

New Economic School

TOPICS IN ECONOMETRICS

Module 3, 2010–2011

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The course features several interesting and important issues of the modern econometric theory. First, we will get acquainted with a more delicate asymptotic theory than we are accustomed to see and use, and look at some applications of such unconventional asymptotic theories. Second, we will see the beauty and elegance of the method of moments when manipulating moment conditions, constructing optimal instruments, use incorrect distributional assumptions, select models, etc. Finally, we will get acquainted with a couple of other very hot topics.

ORGANIZATION

There will be several homework assignments that account for 20% of the grade. The problems will be analytical, no computational exercises are planned. Suggested solutions will be distributed. The final exam accounting for 80% of the grade will have an open-book format.

LITERATURE

Particular readings are given in the body of the syllabus. We will also be using the “Problemnik”: Anatolyev, S. (2009) *Intermediate and Advanced Econometrics: Problems and Solutions*, 3rd edition.

SYLLABUS

I. Beyond conventional asymptotic theory

- Higher order asymptotic theory and its applications
- Alternative asymptotic theory and its applications

Анатольев, С.А. (2005) Асимптотические приближения в современной эконометрике, *Экономика и математические методы* 41, стр. 84–94

Anatolyev, S. and N. Gospodinov (2011) *Methods for Estimation and Inference in Modern Econometrics*. Forthcoming, CRC Press.

II. Econometrics of moment conditions

- Optimal instruments for IID data and time series
- Quasi- and pseudo-maximum likelihood
- Empirical likelihood methods

Анатольев, С.А. (2007) *Оптимальные инструменты*, Квантиль 2, стр. 61–69

Anatolyev, S. and N. Gospodinov (2011) *Methods for Estimation and Inference in Modern Econometrics*. Forthcoming, CRC Press.

III. Other topics in modern econometrics

- Partial identification and moment inequalities
- High-dimensional sparse econometric models

Chernozhukov, V, H. Hong and E. Tamer (2007) *Estimation and confidence regions for parameter sets in econometric models*. *Econometrica* 75, 1243–1284.

Belloni A. and V. Chernozhukov (2011). High-dimensional sparse econometrics models, an introduction. Forthcoming as a chapter in *Springer Lecture Notes in Statistics*.