Adam R. **Rohde**

Los Angeles, California

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Core Competencies

Research Interests Causal Inference; Sample Selection; Graphical Models and Identification; Sensitivity Analysis; Statistical Learning

Professional Expertise Econometrics; Data Analysis; Data Mining; Analysis of Large Datasets; Analysis of Market Dynamics; Antitrust Economics

Programming Languages R, Python, SAS, Stata, LaTeX, Some Familiarity with SQL

Education

University of California, Los Angeles

PhD, Statistics; GPA: 3.96 *2019 - 2023*

- Courses: Statistical Programming; Statistical Modeling and Learning; Methods in Machine Learning; Optimization; Natural Language Processing; Causal Inference; Monte Carlo Methods; Advanced Modeling and Inference; Hierarchical Linear Models; Computer Intensive Methods

Boston College

Bachelors of Arts; GPA: 3.70; *cum laude*; Double Major: Mathematics and Economics *2009 - 2013*

- Giffuni Prize for outstanding Honors Thesis in Economics; Honors in Economics; Dean's List All Semesters; Undergraduate Research Fellow; Led Fed Challenge Team

Professional Experience

Charles River Associates: Antitrust and Competition Economics Practice *Oakland, CA & Boston, MA*

Consulting Associate *(2015-2019)* *2012 - 2019*

- Designed and conducted empirical analyses of market dynamics related to mergers, acquisitions, and antitrust litigations. Explored, cleaned, manipulated, and analyzed large datasets (e.g., claims data, prescription data, sales data) to understand competition, pricing, and client operations.
- Promoted from Associate to Consulting Associate one year ahead of the rest of Associate class.
- Selected as one of 8 "SAS Experts" from over 500 global consulting staff at Charles River Associates. Assisted colleagues with difficult tasks and problems in SAS.
- Led a team of 3 analysts and coordinated with another consulting firm and 5 of the largest national health insurers in an ongoing antitrust litigation brought against a hospital system. Used terabytes of health insurance claims data for the following. Working in R and SAS:
  - Implemented semiparametric discrete choice models to calculate patient willingness-to-pay for hospital services.
  - Estimated prices for services and fit regression models of price using a wide range of hospital-specific features.
  - Calibrated a vectorized demand system and defined markets by optimizing a system of equations using diversion ratios, estimated prices, and margins.
- Directed a team of 3 analysts and coordinated with clients in an antitrust litigation seeking up to $100M in damages between 3 of the largest national health insurers and a group of ambulatory surgical centers. Analysis led to a favorable settlement. Working in SAS and Stata:
  - Designed and applied statistical models of prices faced by health insurers and enrollees in selection of providers.
  - Created market definition, service area, and market share analyses focused on the market for outpatient surgeries.
- Coordinated team of 4 analysts related to the $1.9B sucessful acquisition by CVS of Target's 1,660 pharmacies. Analyses showed little danger to consumers.
  - Analyzed market concentration for thousands of localized geographic markets with terabytes of prescription-level data in SAS.
  - Devised an event study using regression analysis to evaluate the impact of new CVS pharmacies on Target sales/prices in SAS.
- Evaluated the merits of opposing expert's damages model in a litigation seeking over $150M in damages related to allegations of poor performance of an iron ore mine. Ran model under different assumptions, recalculated prices for marginal customers, revised growth trajectories, and corrected statistical models of relationships.
- Mentored four Analysts and Associates. Coached programming, data analysis, presentation skills, and career development.

Associate *(2014-2015)*; Analyst *(2013-2014)*; Analyst Intern *(2012-2013)*

- Promoted from Analyst to Associate six months ahead of the rest of Analyst class.
- Created a capacity closure model in SAS used to evaluate the potential competitive effects of a merger in the wallboard industry. The merger created a global wood products company with sales over $1.6B. The model is now standard practice for colleagues when assessing a company's ability to raise prices post-merger.
- Worked on numerous pre-deal mergers and acquisitions, analyzing the potential competitive effects of the proposed deals. Variously worked in R, SAS, and Stata.
  - Designed statistical models of price correlation, co-integration, and arbitrage related to the global fertilizer market.
  - Estimated models using customer-to-store drive times at the census-block level to evaluate the potential diversion of supermarket customers.
  - Preformed event-study regression analysis of the impact of a merger in the pay-day credit market on hundreds of individual lending branches.
  - Conducted regression analyses of the determinants of prices in the national industrial water pipe market.
- Led corporate recruiting for the Antitrust and Competition Economics Practice in 2015.
- Led Green Office Initiative (a sustainability project) for the Boston Office of CRA in 2013 and 2014.

Research

Revisiting Sample Selection as a Threat to the Validity of Causal Effect Estimates: An Adjustment Criterion *Los Angeles, CA*

with Chad Hazlett *2021*

- Researchers often seek to estimate the causal effect of some treatment on some outcome. Typically, we estimate such an effect from a sample of units, which is selected in some not necessarily random way. In recent years, considerable attention has been given to the challenges of either generalizing these estimates to the population from which the sample was selected or "transporting" them to another population of interest. However, another long-standing concern of central interest to many investigators is whether the sample selection process also biases the causal effect estimate even as it pertains to the sample in hand. In keeping with research traditions in a number of disciplines, we consider the property of "internal validity," meaning that an estimate is unbiased for the target causal effect averaged over the sample in hand.
- While different research traditions have proposed informal guidelines for determining when sample selection threatens internal validity, it is now possible to conduct a more formal and rigorous treatment that determines when causal effect estimates in the given sample have been biased by sample selection processes, when the correct estimate can be recovered, and how.
- To this end we propose a formal graphical criteria for unbiased, internally valid causal effect estimates, and provide tools enabling researchers to easily determine how sample selection may bias their estimates of causal effects across their study sample, as well as what might be able to be done to correct any bias.

Sensitivity Analysis for Sample Selection *Los Angeles, CA*

with Chad Hazlett *2020-2021*

- Endogenous sample selection bias is central threat to the internal validity of causal effect estimates as they pertain to the selected sample in hand. We aim to develop an intuitive sensitivity analysis framework to evaluate how estimated regression coefficients maybe biased in light of potential violations to the assumption of no endogenous selection bias. We show that this can be cast in an omitted variables framework and that bias can be parameterized simply. We then explore difficulties in the interpretation of one of these parameters. We show that various additional assumptions can allow for improved interpretation and discuss bounding.