

THE UNIVERSITY OF NEW SOUTH WALES

SCHOOL OF ECONOMICS

ECON3203/ECON5254

ECONOMETRIC THEORY

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Location: JG 106; Office Hours: Wednesday 2:30pm-5:30pm

Introduction

The subject matter of Econometric Theory will examine techniques of estimation and inference in econometric models that refine and extend the multiple regression model. After a brief review of the linear regression model, asymptotic, or large sample, theory will be developed. Such theory is needed for an analysis of generalized linear and nonlinear models. A variety of new estimation methods will be considered, such as maximum likelihood, instrumental variables and generalized method of moments. Inference procedures such as t - and F - testes will be extended to new procedures that rely on asymptotic theory for their validity. These are: Wald (W); Likelihood Ratio (LR); and Score, or Lagrange Multiplier (LM) tests. The specific modeling frameworks considered may include the linear regression model and its extension to panel data, multiple equation and discrete choice models.

Aims and objectives

The main aim of this course is to broaden students' knowledge of econometric modeling techniques to encompass a greater range of methods and techniques in use in modern empirical economic modeling than is available in intermediate level courses. The objective is to provide students with sufficient training to allow them to critically assess a wider range of applied work and equip them to carry out more sophisticated modeling exercises of their own. In addition, the students should be well placed to: undertake further training at the Honors and Postgraduate level; and/or to embark on a career in government, commerce or industry where practical economic modeling skills are needed.

Teaching resources

Lectures. There will be two hours lectures per week. These lectures will provide a broad coverage of the main topics considered in the course. However, the student should not regard their content as exhaustive or full. It is important for the student to devote a considerable amount of time to private study to achieve an appropriate level of understanding and to practice the different econometric tools introduced. Lectures

provide one of the principal means of learning instruction, but it is essential that their contribution be bolstered and supported by other learning resources. Students are expected to develop the skills and ability to derive the results and to reconstruct the tests by their own. Memorizing formulae and final results will not be of a great help in the exams; only a proper ability to develop these results will ensure success.

Tutorials. There will be a weekly one hour tutorial (after the lecture). Discussion will be based around a sequence of exercise sheets that will be distributed from time to time in the course. The student is expected to make a serious attempt at *all* questions on an exercise sheet *before* attending the tutorial at which it is discussed. It will not be possible to discuss all the problems set in the allotted time and should not expect all questions to be solved in depth at the tutorials.

Textbook. There are two textbooks recommended for this course: the first by Greene and the second by Wooldridge, both referred to in the reading list below. It is highly recommended to buy a copy of one of the reference books, particularly if you are intending to study econometrics further. There are many other suitable books for the material covered in this course. Some of them are given in the list of references and you should feel free to use any text with which you feel comfortable.

Assessment

The assessment for the course will be based on three strands: tutorial assignments; a mid-session test; and an end-of-session examination. The weighting for these three items is as follows:

Tutorial assignments	20%
Mid-semester test	30%
Final examination	50%

Tutorial assignments. Of the set of exercises and problem sheets handed out during the course, two will be collected in and marked. Each will count 10% towards the final mark for the course. Suitable warning will be given of the ones that are to be count for credit.

Mid-semester test. An unseen, closed book test will be held in the lecture period of Thursday 12 September. It will count 30% of the course credit. There will be no lectures or tutorial that week. Attendance at this test is compulsory.

Final examination. This will take place in the end-of-session examination period. It will cover all course material from the beginning to the last lecture. It will be worth 50% of the credit for the course.

Course timetable

There are three scheduled teaching hours per week in a single block from 9am to 12noon on Thursdays. The available period will be divided into two hours lecture time and one-hour tutorial time. There will be a 15 minutes break in between.

References

The recommended course texts:

Greene, W.H. (2003), *Econometric Analysis*, 5th ed., Prentice Hall.

Wooldridge, J.M. (2003), *Introductory Econometrics: A Modern Approach*, 2nd ed., Southwestern

There are many other suitable texts at varying levels of difficulty. Some of which you may find useful include:

Davidson, R. and Mackinnon, J.G. (1993), *Estimation and Inference in Econometrics*, Oxford University Press

Griffiths, W.E., Hill, R.C., and Judge, G.G. (1993), *Learning and Practicing Econometrics*, John Wiley

Johnston, J. and DiNardo, J. (1997), *Econometric Methods*, 4th ed., McGraw-Hill

Kennedy, P. (1998), *A Guide to econometrics*, 4th ed., Basil Blackwell

Maddala, G.S. (2001), *Introduction to Econometrics*, 3rd ed., John Wiley

Stewart, J. and Gill, L. (1998), *Econometrics*, 2nd ed. Prentice Hall