Syllabus
PSC 504 - Causal Inference

Professor & Term: Anderson Frey, Spring Semester 2018
Room & Time: HARK 329, TR 1400-1515
O ice & Hours: HARK 320B, W 1000-1200
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Overview

The goal of this course is to give students a comprehensive toolbox for reading and producing cutting-edge applied empirical research, with focus on the theory and practice behind causal inference in social sciences. We will cover methods such as experiments, di erences-in-di erences, instrumental variables, regression discontinuity, matching and others. Students will read applied papers from both political science and economics, and write review reports examining research designs, identification strategies, and causal claims. They will also produce research proposals that will be presented in class.

Prerequisites

In addition to introductory statistics and probability, the course assumes a good knowledge of linear regression. You should have taken at least one graduate class on this subject (such as PSC 405)

Computation

I teach the course in R, which is an open-source computing language that is widely used, and easy

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The assignments consist of a mix of analytical problems, computer simulations, and data analysis. All sufficiently attempted work will be graded on a (+,-) scale. Assignments should be typed on the computer.

Preliminary Schedule

Introduction

The Potential Outcome Model

- Angrist and Pischke: Chapter 1*

- Morgan and Winship: Chapter 1-2*

- Holland, P. W 1986. *Statistics and Causal Inference*. Journal of the American Statistical Association, Vol. 81, No. 396: 945-960.*

- Sekhon, J.S. 2004. *Quality Meets Quantity: Case Studies, Conditional Probability and Counterfactuals*. Perspectives on Politics, Vol. 2: 281-293.

- Heckman, James J and Hidehiko Ichimura and Je rey Smith and Petra Todd. 1996. *Sources of Selection Bias in Evaluating Social Programs: An Interpretation of Conventional Measures and Evidence on the E ectiveness of Matching as a Program Evaluation Method*. Proceedings of the National Academy of Sciences 93(23): 13416-13420.

- Heckman, James and Justin L. Tobias and Edward Vytlacil. 2001. *Four parameters of interest in the evaluation of social programs*. Southern Economic Journal, Vol. 68, No. 2, pp. 210-223.

Randomized Experiments

- Angrist and Pischke: Chapter 2*

- Imbens and Rubin: Chapters 4-5*

- Imbens, Guido. 2010. *Better LATE than nothing: some comments on Deaton (2009) and Heckman and Urzua (2009)*. Journal of Economic Literature 48(2): 399-423.*

- Deaton, Angus. 2010. *Instruments, Randomization, and Learning about Development*. Journal of Economic Literature 48(2): 424-455.

- List, John A. 2011. *Why economists should conduct field experiments and 14 tips for pulling one o* . Journal of Economic Perspectives 25(3): 3-16.

- Dunning, Thad. 2012. *Natural Experiments in the Social Sciences: A Design-Based Approach*. New York: Cambridge University Press.

- List, John A. and Steven Levitt. 2006. *What Do Laboratory Experiments Tell Us About the Real World?* University of Chicago and NBER.

- Bloom, Howard S. 2006. *The Core Analytics of Randomized Experiments for Social Research*. MDRC Working Papers on Research Methodology.

- Duflo, Esther and Abhijit Banerjee and Rachel Glennerster and Michael Kremer. 2006. *Using Randomization in Development Economics: A Toolkit*. Handbook of Development Economics.

Examples

– Wantchekon, Leonard. 2003. *Clientelism and Voting Behavior: Evidence from a Field Experiment in Benin World Politics.* 55 (3): 399-422. **

– Ferraz, Claudio and Federico Finan. 2008. *Exposing Corrupt Politicians: The E ects of Brazil's Publicly Released Audits on Electoral Outcomes.* Quarterly Journal of Economics 123(2): 703-45.**

– Olken, Benjamin. 2007. *Monitoring corruption : Evidence from a field experiment in Indonesia.* Journal of Political Economy 115 (2): 200-249.

– Gerber, Alan S. and Donald P. Green and Christopher W Larimer. 2008. *Social Pressure and Voter Turnout: Evidence from a Large Scale Field Experiment.* American Political Science Review 102 (1): 1-48.

Matching and Propensity Score

– Morgan and Winship: Chapter 4-5 *

– Acemoglu, D. 2005. *Constitutions, Politics, and Economics: A Review Essay on Persson and Tabellinis The Economic Eects of Constitutions.* Journal of Economic Literature XLIII: 1025-1048*

– Sekhon, Jasjeet S. 2009.

– Zucco, Cesar. 2013. *When Payouts Pay O : Conditional Cash Transfers and Voting Behavior in Brazil 2002–10.* American Journal of Political Science 57(4): 810-822.**

– Blattman, C. and Annan, J 2010. *The Consequences of Child Soldiering.* The Review of Economics and Statistics 92(4).**

– Lyall, Jason. 2010. *Are Co-Ethnics More E ective Counter-Insurgents? Evidence from the Second Chechen War.* American Political Science Review 104(1): 1-20.

– Gilligan, Michael J and Ernest J Sergenti. 2008. *Do UN Interventions Cause Peace? Using Matching to Improve Causal Inference.* Quarterly Journal of Political Science 3 (2): 89-122

– Blattman, Christopher. 2009. *From Violence to Voting: War and Political Participation in Uganda.* American Political Science Review 103 (2): 231-24.

Regression, Clustering, Bootstrap

Regression

– Angrist and Pischke: Chapter 3 *

– Morgan and Winship: Chapter 6 *

Standard Errors (Bootstrap, Clustering)

– Angrist and Pischke: Chapter 8 *

– Cameron and Trivedi: Chapter 11 **

Synthetic Controls

– Abadie, Alberto and Alexis Diamond and Jens Hainmueller. 2015. *Comparative Pol* American Journal of Political

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Differences-in-Differences

– Angrist and Pischke: Chapter 5.2-5.4*

– Bertrand, Marianne and Esther Duflo and Sendhil Mullainathan. 2004. *How Much Should We Trust Differences-in-Differences Estimates?* Quarterly Journal of Economics 119(1): 249-75.

– Athey, Susan and Guido Imbens. 2006.

Instrumental Variables

– Angrist and Pischke: Chapter 4*

– Morgan and Winship: Chapter 9*

– Angrist, Joshua D. and Guido W. Imbens and Donald B. Rubin. 1996. *Identication of Causal E ects Using Instrumental Variables.* Journal of the American Statistical Association 91(434): 444-455.

– Sovey, Allison J and Donald P. Green. 2011. *Instrumental Variables Estimation in Political Science: A Readers Guide.* American Journal of Political Science 55(1): 188-200.

– Deaton, Angus. 2010. *Instruments, Randomization, and Learning About Development.* Journal of Economic Literature 48(2): 424-455.

– Heckman, James J and Sergio Urzua. 2001. *Comparing IV with structural models: What simple IV can and cannot identify.* Journal of Econometrics 156(1): 27-37.

– Imbens, Guido. 2010. *Better LATE than nothing: some comments on Deaton (2009) and Heckman and Urzua (2009).* Journal of Economic Literature, Vol. 48 (2): 424-455.

– Stock, James H. and Francesco Trebbi. 2003. *Retrospectives: Who invented Instrumental Variable Regression?* Journal of Economic Perspectives, Vol. 17 (3): 177-194.

Examples

– Acemoglu, Daron and Simon Johnson and James A. Robinson. 2001. *The Colonial Origins of Comparative Development: An Empirical Investigation.* American Economic Review 91(5): 1369-1401.**

– Miguel, Edward and Shanker Satyanath and Ernest Sergenti. 2004. *Economic shocks and civil conflict: an instrumental variables approach.* J Polit. Econ. 112(4): 725–753.**

– Angrist, Joshua D. 1990. *Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records.* American Economic Review 80(3): 313-336.

– Angrist, Joshua D. and Alan B. Krueger. 2001. *Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments.* Journal of Economic Perspectives, 15(4): 69-85.

– Rogall, Thorsten. 2014. *Mobilizing the Masses for Genocide.* Working Paper.

Regression Discontinuity

– Mostly Harmless Econometrics: Chapter 6.*

– Imbens, Guido W and Thomas Lemieux. 2008. *Regression Discontinuity Designs: A Guide to Practicd*
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– Lee, David S. and Thomas Lemieux. 2010. *Regression Discontinuity Designs in Economics.* Journal of Economic Literature 48 (2): 281-355.

– Hahn, J, P. Todd and W van der Klaauw. 2001. *Identication and Estimation of Treatment E ects with a Regression Discontinuity Design.* Econometrica 69: 201-209.

– McCrary, Justin . 2008. *Manipulation of the Running Variable in the Regression Discontinuity Design: A Density Test,* Journal of Econometrics 142(2): 698-714.

– Calonico, Sebastián and Rocío Titiunik and Matías Cattaneo. 2014. *Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs.* Econometrica 82(6): 2295–2326.

Examples

– Caughey, Devin, and Jasjeet Sekhon. 2011. *Elections and the Regression Discontinuity Design: Lessons From Close U.S. House Races, 1942-2008.* Political Analysis 19 (4): 385-408. **

– Eggers, Andrew, Olle Folke, Anthony Fowler, Jens Hainmueller, Andrew Hall, and James Snyder. 2015. *On the Validity of the Regression Discontinuity Design for Estimating Electoral Eects: New Evidence from Over 40,000 Close Races.* American Journal of Political Science 59(1): 259–274.**

– Lee, David S. 2008. *Randomized Experiments from Non-random Selection in U.S. House Elections.* Journal of Econometrics 142 (2): 675-697.

– Fujiwara, Thomas. 2015. *Voting Technology, Political Responsiveness, and Infant Health: Evidence from Brazil.* Econometrica 83(2): 423-464.

Multivariate RDD

– Zajonc, Tristan. 2012. *Essays on Causal Inference for Public Policy.* PhD Dissertation. Harvard University: 45-92*

– Frey, Anderson. 2015. *Cash Transfers, Clientelism, and Political Enfranchisement: Evidence from Brazil.* Working Paper.**

– Dell, Melissa. 2010. *The Persistent E ects of Peru's Mining Mita.* Econometrica 78 (6): 1863–1903.**

Examples

– Heckman, James and Rodrigo Pinto and Peter Savelyev. 2013. *Understanding the Mechanisms through Which an Influential Early Childhood Program Boosted Adult Outcomes*. American Economic Review 103(6): 2052-86**

Sensitivity Analysis

– Morgan and Winship: Chapter 12*

– Blackwell, Matthew. 2013. *A