Gretchen Sileo

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Education

Georgetown University — Washington, DC
Ph.D. Candidate Economics — August 2017–Present
M.A. Economics
Fields: Empirical Industrial Organization, Environmental and Public Economics

Rensselaer Polytechnic Institute — Troy, NY
M.S. Applied Mathematics — August 2010–May 2014
B.S. Mathematics and Psychology, Minor in Economics

Works In Progress

Proactive and Reactive Infrastructure Investment

Properly functioning infrastructure is maintained through investment. A proactive investment strategy prevents failures but requires expenditures before quality deteriorates. A reactive investment strategy accepts some risk of failure to avoid unnecessary expenditures. I explore proactive and reactive investments in a newly collected dataset on Kentucky water systems to assess the ability of system managers to maintain infrastructure quality. I establish that proactive and reactive investments differentially reduce the probability of a future system failure, and that both managers and consumers are sensitive to system quality. I construct and estimate a dynamic discrete choice model of system manager infrastructure investment decisions incorporating the empirical relationships and investment strategy intuition. Through simulations, I determine that investment is currently too low to successfully prevent the decline of water infrastructure quality. Counterfactual policies that promote only proactive projects lead some systems to make unnecessary investments even as others become vulnerable to extreme quality decline. By contrast, policies that facilitate more effective reactive policies incorporate more equitable levels of risk, reduce overspending, and enable all systems to maintain system quality.

The Evolution of Concentration and Markups in the United States Cement Industry
with Nathan Miller, Matthew Osborne, and Gloria Sheu

We examine local market concentration and markups in the United States cement industry over 1974-2016. We estimate a model in which buyers use a second-score auction to procure cement from spatially differentiated plants. The model matches aggregated economic outcomes observed in the data, and the implied transportation costs and shipping distances are consistent with external sources. We infer local market concentration and markups from the model. At the county-level, the average HHI rises from 1,890 to 2,800 during the sample period. Average markups increase modestly, but prices do not rise. We attribute the changes to a technological innovation—the precalciner kiln—that lowered marginal costs, increased plant-level capacities, and also contributed to an industry shakeout in which many plants closed.

The Price That Inmates Pay
with Marleen Mara and Nathan Miller

Incarcerated individuals in the United States purchase goods and services from monopoly vendors selected by their correctional authority. We study the price that inmates pay for phone calls, which the Federal Communications Commission has characterized as "exorbitant." We specify an auction model of procurement and estimate it using data from public records requests. Our results indicate that market power contributes to high prices but that more important are kickbacks (or "commissions") that providers give to the correctional authority. Regulation that substantially lowers price and eliminates commissions can more than double inmate surplus and simultaneously enable providers to recover their costs.

A Dynamic Discrete Choice Model of Electronic Toll Adoption in the U.S

Research Experience

Georgetown University — Washington, DC
Research Assistant to Professor Nathan Miller, ITS Project — *Fall 2021–Spring 2022*

- Issued Freedom of Information Act (FOIA) requests to all 50 states regarding the full inmate phone services procurement process and managed follow-up communications with Departments of Correction
- Synthesized documents obtained from FOIA requests including requests for proposals, bidder responses, and contracts into structured data detailing the bidding process
- Directed undergraduate research assistants to process, extract, and clean data into a machine-readable format

Research Assistant to Professor Nathan Miller, Cement Markups Project *Fall 2019, Fall 2020–Spring 2021*

- Implemented a structural second-score auction model with spatially differentiated cement plants to assess how markups and market power have changed in the cement industry over 1974-2016
- Estimated the model using nonlinear least squares to compute equilibrium in Python and ran counterfactual simulations to assess alternate outcomes

Research Assistant to Professor Dan Cao, Bank Risk-Taking Project *Fall 2018*

- Developed Python scripts to automate the extraction of SEC data on publicly traded banks for use in a panel regression on bank ownership data

U.S. Department of Justice, Antitrust Division Washington, DC
Graduate Economics Intern *Summer 2019*

- Attended preliminary meetings for multiple merger review cases
- Scraped online data to compare list prices for hard disk drives to manufacturer suggested prices

Teaching Experience

Georgetown University Washington, DC
Graduate Teaching Assistant *Fall 2018–Fall 2022*

- PECO-201 – Analytical Tools for Political Economics
- ECON-121 – Economic Statistics
- ECON-122 – Introduction to Econometrics

Professional Experience

Framingham State University Framigham, MA
Professional Mathematics Tutor *Spring 2017*

- Worked with students in groups and one-on-one to answer questions in courses ranging from business statistics to abstract algebra

Deloitte & Touche LLP Boston, MA
Senior Consultant, Business Risk *Spring 2016–Winter 2016*

- Facilitated a post-merger integration for one of the world's largest pharmaceutical companies; owning the process of data integration for thousands of pharmaceutical products and their associated supply chains
- Analyzed pharmaceutical data and successfully converted pricing and costs of products from a legacy SAP system to a custom-made product tracking system
- Solicited retirements and collected data from key client stakeholders including the developers of the product tracking system, administrators of the SAP system, and Directors of Tax, Inventory, and Supply Chain

Consultant, Business Risk *Fall 2014–Spring 2016*

- Assessed business processes for three strategic clients in the financial services industry
- Managed offshore team to assign tasks, review work, and communicate progress with onshore management

Skills Summary

Programming Languages: Python, C++, SQL
Statistical Software: PyData Stack (pandas, numpy, scipy, scikit-learn), Stata, MATLAB, R
Other Software: Python (numba, joblib, geopandas, shapely, selenium, requests)
Other Computer Skills: LaTeX, SAP, Microsoft Office Suite

Honors and Awards

Georgetown University Summer Dissertation Fellowship *Summer 2020*
Georgetown University Graduate School Fellowship *Fall 2017–Spring 2018*
Deloitte Outstanding Performance Award *Spring 2015*
Rensselaer Polytechnic Institute Summa Cum Laude *Spring 2014*
Rensselaer Polytechnic Institute Founders Award for Excellence *Fall 2013*

References

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