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Education

Ph.D. Economics, George Washington University	May 2023 (expected)
M.S. Economics, George Washington University	May 2018
B.S. Mathematics and Applied Mathematics, Sun Yat-sen University	June 2016
International Study Program, University of California, Berkeley	Jan - May 2015

Research and Teaching Interests

Primary: Applied Microeconomics, Environmental Economics

Secondary: Urban Economics, Transportation Economics, Energy Economics, Econometrics

Other teaching interests: Microeconomics, Macroeconomics

Job Market Paper

Effects of Subsidies and Vehicle Restriction Exemptions on Electric Vehicle Adoption: Evidence from 87 Cities in China [Draft]

Abstract: This paper examines the effects of subsidies and exemptions from license plate quotas and driving restrictions on electric vehicle (EV) adoption in China. The analysis leverages spatial and temporal variations in national and local EV subsidies using a panel fixed-effects model based on monthly passenger vehicle registration data from 87 Chinese cities from 2016 to 2019. In addition, this study exploits the differential local exposure to a 2017 shift in the national subsidy policy using a difference-in-differences model. The results show that subsidies have positive but heterogeneous effects on EV adoption. Subsidies are most effective in first-tier cities, with a 10,000 RMB increase in subsidies being associated with an 18.77% increase in the EV market share. However, within the same city tier, subsidies are less effective in regions with higher GDP per capita and greater shares of government expenditure allocated to education or environmental protection. Additionally, exempting EVs from driving restrictions and license plate quotas is highly effective in promoting EV adoption. For instance, exemptions from license plate quotas increase EV market shares by over 220%. More specifically, every one percentage point increase in the probability of winning a lottery or a 1,000 RMB increase in the auction price for a conventional vehicle license plate is correlated with a 1.2% to 1.4% increase in EV market share. Results from the difference-in-differences analysis also support the conclusion that the effect of subsidies on EV adoption is positive.

Publications

Jiang, Bo, Hector Tzavellas, and Xiaoying Yang. "Deposit Competition, Interbank Market, and Bank Profit", *Journal of Risk and Financial Management* 15, no. 5 (2022): 194. <https://doi.org/10.3390/jrfm15050194>

Yang, Xiaoying, Yue Pan, and Huiliang Ling. "TWPR Model Based on PageRank Algorithm for Measuring Influence in Network", *Far East Journal of Mathematical Sciences* 98, no. 2 (2015): 235.

Working Paper

Effects of Upgrading Fuel Standards on Air Quality: Evidence from China Gasoline Standard VI Upgrade, with *Xinxin Cao*

Abstract: Improving fuel quality is an important means of reducing tailpipe emissions, the main contributor to air pollution in urban areas. This paper examines the effect of a recent upgrade in the gasoline standard on air quality in China. This study uses city-level hourly pollutants data in 334 Chinese cities between 2016 and 2019 and aggregates them to the monthly level to alleviate the concern about measurement errors regarding the timeliness of the upgrade. Exploiting the temporal differences in the implementation of gasoline standard VI, we utilize a difference-in-differences model and an event study design to investigate the effects of the upgrade on the air quality index (AQI) and pollutants, including PM_{2.5}, PM₁₀, ozone, NO₂, CO, and SO₂. The results show that upgrading the gasoline standard from V to VI has significantly improved air quality, with a 16% decrease in the air quality index (AQI). Specifically, PM_{2.5}, PM₁₀, and ozone decreased by 21.73%, 16.05%, and 19.10%, respectively. NO₂, CO, and SO₂ did not experience a significant change in response to the fuel standard upgrade. The results are consistent with the fact that the upgraded standard targets lower maximum allowed concentrations of benzene, aromatics, and olefins. Analysis using a regression discontinuity in time (RDiT) approach also confirms the findings. A back-of-the-envelope calculation reveals that the reductions in these pollutants led to \$25.04 billion in total health benefits.

Work in Progress

Are Public Transit and Bikeshare Substitutes or Complements? Evidence from 31 U.S. Metropolitan Areas, with *Xinxin Cao*

Abstract: Bikeshare systems have gained popularity in the United States in recent years as they are an environmentally friendly mode of micro-transportation. This paper examines the relationship between bikeshare systems and public transit ridership in U.S. metropolitan areas (MSAs). Bikeshare can be a complement to public transit as it provides a solution to the first/last-mile problem. On the other hand, bikeshare can substitute short-distance trips that would have been undertaken using public transit had bikeshare not been introduced. Previous research that studies the association between bikeshare and public transit ridership in the United States focuses mainly on single-MSA analyses and finds mixed results. Previous multi-MSA analyses mostly use survey data on bikeshare use and public transit ridership or focus on a small group of large MSAs. This paper extends the analysis to small and medium-sized MSAs, using data for transit agency-level monthly public transit ridership and bikeshare entry dates in 31 MSAs in the United States. This study uses a difference-in-differences model and an event study specification to analyze the impacts of bikeshare entry in an MSA on public transit ridership. The results show that monthly total public transit ridership and monthly bus ridership declined by 4.4% and 4.7%, respectively, following the bikeshare entry. Rail ridership did not appear to experience a significant change in response to bikeshare entry. In addition, this study uses MSA-level monthly bikeshare trip data to analyze the relationship between bikeshare use and public transit ridership. The results indicate that docked bikeshare is a net substitute for buses. Specifically, the number of bikeshare trips on weekdays is not associated with total public transit ridership or rail ridership but is negatively associated with bus ridership.

Conference Presentations

86th Midwest Economic Association Meeting (Minneapolis), March 2022

Mini-Conference for Job Market Candidates, George Washington University, May 2022

97th Western Economic Association International Annual Conference (Portland), June 2022

92th Southern Economic Association Annual Meeting (Fort Lauderdale), November 2022

Development Tea Seminar, George Washington University, November 2022

Research Experience

Short-Term Consultant

· *World Bank, July - August 2019*

Conducted a thorough literature review and developed an analytical framework to estimate the economic benefits of comprehensively using Geographic Information in the Kingdom of Saudi Arabia

Research Assistant

· *School of Mathematics and Computational Science, Sun Yat-sen University, September - December 2015*

Conducted textual analysis on posts scraped from social media using R

Teaching Experience

Teaching Assistant

Principles of Microeconomics

· Discussion Session Instructor, George Washington University, Fall 2017-2018, Fall 2019-2021

Principles of Macroeconomics

· Discussion Session Instructor, George Washington University, Spring 2019

Intermediate Macroeconomic Theory

· Graduate Assistant, George Washington University, Fall 2021-2022

Introduction to Econometrics

· Graduate Assistant, George Washington University, Fall 2022

Service

Vice President, Student Association of Graduate Economists at George Washington University, 2017-2020

Co-organizer, George Washington University Student Research Conference in Economics, 2018 and 2019

Fellowships and Awards

Sar and Brita Levitan Endowment Scholarship, George Washington University, 2020-2021

Graduate Fellowship, George Washington University, 2017-2020, 2021-2022

Meritorious Winner of Mathematical Contest in Modeling, 2014

3rd Prize of Contemporary Undergraduate Mathematical Contest in Modeling (Guangdong), 2014

3rd Class Scholarship, Sun Yat-sen University, 2013, 2014

2nd Prize of Mathematical Modeling in Sun Yat-sen University, 2013

Affiliations and Memberships

American Economic Association (AEA), Association of Environmental and Resource Economists (AERE), Chinese Economists Society (CES)

Programming Languages

Matlab, Stata, Python, GIS, L^AT_EX, R, C, C++.

References

Prof. Arun Malik (Main)

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Prof. Steven M. Suranovic

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Last updated: December 2, 2022