Zhanhan Yu $('zanhan -' u)$

CONTACT INFORMATION
Adam Smith Business School
University of Glasgow
2 Discovery Place
Glasgow, UK
G11 6EY
zhanhan.yu@glasgow.ac.uk
Web: https://yuzhanhan.github.io/personal-website/

REFERENCES

Alfonso Flores-Lagunes
Vice President and Director of Research
W.E. Upjohn Institute for Employment Research
flores-lagunes@upjohn.org
+1 (520) 245-9182

David Popp
Professor, Department of Public Administration and International Affairs
Syracuse University
dcpopp@syr.edu
+1 (315) 443-2482

Ying Shi
Assistant Professor of Public Administration and International Affairs
Syracuse University
yshi78@syr.edu
+1 (315) 443-9442

Sai Ding
Professor of Economics, Adam Smith Business School
University of Glasgow
Sai.Ding@glasgow.ac.uk
+44 01413305066

CURRENT POSITION

Adam Smith Career Development Fellow, University of Glasgow 2023-

EDUCATION

Syracuse University 2023
Ph.D. in Economics
Duke University 2018
M.A. in Economics
Nankai University 2015
Bachelor of Economics

RESEARCH INTERESTS

Labor Economics, Environmental Economics, Applied Econometrics

PUBLICATION

"Heat and Productivity: Evidence from Flight On-Time Performance" *with Ying Shi*
Accepted at the Journal of the Association of Environmental and Resource Economists

We investigate the impact of high temperatures on productivity using microdata from the U.S. airline industry. By linking high-frequency on-time flight performance measures with meteorological data, we show that higher temperatures significantly reduce airline productivity by increasing cancellation and delay rates and lengthening delay times. Complementary analyses using a sample of transportation workers from the American Time-Use Survey (ATUS) suggest that higher temperatures reduce labor supply (fewer hours worked and greater worker absenteeism) and adversely impact well-being measures such as sleep quality, which may affect on-the-job-productivity.

WORKING PAPER

"Air Pollution and Health at Work" (Job Market Paper)
Under review at the Journal of the European Economic Association

Air pollution, particularly PM2.5 and ozone, has been found to adversely affect human physical and cognitive functioning, leading to various subclinical symptoms. Despite pathophysiological evidence linking pollution and heat to human physical and cognitive functioning, relatively little is known about their effects on labor productivity, especially concerning safety and health at workplaces in high-income countries. My job market paper, "Air Pollution and Health at Work," fills this gap by investigating the causal effect of air pollution on worker health and workplace safety. I create a novel data set combining high-frequency PM2.5, ozone, and meteorology data with workplace injury information collected from Florida's administrative records of workers' compensation (WC) claims. To credibly pin down the causal effect, I leverage exogenous variations in air pollution driven by atmospheric temperature inversion episodes. I find evidence that PM2.5 significantly increases workplace injuries. The effect exhibits a nonlinear pattern, increasing with rising pollution levels, and shows a non-negligible impact even at mild pollution levels below the current regulatory standards. Specifically, I find that a one-unit increase in PM2.5 at 12 $\mu g/m^3$ is associated with an increase in WC claims per 1 million population by 0.8 percentage points (a 2% increase relative to the sample mean claim rate). This effect is significantly greater for PM2.5 at 30 $\mu g/m^3$, to be approximately 8 percentage points (21%). In comparison, the effect of ozone pollution is linear and relatively smaller compared to the effect of PM2.5. A 10-ppb increase in ozone is found to increase WC claims per 1 million population by 0.7 percentage points (2%). Complementary analyses evaluating the monetary costs associated with workplace injuries caused by air pollution suggest a substantial increase in WC payments due to air pollution. For instance, a single day with a 10 $\mu g/m^3$ increase in PM2.5 across Florida is estimated to cause 247 additional workplace injuries per 1 million population and result in an increase in WC costs of more than $200 million.

"Monopsony in Academia and the Gender Pay Gap: Evidence from California" *with Alfonso Flores-Lagunes*
Under review at the Journal of Human Resources

We investigate monopsony power in a highly-skilled labor market given by tenure-ranked faculty in the University of California system, and analyze differential monopsony power exposure by gender. We infer the campus-level labor supply elasticity by estimating the elasticity of separations utilizing individual-level faculty data and two instruments based on campus revenues and salary scales. We find that the "exploitation rate," a common measure of monopsony power, is 7% for tenure-ranked faculty. There is a statistically significant difference in the monopsony power experienced by male and female faculty, but it appears to account for a relatively small percentage of the observed gender pay gap.

"Carbon Footprint of Place-Based Economic Policies" *with Yao Wang and Sayahnika Basu*

We evaluate the environmental impact of Special Economic Zones (SEZs), a place-based policy designed to foster economic development in India. Specifically, we identify the unintended effects of the policy on firms' energy usage and carbon emissions. Leveraging extensive firm data and a spatial RD-DiD design, we find that SEZs lead to a significant 30% reduction in firms' carbon emissions. This substantial decline in emissions is predominantly driven by larger firms and those located in regions with access to cleaner energy. Complementary analyses indicate a shift among firms within SEZs from conventional energy to lower-carbon renewable alternatives, potentially contributing to the overall reductions in carbon emissions. These findings underscore the interplay between economic development and environmental conservation.

"Does Air Pollution Impair Work Safety? The Impact of PM2.5 on Severe Workplace Injuries"

Under review at the Oxford Bulletin of Economics and Statistics

I investigate the effects of air pollution, particularly PM2.5, on workplace safety using novel data on work-related severe injuries and air pollution in the contiguous United States from 2015 through 2018. I start by providing statistical evidence showing that the commonly used instrumental variables for air pollution, namely, wind direction and rainfall, violate the point identification assumptions for the workplace safety outcomes. Then, I leverage partial identification strategies using the same instruments to estimate bounds on the effect of air pollution. The partial identification method replaces the exclusion restriction with weaker assumptions, exploiting the exogenous variability induced by the instrumental variables while accounting for their invalidity. The estimated bounds on the effect of PM2.5 pollution are between 0.7 and 3.9 percentage points, equivalent to a 7 to 39% increase relative to the sample average accident rate. Based on these results, I consider the impact of air pollution on workers' compensation costs. A back-of-the-envelope calculation indicates that a one day increase in the annual number of days with PM2.5 pollution is estimated to raise annual total costs of workers' compensation by at least 0.9 billion dollars and up to 5.1 billion, equivalent to about 1 to 8% of total workers' compensation paid in 2018.

SELECTED WORK IN PROGRESS

"The Effect of Tax Levies on Future Construction and Demolitions: The Importance of Zeros When Leveraging Voting Designs" *with David Brasington and Alfonso Flores-Lagunes*

We investigate the effects of tax levies on future construction and demolitions. To estimate the effects, we leverage the voting that has taken place when a local government considers imposing the tax levies in a regression discontinuity design. Importantly we show that the results change dramatically based on whether one takes into account the incidence on zeros—localities where no construction or demolition took place—at the voting threshold. Furthermore, statistically accounting for those zeroes allows to disentangle two distinct effects that tax levies have: on the probability of observing non-zero construction or demolition, and on their conditional amount. Our results indicate that tax levies positively affect the amount of new construction. Estimates that do not account for the presence of zeros in the outcomes often have the opposite sign and are sometimes statistically significant.

"Revisiting the Texas Top 10% Policy: Application of Regression Discontinuity with Sample Selection" *with Alfonso Flores-Lagunes, Hugo Jales, and Maria Zhu*

SEMINAR & CONFERENCE

European Association of Environmental and Resource Economists Annual Conference	2024
Scottish Economic Society Annual Conference	2024
Royal Economic Society Annual Conference	2024
Eastern Economic Association Annual Conference (AERE-sponsored session)	2024
Canadian Economics Association Conference (scheduled)	2023
Western Economic Association Annual Conference (AERE-sponsored session)	2023
Association of Environmental and Resource Economists Summer Conference	2023
American Society of Health Economists Annual Conference	2023
The Lewin Group; The Ohio State University; University of Glasgow	2023
Southern Economics Association Annual Conference	2022
Syracuse University Applied Micro Seminar	2022
Midwest Economics Association the 86th Annual Meetings (Joint Session with the Society of Labor Economists)	2022

RESEARCH EXPERIENCE

Research Assistant

Prof.Alfonso Flores-Lagunes; Prof.Maria Zhu — 2021-2022
Syracuse University

Prof.Jisung Park — 2018
University of California, Los Angeles

Prof.Sharon Belenzon; Prof.John Graham — 2017-2018
Duke University

TEACHING EXPERIENCE

Undergraduate Level

Primary Instructor

Introduction to Statistics and Econometrics, Syracuse University — 2021
(Asynchronous Online)
Course Feedback: 5.67/6

Teaching Assistant

Economic Statistics, Syracuse University — 2021
Labor Economics, Syracuse University — 2021
Introduction to Statistics and Econometrics, Syracuse University — 2020
Intermediate Microeconomics, Syracuse University — 2018, 2020
Introductory Microeconomics, Syracuse University — 2019
Economic Ideas and Issues, Syracuse University — 2019

Dissertation Supervisor

6 students, Economics Subject, University of Glasgow — AY 2023-2024

Graduate Level

Co-Instructor

Microeconometrics: Impact Evaluation and Causal Analysis,
University of Glasgow — 2023, 2024

Teaching Assistant

Mathematics for Economists, Syracuse University — Summer, 2019
Introduction to Mathematical Statistics, Duke University — Fall, 2017

REFEREEING SERVICE

Journal of Population Economics (4), Review of Development Economics (1)

AWARDS & SCHOLARSHIP

Research Excellence Doctoral Funding, Syracuse University — 2021-2022
Maxwell School Summer Fellowship, Syracuse University — 2018-2022
Graduate Assistantship, Syracuse University — 2018-2020
The M.A Merit Scholar Award, Duke University — 2017
Hezhan Scholarship, Nankai University — 2012, 2014
The Excellent Undergraduate Scholarship, Nankai University — 2013

SKILLS & LANGUAGES

Programming: Stata, Python, R, LaTeX, ArcGIS, MATLAB
Languages: Mandarin (Native), English (Fluent)

Last Updated: October 20, 2024