

Zhanhan Yu ('zanhan -' u)

CONTACT INFORMATION

Adam Smith Business School
University of Glasgow
2 Discovery Place
Glasgow, United Kingdom, G11 6EY

Email: 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, Urban Economics, Applied Econometrics

PUBLICATION

“Heat and Productivity: Evidence from Flight On-Time Performance” with Ying Shi
Accepted in the Journal of the Association of Environmental and Resource Economists
<https://doi.org/10.1086/733369>

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.

Human Capital and Labor Market Effects of Elite Schooling in the United Kingdom: New Causal Evidence with Vikesh Amin, Carlos A Flores, and Alfonso Flores-Lagunes
Accepted in the Research in Labor Economics

“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 $12 \mu\text{g}/\text{m}^3$ 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 $30 \mu\text{g}/\text{m}^3$, 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 $10 \mu\text{g}/\text{m}^3$ 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

Revision Requested in the Labour Economics

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.

“Identifying Models With Mismeasured Endogenous Regressors Without Instruments: with an Application to Monopsony in Academic Labor Markets” with Linqi Zhang

We extend the linear triangular structural model of Lewbel, Schennach, and Zhang (2024) to account for measurement errors in the endogenous regressor. Using higher-order moments, we identify the causal effect and distributions of unobservables without relying on instrumental variables or repeated measurements. We apply this approach to study monopsony power in the labor market for university professors at public research universities within the University System of Georgia, addressing endogeneity and measurement error concerns related to faculty salaries in the absence of suitable instruments. Our findings reveal significant monopsony power, with a robust exploitation rate of 36%, and demonstrate that neglecting measurement error would lead to substantial underestimation.

“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”

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	The Econometric Society European Winter Meeting	2024
	The Forum for Research on Eastern Europe: Climate and Environment Workshop, Stockholm School of Economics	2024
	UC San Diego 21st Century India Center Virtual Seminar Series	2024
	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	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	<i>Research Assistant</i>	
	Prof.Alfonso Flores-Lagunes; Prof.Maria Zhu Syracuse University	2021-2022
	Prof.Jisung Park University of California, Los Angeles	2018
	Prof.Sharon Belenzon; Prof.John Graham Duke University	2017-2018
TEACHING EXPERIENCE	<u>Undergraduate Level</u>	
	<i>Primary Instructor</i>	
	Introduction to Statistics and Econometrics (Online), Syracuse University	2021
	Course Feedback: 5.67/6	
	<i>Teaching Assistant</i>	
	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
	<i>Dissertation Supervisor</i>	
	6 students, Economics Subject, University of Glasgow	AY 2023-2024
	<u>Graduate Level</u>	
	<i>Co-Instructor</i>	
	Microeconometrics: Impact Evaluation and Causal Analysis, University of Glasgow	Fall 2023; Fall, 2024
	<i>Teaching Assistant</i>	
	Mathematics for Economists, Syracuse University	Summer, 2019
	Introduction to Mathematical Statistics, Duke University	Fall, 2017
REFEREING SERVICE	Journal of Population Economics (4), Review of Development Economics (1), Journal of Health 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, L ^A T _E X, ArcGIS, MATLAB
	Languages: Mandarin (Native), English (Fluent)

Last Updated: January 31, 2025