E570

Fundamentals of Statistics and Econometrics

David Bivin, CA 519, 997-6528
E-MAIL: dbivin@iupui.edu
HOME PAGE: http://mypage.iu.edu/~dbivin
OFFICE HOURS: MT 3:30-5:00pm and by appointment

GOAL OF THE COURSE

Econometrics is the statistical analysis of economic relations. The primary tool is regression analysis and this is the tool that we will devote the semester to understanding. We will analyze the characteristics of the model under ideal assumptions. We then examine the implications of violations to those assumptions. We will also devote time to hypothesis testing and consider various ways of capturing information within the regression model.

Most regression analysis falls into one of two categories: cross-sectional and time series. Cross-sectional analysis relies on observations on individual agents or some other unit typically collected at a given point in time. Time series analysis relies on observation of the same entity collected at evenly spaced points in time. This semester will be devoted primarily to cross-sectional analysis. Time series analysis is the focus of E574: Applied Econometrics and Forecasting.

By the end of the semester you should be thoroughly competent in the construction, estimation, and interpretation of cross-section regression models.

TEXTS

The required book for this class is


PREREQUISITES

You are expected to have a working knowledge of statistics and calculus. Ideally you will already have an undergraduate course in econometrics and mathematical economics, but these are not explicitly required. You should also be comfortable with computers.
GRADING

During the semester, there will be a mid-term exam and a final exam, each worth 25% of your final grade. I will let you know more about these exams as the time approaches. In addition there will be a number of homeworks throughout the semester and these, collectively, will account for the remaining 50% of your grade. The grading scale is the standard 90-80-70-etc. scale with plusses and minuses given for grades at the top or the bottom of the ranges.

SOFTWARE

The software for this course is Stata Version 12.

Although Stata has become a very popular program among econometricians, my experience with it is limited. Thus we will be learning it together. Fortunately it is straightforward, especially for the estimation techniques that we will be using. So we will work together to make sure that the software doesn’t hinder our progress.

Also, if you are not familiar with Excel, you should make it a point to learn how to use it. This is a powerful program, especially for converting data downloaded from the web into a format that can be used in Stata and other statistical packages. Also, Excel has a large library of mathematical and statistical function and a nice graphics capability.

POLICIES

1) You are expected to attend all of the classes, arrive on time, and remain for the entire class.

2) You may confer on the homeworks, but it is important that you reach your own conclusions. You will not receive credit for any homework that has been copied. IUPUI defines cheating as

… dishonesty of any kind with respect to examinations, course assignments, alteration of records, or illegal possession of examinations. It is the responsibility of the student not only to abstain from cheating, but, in addition, to avoid the appearance of cheating and to guard against making it possible for others to cheat. Any student who helps another student to cheat is as guilty of cheating as the student assisted. The student should also do everything possible to induce respect for the examining process and for honesty in the performance of assigned tasks in or out of class.

3) Homeworks must be turned in on the due date. Homeworks turned in late will receive partial credit at most.

4) You should feel free to contact me at any time with questions, either by e-mail, phone, or office visit (see the contact information above).
COURSE OUTLINE

I will be out of town for the first lecture. Professor Richard Steinberg has kindly agreed to give the lecture in my place. Prior to the first lecture you should read Chapter 1 and Appendices B, C, and D in the Wooldridge text.

WEEKS 1: SIMPLE REGRESSION
Wooldridge: Ch. 2

WEEK 2: MULTIPLE REGRESSION
Wooldridge: Ch. 3 (you may wish to reference chapter 7 on dummy variables)

WEEK 3: INFERENCE, HYPOTHESIS TESTING, AND CONFIDENCE INTERVALS
Wooldridge: Ch. 4

WEEK 4: ASYMPTOTIC PROPERTIES
Wooldridge: Ch. 5

WEEK 5: FURTHER ISSUES
Wooldridge: Ch. 6

WEEK 6: QUALITATIVE DATA
Wooldridge: Ch. 7

WEEK 7: HETEROSKEDASTICITY
Wooldridge: Ch. 8

WEEK 8: *****MID-TERM EXAM (over the material through week 7)*****

WEEK 9: SPECIFICATION AND DATA ISSUES
Wooldridge: Ch. 9

WEEK 10&11: INTRODUCTION TO TIME SERIES ANALYSIS AND FORECASTING
Wooldridge: Ch. 10-12

WEEK 12: PANEL DATA
Wooldridge: Ch. 13, 14

WEEK 13 & 14: INSTRUMENTAL VARIABLES/ SIMULTANEOUS EQUATIONS
Wooldridge: Ch. 15, 16;

WEEK 15: LIMITED DEPENDENT VARIABLES
Wooldridge: Ch. 17

***** FINAL EXAM (Monday, Dec. 17th)*****