

Political Science 794: Methodology Seminar

Winter 2009

Tuesday 5–8 (7603 HH)

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Office hours: Wed 2–4 or other times by appointment.

Course web page: <http://www.umich.edu/~wmebane/ps794.html>

Assignment Due Dates

due date	description	weight
TBA	participation	10%
April 28	course paper	90%

Reading Availability

Much of the course will refer to journal articles. One book everyone should buy:

David R. Cox. 2006. *Principles of Statistical Inference*. Cambridge UP.

Class meeting and reading schedule (• required)

1. Randomization and Compliance (Jan 20)

- Joshua D. Angrist, Guido W. Imbens and Donald B. Rubin. 1996. Identification of Causal Effects Using Instrumental Variables. *Journal of the American Statistical Association* 91 (434, Jun.): 444–455.
- Guido W. Imbens and Donald B. Rubin. 1997. Estimating Outcome Distributions for Compliers in Instrumental Variables Models. *The Review of Economic Studies* 64 (4, Oct., Special Issue: Evaluation of Training and Other Social Programmes): 555–574.
- Constantine E. Frangakis and Donald B. Rubin. 2002. Principal Stratification in Causal Inference. *Biometrics* 58 (1, Mar.): 21–29.
- Guido W. Imbens and Donald B. Rubin. 1997. Bayesian Inference for Causal Effects in Randomized Experiments with Noncompliance. *Annals of Statistics* 25 (1, Feb.): 305–327.

2. Statistical Inference (Jan 27)

- D. R. Cox. *Principles of Statistical Inference*.

D. R. Cox and D. V. Hinkley. 1974. *Theoretical Statistics*. Cambridge UP.

3. Nonparametrics (Feb 3)

- Jeffrey S. Racine. 2008. Nonparametric Econometrics: A Primer. *Foundations and Trends in Econometrics* 3 (1): 1–88.
- Keisuke Hirano, Guido W. Imbens, and Geert Ridder. 2003. Efficient Estimation of Average Treatment Effects Using the Estimated Propensity Score. *Econometrica* 71 (4, July): 1161–1189.

- Peter Hall, Jeff Racine and Qi Li. 2004. Cross-Validation and the Estimation of Conditional Probability Densities. *Journal of the American Statistical Association* 99 (468, Dec.): 1015–1026.

Oi Li and Jeffrey Scott Racine. 2007. *Nonparametric Econometrics*. Princeton UP.

Wolfgang Härdle. 1990. *Applied Nonparametric Regression*. Cambridge UP.

Adrian Pagan and Aman Ullah. 1999. *Nonparametric Econometrics*. Cambridge UP.

4. Identification (Feb 10)

- Rosa L. Matzkin. 2007. Nonparametric Survey Response Errors. *International Economic Review* 48 (4): 1411–1427.
- Charles F. Manski. 2007. Partial Identification of Counterfactual Choice Probabilities. *International Economic Review* 48 (4, Nov): 1429–1439.
- Judea Pearl. 1995. Causal Diagrams for Empirical Research. *Biometrika* 82 (4, Dec.): 669–688. (plus discussion, 688–710).
- Ilya Shpitser and Judea Pearl. 2006. “Identification of Joint Interventional Distributions in Recursive Semi-Markovian Causal Models,” In Proceedings of the Twenty-First National Conference on Artificial Intelligence, AAAI Press, menlo Park, CA, 1219–1226, July 2006. Technical Report R-327, February 2006.

Charles F. Manski. 1995. *Identification in the Social Sciences*. Harvard UP.

Charles F. Manski. 2003. *Partial Identification of Probability Distributions*. Springer.

Rosa L. Matzkin. 2007. Nonparametric Identification. In James J. Heckman and Edward E. Leamer, eds., *Handbook of Econometrics* volume 6B. North-Holland. Pp. 5307–5368.

5. Discrete Choice Models: Heterogeneities (Feb 17)

- Daniel McFadden and Kenneth Train. 2000. Mixed MNL Models for Discrete Response. *Journal of Applied Econometrics* 15 (5, Sep–Oct): 447–470.
- Steven Berry and Ariel Pakes. 2007. The Pure Characteristics Demand Model. *International Economic Review* 48 (4, Nov): 1193–1225.

Kenneth E. Train. 2003. *Discrete Choice Methods with Simulation*. Cambridge UP.

6. Structural Dynamic Programming Models (Mar 3)

- V. Joseph Hotz and Robert A. Miller. 1993. Conditional Choice Probabilities and the Estimation of Dynamic Models *The Review of Economic Studies* 60 (3, Jul): 497–529.
- Hiroyuki Kasahara and Katsumi Shimotsu. 2006. Nonparametric Identification and Estimation of Finite Mixture Models of Dynamic Discrete Choices. Queens Economics Department Working Paper No. 1092.
http://www.econ.queensu.ca/working_papers/papers/qed_wp_1092.pdf
- Hiroyuki Kasahara and Katsumi Shimotsu. 2009. Nonparametric Identification of Finite Mixture Models of Dynamic Discrete Choices. *Econometrica* 77 (1, Jan): 135–175.

7. Nonparametric Estimation of Dynamic Games (Mar 10)

- Victor Aguirregabiria and Pedro Mira. 2007. Sequential Estimation of Dynamic Discrete Games. *Econometrica* 75 (1, Jan.): 1–53.
- Hiroyuki Kasahara and Katsumi Shimotsu. 2008. Pseudo-likelihood estimation and bootstrap inference for structural discrete Markov decision models. *Journal of Econometrics* 146 (1): 92–106.

8. BUGS and MCMC (Mar 17)

- Brooks, S. P. 1998. Markov Chain Monte Carlo Method and its Application. *The Statistician* 47: 69–100.
- Brooks, S. P. and A. Gelman. 1998. Alternative Methods for Monitoring Convergence of Iterative Simulations. *Journal of Computational and Graphical Statistics* 7: 434–455.
- Spiegelhalter, D. J., N. G. Best, B. P. Carlin and A. van der Linde. 2002. Bayesian measures of model complexity and fit (with discussion). *J. Roy. Statist. Soc. B* 64: 583–640.
- Simon Jackman. 2000. Estimation and Inference via Bayesian Simulation: An Introduction to Markov Chain Monte Carlo. *American Journal of Political Science* 44 (2, Apr.): 375–404.

Ming-Hui Chen, Qi-Man Shao and Joseph G. Ibrahim. 2000. *Monte Carlo Methods in Bayesian Computation*. Springer.

OpenBUGS. <http://mathstat.helsinki.fi/openbugs/>

The BUGS Project. <http://www.mrc-bsu.cam.ac.uk/bugs/>

9. MCMC and Scaling Models (Mar 24)

- Simon Jackman and Shawn Treier. 2008. Democracy as a Latent Variable. *American Journal of Political Science* 52 (1): 201–217.
- Joshua Clinton, Simon Jackman and Douglas Rivers. 2004. The Statistical Analysis of Roll Call Data. *American Political Science Review* 98 (2, May): 355–370.
- Michael A. Bailey. 2007. Comparable Preference Estimates across Time and Institutions for the Court, Congress, and Presidency. *American Journal of Political Science* 51 (3, Jul.): 433–448.

10. quantal response equilibrium models (Mar 31)

- McKelvey, Richard D., and Thomas R. Palfrey. 1995. Quantal Response Equilibria for Normal Form Games. *Games and Economic Behavior* 10: 6–38.
- Goeree, Jacob K., and Charles A. Holt. 2005. An Explanation of Anomalous Behavior in Models of Political Participation. *American Political Science Review* 99 (May): 201–213.
- Haile, Philip A., Ali Hortasu and Grigory Kosenok. 2007. On the Empirical Content of Quantal Response Equilibrium. Working paper. <http://www.econ.yale.edu/~pah29/qre.pdf>
- Curtis S. Signorino. 1999. Strategic Interaction and the Statistical Analysis of International Conflict. *American Political Science Review* 93 (2, Jun.): 279–297.

11. bounded influence estimation (Apr 7)

- Stefanski, Leonard A., Raymond J. Carroll, David Ruppert. 1986. Optimally Bounded Score Functions for Generalized Linear Models with Applications to Logistic Regression. *Biometrika* 73 (Aug): 413–424.
- Hampel, Frank R. and Peter J. Rousseeuw and Elvezio Ronchetti. 1981. The Change-of-Variance Curve and Optimal Redescending M-Estimators. *Journal of the American Statistical Association* 76 (Sep): 643–648.
- Croux, Christophe and Peter J. Rousseeuw and Ola Hossjer. 1994. Generalized S-Estimators. *Journal of the American Statistical Association* 89 (Dec): 1271–1281.
- Mebane, Walter R., Jr., and Jasjeet S. Sekhon. 2004. Robust Estimation and Outlier Detection for Overdispersed Multinomial Models of Count Data. *American Journal of Political Science* 48 (April): 392–411.

12. presentations (Apr 14, 21)