

Evans School of Public Policy and Governance
PUB POL 528 A
Spring 2017
Professor Jacob Vigdor

Quantitative Analysis II

With a special application to income inequality and disparities

Rationale

Statistical evidence figures prominently in many policy debates. The purpose of this course is to empower students to discern whether arguments based on this type of evidence are convincing. In many cases, statistically-based arguments are accepted uncritically ("numbers don't lie") or dismissed as untrustworthy ("lies, damned lies, and statistics"). A sophisticated skeptic knows the right questions to ask about a statistical analysis in order to support an informed judgment regarding its validity and relevance to policy debates. By the end of the quarter, my goal is for each student in this course to qualify as a sophisticated skeptic, and in particular one who possesses the technical skills necessary to produce convincing evidence, not just consume it.

Courses of this type often use silly, meaningless datasets to illustrate concepts (e.g., data on how many defective light bulbs there are in a box). In this course, my lectures and your assignments will make use of data on actual American families, with analysis focused around the general theme of income inequality and discrimination in the American labor market.

As instructor, my goal is to make you glad you took this course all the days from June 8, 2016 to the end of your career.

Personnel

Instructor: Jacob L. Vigdor
324 Parrington Hall
(206)616-4436
jvigdor@uw.edu

Office Hours for Spring: by appointment.

Teaching Assistant: Nicole Kovski
405 Parrington Hall
kovskin@uw.edu

Office Hours for Spring: Tuesdays 11:30-1:30 PM, Wednesday 9:30-11:30 AM

Class meetings

Lectures Monday and Wednesday 1:30-2:50 PM, Parrington 108

Quiz Section A: Thursday 12:30 - 1:20 PM, Social Work 032

Quiz Section B: Friday 12:30 - 1:20 PM, Parrington 108

Course materials

There is one "recommended" textbook for the course:

Studenmund, A.H. (2016) *Using Econometrics: A Practical Guide, 7th ed.* Pearson

The 6th edition, or any prior edition for that matter, would be an acceptable substitute. Note that the chapter/page numbers in the reading list below are calibrated to the 7th edition, so make sure to compare the table of contents between that edition and the one you purchase.

In addition, if you peruse the readings selected for each class (just click on the entries in the calendar list below) you'll see that many topics are also covered in the Newbold, Carlson and Thorne textbook (*Statistics for Business and Economics, 7th ed.*, Pearson) adopted in PB AF 527. Certain more advanced topics are covered in Studenmund but not in NCT.

So should you buy Studenmund? I'd suggest the following strategy. Try getting by without it for the first couple of weeks of the course. If you find that lectures plus the occasional reference to NCT is enough to get you through the problem sets and leave you without the sinking feeling that your understanding is falling behind, then you may not need Studenmund. If you are the type of student who likes to see topics covered from multiple perspectives, you may want to plunk down the money to invest in the book.

Toward the end of the quarter we will read selections from Shadish, Cook and Campbell (*Experimental and Quasi-Experimental Designs for Generalized Causal Inference*, Houghton Mifflin). You don't need to buy this book, but if you are a fan of the non-technical approach they take and think you kind of like this data analysis stuff I do recommend it for your professional shelf.

This course will make use of the statistical software package Stata. It is available for UW student use on CSDE servers. You may acquire a personal copy on either a 6-month basis for \$69 or in perpetuity for \$189 [here \(Links to an external site.\)](#)[Links to an external site.](#)

Assignments and Grading

Your grade in this course will be based on five problem sets, three assessment memos, a midterm, and a final. The course is designed to have a fairly steady workload over the course of the quarter, with assignments due almost every week but never more than once a week. Assignment prompts and problem sets will be posted on Canvas and you will submit your work on Canvas. The Canvas calendar for this course will keep you up to date on what is due when. Due dates are binding except in cases where students request an extension prior to the deadline.

Assignment	Weight in final grade
Assessment memos (3)	25% (8.3% each)
Problem sets (5)	25% (5% each)
Midterm exam	20%
Final exam	30%

Lecture 1: Single Variables

Mar 27

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details de Maio, Fernando G. (2007) "[Income Inequality Measures \(Links to an external site.\)](#)" *Journal of Epidemiology and Community Health* v.61 pp.849-852.
Review basic concepts: variance, standard deviation, mean, median: see Studenmund Chapter 16, Newbold, Carlson and Thorne chapters 2.1, 2.2 or related sources.

Lecture 2: Correlation and the statistics of two variables

Mar 29

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Review materials on two-sample t-tests, chi-squared tests, and correlation. See, for example Newbold, Carlson and Thorne 10.1, 10.3, 11.7.

Section 1: Introduction to Stata (PB AF 528 CB)

Mar 30-31

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Location Parrington 108

Lecture 3: All about lines

Apr 3

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson, and Thorne 11.1, 11.2; Studenmund Chapter 1

Lecture 4: The nuts and bolts of OLS regression

Apr 5

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 11.3; Studenmund 2.1

Section 2: Regression in Stata (PB AF 528 CB)

Apr 6-7

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Lecture 5: From Univariate to Multivariate Regression

Apr 10

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 12.1, 12.2; Studenmund 2.2

Lecture 6: How to figure out if a regression makes sense

Apr 12

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 11.4, 12.3; Studenmund 2.3-2.5, 3.1

Section 3: Multivariate regression in Stata (PB AF 528 CB)

Apr 13-14

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Lecture 7: Confidence intervals and hypothesis tests in regression

Apr 17

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 11.5, 12.4, 12.5; Studenmund 5.1-5.5 if you need a review; Studenmund 5.6 (F-test appendix) for sure.

Lecture 8: Using regressions for prediction

Apr 19

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson, and Thorne 11.6, 12.6; Studenmund 15.1, 15.2

Section 4: Post-estimation commands in Stata (PB AF 528 CB)

Apr 20-21

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Lecture 9: Fitting complicated shapes to data

Apr 24

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 12.7; Studenmund 7.2

Lecture 10: Adding qualitative data to the right hand side

Apr 26

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 12.8, Studenmund 7.4

Midterm review session (PB AF 528 CB)

Apr 27-28

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Location Parrington 108

In-class midterm

May 1

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Lecture 11: Assumptions underlying OLS

May 3

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Studenmund 4

Midterm debriefing (PB AF 528 CB)

May 4-5

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Location Parrington 108

Lecture 12: When regressions go bad (heteroskedasticity and

multicollinearity)

May 8

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Newbold, Carlson and Thorne 13.5, 13.6; Studenmund 8, 10

Lecture 13: Qualitative data on the left hand side (probit and logit models)

May 10

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Studenmund 13

Section 5: Probits, Logits, and Weights (PB AF 528 CB)

May 11-12

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Lecture 14: Correlation is not causality... so what IS causality?

May 15

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Shadish, Cook and Campbell Chapter 1; Chapter 2 pp.53-63; Chapter 3 pp.64-93.

Lecture 15: Randomized trials

May 17

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Shadish, Cook and Campbell Chapter 8.

Schweinhart, Lawrence J. (2013) "[Long-term follow-up of a preschool experiment.](#) (Links to an external site.)" *Journal of Experimental Criminology* v.9 pp.389-409.

Section 6: Causal methods in Stata (PB AF 528 CB)

May 18-19

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

Lecture 16: Natural Experiments

May 22

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Shadish, Cook and Campbell Chapters 4 and 5.

Card, David and Alan Krueger (1994) "[Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania.](#) (Links to an external site.)" *American Economic Review* v.84 pp.772-793.

Neumark, David and William Wascher (2000) "[Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Comment.](#) (Links to an external site.)" *American Economic Review* v.90 pp.1362-1396.

Card, David and Alan Krueger (2000) "[Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Reply.](#) (Links to an external site.)" *American Economic Review* v.90 pp.1397-1420.

Lecture 17: Instrumental Variables

May 24

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Sovey, Allison J. and Donald P. Green (2011) "[Instrumental Variables Estimation in Political Science: A Readers' Guide.](#) (Links to an external site.)" *American Journal of Political Science* v.55 pp.188-200.

Hoxby, Caroline (2000) "[Does Competition among Public Schools Benefit Students and Taxpayers?](#) (Links to an external site.)" *American Economic Review* v.90 pp.1209-1238.

Rothstein, Jesse (2007) "[Does Competition among Public Schools Benefit Students and Taxpayers: Comment.](#) (Links to an external site.)" *American Economic Review* v.97 pp.2026-2037.

Hoxby, Caroline (2007) "[Does Competition among Public Schools Benefit Students and Taxpayers: Reply.](#) (Links to an external site.)" *American Economic Review* v.97 pp.2038-2055.

Optional discussion of validity & assessments (PB AF 528 CB)

May 25-26

Calendar [PB AF 528 C: Quantitative Analysis II](#)

PB AF 528 CB

No lecture May 29 (Memorial Day)

Lecture 18: Regression Discontinuity/Wrap UP

May 31

Calendar [PB AF 528 C: Quantitative Analysis II](#)

Location Parrington 108

Details Shadish, Cook and Campbell Chapter 7.

Lee, David S., Enrico Moretti, and Matthew J. Butler (2004) "[Do Voters Affect or Elect Policies? Evidence from the U.S. House.](#) (Links to an external site.)" *Quarterly Journal of Economics* v.119 pp.807-859.

Caughey, Devin and Jasjeet S. Sekhon (2011) "[Elections and the Regression Discontinuity Design: Lessons from Close U.S. House Races, 1942-2008.](#) (Links to an external site.)" *Political Analysis* v.19 pp.385-408.

Final exam review sessions in section, June 1-2