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DOCTORAL STUDIES

Syracuse University
Ph.D. in Economics. Expected completion May 2023
DISSERTATION: "Essays on the Environmental and Labor Economics"

DISSERTATION COMMITTEE AND REFERENCES

Alfonso Flores-Lagunes
(Primary Advisor)
Professor of Economics
Syracuse University
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Hugo Jales
Associate Professor of Economics
Syracuse University
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Maria Zhu
Assistant Professor of Economics
Syracuse University
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+1 (315) 443-9043

Ying Shi
Assistant Professor of Public Administration and International Affairs
Syracuse University
yshi78@syr.edu
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PRIOR EDUCATION

Duke University 2018
M.A. in Economics
Nankai University 2015
Bachelor of Economics

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 the fine particulate matter, 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. To deal with the challenge that air pollution is not randomly assigned, I employ a quasi-experimental design, exploiting plausibly exogenous variation in PM2.5 driven by 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 the air pollution. I start by testing the validity of these instruments and show that they violate the assumptions for point identification of the causal effect. Then, I leverage partial identification strategies using the same instruments to estimate bounds on the effect of PM2.5 pollution. The estimated bounds are between 0.5 to 4.6 percentage points, equivalent to a 5% to 46% increase relative to the sample average workplace accident rate. The bounded effect appears to be more prominent for industries that require outdoor work, such as agriculture, mining, and construction. 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 and up to 6.1 billion dollars, 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 of 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 investigate whether and to what extent high temperature affects worker productivity in transportation and logistics industries by examining the on-time performance of flights on hotter days. We build a novel data set linking the on-time performance data of flights departed from 365 airports in the contiguous United States from 2004 through 2019 to daily meteorological data. We exploit exogenous variations of operating on a hotter day, controlling for time-varying weather conditions, origin-destination pair fixed effects, and month by year and day of week fixed effects. We find evidence that operating on hotter days increases both the rate of flight delay and the length of time delayed. Flights on days above 95F (35C) are 6% more likely to experience late departure, and 17% longer time of delay conditional on late departure. We conjecture that the impact of high temperature on flight delays is likely driven by either labor shortage that is associated with changes in workers' intertemporal labor supply with temperature (extensive margin) or the absolute decline of worker performance on hotter days (intensive margin). We are able to check the extensive margin channel using data of American Time-Use Survey (ATUS) 2005-2019. We find evidence supporting our conjecture that heat affects the on-time performance of flights partially through the extensive margin channel. Workers in industries that usually requires workers to perform tasks in outdoor or semi-outdoor environments work about 30 minutes fewer on days above 95F (35C). More importantly, we find a significant absenteeism effect of

high temperature. One additional day above 95F in the past week is associated with a 0.3 percentage points increase (8% relative to the average absenteeism rate) of the absence rate in the past week for outdoor workers.

"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 & CONFERENCE

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

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 Course
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.