singapore Land Transport Authority (LTA) Meeting

2023

Duke Development and Energy Hybrid Seminar, Singapore Land Transport Authority (LTA) Meeting, NUS Applied Economics Student Workshop, NUS Applied Micro SIG Brownbag Workshop, NUS Graduate Research Seminar

2021

The 12th XiangZhang Economics Workshop (Fujian)

2020

Data+ Final Presentation

Research Experience

Data+ Program, Duke University	2020
• Supervisor: Victoria Plutshack, Jonathon Free, Robert Fetter • Project: Taking electrification on the road: Exploring the impact of the Electric Farm Equipment roadshow	
Cross-disciplinary Scholars in Science and Technology (CSST) program	2018
• University of California, Los Angeles, with Ricardo Perez-Truglia • Project: Betting on the House: Subjective Expectations and Market Choices	
Research assistant	2017-2019
• Nankai University, with Puyang Sun	

Miscellaneous

Language: Mandarin (native), English (fluent)

Computer Skills: Stata, ArcGIS, MATLAB, R, Python, LaTeX

Certificate: CFA Level I

Date of birth: November 1997

Citizenship: Chinese

References

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