

THE UNIVERSITY OF
NEW SOUTH WALES



Australian School of Business
School of Economics

ECON4201/6203 Applied Econometrics

Course Outline

Semester 1, 2009

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1 STAFF CONTACT DETAILS

Lecturer-in-charge: Professor Denzil Fiebig

Room: ASB444

Phone No: 9385 3958

Email: d.fiebig@unsw.edu.au

Consultation Times: Wednesday 9-12am, or by appointment.

Feel free to approach Denzil about any academic matter in the consultation times or by appointment. Denzil may also be contacted by telephone or e-mail.

2 COURSE DETAILS

2.1 Teaching Times and Locations

Lecture: Monday 11am to 2pm ASB207

There will be a combination of lectures and tutorial discussions but all will be integrated into the allocated time.

2.2 Computing

This subject requires econometric/statistical software for most homework problems and assignments. The preferred software is STATA and you may only use another statistical package with the explicit permission of the lecturer. As many students will not have used STATA before, support will be provided by Meliyanni Johar. Two introductory lab sessions will be conducted on Friday March 13 and Friday March 20. Both will be in QUAD Lab 10 (renamed Lab 2) from 1-2pm. Please contact Meliyanni (z3199692@student.unsw.edu.au) if you plan to attend.

Meliyanni will also be available for consultation on STATA matters for the first 4 weeks of semester. Consultation is by appointment at ASB 417J.

STATA is available on computers used by honours and graduate students and is available in the faculty's computing labs for all students formally enrolled in the course.

If students want to purchase their personal copy of STATA they can do so directly from the provider at <http://survey-design.com.au> through the Advanced GradPlan at a cost of \$242 + \$11 postage.

2.3 Units of Credit

The course is worth 6 units of credit.

There is no parallel teaching in this course.

2.4 Summary of Course

“If the data were perfect, collected from well designed randomised experiments, there would be hardly room for a separate field of econometrics.” Griliches

Economic decision making and the development of economic theory rely heavily on input from empirical analyses. Conversely, applied econometric research is guided by the relevant economic theory and the needs of the users of the analyses. This course is primarily concerned with the application of econometrics and is designed to cater for students with potentially different backgrounds in econometrics.

Empirical work rarely proceeds in the neat structured manner that is implied in econometrics textbooks, nor, for that matter, as it is presented in many journal articles in applied econometrics. There is no doubt that data problems play a pivotal and crucial role in explaining this difference. What is reported does not accurately reflect the process by which the econometric results were obtained. This course gives an insight into the nature of the econometric modelling process and examines some of the pitfalls and problems that arise in applied work using real data.

General principles or guidelines for undertaking applied work are discussed. In particular, we stress careful data analysis, the need to evaluate estimated models and the importance of the links between econometric models and the underlying substantive knowledge or theory associated with the particular application. The link between the type of data being analysed and the resultant models and modelling will also be stressed. For example, modern times series analysis that is so prevalent in fields such as macro-economics and finance, is built on a recognition that features of the data such as trends, structural breaks and seasonality have important implications for model-building.

The issue of omitted variables is a pervasive threat to the internal validity of econometric models. This problem is defined and solutions using panel data and instrumental variables are described and illustrated.

2.5 Aims and Relationship to Other Courses

This course is an elective subject for the Economics Honours program and the MPhil, MEc and PhD programs in Economics. The prerequisite is Econometric Methods (ECON2207/3291) or Econometric Analysis (ECON6003) or Elements of Econometrics (ECON4207/5207). In particular, students are expected to have a good basic knowledge of regression analysis and some familiarity with binary choice models (logit and probit).

Building on the foundations provided by these prerequisites, this course has six primary aims:

- Make students aware of guidelines for using econometric models and tools effectively.
- Provide students with experience in using econometric models and tools effectively using the STATA software.
- Provide students with experience in analysing different types of data.
- Assist students to become better at evaluating the econometric research of others.

- Make students aware of some of the pitfalls, problems and solutions that arise in applied work when using flawed data.
- Make students aware of the problems associated with omitted variables and the solutions that are available when panel data and suitable instruments are available.

2.6 Student Learning Outcomes

By the end of this course, students should be able to confidently approach a range of econometric modelling problems using techniques introduced and drawing on experience provided by class exercises and assignments.

In particular, students should be:

- Aware of what constitutes good applied econometric practice.
- Able to critically evaluate applied econometric research.
- Able to use STATA effectively for a range of modelling problems.
- Aware of some of the pitfalls, problems and solutions that arise in applied work when using flawed data.
- Able to solve problems associated with omitted variables using both panel data and instrumental variables.

Graduate Attributes

Course Learning Outcomes	ASB Graduate Attributes
i-v	1. Critical thinking and problem solving
ii	2. Communication
	3. Teamwork and leadership
i	4. Social, ethical and global perspectives
i-v	5. In-depth engagement with relevant disciplinary knowledge
iii	6. Professional skills

3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

Lectures will be interactive and students will be expected to be active participants in these exchanges. The lecture material will be supplemented by problems, case studies, computer exercises and readings and it is essential that students prepare for lectures by working through this assigned material even when it is not directly assessable. There will be considerable scope for extending their subject matter knowledge and understanding by conducting extra reading and reporting on topics related to but not directly covered in lectures.

The philosophy underpinning this course and its Teaching and Learning Strategies are based on “Guidelines on Learning that Inform Teaching at UNSW. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au. Specifically, the lectures, tutorials and assessment have been designed to appropriately challenge students and support the achievement of the desired learning outcomes. A climate of inquiry and dialogue is encouraged between students and teachers and among students (in and out of class). The lecturer aims to provide meaningful and timely feedback to students to improve learning outcome.

3.2 Learning Activities and Teaching Strategies

The lectures are aimed at providing students with some guidance and tools to be able to produce reliable and useful empirical results and to be able to appraise the work of others. Lecture material will be integrated with assigned reading material and tutorial exercises in order to deepen and broaden the major points made in the lectures. An essential component of the course will be the completion of a variety of assignments and problems to enable students to gain experience in putting these tools into practice and to demonstrate their understanding and creativity.

It is essential that the discussion of how to use econometric tools effectively be complemented with practice in analysing data. The software package STATA will be used for modelling and instruction in the use of the package will be provided. Even though many of the modelling tasks may be tackled using other packages, exposure to a range of software alternatives is a key learning strategy.

The examinable content of the course is defined by the references given in the Lecture Schedule and the content of Lectures, the Problem Set and Case Studies.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of 100; and
- make a satisfactory attempt at ALL assessment tasks (see below).

(For graduate students other rules apply with regard to satisfactory progress.)

4.2 Assessment Details

Assessment will consist of:

Assessment Task	Weighting	Learning Outcomes assessed	ASB Graduate Attributes assessed	Length	Due Date
Reproduction assignment	20%	i-iv	1,4,5,6	n/a	Wk 4 Wed April 1
Evaluation assignment	20%	i,ii	1,2	<2000 words	Wk 10 Wed May 20
Methods Assignment	20%	iii,v	1,5,6	n/a	Stuvac Wed June 10
Final Exam	40%	i-v	1,2,5,6	2 hours	University Exam Period
	100%				

Prize

The Department of Employment and Workplace Relations has generously agreed to sponsor a \$1,000 prize for the best student in ECON4201.

4.3 Assignment Details

Assignments are integrated into a broader set of problems. Details of these assignments and problems are provided in a separate document.

Students must submit a hard copy of assignments to Denzil by 12 noon of the due date. In the case of late submission, 10% of the value of each assignment will be deducted for each day (24 hours) or part thereof after the deadline.

4.4 Final Exam Format

This will be held in the University examination period. The final exam will cover the entire course. The purpose of the final exam is to assess knowledge of relevant concepts, principles, techniques and their appropriate use.

Past exams from 2007 and 2008 are posted on the course website. Students should note that, given changes in the course content and lecturer involved other past exam papers for this subject may be misleading.

5 ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW's policies, penalties, and information to help you avoid plagiarism see: <http://www.lc.unsw.edu.au/plagiarism/index.html> as well as the guidelines in the online ELISE tutorial for all new UNSW students: <http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm>.

6 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. You are strongly encouraged to take part in the feedback process.

7 STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed.

Information and policies on these topics can be found in the 'A-Z Student Guide': <https://my.unsw.edu.au/student/atoz/ABC.html>. See, especially, information on 'Attendance and Absence', 'Academic Misconduct', 'Assessment Information', 'Examinations', 'Special Consideration', 'Student Responsibilities', 'Workload' and policies such as 'Occupational Health and Safety'.

8 STUDENT RESOURCES AND SUPPORT

The University and the ASB provide a wide range of support services for students, including:

- **ASB Education Development Unit (EDU)** (www.business.unsw.edu.au/edu)
Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au
- **UNSW Learning Centre** (www.lc.unsw.edu.au)
Academic skills support services, including workshops and resources, for all UNSW students. See website for details.
- **Library training and search support services:**
<http://info.library.unsw.edu.au>
- **UNSW IT Service Desk:** Technical support for problems logging in to websites, downloading documents etc. Library, Level 2; Ph: 9385 1333.
Website: www.its.unsw.edu.au/support/support_home.html
- **UNSW Counselling Service** (<http://www.counselling.unsw.edu.au>)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as 'Coping With Stress' and 'Procrastination'.
Office: Level 2, Quadrangle East Wing ; Ph: 9385 5418
- **Student Equity & Disabilities Unit** <http://www.studentequity.unsw.edu.au>
Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning.
Office: Ground Floor, John Goodsell Building; Ph: 9385 4734

9 COURSE RESOURCES

The website for this course is on WebCT Vista.

The course will not follow the development in any one textbook. Two books have been recommended as the prime reference books.

Kennedy, P. (2008). *A Guide to Econometrics*, 6th edition, Blackwell Publishers.
Wooldridge, J.M. (2009), *Introductory Econometrics: A Modern Approach*, 4th edition, South-Western.

The fifth edition of Kennedy and second and third editions of Wooldridge will also be suitable. As a further aid to your study, copies of lecture overheads will be available electronically on the course webpage.

10 LECTURE SCHEDULE

Weeks 1-3

Topic 1: Econometrics in action

- o Overview of model-building cycle
Primary references: Kennedy (2008) Ch 5, Wooldridge (2009) Chs 1, 19
Alternative/extra references: Pagan (1987, 1995), Leamer (1983, 1985)
McAleer et al (1985), McFadden (1987)
- o “Rules” of good practice
Primary references: Hamermesh (2000), Kennedy (2002, 2008 Ch22),
Subramanian and Deaton (1996)
- o Replication
Primary references: Dewald, et al. (1986), Harrison (1998)

Weeks 4-7

Topic 2: Data issues

- o Multicollinearity
Primary references: Kennedy (2008) Ch 12, Wooldridge (2009) Ch 3
Alternative/extra references: Goldberger (1991) Ch 23
- o Missing data
Primary references: Kennedy (2008) Ch 17.2-17.3, Wooldridge (2009) Chs
9.5, 17.2, 17.4-17.5
Alternative/extra reference: Griliches (1986)
- o Time series data
Primary reference: Kennedy (2008) Chs 19-20, Wooldridge Chs 10, 11, 18
Alternative/extra reference: Enders (1995)

Weeks 8-12

Topic 3: Omitted variables: Threats & opportunities

- o Threat to validity
Primary references: Kennedy (2008) Ch 6.2, Wooldridge (2009) Ch 3, 9.2
- o Solution using panel data
Primary references: Kennedy (2008) Ch 18.1-18.3, Wooldridge (2009) Ch
13.3-13.5, 14.1-14.2
- o Solution using instrumental variables
Primary references: Kennedy (2008) Ch 9, Wooldridge (2009) Ch 15.1-15.3,
15.5

Extra References

- Dewald, W.G., Thursby, J.G. and Anderson, R.G. (1986), "Replication in empirical economics: The *Journal of Money, Credit and Banking Project*", *American Economic Review* 76, 587-603.
- Enders, W. (1995), *Applied Econometric Time Series*, John Wiley and Sons.
- Goldberger, A.S. (1991), *A Course in Econometrics*, Harvard University Press.
- Griliches, Z. (1986), "Economic data issues" Ch. 25 of Z. Griliches and M.D. Intriligator eds. *Handbook of Econometrics*, North Holland.
- Hamermesh, D.S. (2000), "The craft of laborometrics", *Industrial and Labor Relations Review* 53, 363-380.
- Harrison, G.W. (1998), "Mortgage lending in Boston: A reconsideration of the evidence", *Economic Enquiry* 36, 29-38.
- Kennedy, P. (2002), "Sinning in the basement: What are the rules? The Ten Commandments of Applied Econometrics", *Journal of Economic Surveys*, 16, 569-589, with commentary and reply.
- Leamer, E.E. (1983), "Let's take the con out of econometrics", *American Economic Review* 73, 31-43.
- Leamer, E.E. (1985), "Sensitivity analyses would help", *American Economic Review* 75, 308-313.
- McAleer, M., Pagan, A.R. and Volker, P.A. (1985), "What will take the con out of econometrics?", *American Economic Review* 75, 293-307.
- McFadden, D. (1987), "What do microeconomists really do?" *American Statistical Association, Proceedings of the Business and Economic Statistics Section*, 402-405.
- Pagan, A.R. (1987), "Three econometric methodologies: A critical appraisal", *Journal of Economic Surveys*, 1, 3-24.
- Pagan, A.R. (1995), "Three econometric methodologies: An update", in L. Oxley et al. (eds) *Surveys in Econometrics*, Basil Blackwell.
- Subramanian, S. and Deaton, A. (1996), "The demand for food and calories", *Journal of Political Economy*, 104, 133-162.