Xinxin Cao

St. Lawrence University
Economics Department
Hepburn Hall 205
Canton, NY 13617

Citizenship: China
Phone: +1 (571) 216-8636
Email: xcao@stlawu.edu
Homepage: https://xinxincodycao.net/

Education

Ph.D. Economics, The George Washington University, August 2023

M.S. Economics, The George Washington University, May 2018

M.S. Accounting, The Ohio State University, May 2013

B.A. Finance, Accounting, and Management, University of Nottingham, Ningbo, China, July 2012

Employment

Visiting Assistant Professor in Economics, St. Lawrence University, August 2023

Research and Teaching Interests

Primary: Environmental Economics, Urban Economics, Applied Microeconomics

Secondary: Transportation Economics, Economics of Education

Other Teaching Interests: Microeconomics, Econometrics, Statistics, Macroeconomics

Research

Working Papers

"Does Docked Bikeshare Affect Property Prices and the Metro Station House Price Gradient? Evidence from Washington, DC's Capital Bikeshare System" [Paper]

Abstract: Public bikeshare systems have gained popularity in the United States over the past decade. This study examines the effect of bikeshare systems on property prices and the so-called metro station house price gradient, i.e., the curve that depicts the relationship between property prices and distance to the closest metro station. *A priori*, bikeshare can have ambiguous effects on residential property prices and the (metro station house) price gradient. It can provide amenities, e.g., by solving the last-mile problem for residents living within a certain radius of metro stations. On the other hand, it can have disamenity effects as more non-residents gain easier access to a neighborhood. Amenity and disamenity effects will affect property prices in opposing ways. The heterogeneous amenity and disamenity effects at different distances to metro stations, and the extent to which bikeshare and metro rail are complements or substitutes, can affect the price gradient. This study employs a hedonic regression model with difference-in-differences to analyze how residential property prices and the price gradient respond to the introduction of docked bikeshare in eight counties and cities of the Washington, DC metropolitan area. The study uses detailed property level transaction data from Zillow along with data on the locations and opening dates of Capital Bikeshare stations and metro stations. This

study is the first to examine the effects of bikeshare systems on the price gradient in the North American context. Results show that introducing bikeshare stations near residential properties has no net effect on property prices or the price gradient. A conceptual model is developed to provide possible explanations for the results.

"Are Public Transit and Bikeshare Substitutes or Complements? Evidence from 31 U.S. Metropolitan Areas", with Xiaoying Yang (South China Sea Development Research Institute) [Paper]

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 docked 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 be a substitute for public transit as people replace short-distance public transit trips with bike rides. This paper presents a multi-MSA analysis that includes small and medium-sized MSAs, using transit agency-level monthly public transit ridership data and bikeshare entry dates in 31 MSAs in the United States. We employ a difference-in-differences model and an event study specification to examine the impacts of docked bikeshare entry in an MSA on public transit ridership. The results show that following bikeshare entry, monthly bus ridership declines by 4.6%. However, rail ridership does not experience a significant change in response to bikeshare entry. In addition, this study uses MSA-level monthly docked bikeshare trip data to analyze the relationship between bikeshare use and public transit ridership. The results also indicate that docked bikeshare primarily serves as a net substitute for buses. However, we find heterogeneity in the effects of bikeshare entry and bus ridership. Specifically, in large MSAs or MSAs that are more bikeable or more transit-friendly, bikeshare tends to serve as a substitute for buses, reducing transit ridership. Conversely, in small MSAs or non-bikeable MSAs, the negative impact diminishes.

"Effects of Upgrading Fuel Standards on Air Quality: Evidence from China Gasoline Standard VI Upgrade", with Xiaoying Yang (South China Sea Development Research Institute) [Paper]

Abstract: Improving fuel quality is an important means of reducing tailpipe emissions from motor vehicles, the main contributor to air pollution in urban areas. This study is based on temporal differences in the implementation of gasoline standard VI in Chinese cities, using a difference-in-differences (DID) method, an event study design, and a regression discontinuity in time (RDiT) design to investigate the effects of upgrading fuel standards on air quality. We use city-level hourly pollutant data for 334 Chinese cities between 2014 and 2019 and aggregate them to the weekly and monthly levels. The primary results from the DID models show that the upgrade from gasoline standard V to VI has significantly improved air quality, with a 15.2% improvement in the air quality index (AQI). Specifically, $PM2.5$ and $PM10$ were reduced by 21.02% and 14.53%, respectively. Results from the RDiT further support the findings from the DID analysis. A back-of-the-envelope calculation suggests that the reductions in these pollutants led to a total health benefit of $23.98 billion per year.

Working in Progress

"Does a Semester-Long Basic Math for Economics Course Improve Students' Performance in Introductory Microeconomics?", with Irene R. Foster and Daniel Mackay (The George Washington University)

Teaching Experience

Instructor, Economics Department, St. Lawrence University

Quantitative Methods, Fall 2023 and Spring 2024

Instructor, Department of Economics, The George Washington University

Principles of Mathematics for Economics, Spring 2022

Teaching Assistant, Department of Economics, The George Washington University

Principles of Microeconomics (discussion section instructor), and Fall 2017, and Fall 2018, and Fall 2020 (online)

Principles of Macroeconomics (discussion section instructor), Spring 2018

Intermediate Microeconomics (graduate teaching assistant), Spring 2019 and Spring 2021

Principles of Mathematics for Economics (discussion section instructor), Fall 2019 and Spring 2020 (hybrid)

Introduction to Econometrics (graduate student assistant), Fall 2021 and Fall 2022

Teaching Assistant, Johns Hopkins Center for Talented Youth

Game Theory, Summer 2019

Professional Experience

English Teacher, Xiamen New Channel English School (Xiamen, China), 2015-2016

Assistant Auditor, Zhonghui Accounting Firm (Shanghai, China), 2014-2015

Conference and Seminar Presentations

88th Midwest Economcis Association Annual Conference (Chicago), March 2024

50th Eastern Economic Association Annual Conference (Boston), March 2024

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

Economics of LGBTQ+ Individuals Virtual Seminar Series, AEA Committee on the Status of LGBTQ+ Individuals in the Economics Profession, October 2022

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

Mini-Conference for Job Market Candidates (GWU, Washington, DC), May 2022

Service

Vice President, Student Association of Graduate Economists, 2018-2020

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

Honors and Awards

Graduate Fellowship, George Washington University, 2017-2022

Head's Scholarship, The University of Nottingham, Ningbo, China, 2010-2011

Dean's Scholarship, The University of Nottingham, Ningbo, China, 2009-2010

Skills

Programming: Python, GIS, Stata, LaTeX, High Performance Computing, Microsoft Office

Languages: English (fluent), Chinese (native)

References

Prof. Arun Malik (Main)
Professor
Department of Economics
The George Washington University
Email: amalik@gwu.edu
Phone: +1 (202) 994-5471

Prof. Leah Brooks
Associate Professor
Trachtenberg School of Public Policy and Public Administration
The George Washington University
Email: lfbrooks@gwu.edu
Phone: +1 (202) 994-4703

Prof. Paul Carrillo
Professor
Department of Economics
The George Washington University
Email: pcarrill@gwu.edu
Phone: +1 (202) 994-7608

Prof. Irene Foster
Associate Professor
Department of Economics
The George Washington University
Email: fosterir@gwu.edu
Phone: +1 (202) 994-2318

Prof. Brian Chezum
Professor
Economics Department
St. Lawrence University
Email: chezum@stlawu.edu
Phone: +1 (315) 229-5426