Syllabus Asymptotic Properties of M-Estimators

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We shall discuss in detail the standard methods that underly consistency and asymptotic normality proofs for estimators de.ned through an optimization problem (e.g., nonlinear least squares, quasi maximum likelihood, GMM, etc.). You should be familiar with the various convergence concepts for sequences of random vectors and their interrelations as, e.g., presented in Pötscher and Prucha (2001).

1. Introduction and Overview: Models, Estimators, Asymptotic Concepts (Consistency and Asymptotic Normality).
Reading material: Pötscher and Prucha (1997), Chapter 2,
Newey and McFadden (1994), Section 1.

2. Consistency of M-Estimators
Reading material: Pötscher and Prucha (1997), Chapters 3 and 4,
Newey and McFadden (1994), Section 2.

3. Asymptotic Normality of M-Estimators
Reading material: Pötscher and Prucha (1997), Chapters 8 and 9,
Newey and McFadden (1994), Sections 3 and 7.

4. (Uniform) Laws of Large Numbers and Central Limit Theorems
Reading material: Pötscher and Prucha (1997), Chapters 5, 6, and 10,
Wooldridge (1994), Sections 4.2, 4.3.

5. Estimating the Variance-Covariance Matrix of the Asymptotic Distribution

Exam: There will be a midterm and a final exam. Both exams carry equal weight.

Reading material:
Pötscher and Prucha (1997), Chapter 12,
Newey and McFadden (1994), Section 4,
Wooldridge (1994), Section 4.5.

References:
Newey and McFadden (1994), Large Sample Estimation and Hypothesis Testing, Handbook of Econometrics, Vol 4, Chapter 36.
Pötscher and Prucha (1997) Dynamic Nonlinear Econometric Models: Asymptotic Theory, Springer-Verlag.
Pötscher and Prucha (2001), Basic Elements of Asymptotic Theory, in: A Companion to Theoretical Econometrics (B. Baltagi, ed.), Blackwell Publishers.
Wooldridge (1994), Estimation and Inference for Dependent Processes, Handbook of Econometrics, Vol 4, Chapter 45.