Bar-Ilan University
Department of Economics

Research Institute for Econometrics
מכון מחקר לאקונומטריקה

The Department of Economics

And

Research Institute for Econometrics (RIE)

Are happy to announce the opening of a new Mini-Course

In the academic year 2014-2015

Entitled

Program Evaluation: Estimating Program Effectiveness

By

Prof. Stefan Hoderlein

Department of Economics, Boston College

Course Number: 66-957-01

Academic points: One semester hour (0.5 annual hour)

Syllabus: Attached

Location: Feldman Building (301), Room 102

Dates and hours:

Tuesday, April 28th, 2015: 16:00-20:00

Thursday, April 30th, 2015: 16:00-20:00

Sunday, May 3rd, 2015: 09:00-13:00

The course is open to all M.A students, Ph.D. students, staff members and researchers. Registration and enquiries at the following email address: Economics.dept@mail.biu.ac.il during April 20th - April 30th.

Bar Ilan University

Program Evaluation: Estimating Program Effectiveness

Stefan Hoderlein

Spring 2015

Course Outline:

Program evaluation comprises a set of statistical tools designed to assess the causal impact of public interventions, such as job training programs, on outcomes of interest, such as earnings. This is a methodological course, developing skills in quantitative program evaluation. We will study a variety of evaluation designs, from random assignment to quasi-experimental evaluation methods.

Goals:

Evaluating the effectiveness of public programs is important, since it can help us decide which program we should expand and which ones we should scale down or discontinue. The goal of the course is to prepare students to conduct and read critically empirical evaluations of public programs. We will study how to use statistical techniques to evaluate the effects of public programs. We will focus on experimental and quasi-experimental methods.

Prerequisites:

This course targets "mathematically inclined" PhD and Master students. Knowledge of statistical inference and regression analysis at the level of a basic graduate (Master) level Econometrics class is strongly recommended: regression analysis, including instrumental variable (2SLS), qualitative dependent variable models (Probit and Logit) and panel data methods (fixed and random effects). We will make use of some elementary calculus.

Readings:

The course material is self contained and there is no required textbook for the course. Handouts covering most of the material will be distributed in class.

Contents of the Course:

Recommended readings are preceded by a star (*). Other readings are included for your reference but they are not part of the required material for the course.

1 Introduction

1.1 Evaluation Research for Public Policy: Purpose. Scope. Examples

1.2 The Fundamental Identification Problem: Causality. Counterfactual Responses. Heterogeneity. Selection

1.3 Statistical Prerequisites: Probability. Random variables. Independence. Measures of location. Measures of dispersion. Conditional mean function. Inference

Readings (overviews of the material covered in the course):

Angrist, J.D. and A.B. Krueger (2000), "Empirical Strategies in Labor Economics," in A. Ashenfelter and D. Card eds. Handbook of Labor Economics, vol. 3. New York: Elsevier Science. Sections 1 and 2.

Angrist, J.D. and J.S. Pischke (2009), Mostly Harmless Econometrics: An Empiricist Companion. Princeton University Press.

* Imbens, G.W. and J.M. Wooldridge (2009) "Recent Developments in the Econometrics of Program Evaluation," *Journal of Economic Literature*, vol. 47(1), 5-86.

2 Randomized Experiments

2.1 The Advantages of Randomized Studies

2.2 Threads to Internal and External Validity

2.3 Introduction to Observational Studies

Readings:

* Bloom, H.S., L. L. Orr, S.H. Bell, G. Cave, F. Doolittle, W. Lin and J.M. Bos (1997), "The Benefits and Costs of JTPA Title II-A Programs," *Journal of Human Resources*, vol. 32, 549-576.

Duflo, E., R. Glennerster and M. Kremer (2008), "Using Randomization in Development Economics Research: A Toolkit," in T.P. Schultz and J.A. Strauss eds. Handbook of Development Economics, vol. 4. New York: Elsevier Science.

Krueger, A. (1999), "Experimental Estimates of Education Production Functions," *Quarterly Journal of Economics*, vol. 114, 497-532.

LaLonde, R. (1986), "Evaluating the Econometric Evaluation of Training Programs with Experimental Data," *American Economic Review*, vol. 76, 604-620.

Rosenbaum, P.R. (1995), Observational Studies. New York: Springer-Verlag. Chapter 2.

* The New York Times, March 9, 1993, Tuesday, Late Edition - Final, Section C; Page 1; Column 5; Science Desk, "Like a New Drug, Social Programs Are Put to the Test," By Peter Passell.

3 Matching and Regression

3.1 Identification: Simpson's Paradox. Selection on Observables

3.2 Matching Estimators: Matching on Covariates. Propensity Score Methods

Readings:

Abadie, A. and G.W. Imbens (2006), "Large Sample Properties of Matching Estimators for Average Treatment Effects," *Econometrica,* vol. 74, 235-267.

Abadie, A. and G.W. Imbens (2008), "On the Failure of the Bootstrap for Matching Estimators," *Econometrica,* vol. 76, 1537-1557.

Cochran, W.G., (1968), "The Effectiveness of Adjustment by Subclasiffication in Removing Bias in Observational Studies," *Biometrics*, vol. 24, 295-313.

* Dehejia, R.H. and S. Wahba (1999), "Causal Effects in Non-Experimental Studies: Re-Evaluating the Evaluation of Training Programs," *Journal of the American Statistical Association*, vol. 94, 1053-1062.

Härdle, W and O. Linton (1994), "Applied Nonparametric Methods," in R. F. Engle and D. L. McFadden eds. Handbook of Econometrics, vol. 4. New York: Elsevier Science.

Heckman, J.J., H. Ichimura and P.E. Todd (1997), "Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme," *Review of Economic Studies*, vol. 64, 605-654.

Imbens, G.W. (2004), "Nonparametric Estimation of Average Treatment Effects under Exogeneity: A Review," *Review of Economics and Statistics*, vol. 86(1), 4-29.

Rosenbaum, P.R. (2002), Observational Studies. New York: Springer-Verlag. Chapter 3.

Rosenbaum, P.R., and D. B. Rubin (1983), "The Central Role of the Propensity Score in Observational Studies for Causal Effects," *Biometrika*, vol. 70, 41-55.

Rubin, D.B. (1977), "Assignment to Treatment Group on the Basis of a Covariate," *Journal of Educational Statistics*, vol. 2, 1-26.

Rubin, D.B. (2006), Matched Sampling for Causal Effects. Cambridge: Cambridge University Press.

White, H. (1980), "Using Least Squares to Approximate Unknown Regression Functions," *International Economic Review*, vol. 21, 149-170.

4 Difference-in-Differences Estimators

4.1 Difference-in-Differences as a Fixed-Effects Estimator

Readings:

Abadie, A. (2005), "Semiparametric Difference-in-Differences Estimators," *Review of Economic Studies,* vol. 72, 1-19.

Abadie, A., A. Diamond and J. Hainmueller (2010), "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program," *Journal of the American Statistical Association*, vol. 105, 493-505.

* Abadie, A. and J. Gardeazabal (2003), "The Economic Costs of Conflict: A Case Study of the Basque Country," *American Economic Review*, vol. 93(1), 113-132.

Ashenfelter, O. and D. Card (1985), "Using the Longitudinal Structure of Earnings to Estimate the Effects of Training Programs," *Review of Economics and Statistics*, vol. 67, 648-660.

* Card, D. (1990), "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review*, vol. 44, 245-257.

* Card, D. and A.B. Krueger (1994), "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania," *American Economic Review*, vol. 84, 772-793.

Duflo E. (2001), "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment," *American Economic Review*, vol. 91, 795-813.

Meyer, B.D. (1995), "Natural and Quasi-Experiments in Economics," *Journal of Business & Economic Statistics*, vol. 13, 151-161.

5 Instrumental Variables

5.1 Identification: Using Exogenous Variation in Treatment Intake Given by Instruments.

5.2 Methodology: The Wald Estimator. Local Average Treatment Effects.

Readings:

Abadie, A. (2003), "Semiparametric Instrumental Variable Estimation of Treatment Response Models," *Journal of Econometrics*, vol. 113, 231-263.

* Angrist, J.D., G.W. Imbens and D.B. Rubin (1996), "Identification of Causal Effects Using Instrumental Variables," *Journal of the American Statistical Association*, vol. 91, 444-472.

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

Angrist J.D. and A. Krueger (1991), "Does Compulsory School Attendance Affect Schooling and Earnings?," *Quarterly Journal of Economics*, vol. 106, 979-1014.