

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 model specification and testing as is covered in Stock and Watson (2007). They are extremely useful in real empirical analysis.

Textbook

William H. Greene, **Econometric Analysis**, 6th ed., 2008 New Jersey: Prentice Hall

Reference Books

- Fumio Hayashi, **Econometrics**, 2000, New Jersey: Princeton University Press
- James H. Stock and Mark Watson, *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. Large-sample theory (Appendix D and Lecture notes)
one lectures
3. Linear regression model and least squares (Chaps. 2,3)
one lecture
4. Statistical properties of the least squares estimator (chap 4)
one and half lectures
5. Inference and prediction (chap 5)
half lecture
6. Functional form and structural change (chap 6)
one lecture
7. Specification analysis and model selection (Stock and Watson, chaps 7,9)
two lectures
8. Generalized regression model (chap 8)
one lecture
9. Instrumental variables estimation (chap 12)
one lecture
10. panel data (chap 5)
two lectures
11. Model for discrete choice (Chap 23)
one lecture

12. Series correlation; model with lagged variables (chaps 19,20)
one lecture
13. Maximum likelihood estimation (chap. 16)
one lecture
14. Bayesian estimation and inference (chap. 18)
on lecture