

Public Health Sciences 35100
HEALTH SERVICES RESEARCH METHODS

Spring Quarter, 2016

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Class Meetings Monday/Wednesday 1:30–2:50, BSLC 202

Course Description

In this course, we will study a variety of quantitative social science methods that are commonly used in health policy research. We will focus on quasi-experimental research designs and causal inference or impact evaluation tools, such as difference-in-differences, propensity scores, and instrumental variables. The course will highlight examples from the health policy literature, but the methods we will study apply more generally to policy and social science research. By the end of this course, you will be able to:

- Conceptually understand widely-used statistical methods in health policy research
- Apply statistical methods using Stata to address research questions
- Critically evaluate and gauge the validity of conclusions in empirical health policy studies

Class time will be split between lectures on quantitative research methods and discussion of scientific articles.

Prerequisites

The course assumes that students have prior coursework in statistics, including the use of regression methods, and have familiarity with the statistical package Stata.

Attendance

Class attendance is required. Please let me know in advance if you will need to miss class.

Computers and Handouts

Use of computers in class during lecture days is discouraged, as it can be distracting to both you and your neighbors. To facilitate the process of taking notes, you will be provided with handouts before each class.

Readings

All required course readings will be on Chalk. Readings for each assigned topic should be completed before the first class in each set of topics, though I will indicate the key readings for the next class at the end of each class. The readings are selective so that it is possible to deeply engage with the material and be able to do so in a reasonable amount of time. Reading material comes from scientific journals and the following textbooks:

- Shadish WR, Cook TD, and DT Campbell (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*, Houghton Mifflin Company.
- Angrist JD and Pischke J (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press.
- Gelman A and Hill J (2007). *Data Analysis Using Regression and Multilevel/Hierarchical Models*, Cambridge University Press.
- Woolridge JM (2009). *Introductory Econometrics: A Modern Approach*, South-Western.
- Stock J and Watson M (2003). *Introduction to Econometrics*, Addison-Wesley.

You may also find these textbooks useful:

- Wooldridge J (2005). *Econometric Analysis of Cross Section and Panel Data*, MIT Press.
- Green WH (2011). *Econometric Analysis*. Pearson.

Notes

Notes on topics covered in lecture are provided on Chalk. These were written by the previous instructor for the course, Dr. Tamara Konetzka, and provide more detail than it is possible to cover in lecture.

Stata

Problem sets should be completed using Stata version 13, available in Usite, Regenstein and Crerar.

Assignments and Grading

The final grade for the course will depend on 5 problem sets (50%), class participation including discussion of articles (20%), and the final exam (30%). Problem sets will involve critiquing articles and analyzing data using Stata. For problem sets, students are encouraged to work in small groups, but each student must submit an individual write-up. Exercises will be turned in electronically on Chalk.

Course Outline

Class	Topics and Readings
M 3/28	Introduction: Research in Health Policy and Health Services
W 3/30	The Fundamental Inference Problem: The Potential Outcomes Framework <ul style="list-style-type: none">• Angrist and Pischke, Chapter 2.
M 4/4	Research Design and Threats to Validity <ul style="list-style-type: none">• Skim the following chapters and pay particular attention to the tables: Shadish,

	<p>Cook, and Campbell, Chapters 2, 3, 4, 5.</p> <ul style="list-style-type: none"> • Zaslavsky AM. Notes on Research Design and Data Collection. 1995.
W 4/6	<p>Randomized Experiments</p> <ul style="list-style-type: none"> • Newhouse JP. Controlled Experimentation in Research Policy in Eli Ginzberg (ed.), Health Services Research Policy: Key to Health Policy. (1991) Harvard University Press. • Gruber J. The Role of Consumer Copayments for Health Care: Lessons from the RAND Health Insurance Experiment and Beyond. Kaiser Family Foundation Report (2006). • Baicker K, Taubman SL, Allen HL, et al. The Oregon Experiment: Effects of Medicaid on Clinical Outcomes. <i>N Engl J Med.</i> 2013;368(18):1713-22. <p>For debate/discussion, please read:</p> <ul style="list-style-type: none"> • Faculty Tensions II: Battling Over Benefits. Harvard Magazine (2014). • Roy A. Oregon Study: Medicaid 'Had No Significant Effect' on Health Outcomes vs. Being Uninsured. <i>Forbes.</i> 2013. <p>Problem Set 1 Due on Friday 4/8 at 1 PM</p>
M 4/11 W 4/13	<p>Observational Studies I: Matching and Propensity Score Methods</p> <ul style="list-style-type: none"> • Angrist and Pischke, Pages 80-86. • Gelman and Hill, Pages 199-212. • Rubin DB. Estimating Causal Effects from Large Data Sets Using Propensity Scores. <i>Annals of Internal Medicine.</i> 1997;127(8):757-763. • Villanti AC, Cullen J, Vallone DM, Stuart EA. Use of Propensity Score Matching to Evaluate a National Smoking Cessation Media Campaign. <i>Evaluation Review.</i> 2011;35(6):571-591. • McWilliams JM, Zaslavsky AM, Meara E, Ayanian JZ. Health Insurance Coverage And Mortality Among The Near-Elderly. <i>Health Affairs.</i> 2004;23(4):223-233.

<p>M 4/18 W 4/20</p>	<p>Observational Studies II: Difference-in-Differences Models</p> <ul style="list-style-type: none"> • Angrist and Pischke, Section 5.2. • Dimick JB, Ryan AM. Methods for Evaluating Changes in Health Care Policy: the Difference-in-differences Approach. <i>JAMA</i>. 2014;312(22):2401-2. • Gozalo P, Plotzke M, Mor V, Miller SC, Teno JM. Changes in Medicare costs with the Growth of Hospice Care in Nursing Homes. <i>N Engl J Med</i>. 2015;372:1823-31. • Gidwani R, Bhattacharya J. CMS Reimbursement Reform and the Incidence of Hospital-Acquired Pulmonary Embolism or Deep Vein Thrombosis. <i>J Gen Intern Med</i>. 2015;30(5):588-96. • Blum AB, Kleinman LC, Starfield B, Ross JS. Impact of State Laws That Extend Eligibility for Parents' Health Insurance Coverage to Young Adults. <i>Pediatrics</i>. 2012;129(3):426-32. <p>Problem Set 2 Due on Friday 4/22 at 1 PM</p>
<p>M 4/25 W 4/27 M 5/2</p>	<p>Observational Studies III: Instrumental Variables</p> <ul style="list-style-type: none"> • Woolridge, Pages 506-531. • Stock and Watson, Pages 331-366. • McClellan M, McNeil BJ, Newhouse JP. Does More Intensive Treatment of Acute Myocardial Infarction Reduce Mortality? <i>JAMA</i>. 1994;272(11):859-866. • Sanghavi P, Jena AB, Newhouse JP, Zaslavsky AM. Outcomes of Basic versus Advanced Life Support for Out-of-Hospital Medical Emergencies. <i>Annals of Internal Medicine</i> 2015;163(9):681-690. • Garabedian LF, Chu P, Sengwee T et al. Potential Bias of Instrumental Variables Analyses for Observational Comparative Effectiveness Research. <i>Annals of Internal Medicine</i>. 2014;161:131-138.
<p>W 5/4 M 5/9</p>	<p>Observational Studies IV: Regression Discontinuity Design</p> <ul style="list-style-type: none"> • Moscoe E, Bor J, Baernighausen T. Regression Discontinuity Designs are Underutilized in Medicine, Epidemiology, and Public Health: A Review of Current and Best Practice. <i>Journal of Clinical Epidemiology</i>. 2015;68:132-143. • Angrist and Pischke, Chapter 6. • Almond D, Doyle JJ, Kowalski AE, Williams H. Estimating Marginal Returns to Medical Care: Evidence from At-Risk Newborns. <i>QJ Econ</i>. 2010;125(2):591-634. <p>Problem Set 3 Due on Friday 5/6 at 1 PM</p>
<p>W 5/11</p>	<p>Complex Survey Analysis</p> <ul style="list-style-type: none"> • Hahs-Vaughn DL, McWayne CM, Bulotsky-Shearer RJ, Wen X, Faria AM. Methodological Considerations in Using Complex Survey Data: An Applied Example with the Head Start Family and Child Experiences Survey. <i>Eval Rev</i>.

	<p>2011;35(3):269-303.</p> <p>Problem Set 4 Due on Friday 5/13 at 1 PM</p>
<p>M 5/16 W 5/18 M 5/23</p>	<p>Observational Studies V: Panel Analysis/Multilevel Models</p> <ul style="list-style-type: none"> • Stock and Watson, Pages 271-295. • Woolridge, Chapter 14. • Xie J, Dow WH. Longitudinal Study of Child Immunization Determinants in China. <i>Soc Sci Med.</i> 2005;61(3):601-11. • Hirth RA, Turenne MN, Wheeler JR, Pan Q, Ma Y, Messana JM. Provider Monitoring and Pay-for-Performance when Multiple Providers Affect Outcomes: An Application to Renal Dialysis. <i>Health Serv Res.</i> 2009;44(5.1):1585-602.
<p>W 5/25</p>	<p>Course Summary</p> <p>Problem Set 5 Due on Wednesday 5/25 at 1 PM</p>
<p>M 5/30</p>	<p>Memorial Day, No Class</p>
<p>W 6/1</p>	<p>In-Class Final Exam</p>