

Econometrics 2, 47-812, Fall 2003

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Some useful Econometric references for this course.

- General Econometric Reference

- Gallant, A. Ronald, **An Introduction to Econometric Theory**, Princeton University Press, 1997.
- Amemiya, Takeshi, **Advanced Econometrics**, Harvard University Press, 1985.
- Engle, Robert and Daniel L. McFadden editors, **Handbook of Econometrics**, Vol 4, North-Holland, 1994.
- Davidson, James, **Stochastic Limit Theory**, Oxford University Press, 1994.
- Davidson, Russell and James G. MacKinnon, **Estimation and Inference in Econometrics**, Oxford University Press, 1993.
- Mátyás, László **Generalized Method of Moments Estimation**, Cambridge University Press, 1999.
- Wooldridge, Jeffrey M., **Econometric Analysis of Cross Section and Panel Data** The MIT Press, 2002.

- Small Sample Problems and Solutions

- Newey, Whitney K., “Higher Order Properties of GMM and Generalized Empirical Likelihood Estimators,” Department of Economics, MIT working paper, June 2001.
- Rilstone, Paul, V.K. Srivastava and Aman Ullah, “The second-order bias and mean squared error of nonlinear estimators,” *Journal of Econometrics* 75, (1996) p.369-395.
- Brown, Bryan W. and Whitney Newey, “Generalized Method of Moments, Efficient Bootstrapping, and Improved Inference,” *Journal of Business and Economic Statistics* 20 (2002) p.507-517.

Course Objective

Get students familiar with the requirements needed to allow the use of asymptotic theory for parameter estimation and to perform inference.

The general outline

A basic overview of consistency and asymptotic normality for a nonlinear model. Emphasis on the assumptions are needed to establish the proofs. These will be fairly strong assumptions that will be weakened in future lectures. To help build intuition we will consider examples where the assumptions are not satisfied to see how the proof fail and the problems fail. (2 Lectures)

Consider weaker assumptions. Work through the Newey and McFadden chapter of the handbook of econometrics (available online at

[http : //www.elsevier.com/homepage/sae/econworld/hes.htm](http://www.elsevier.com/homepage/sae/econworld/hes.htm)).

Chapter 36 “Large Sample Estimation and Hypothesis Testing” by Newey and McFadden in the **Handbook of Econometrics** Vol 4. (8 Lectures)

Small sample problems with GMM and proposed solutions, e.g. bootstrapping, continuously updated GMM and the empirical likelihood functions. (2 Lectures)

Grading

Your course grade will be determine by: 40% problem sets and 60% a take-home final exam.