Econometric Analysis

Fall 2009
Jin-Lung Lin

Course: 1 semesters, 3 hours per lecture.
Hours: Tue. 6:10pm-9:00pm
Office Hours: Tue. 14:00-17:00, Room A406

Econometric Analysis is the first-year graduate course in econometrics. Though it is scheduled as an one-semester course, I am teaching it as if it were the first semester of an one-year course with the second semester focusing exclusively on time series analysis. The course aims at equipping the students with the knowledge for advanced empirical analysis, especially in the fields of finance and economics. Thus, the focus is placed upon methodology rather than mathematical proof. I adopt the book written by Hayashi who covers a full range of techniques with generalized method of moment. As serial correlation, panel data and extreme estimator are very useful in finance applications, they are taught in details.

While students may have only limited exposure to econometrics, I shall allocate parts of the course on regression mode specification and testing as is covered in Stock and Watson (2007). They are extremely useful in real empirical analysis.

Textbook

Fumio Hayashi, **Econometrics**, 2000, New Jersey: Princeton University Press

Reference Books

- William H. Greene, **Econometric Analysis**, 6th ed., 2008 New Jersey: Prentice Hall
- James H. Stock James H. Stock, *Introduction to Econometrics*, Boston: Addison-Wesley, 2007

One can never really master econometrics without getting his/her hand dirty. Real data using some statistic or statistic package is considered as an essential part of this course. I shall give empirical data analysis during the lectures and assign computer-related home work. For this purpose, I shall teach and ask students to learn and use *R*, a powerful statistical and yet free package. It can be downloaded from

http://www.r-project.org.

Several good free books on R:

1. John Verzani (2002), Simple R
   PDF and a browsable HTML version files are available at *www.r-project.org* and *http://wiener.math.csi.cuny.edu/Statistics/R/simpleR/*

2. Grant V. Farnsworth (2006) Econometrics in R. PDF and a browsable HTML version files are available at *www.r-project.org*

Course evaluation: midterm (30%), final (40%), homework and class attendance (30%).

1 Topics

1. Introduction of econometrics and *R* (chap 1)
   one lecture

2. Finite sample properties of OLS (chaps 1)
   two lectures

3. Specification analysis and model selection (Stock and Watson, chaps 7,9)
   two lectures

4. Large-sample theory (chap 2)
   three lectures

5. Single-Equation GMM (Chap 2)
   two lectures

6. panel data (chap 5)
   two lectures

7. Serial correlation I (chap 6)
   one lecture

8. Extreme estimators (Chap 7)
   three lectures

9. Maximum likelihood estimation (chap. 8)
   two lectures