

Part 2A: Paper 3

Theory and Practice of Econometrics I

Paper Content

This paper is an introduction to Econometrics which builds on the material previously covered in Paper 3 of Part I. The aims of this paper are to introduce students to a number of econometric techniques which are used by economists to analyze economic behavior, and to give them experience in applying these techniques to practical problems.

Lectures

There are three lecture courses associated with this paper:

- Multiple Regressions and Instrumental Variables (Dr Debopam Bhattacharya, 16 lectures, 1 hour each weeks 1-8, Michaelmas Term)
- Microeconometrics (Dr Debopam Bhattacharya, 16 lectures, weeks 1-8, 1 hour each, Lent Term)
- Introduction to Econometrics II – Macroeconometrics (Dr A. Onatski, 10 lectures, weeks 5-8, Lent Term)

Objectives of the Paper

By the end of this paper, students should have acquired a basic understanding of the following concepts and methods:

- the concepts of an estimator and a test statistic, and of the associated sampling distributions;
- the use of multiple regression models to learn about economic behavior;
- the use and interpretation of simple diagnostic tests in the context of the multiple regression model;
- the concept of Endogeneity and Instrumental Variables, and the concept of Simultaneous Equations
- Simple extensions of the multiple regression model to cases where the variable to be explained is the outcome of a binary choice, or where the dataset covers a number of distinct units which are observed over time (*panel data*)
- the concept of a stochastic process, and the distinction between stationary and nonstationary processes;
- the univariate analysis of economic time series, including the use of tests for nonstationarity.

Classes and Supervisions

There will be classes associated with the lecture courses. Problem sets corresponding to the lecture material will be distributed, and some questions from these problem sets will be solved in the classes. College-supervisors may go through one or more of the supervision problems. The arrangement for the classes is as follows:

MT: weeks 2, 4, 6, 8, MR B. GUO

LT: weeks 2, 4, 6, 8, MR B. GUO

Computing

Use of the package STATA will be demonstrated during lectures and classes, and the Faculty Computer Officer will be available to help students with computing problems. The Faculty's site license for STATA allows students to purchase a discounted copy of the software for their personal use.

Preliminary Readings and Course Texts

1. Stock, J H and Watson, M W: Introduction to Econometrics, Harlow-Pearson.
2. Wooldridge, Jeffrey, M: Introductory Econometrics: A Modern Approach, South-Western.
3. Two research papers (to be discussed in the Lent Term): These are useful for learning how applied econometricians analyze data and present empirical findings.
 - (i) Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job-Lock? , Brigitte C. Madrian, *The Quarterly Journal of Economics*, Vol. 109, No. 1 (Feb., 1994), pages 27-54, <http://www.jstor.org/stable/2118427>
 - (ii) Maternal employment and overweight children. Anderson, Patricia M., Kristin F. Butcher, and Phillip B. Levine. *Journal of health economics* 22.3 (2003): pages 477-504.

Examination

The students will be examined on their understanding of both the technical and the substantive/intuitive aspects of the course material. The exact format of the examination is currently being revised, and will be communicated as soon as it is finalized.

D. Bhattacharya, Michaelmas, 2016