

Economics 245

Empirical Methods

Winter 2013

Reading List

Items with asterisks (* * *) in front are required reading.

Cameron and Trivedi is shorthand for **Microeconometrics**, by Colin Cameron and Pravin Trivedi.

Deaton is shorthand for **The Analysis of Household Surveys**, by Angus Deaton.

MHE is shorthand for **Mostly Harmless Econometrics**, by Angrist and Pischke.

- Data and using data

- *** Freedman, D. “Statistical Models and Shoe Leather”. *Sociological Methodology* **21**, 1991, 291–313.
- *** Kennedy, P.E. “Sinning in the Basement: What Are the Rules? The Ten Commandments of Applied Econometrics.” *Journal of Economic Surveys* **16**:4, 2002, 487–620.
- *** Duncan, G.T. and G. Kalton. “Issues of Design and Analysis of Surveys across Time.” *International Statistical Review* **55**:1, 1989, 97–117.
- Bound, J., Brown, C., and Mathiowetz, N. “Chapter 59 Measurement Error in Survey Data,” in J.J. Heckman and E. Leamer, eds., *Handbook of Econometrics, Volume 5*, Amsterdam: North-Holland. 2001. 3705–3843.
- Deaton, A. “Chapter 33 Data and Econometric Tools for Development Analysis,” in Jere Behrman and T.N. Srinivasan, eds., *Handbook of Development Economics Volume 3, Part 1*, Amsterdam: North-Holland. 1995.
- Cameron and Trivedi. Chapters 24 (Stratified and Clustered Samples), 26 (Measurement Error Models), and 27 (Missing Data and Imputation).
- Deaton. Chapter 1 (The Design and Content of Household Surveys). Chapter 2, sections 1 (survey design and regressions) and 2 (The econometrics of clustered samples).

- Weighting and Unit Non-Response

- *** Kalton, Graham and Ismael Flores-Cervantes. “Weighting Methods.” *Journal of Official Statistics* **19**: 2, 2003, 81–97. (Click on full text in menu to left of abstract.)
- *** U.S. Census Bureau. Current Population Survey Design and Methodology Technical Paper 66, Chapter 10, Weighting and Seasonal Adjustment for Labor Force Data, 10-1–10-16.
- *** U.S. Census Bureau. Public Use Microdata Sample 2000 Census Technical Documentation, Chapter 5 Sample Design and Estimation.
- Survey Nonresponse. Robert Groves, Don Dillman, John Eltinge, and Roderick Little, eds. Wiley. 2001.

- Item Non-Response

- Langerman, Lawrence, Land, Kenneth, and Pieper, Carl. “An Empirical Evaluation of the Predictive Mean Matching Method for Imputing Missing Values.” *Sociological Methods Research* **26**:3, 1997, 3–33.
- Quality Measures: American Community Survey. Sample size and Data Quality. Item Allocation Rates (Item non response). Go up 1 level of links, and the same site has other interesting information about response rates, and coverage rates, sample sizes..
- Shafer, Joseph. “Multiple Imputation: A Primer.” *Statistical Methods in Medical Research* **8**, 1999, 3–15.
- Rubin, Donald. “Multiple Imputation After 18+ Years.” *Journal of the American Statistical Association* **91**: 434, 1996, 473–489. (Same issue has a number of comments by other statisticians.)

- Measurement Error

- Bollinger, Chris and Barry Hirsch. “Match Bias from Earnings Imputations in the Current Population Survey: The Case of Imperfect Matching.” *Journal of Labor Economics* **24**:3, 2006, 483–520.
- *** Bollinger, Chris and Barry Hirsch. “Is Earnings Nonresponse Ignorable?”. Forthcoming, *Review of Economics and Statistics*.
- *** Hausman, Jerry. “Mismeasured Variables in Econometric Analysis: Problems from the Right and Problems from the Left” *Journal of Economic Perspectives* **15**:4, 2001, 57–67.
- Black, Dan, Sanders, Seth, and Taylor, Lowell. “Measurement of Higher Education in the Census and Current Population Survey” *Journal of the American Statistical Association* **98**:463, 2003, 545–554.
- Bollinger, Chris and Amitabh Chandra. “Iatrogenic Specification Error: A Cautionary Tale of Cleaning Data” *Journal of Labor Economics* **23**:2, 2005, 235–257.
- Hyslop, R. and Guido Imbens. “Bias from Classical and Other Forms of Measurement Error.” **Journal of Business and Economic Statistics** **19**:4, 2001, 475–481.
- Meyer, B., Mok, W., and Sullivan, J. “The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences,” NBER Working Paper 15181, 2009
- Manski, C. and Molinari, F. “Rounding Probabilistic Expectations in Surveys” *Journal of Business and Economic Statistics* **28**:2, 2010, 219–231.

- Attrition

- Fitzgerald, John, Gottschalk, Peter, and Moffitt, Robert. “An Analysis of Sample Attrition in Panel Data: The Michigan Panel Study of Income Dynamics.” *Journal of Human Resources* **33**:2, 1998, 251–299. (Note that this volume of the JHR has other articles on attrition in panels, and discusses the NLSY and SIPP as well.)

- Experiments and Causal Effects

- *** MHE Chapters 1 and 2.
- Skim *** Ashenfelter, Orley and Card, David. “Using the Longitudinal Structure of Earnings to Estimate the Effect of Training Programs.” *Review of Economics and Statistics* **67**: 4, 1985, 648–660.
- Skim *** LaLonde, Robert. “Evaluating the Econometric Evaluations of Training Programs with Experimental Data.” *American Economic Review* **76**:4, 1986, 604–620.
- Skim *** Heckman, James J. and Hotz, V. Joseph. “Choosing Among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training” *Journal of the American Statistical Association* **84**: 408, 1989, 862–874. (Note there are also 2 comments and a rejoinder.)
- *** Angrist, Joshua and Pischke, Victor. “The Effects of High Stakes High School Achievement Awards: Evidence from a Randomized Trial” *American Economic Review* **99**:4, 2009, 301–331.
- Angrist, J. “Treatment Effects.”, *New Palgrave Dictionary of Economics*. 2008.
- Angrist, J. and A. Krueger. “Chapter 23 Empirical Strategies in Labor Economics,” in O. Ashenfelter and D. Card, eds. *Handbook of Labor Economics, Volume 3a*, Amsterdam: North-Holland, 1999, 1277–1366.
- Heckman, J., R. LaLonde, and J. Smith. “Chapter 31 The Economics and Econometrics of Active Labor Market Programs,” in O. Ashenfelter and D. Card, eds. *Handbook of Labor Economics, Volume 3a*, Amsterdam: North-Holland, 1999, 1865–2097.
- Imbens, G. “Nonparametric Estimation of Average Treatment Effects Under Exogeneity: A Review.” *Review of Economics and Statistics* **86**:1, 2004, 4–29. (Note that the rest of the entire volume of ReStat is about matching.)
- Heckman, James, and Navarro-Lozano, Salvador. “Using Matching, Instrumental Variables, and Control Functions to Estimate Economic Choice Models.” *Review of Economics and Statistics* **86**:1, 2004, 30–57.

- Linear regression, selection on observables, matching, propensity scores
 - *** MHE Chapter 3
 - *** Rosenbaum, P. and Rubin, D. “The Central Role of the Propensity Score in Observational Studies for Causal Effects.” *Biometrika* **70**:1, 1983, 41–55.
 - *** Heckman, J.J., Ichimura, H., and Todd, P. “Matching as an Econometric Evaluation Estimator.” *Review of Economic Studies* **65**:2, 1998, 261–294.
 - *** Smith, J.A., and Todd, P. “Does Matching Overcome LaLonde’s Critique of Nonexperimental Estimators?” *Journal of Econometrics* **125**:1–2, 2005, 305–353. (Also see the comment from Rajeev Dehejia and Smith and Todd’s rejoinder in the same volume of the journal. These are all linked to at Jeff Smith’s web page.)
 - Caliendo, M. and S. Kopeinig. “Some Practical Guidance for the Implementation of Propensity Score Matching.” *Journal of Economic Surveys* **22**:1, 2008, 31–71.
 - Abadie, A., Drukker, D., Herr, J., and Imbens. G. “Implementing Matching Estimators for Average Treatment Effects in Stata.” *The Stata Journal* **4**, 2004, 290–311.
 - Abadie, A., and Imbens. G. “Large Sample Properties of Matching Estimators for Average Treatment Effects.” *Econometrica* **74**, 2006, 235–267.
 - Abadie, A., and Imbens. G. “On the Failure of the Bootstrap for Matching Estimators” *Econometrica* **76**:6, 2008, 1537–1557.
 - Hirano, K., Imbens, G., and Ridder G. “Efficient Estimation of Average Treatment Effects Using the Estimated Propensity Score.” *Econometrica* **71**, 2003, 1161–1189.
 - Abadie, A., and Imbens, G. “Bias-Corrected Matching Estimators for Treatment Effects” *Journal of Business and Economic Statistics* **29**:1, 2011, 1–11.
 - Talks about cross-validation. There are a bunch of other interesting papers in this special issue. Galdo, J., Smith, J., and Black, D. “Bandwidth Selection and the Estimation of Treatment Effects with Unbalanced Data” *Annals of Economics and Statistics*. **91/92**:, 2008, 189-216.

- Frolich, M. “Finite -Sample Properties of Propensity-Score Matching and Weighting Estimators.” *Review of Economics and Statistics* **86**:1, 2004, 77–90.
- Busso, M., DiNardo, J., and McCrary, J. “New Evidence on the Finite Sample Properties of Propensity Score Reweighting and Matching Estimators”, Working Paper, 2011.
- Shaikh, A., Sinonsen, M., Yildiz, N., and Vytlacil, E. “A Specification Test for the Propensity Score Using Its Distribution Conditional on Participation.” *Journal of Econometrics* **151**:1, 33–46.
- Chabe-Ferret, Sylvain. “Matching vs. Differencing when Estimating Treatment Effects with Panel Data: The Example of the Effect of Job Training Programs on Earnings.” Toulouse School of Economics Working Paper, 2012.
- Instrumental variables
 - *** MHE Chapter 4
 - Abadie, A. “Bootstrap Tests for Distributional Treatment Effects in Instrumental Variable Models.” *Journal of the American Statistical Association* **97**, 2002, 284–292.
 - *** Angrist, J., Imbens, G., and Rubin, D. “Identification of Causal Effects using Instrumental Variables.” *Journal of the American Statistical Association* **91**: 434, 1996, 444–455. (See also comments and rejoinder.)
 - Imbens, G. and Angrist, J. “Identification and Estimation of Local Average Treatment Effects.” *Econometrica* **62**: 2, 1994, 467–475.
 - Inoue, A, and Solon, G. “Two Sample Instrumental Variables Estimators” *Review of Economics and Statistics* **92**, 2010, 557-561.
 - Angrist, J., and Imbens, G. “Two Stage Least Squares Estimation of Average Causal Effects in Models with Variable Treatment Intensity.” *Journal of the American Statistical Association* **90**: 430, 1995, 431–442.

- Heckman, J., Urzua, Sergio, and Vytlacil, E. “Understanding Instrumental Variables in Models with Essential Heterogeneity.” *Review of Economics and Statistics* **88**:3, 2006, 389–432.
- Florens, J., Heckman, J., Meghir, C. and Vytlacil, E. “Identification of Treatment Effects Using Control Functions in Models with Continuous Endogeneous Treatment and Heterogeneous Effects,” *Econometrica*, **76**:5, 2008, 1191-1208.
- Vytlacil, E. “Independence, Monotonicity, and Latent Index Models: An Equivalence Result,” *Econometrica*, **70**:1, 2002, 331-341.
- Angrist, J. and A. Krueger. “Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments.” *Journal of Economic Perspectives* **15**:4, 2001, 69–85.
- Angrist, J., Graddy, K., and Imbens, G. “The Interpretation of Instrumental Variables Estimates in Simultaneous Equations Models with an Application to the Demand for Fish.” *Review of Economic Studies* **67**:3, 2000, 499–527.
- Imbens, G., and Rubin, D. “Estimating Outcome Distributions for Compliers in Instrumental Variables Models.” *Review of Economic Studies* **64**:5, 1997, 555–574.
- * * * Flores-Lagunes, A. “Finite Sample Evidence of IV Estimators under Weak Instruments.” *Journal of Applied Econometrics* **22**, 2007, 677–694.
- Conley, T., Hansen, C., and Rossi, P. “Plausibly Exogenous.” *Review of Economics and Statistics* **94**, 2012, 260–272.
- Moreira, M. and Poi, B. “Implementing Conditional Tests with Correct Size in the Simultaneous Equations Model.” *The Stata Journal* **3**:1, 2003, 57–70. (Also available from <http://www.fgv.br/professor/mjmoreira>.)
- Baum, C., Schaffer, M., and Stillman, S. “Enhanced Routines for Instrumental Variables/Generalized Method of Moments Estimation and Testing.” *Stata Journal* **7**:4, 465–506.

- Finlay, K., and Magnusson, Leandro. “Implementing Weak-Instrument Robust Tests for a General Class of Instrumental-Variables Models” *The Stata Journal* **9**:3, 2009, 398–421.
- Angrist, J. “Estimation of Limited Dependent Variable Models with Dummy Endogenous Regressors: Simple Strategies for Empirical Practice.” *Journal of Business and Economic Statistics* **19**:1, 2001, 2–16. (See also many comments in same issue.)
- Bound, J., Jaeger, D., and Baker, R. “Problems with Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogeneous Explanatory Variable is Weak,” *Journal of the American Statistical Association* **90**: 430, 1995, 443–450.
- Hotz, V.J., Mullin, C., and Sanders, S. “Bounding Causal Effects Using Data from a Contaminated Natural Experiment: Analysing the Effects of Teenage Childbearing.” *Review of Economic Studies* **64**:4, 1997, 575–603.
- * * * Altonji, J., Elder, T., and Taber, C. “An Evaluation of Instrumental Variables Strategy for Estimating the Effects of Catholic Schooling.” *Journal of Human Resources* **40**:4, 2005, 791–821.
- Angrist, J., and Fernandez-Val, I. “ExtrapoLATE-ing: External Validity and Overidentification in the LATE Framework”, NBER WP 16566, 2010.

- Panel data, Differences, and Fixed Effects

- *** MHE Chapter 5
- Meyer, B. “Natural and Quasi-Experiments in Economics.” *Journal of Business and Economic Statistics* **13**:2, 1995, 151–161.
- Rosenzweig, M. and Wolpin, K. “Natural ‘Natural’ Experiments in Economics”, *Journal of Economic Literature*, **38**, 827–874.
- * * * Conley, T. and Taber, C. “Inference with “Differences in Differences” with a Small Number of Policy Changes.” *Review of Economics and Statistics* **93**, 2011, 113–125.

- *** Abadie, A., Diamond, A., and Hainmueller, J. “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program”, Mimeo, 2007.
- *** Athey, S., and Imbens, G. “Identification and Inference in Nonlinear Difference-in-Differences Models.” *Econometrica* **74**:1, 2006, 235–267.
- *** McKinnish, T. “Welfare-Induced Migration at State Borders: New Evidence from Micro-Data.” *Journal of Public Economics* **91**: 3–4, 2007, 437–450.
- Regression Discontinuity
 - *** MHE Chapter 6
 - Imbens, G. and T. Lemieux. “Regression Discontinuity Designs: A Guide to Practice.” *Journal of Econometrics* **142**:2, 2008, 615–635.
 - Lee, D. and T. Lemieux. “Regression Discontinuity Designs in Economics.” *Journal of Economic Literature* **48**:2, 2010, 281–355.
 - Card, D., Lee, D., Pei, Z, and Weber, A. “Nonlinear Policy Rules and the Identification and Estimation of Causal Effects in a Generalized Regression Kink Design” NBER WP 18564, 2012. (Also see Yingying Dong’s slides on another approach.)
 - Dong, Y. and Lewbel, A. “Identifying the Effect of Changing the Policy Threshold in Regression Discontinuity Models, mimeo, 2012.
 - Imbens, G., and Kalyanaraman, K. “Optimal Bandwidth Choice for the Regression Discontinuity Estimator.” *Review of Economic Studies* **79**:3, 2011, 933–959.
 - Barreca, A., Lindo, J., and Waddell, G. “Heaping Induced Bias in Regression-Discontinuity Designs, NBER WP 17408, 2011.
 - Dong, Y. “Regression Discontinuity Applications with Rounding Errors in the Running Variable”, mimeo, 2012.

Updating for 2013 ends here

- Distributional methods
 - Decompositions: DFL; Firpo, Fortin, Lemiux, etc.
 - Local linear regression: Fan, etc.
 - Quantile regression: Basics
 - * *** MHE Chapter 7
 - * *** Koenker, R., and Hallock, K. “Quantile Regression: An Introduction” *Journal of Economic Perspectives* **15**:4, 2001, 143–156.
 - * *** Angrist, J., Chernozhukov, V., and Fernandez-Val, I. “Quantile Regression under Misspecification, with an Application to the US Wage Structure.” *Econometrica* **74**:2, 2006, 539–563.
 - * Chernozhukov, V., Fernandez Val, I., and Melly, B. “Inference on Counterfactual Distributions.” MIT Working Paper 8–16. 2008.
 - * Heckman, J., Smith, J., and Clements, N. “Making the Most Out of Programme Evaluations and Social Experiments: Accounting for Heterogeneity in Programme Impacts” *Review of Economic Studies* **64**:4, 1997, 487–535.
 - * Poirier, D., and Tobias, J. <http://www.jstor.org/stable/1392461> *Journal of Business and Economic Statistics* **21**:2, 2003, 258–268.
 - * Application: *** Bitler, M., Gelbach, J., and Hoynes H. “What Mean Impacts Miss: Distributional Effects of Welfare Reform Experiments.” *American Economic Review* **96**:4, 2006, 988–1012. (Link to last pre-publication draft.)
 - Quantile IV
 - * *** Abadie, A., Angrist, J., and Imbens, G. “Instrumental Variables Estimation of the Effect of Subsidized Training on the Quantiles of Trainee Earnings” *Econometrica* **70**:1, 2002, 91–117.
 - * *** Chernozhukov, V., and C. Hansen “An IV Model of Quantile Treatment Effects.” *Econometrica* **73**:1, 2005, 245–261.

- * Brandsen, B., M. Frolich, and B. Melly. “Quantile Treatment Effects in the Regression Discontinuity Design,” *Journal of Econometrics* **168**: 2, 2012, 382-395.

- Standard Errors

- *** MHE Chapter 7
- Moulton
- Bertrand, Mullainathan, and Duflo.
- Donald, and K. Lang. ReStat.
- Cameron, C., Gelbach, J., and Miller, D. ReStat.
- Cameron, C., Gelbach, J., and Miller, D. JBES.
- Barrios, T., Diamond, R., Imbens, G., and Kolesar, M. “Clustering, Spatial Correlations, and Randomization Inference”. *JASA* **107**:498, 2012, 578-591.