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CONTACT INFORMATION
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SYRACUSE PLACEMENT OFFICER
Gary Engelhardt
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DOCTORAL STUDIES	Syracuse University Ph.D. in Economics. Expected completion May 2023 DISSERTATION: "Essays on the Environmental and Labor Economics"

REFERENCES

Alfonso Flores-Lagunes
(Primary Advisor)
Professor of Economics
Syracuse University
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Hugo Jales
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Maria Zhu
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Ying Shi
Assistant Professor of Public Administration and International Affairs
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PRIOR EDUCATION	Duke University M.A. in Economics	2018
	Nankai University Bachelor of Economics	2015

FIELDS	Primary Fields: Labor Economics, Environmental Economics Secondary Fields: Urban Economics, Applied Econometrics

RESEARCH PAPERS

"Does Air Pollution Impair Work Safety? The Impact of PM2.5 on Severe Workplace Injuries" (Job Market Paper)
I investigate the causal effect of air pollution on work safety using novel data on work-related severe injuries and air pollution in the United States from 2015 through 2018. I focus on fine particulate matters, known as PM2.5, a primary air pollutant that is found to adversely impact human cognitive abilities and potentially affect workplace safety via biological channels. Credibly pinning down the causal effect of air pollution is challenging because air pollutants are not randomly assigned. To deal with the endogeneity of air pollution, I employ a quasi-experimental design, exploiting plausibly

exogenous variation in PM2.5 driven by the changes of two different instruments — rainfall and wind direction. For the instrumental variable (IV) to point identify the causal effect, among other assumptions, the IV must satisfy the exclusion restriction: the instrument cannot affect workplace injuries unless through its impact on air pollution. I start by testing the validity of these instruments and provide statistical evidence that they violate the assumptions for point identification. 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 are between 0.5 and 4.6 percentage points, equivalent to a 5 to 46% increase relative to the sample average workplace accident rate. They contain the effects estimated by OLS. Under the monotone treatment response assumption, the estimated bounds include the point estimates of 2SLS employing the wind direction IV but exclude the 2SLS estimates employing the rainfall IV. The estimated bounds are comparable to point estimates of the effect of other air pollutants and the effect of other environmental factors. The bounded effect appears to be more prominent for industries that require (semi-)outdoor work, such as agriculture, mining, and construction, than indoor non-manufacturing industries. A back-of-the-envelope calculation indicates that increasing the annual number of days with PM2.5 pollution by one day is estimated to raise the annual total costs of workers' compensation by at least 0.7 billion dollars and up to 6.1 billion, equivalent to about 1 to 10% of the total workers' compensation paid in 2018.

"Monopsony in Academia and the Gender Pay Gap: Evidence from California" *with Alfonso Flores-Lagunes*
We investigate the existence of monopsony power in a highly-skilled labor market given by tenure-ranked faculty in public research universities in California, analyze differences in monopsony power by gender, and relate them to the observed gender pay gap. We collect and use publicly-available information on faculty salaries in the University of California system and merge it with information obtained online on faculty characteristics, career trajectories, and research productivity indicators. We infer the university-level labor supply elasticity by estimating the elasticity of separation. To deal with the endogeneity of the salary in the separation equation, we employ instrumental variables exploiting exogenous variation in salaries driven by changes in school revenues and salary scales. We find evidence of monopsony power: the "exploitation rate," a common measure of monopsony power, is conservatively estimated at about 7% for tenure-track faculty. Full professors experience a higher rate of monopsony power than associate and assistant professors. Lastly, while the estimated monopsony power is not found to differ by gender for assistant and associate professors, it does so for full professors, with women facing a higher exploitation rate relative to males.

RESEARCH IN PROGRESS

"Heat and Productivity: Evidence From On-Time Performance of Airlines" *with Ying Shi*
We study the impacts of high temperatures on worker productivity in transportation and logistics industries by examining flight on-time performance on hotter days. We create a novel data set linking the on-time performance data of flights departing from 365 airports in the contiguous United States from 2004 through 2019 with daily meteorological data. We find statistically significant evidence that operating on hotter days increases both flight delays and delay time. On days above 95F (35C), flights are 6% more likely to experience late departure, and 17% longer time of delay conditional on late departure. We conjecture that the impact of heat on flight delays may be driven by either labor shortage associated with changes in the intertemporal labor supply of workers with temperature (the extensive margin) or an absolute decline in worker performance on hotter days (the intensive margin). We examine the extensive mar-

gin channel using the 2005-2019 American Time-Use Survey (ATUS) and find evidence to support our conjecture that high temperatures affect flight on-time performance in part through the labor supply channel. In industries that typically require workers to perform tasks in outdoor or semi-outdoor environments, workers work about 30 minutes less on days above 95F (35C). More importantly, we find a significant absenteeism effect of high temperatures. One additional day above 95F in the past week increases absenteeism among outdoor workers by 0.3 percentage points in the past week (relative to 8% of the average absenteeism rate).

"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 that 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 zeros 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.

"Painkiller Can be the Killer? The Short-Term Effect of Recreational Marijuana Legalization on Work Safety"

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

SEMINAR &	Southern Economics Association Annual Conference	2022
CONFERENCE	Syracuse University Applied Micro Seminar	2022
	Midwest Economics Association the 86th Annual Meetings	2022
	(Joint Session with the Society of Labor Economists)	

RESEARCH	*Research Assistant*	
EXPERIENCE	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	Undergraduate Course	
EXPERIENCE	*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

Graduate Course
Teaching Assistant

| | Mathematics for Economists, Syracuse University | 2019 |
| | Introduction to Mathematical Statistics, Duke University | 2017 |

REFEREEING SERVICE	Journal of Population Economics	
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: Oct 23, 2022.