WOOSERK PARK

Github: | Portfolio: | LinkedIn: | Email: wooserk.park@gmail.com | Bloomington, IN

EDUCATION

Ph.D., Indiana University Bloomington — Aug. 2021 - Jun. 2025 (Expected)

Specialization: Spatial and Urban Economics, Causal & Bayesian Inference, Policy Analysis, Public Finance

M.P.A., City University of New York, Baruch College — 2019

B.B.A., City University of New York, Baruch College (Major: Finance & Minor: Mathematics) — 2017

Certificate: Chartered Financial Analyst (CFA) Level 1 Passed

TECHNICAL SKILLS

Key Competitiveness: Spatial Inference with Machine Learning (Satellite Imagery and Remote Sensing), Statistical and Econometric Modeling (Quasi- and Natural-Experimental Designs), Object Detection Deep Learning, Big-Data, Data Visualization

Programming: R, Python, Stata, QGIS, SAS, ArcGIS, GoogleEarth, Tableau, AWS | (Training): PyTorch, TensorFlow, Git

WORK EXPERIENCE

Ph.D. Candidate, Indiana University Bloomington, Bloomington, IN — Aug. 2021 - Present

Project 1: National Place-Based Policy Impact on Land Economics: Speculation, Market Saturation, and Policy Efficiency

- Authored a study finding the government tax incentives under deregulation encourage short-term speculation—a 40% shift in investment timing and a 4-5% increase in development in high-demand areas—at the expense of long-term sustainability.
- Used causal inference frameworks of **Fuzzy Regression Discontinuity Design** and **Shift-Share Instrumental Variable**.
- Leveraged unique data sources: **QGIS** to process Landsat and National Elevation Dataset **satellite raster imagery (500GB+)** for land supply estimation, and **R** and **Stata** to analyze CoreLogic property data **(10TB+)** for real estate transaction patterns.
- Optimized and automated software code, streamlined research workflow for 20+ faculty and graduate students, e.g., increased efficiency of CoreLogic data collection by reducing time (3 hours ↓); disseminated a GIS instruction for mapping training.

Projects 2 & 3 (Working Projects)

- Analyze the causal effect of governance effectiveness on tax increment financing: State oversight relative to local decision-making improved education funding by 4% and regional development by 0.2% per year in school districts.
- Exploited the **Propensity Score Weighted Difference-in-Differences** and **Intent-to-Treat Instrument** causal frameworks.
- Applied object detection and segmentation **deep learning** models using **PyTorch** and **TensorFlow** to measure residential density, trained **Transformers**, **R-CNN**, and **Random Forest** models to identify buildings, roads, and geographic attributes.
- Develop a **Bayesian Hierarchical** model to quantify flood risk exposure and assess potential insurance premium adjustments, incorporating zip code-level insurance pricing information to account for evolving climate risk factors.
- Monitor environmental impacts on flood risk and patterns of insurance claims using weekly **NASA atmospheric imagery**.

Research Program Manager, Research Foundation of CUNY, New York, NY — Feb. 2020 - Jul. 2021

- Completed the Census Bureau's "**Opportunity Project**" in partnership with the Office of Management and Budget, developing a spending tracker using Stata, R, and **Tableau** to monitor the government's response to the COVID-19 pandemic.
- Published a study analyzing the impact of the COVID-19 pandemic on New York City's **municipal finances**, using government documents and financial reports as a fiscal stress test guide (Publication: *Municipal Finance Journal*).

Federal Regulatory Research Trainee, Federal Housing Finance Agency (FHFA), Washington, DC — May 2019 - Dec. 2019

- Conducted an empirical analysis of the impacts of accessory dwelling units (ADUs): collected, cleaned, analyzed, and visualized data sets, identified market trends affecting neighborhood spillovers, and contributed to an FHFA policy discussion.
- Provided analytical support to the Duty to Serve team to evaluate the Fannie Mae and Freddie Mac (Enterprises) manufactured housing allocation patterns in compliance with the FHFA conservatorship.

Policy Analyst Intern, United Nations (UN), New York, NY — Jan. 2019 - Apr. 2019

- Produced 5+ governance reports resulting in operational efficiencies within the UN oversight framework; developed models that optimized the allocation of human and financial resources in line with the UN Sustainable Development Goals.