Luke B. Miller

Contact
(740) 417-1463
lm1410@georgetown.edu
LinkedIn

Education		
PhD, Economics	Masters, Economics	BA, Physics
Georgetown University	Ohio University	DePauw University
(2020 - 2026)	(2019 - 2020)	(2010 - 2014)

WORKING PAPERS

From Local Election Laws to National Campaigns: The Impact of Voting Costs on Turnout
- Developed a novel model of turnout integrating individual-level voting decisions and campaign strategies.
- Estimated model on U.S. Presidential election data using Python (JAX), leveraging automatic differentiation and vectorized transformations to handle computational complexity.
- Results demonstrate that campaign effort in battleground states leads to a 6% increase in turnout compared to non-battleground states, while differences in competition alone raise turnout by 1%.
- Complementing model estimates by analyzing causal effects of voting costs on turnout and campaign strategy using staggered difference-in-differences design (Python: PyFixest, R: DID - In-progress). (PDF)

Why People Vote: Comparing Models of Voter Turnout (with Maxime Cugnon de Sévricourt)
- Conducted statistical estimation and comparison of multiple leading voter turnout models using a unique dataset of U.S. special elections and U.S. Congressional elections.

Tempting FAIT: Flexible Average Inflation Targeting and the Post-COVID U.S. Inflation Surge
(with Roberto Duncan and Enrique Martínez García)
- Applied Augmented and Spillover-adjusted Synthetic Control methods to estimate the causal effects of the Federal Reserve's Flexible Average Inflation Targeting (FAIT) policy on CPI and inflation expectations.
- Results show FAIT increased CPI by 1%, while short-term inflation expectations increased by 0.8%.

RESEARCH ASSISTANTSHIPS

Gerrymandering for L. Bouton (Georgetown University, Spring 2022 - Present)
- Constructed comprehensive database of nearly 500 proposed U.S. redistricting plans from the 2020 redistricting cycle across all 50 states, utilizing web scraping and data cleaning techniques.
- Constructed data processing pipelines using Python (GeoPandas, Pandas) to standardize and integrate precinct-level demographics and election data across diverse geospatial formats (Shapefiles, GeoJSON).
- Trained and evaluated machine learning models (Lasso, Random Forest, Gradient Boosting) in Python (scikit-learn) to predict precinct-level turnout ($R^2 = 0.75$), enabling empirical detection of partisan bias in each proposed redistricting plan.

Small Campaign Donors for L. Bouton (Georgetown University, Summer 2022 - Present)
- Implemented large-scale fuzzy matching algorithms linking over 8 million donor identities with housing data from Zillow's database, enabling household and geographical-level analysis of campaign donor data.
- Automated the extraction and cleaning of campaign finance and election rating data using Python (BeautifulSoup, Selenium) and the official FEC API.
- Ensured data integrity and accuracy by cross-referencing data to alternative sources (Python, SQL).

Inflation Targeting for R. Duncan (Ohio University, Fall 2019 - Summer 2020)
- Implemented synthetic control algorithms in R to quantify the causal effect of inflation targeting on macroeconomic performance, identifying significant inflation stabilization in ∼50% of adopting countries.

TEACHING EXPERIENCE (LEAD INSTRUCTOR)

Math Camp (PhD) and Statistics for Economics (Undergraduate), Georgetown University
Topics: Linear Algebra, Calculus, Non-linear Programming, Dynamic Programming, Probability Theory