

INTRODUCTION TO ECONOMETRICS

V31.0266

Fall 2006

Instructor:

Professor Christopher Flinn
110 Fifth Avenue (at 16th Street), Room 508
212-998-8925
christopher.flinn@nyu.edu

Lecture:

Monday and Wednesday, 11-12:15
Tisch LC1

Office Hours:

Tuesday, 2:00-3:30, or by appointment.

Description:

Econometrics is an important and difficult subject. Without it, economic theory becomes pure introspection and economics as a discipline loses any basis upon which to stake a claim to be scientific. Econometrics, properly done, allows us to test various theoretic models against one another and arrive at a better understanding of economic and social phenomena. When there is a widely accepted theoretical explanation, econometrics can be used to form predictions regarding the future values of variables that are of interest to policy makers, the financial sector, or the population at large. Perhaps more importantly, econometrics allows us to examine the impacts of hypothetical policy changes without actually having to implement them.

The difficulty in mastering econometrics stems from the fact that it is essentially a combination of economics, statistics, and data collection and manipulation. To do econometrics well requires knowledge of all of these areas, and in one semester no one (least of all your instructor) expects you to thoroughly master all of these aspects of the subject. In particular, we shall spend almost no time on the collection of data or survey sampling techniques. It is not because data collection is not extremely important, but merely due to the time constraints we face.

Whenever possible, we will motivate the econometric analysis we perform by an appeal to economic theory. Economic theory is required to determine which variables are properly thought of as endogenous (in a given modeling context), and which should be thought of as exogenous, or at least predetermined. On some occasions, economic theory will place restrictions on the functional relationship between the exogenous variables and the endogenous ones which should be implemented in the econometric model. Less frequently,

economic theory may provide guidance regarding the distribution or interpretation of the unobservable variables in the econometric model (known collectively as the “disturbance terms,” the “shocks,” the “error terms,” etc.). The parameters that we estimate when performing applied econometrics research should always have a sound economic interpretation, and this means that any econometric specification should be derived from solid economic reasoning. We will emphasize this aspect of econometric work throughout the course.

You will also be performing some empirical analyses yourselves in the course of completing the computational exercises that will be part of some of the weekly problem sets. The TA will provide instruction in the use of STATA, a statistical software package widely used in the social sciences and which is available on computers and networks throughout NYU. If you are already acquainted with a different software package and would like to use it instead of STATA, I have no objections at all. By performing some empirical exercises, it is hoped you will learn more about the interpretation of parameter estimates, the practical elements of conducting hypothesis tests, and some of the “art” involved in taking theory to data.

Prerequisites:

It is expected that you have a working familiarity with basic calculus, and that you have completed at least one undergraduate course in statistics. The calculus and statistical theory that we will rely upon are basic, but of course the more exposure to these subjects you have had the better. Any student who has questions as to the adequacy of his or her mathematical and statistical background should contact me within the first week of classes.

Text (*Required*):

Introductory Econometrics: A Modern Approach, 3rd Edition. Jeffrey Wooldridge. South-Western, 2006.

Requirements and Grading:

During the semester, approximately 10 homework assignments will be given. Assignments will be distributed on Mondays, and will be due the Monday of the following week at the beginning of the class. *No late assignments will be accepted.* The two lowest grades on the homework assignments will not be counted in determining the final grade. In this way, students who are not able to complete an assignment or two for some legitimate reason will not have their grades adversely affected. Completion of the homework is extremely important not only because of its direct impact on your final course grade, but also as an essential element in preparing for the exams.

There will be two in-class examinations during the semester, a mid-term and a final. These exams will emphasize problem-solving ability. The final examination primarily will contain material from the second part of the course, but will also contain material from some topics covered on the mid-term exam. The dates of the examinations are:

Mid-term: In class Monday, October 23th (tentative).

Final: During finals week, TBA

The final grade for the course will be determined as follows:

| | |
|-------------------|-----|
| Homework Average* | .20 |
| Mid-term Exam | .40 |
| Final Exam | .40 |

* Average computed after dropping the two lowest homework scores.

Chapters and Topics in Order of Consideration

Chapter

Topic

Introduction and Review of Statistical Theory

1 Econometrics and Economic Data
App. B,C Basic Probability and Statistical Theory

Regression Analysis (Cross-Sectional)

2 Bivariate Regression
3 Multiple Regression: Estimation
4 Multiple Regression: Statistical Inference
5,Notes Introduction to Asymptotic Theory
8,Notes Heteroskedasticity

Qualitative and Limited Dependent Variables

Notes Maximum Likelihood Estimation
7 Qualitative Dependent Variables
17 Limited Dependent Variables

Regression Analysis (Time Series)

10 Introduction to Economic TS
11 OLS Estimation with TS
12 Estimation with Non-I.I.D. Disturbance Terms

Other Topics

13,14 Estimation with Panel Data
15,16 Simultaneity