

LABOR ECONOMICS 250A
SYLLABUS
Empirical Methods in Labor Economics
UCSD
Fall 2012

Professors Kate Antonovics, Julian Betts, and Gordon Dahl

Location: RBC 3202

Time: Wednesday, 2:00 – 4:50 pm

Overview: This first of three graduate labor courses focuses on the empirical methods used in labor (and other applied microeconomics fields). The course is designed to prepare you to read and evaluate empirical work in the other two graduate labor courses, 250B and 250C. However, the toolkit presented in this course will be useful for research in all areas of applied micro.

This course is intended to be both more and less than a course in applied econometrics. It is “less” in that we will not concentrate heavily on deriving properties of estimators, but, instead, we will focus on presenting a practical guide to the key statistical advantages and disadvantages of each technique. It is “more” than a course in applied econometrics in that, for each technique, we will study empirical examples in considerable detail. In this way, the course also will provide an introduction to many different areas of labor research.

10/3, 10/10, 10/17

Antonovics will begin by summarizing some of the main problems affecting empirical work, such as omitted variable bias, selectivity bias, endogeneity, and measurement error. Antonovics will then discuss the strengths and weaknesses of employing **social experiments** to identify causal parameters. In addition, Antonovics will cover the use of **fixed effects** and **difference-in-difference** methods.

10/24, 10/31, 11/6

Dahl will discuss the use of **propensity score matching** and **regression discontinuity** methods. He will also discuss **clustering** for accurate estimation of standard errors.

11/14, 11/21, 12/5

Betts will discuss **instrumental variables**, **selection** and **clustering**.

11/28

Students will present their empirical work. *Please note that this is the second to last day of class.*

Evaluation and Course Requirements:

1. Very Short Paper. A five page paper (double-spaced, 11 point font) in which you will be required to engage a data set of your choosing. It will be marked on the econometric method alone, with no marks deducted for even the most ludicrous economic analysis; so feel free to have fun. On the other hand, you will spend many intimate hours with this project, so you may as well construct it in a way that will make it interesting for you and your team. This assignment must be completed in groups of **three** students.

Email Prof. Antonovics an outline of the dataset your group will use and the question you will study by Tuesday, October 9 at noon.

Email Prof. Antonovics a table of means and related information, in a format to be explained in the first lecture, by Tuesday, October 16 at noon. **5 points**

Turn in a rough draft as a hard copy to Professor Dahl on Wednesday, October 31. **5 points**

Turn in the final draft as a hard copy to Professor Betts on Wednesday, November 28 in class. **20 points**

Student presentations will be on Wednesday, November 28 in class. **10 points**

TOTAL POINTS FOR PAPER AND PRESENTATION 40 POINTS

2. Comprehensive final exam, Wednesday, December 12, 3-6:00 pm. **50 POINTS**

3. Class participation **10 POINTS**

TOTAL POINTS IN COURSE 100 POINTS

Reading List

Introduction to the Central Problems of Omitted Variable Bias, Self-Selection, Endogeneity and Measurement Error

Angrist, Joshua and Alan Krueger (1999), "Empirical Strategies in Labor Economics," in the *Handbook of Labor Economics*, Vol. 3A, O. Ashenfelter and D. Card, eds. Amsterdam: Elsevier Science.

ANTONOVICS SECTION

This list is subject to change . . .

Social Experiments

Burtless, Gary, "The Case for Randomized Field Trials in Economic and Policy Research," *Journal of Economic Perspectives*, Spring 1995, 9(2), pp. 63-84.

Cullen, Julie, Brian Jacob and Steven Levitt. "The Effect of School Choice on Participants: Evidence from Randomized Lotteries," *Econometrica*, September 2006, 74(5), pp. 1191-1230.

Heckman, James, Robert LaLonde, and Jeff Smith, "The Economics and Econometrics of Active Labor Market Programs," *Handbook of Labor Economics*, Vol. 3A, O. Ashenfelter and D. Card, eds. Amsterdam: North Holland, 1999, pp. 1865-2097.

Difference-in-Difference Models

Abadie, Alberto; Diamond, Alexis; Hainmueller, Jens, "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program," *Journal of the American Statistical Association*, vol. 105, no. 490, June 2010, pp. 493-505.

Ashenfelter, O. (1978): "Estimating The Effect of Training Programs on Earnings," *Review of Economics and Statistics*, 60(1), 47-57.

Bertrand, M., E. Duflo, and S. Mullainathan (2004), "How Much Should We Trust Differences-in-Differences Estimates?", *Quarterly Journal of Economics*, February, 119(1): 249-275.

Betts, Julian, Jesse Levin, Ana Paula Miranda, Bruce Christenson, Marian Eaton and Hans Bos (2010), "An Evaluation of Alternative Matching Techniques for Use in Comparative Interrupted Time Series Analyses: An Application to Elementary Education," manuscript, Department of Economics UCSD and American Institutes for Research.

Black, Sandra E. and Philip E. Strahan, "The Division of Spoils: Rent-Sharing and Discrimination in a Regulated Industry." *American Economic Review*, September 2001, 814-831.

Blundell, Richard & MaCurdy, Thomas, 1999. "Labor supply: A review of alternative approaches," *Handbook of Labor Economics*, in: O. Ashenfelter & D. Card (ed.), *Handbook of Labor Economics*, edition 1, volume 3, chapter 27, pages 1559-1695 Elsevier.

Card, David (1990), "The Impact of the Mariel Boatlift on the Miami Labor Market", *Industrial and Labor Relations Review*, 43:245-257.

- Card, David and Alan B. Krueger (1994), "Minimum Wages and Employment - A Case Study of the Fast Food Industry in New Jersey and Pennsylvania," *American Economic Review*, (84:4), September.
- Imbens, Guido, and Jeffrey Wooldridge, "Difference in Difference Estimation", Lecture 10 What's New in Econometrics? NBER, Summer 2007. Available at http://www.nber.org/~confer/2007/si2007/WNE/lect_10_diffindiffs.pdf
- Watson, Nadine (1996), Ph.D. Thesis, University of California, San Diego.

Fixed Effects

- See Angrist and Krueger (1999) above.
- Altonji, Joseph and Thomas Dunn, (1996), "The Effects of Family Characteristics on the Return to Education", *Review of Economics and Statistics*, (November).
- Angrist, Joshua and Whitney Newey (1991), "Over-identification Tests in Earnings Functions with Fixed Effects", *Journal of Business and Economic Statistics* (July).
- Ashenfelter, Orley and David Zimmerman (1997), "Estimates of the Returns to Schooling from Sibling Data: Fathers, Sons and Brothers", *Review of Economics & Statistics* v79, n1 (Feb.).
- Ashenfelter, Orley and Alan Krueger (1994), "Estimates of the Economic Return to Schooling from a New Sample of Twins", *American Economic Review* (December). (Note: This paper uses both instrumental variables and fixed effects. IV methods will be covered in greater detail in section 9 of the course.)
- Light, Audrey (1995), "The Effects of Interrupted Schooling on Wages", *Journal of Human Resources* (Summer).

DAHL SECTION

Note: This list is preliminary and subject to change.

Propensity Score Matching

- Angrist, Joshua D. "Grouped-data Estimation and Testing in Simple Labor Supply Models," *Journal of Econometrics*, February/March 1991, 47:2/3, 243-267.
- Deheji, Rajeev H. and Sadek Wahba, 1999. "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," *Journal of the American Statistical Association*, December, 94:448, 1053-1062.
- Rosenbaum, Paul and Donald Rubin (1983), "The Central Role of the Propensity Score in Observational Studies for Causal Effects," *Biometrika* 70:1, 41-55.
- Rosenbaum, Paul and Donald Rubin ((1985), "Reducing Bias in Observational Studies Using Subclassification on the Propensity Score," *Journal of the American Statistical Association*, 79, 516-524.
- Smith, Jeffrey and Petra Todd (2001), "Reconciling Conflicting Evidence on the Performance of Propensity Score Matching Methods," *American Economic Review*, May, 91:2, 112-118.

Regression Discontinuity

- Angrist, Joshua and Victor Lavy, "Using Maimonides Rule to Estimate the Effect of Class Size on Scholastic Achievement," *Quarterly Journal of Econometrics*, 1998, 114, 533-575.
- [DiNardo, John](#) and David [Lee](#), "Economic Impacts of Unionization on Private Sector Employers: 1984-2001," *Quarterly Journal of Economics*, 2004, 119, pp. 1383-1441.
- Hahn, Jinyong, P. Todd and W. Van Der Klaauw, "Identification and Estimation of Treatment Effects with a Regression-Discontinuity Design," *Econometrica*, January 2001, 69(1), pp. 201-209.
- Imbens, Guido and Thomas Lemieux, "Regression Discontinuity Designs: A Guide to Practice," *NBER Technical Working Paper 337*, April 2007, <http://www.nber.org/papers/t0337.pdf>
- Lee, David, "Randomized Experiments from Non-random Selection in U.S. House Elections," *Journal of Econometrics*, 2008, 142:2, 675-697.
- Lee, David and David Card, "Regression Discontinuity Inference with Specification Error," *Journal of Econometrics*, 2008, 142:2, 655-674.
- Lemieux, Thomas and Kevin Milligan, "Incentive Effects of Social Assistance: A Regression Discontinuity Approach," *NBER Working Paper 10541*, June 2004, <http://www.nber.org/papers/w10541.pdf>
- Porter, Jack, "Estimation in the Regression Discontinuity Model," *mimeo*, University of Wisconsin, 2003, http://www.ssc.wisc.edu/~jrporter/reg_discont_2003.pdf

Clustered Standard Errors

- Bertrand, M. E. Duflo, and S. Mullainathan, "How much Should We Trust Differences in-Differences Estimates?" *Quarterly Journal of Economics*, 119:1, 249-275.
- Donald, S. and K. Lang, "Inference with Difference in Differences and Other Panel Data," 2004, Working Paper, Boston University.
- Hansen, C., "Asymptotic Properties of a Robust Variance Matrix Estimator for Panel Data when T is Large," *Journal of Econometrics* (December 2007).

BETTS SECTION

Note: This list is short but REQUIRED - you will be expected to read these papers.

Selectivity Correction

- Argys, L. M., Rees, D. I., Brewer, D. J., 1996. Detracking America's Schools: Equity at Zero Cost? *Journal of Policy Analysis and Management* 15, (4), 623-645.
- Betts, Julian R. and Jamie L. Shkolnik, (2000), "The Effects of Ability Grouping on Student Math Achievement and Resource Allocation in Secondary Schools", *Economics of Education Review*, (19:1), pp. 1-15.
- Heckman, James (1976), "The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models", *Annals of Economic and Social Measurement* 5:475-492.
- Lee, David. S. (2009), Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects. *Review of Economic Studies*, 76: 1071-1102.
- Willis, R.J. and S. Rosen (1979), "Education and Self-Selection", *Journal of Political Economy*, 87, (Supplement, October), pp. S7-S36.

Causal Inference and Experiments

Just master the notation and concept

- Angrist, Joshua D., Guido W. Imbens and Donald B. Rubin, "Identification of Causal Effects Using Instrumental Variables" *Journal of the American Statistical Association*, June 1996 Vol 91(434)
- LaLonde, Robert J. (1986) "Evaluating the Econometric Evaluations of Training Programs with Experimental Data," *American Economic Review*, 76(4).

Examples of Experiments (skim these):

- Karthik Muralidharan and Venkatesh Sundararaman (2008), "Contract Teachers: Experimental Evidence from India," UCSD mimeo.
- Esther Duflo, Glennerster, Rachel, and Michael Kremer (2007) "Using Randomization in Development Economics: A Toolkit" Centre for Economic Policy Research, Discussion Paper No. 6059.
- Miguel, Edward and Michael Kremer, "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," *Econometrica*, Vol. 72, No. 1 (January, 2004), 159-217.

Instrumental Variable (IV) Method

- Angrist, Joshua (1990), "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Records," *American Economic Review*, 80:3 (June).
- Angrist, Joshua and Alan B. Krueger (1991), "Does Compulsory School Attendance Affect Schooling?" *Quarterly Journal of Economics*, 106, 979-1014.
- Bound, John, David Jaeger and Regina Baker, (1995) "Problems with Instrumental Variables Estimation when the Correlation Between the Instruments and the Endogenous Explanatory Variables is Weak," *Journal of the American Statistical Association*, 90 (June): 443-450.
- Imbens, Guido, and Jeffrey Wooldridge "Weak Instruments and Many Instruments" Lecture 13 *What's New in Econometrics? NBER, Summer 2007*.
http://www.nber.org/~confer/2007/si2007/WNE/lect_13_weakmany_iv.pdf

Measurement Error and other Data Issues

Griliches, Z. (1986) "Economic Data Issues," in Handbook of Econometrics, Volume III, (Z. Griliches and M.D. Intriligator eds.) Elsevier Science.