

LIA YIN

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Research Fields

Applied Microeconomics
Economics of Crime

Education

2015 - 2023 BOSTON COLLEGE
(expected) Ph.D. in Econometrics
2013 - 2015 UNIVERSITY OF TENNESSEE - KNOXVILLE
M.A. in Economics
2005 - 2009 HARVARD UNIVERSITY
B.A. in Economics

Working Papers

Self-Defense Regulations and Crime - Evidence from the Stand Your Ground Law
with *Abby Hong*

The Distinct Roles of Poverty and Wealth in Driving Crime
with *Benjamin Ferri*

Crime Reporting Standards and Reported Crime

Work in Progress

“Ghost Gun” Regulations and Prices of Firearm Kits

Cybersecurity Regulations and Cybercrime

Cryptocurrency Regulations and Cryptocurrency Trading Volume

Teaching Experience

Instructor

2019 Statistics (Boston College, Undergraduate)

Teaching Assistant

2019 Econometrics (Boston College, Undergraduate)

2016 - 2020 Statistics (Boston College, Undergraduate)

2015 Microeconomic Theory (Boston College, Undergraduate)

2014 Macroeconomics (University of Tennessee, Graduate)

2013 Intro to Economics (University of Tennessee, Undergraduate)

Professional Experience

Research Associate, Harvard Business School (Contract)

- 2021 Project: Impact of AI Deployment on Sales
- Designed data analysis strategy
- 2020 Project: Impact of Career Connections on Trading Volume and Trading Rate
- Conducted RFM modeling and causal random forest analysis
- Improved model precision by 9%
- 2019 Project: Impact of Corporate Responsibility on Investment Portfolio
- Conducted difference-in-differences analysis

Conferences

- 2021 Western Economic Association International (WEAI) Virtual International Conference
- 2022 Western Economic Association International (WEAI) Annual Conference
- 2023 Western Economic Association International (WEAI) International Conference (upcoming)

Skills

- **Tools:** Stata, R, Python, SQL
- **Knowledge:** Difference-in-difference Techniques, Regression Discontinuity, Causal Random Forest Prediction

Languages

Chinese (native), English (fluent)

Other Experiences

Research Consultant, Boston College (Student Contract)

2021 - present Providing modeling suggestions, prototypes, and other support for researchers

Consultant, Best Education

2011 - 2013 Guided university students in their choice of graduate schools

Program Lead, Aston Educational Group

2009 - 2011 Started the Chinese language education program

References

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Abstracts

Impact of Self-Defense Regulations on Crime - Evidence from the Stand Your Ground Law

with Abby Hong

This paper provides a theoretical model of what happens when governments relax self-defense regulations, and tests it with an empirical analysis of the Stand Your Ground (SYG) laws. We build a game theoretical model based on Becker (1968), showing that relaxing self-defense regulations can increase arming of both victims and perpetrators, which deters some violent crimes but encourages others. In particular, the model suggests that relaxing self-defense regulations increases crime success rates, when it encourages criminals to prepare for a stronger offense. Also, when criminals respond to victim defense with amplified aggression, they escalate less serious crimes into more serious ones. We then use a difference-in-difference (DiD) model to test these implications. We find that, consistent with the model, SYG laws in the US increased the planned murder rate by 7.6% and unplanned murders by 10.4%, on average. Also, the effect size increased over time, highlighting the persistence of the impact. The paper illustrates how interactions between victims and offenders result in unintended consequences of self-defense regulations.

The Distinct Roles of Poverty and Wealth in Driving Crime

with Benjamin Ferri

Does inequality lead to more crime? We develop a new model that articulates how Poverty (the lower tail of the earnings distribution) and Earnings (the upper tail) enter into equilibrium crime rates. In our model, individuals in Poverty have less to lose in the context of criminal punishment, so are less averse to committing crimes in general. The presence of high Earnings (therefore things worth stealing) heightens the expected gain to offenders per crime - but specifically in terms of financial gain, not emotional gain. We estimate our model on a comprehensive panel of U.S. Commuting Zones (1980-2016), deploying novel Shift-Share instruments to correct for reverse causality (of crime on the earnings distribution). Corroborating our hypothesis, we find that high Earnings plays a much larger role in driving crimes that yield financial gain to the offender (various forms of theft) than it does for crimes of emotional gain, while Poverty is a driving force equally across both types of crime. In each case, not accounting for reverse causality would underestimate both effects, often by more than double.

Crime Reporting Standards and Reported Crimes

Since 1930, the FBI has been publishing the Uniform Crime Report (UCR), the gold standard for understanding crime trends in the United States, in the format of the Summary Reporting System (SRS). Since the 1990s, reporting agencies gradually left the SRS for a more detailed reporting system, the National Incident-Based Reporting System (NIBRS), which is converted to an SRS-compatible format (hereon referred to as “synthetic SRS”) for historical comparison. The goal of this paper is to ask whether there is data discrepancy in the UCR before and after the adoption of the NIBRS. To my best knowledge, this is the first paper to do so. I use a staggered event study design where the event date is the year in which the agency makes the switch from the SRS to the NIBRS. I find two factors that contribute to a large and statistically significant increase in reported crime for agencies that have adopted the NIBRS, compared with agencies that have not: 1) conversion of Assault data, 2) change in reporting practices. I convert the data from NIBRS to synthetic SRS on my own and observe a smaller and statistically insignificant difference-in-differences (DiD) effect for Assault. However, the alternative conversion does not improve the DiD effects for Total Crime, Murder, Robbery, Burglary, and Theft.

"Ghost Gun" Regulations and Prices of Firearm Kits

"Ghost Guns" are firearms that do not have serial numbers on their frames or receivers, so they are difficult to track in criminal cases. Gunsmiths used to make them by hand, but with the development of Computerized Numerical Control (CNC) machines and 3-D printers, they are able to mass produce them. Recently, various counties, states, and the federal government have put in place regulations to ban the sales and ownership of ghost guns. Therefore, firearm sellers are incentivized to sell their kits through stores with Federal Firearm Licenses, who can serialize the frames and receivers and also conduct background checks. This paper examines the price of firearm kits before and after the regulations.