Division of Economic and Financial Studies

ECON232
ECONOMETRIC PRINCIPLES

First Semester - 2003

GENERAL INFORMATION

1. Introduction

The course provides an overview of econometric principles of relevance to applied economic/financial research. The course serves two purposes. Firstly, it may be taken as a general overview course for students who do not intend to take further econometrics courses but who would wish to benefit from an exposure to econometrics beyond the level obtainable from ECON141, *Introductory Econometrics*. ECON232 is designed as an intermediate econometrics course for the average economics student who is aware of the need to obtain a moderate degree of quantitative sophistication in his/her economics education. As such students majoring in finance and marketing would also find this course valuable. Secondly, ECON232 is designed as a prerequisite course for more advanced econometrics courses such as ECON233 (*Financial Econometrics*) and/or ECON333 (*Econometric Methods*). Economics/finance students who do not wish to pursue ECON233 and/or ECON333, may nevertheless make use of the background knowledge acquired in this course to pursue more quantity-analysis-type works in both academic and business fields. ECON232 is a core unit for award of a Bachelor of Economics degree.

2. Prerequisites

ECON141 and (ECON110 or ECON111 or BBA103)

3. Lectures

There is one two-hour lecture per week at the following time and place:

Day Class: Wednesday   11 am – 1 pm   C5C T2
Evening Class: Thursday   6 pm – 8 pm   E6A 131

Lecturers: Daehoon Nahm (W1–W7), Chris Heaton (W8–W13)

4. Tutorials

Wednesday	2 pm	W6B 315
Wednesday	3 pm	W6B 315
Wednesday	4 pm	E5A 309[*]
Thursday	9 am	C5A 404[*]
Thursday	10 am	E5A119
Thursday	11 am	X5B 039
Thursday	1 pm	C5C236
Thursday	3 pm	E5A309
Thursday	4 pm	X5B 136[*]
Thursday	8 pm	E6A 131

There will be 8 tutorial meetings throughout the semester. The weeks in which tutorial groups will meet are as follows:

Weeks 2 (Comp.), 3, 5, 7, 8 (Comp.), 10, 12, and 13

The tutorials in **Weeks 2 and 8** will be held in a computer lab (**C5C 213/215**). ***In these weeks, the students enrolled in any of the three tutorial sessions marked with an asterisk (*), that is, Wed 4, Thu 9, and Thu 4 sessions, have to attend one of the unmarked sessions as the computer lab is not booked for those three time slots.*** (The new computer lab, C5C 213/215, has 50 computer terminals.)

5. Text

• D. Gujarati, *Basic Econometrics*, McGraw-Hill, fourth edition

Two copies of the above book have been reserved in the Reserve Section of the Library.

Students may also find the following text useful for some topics:

• R Ramanathan, *Introductory Econometrics with Applications,* Harcourt

<u>Lecture notes</u> that contain lecture slides, examples, and tutorial questions will be available at the unit home page (online.mq.edu.au/pub/ECON232) and from the MU Co-op bookshop at the beginning of the semester. Students will find the lecture notes extremely useful.

Students are strongly recommended to attend lectures and tutorials because being absent from lectures/tutorials could seriously disadvantage them. *The reasons may include: (i) Some important points are not found in the text but explained in lecturers/tutorials. (ii) Errors in the texts are corrected in lectures. (iii) The approaches to certain problems that are recommended by the lecturer are often different from those in a text.*

6. Computing

Students are required to use computers to carry out certain tasks of the course, such as tutorials and an assignment. It is assumed that students are familiar with the procedure needed to log on to the Division's student computing network from a computer in the students' computing labs. The software programs used in this course include: *DxData for Windows* and *Shazam*. Students do not have to use *Shazam* to perform their tutorial and assignment tasks if they are familiar with other program, but discussions in the lectures and tutorials, and the test and examination questions will be based on output that is produced using *Shazam*.

It is well understood that there are many other programs that are more user-friendly than *Shazam*. However, the program is used in this course because of the following reasons:

- The set of commands you create are saved in a file and can be read or modified later if needed. This helps you see clearly how variables are defined and how models are specified. Furthermore, you can recall how you obtained certain results weeks or even months after you obtained the results simply by reading through the command file as long as you keep it.
- It is flexible enough to be applied to all possible situations that can arise from the topics of this course.
- It is easy to manipulate data (that is, to read data series, to generate new variables, and to use only a part of the data etc.).
- Its output contains all necessary statistics that are used in this course.
- The copyright arrangement is so generous that students are allowed to install the program on their home computer. (Program CD's will be made available for a three-day loan at the ERIC from the second week.)

7. Assessment

The components of assessment in this course are as follows:

(1)   **Mid-semester test**   15%
A 50-minute multiple-choice test will be held in place of the regular lecture on <u>Wednesday 9 April (Week 6) between 11 am – 12 am.</u> You will need a calculator for the test.

(2)   **Assignment**   15%
There is one assignment that should be submitted by <u>5 pm, Monday 19 May (Week10)</u>. Late assignments will <u>lose 20 marks</u> out of the full 100 marks for each day overdue. (Each day ends at 5 pm for this purpose.) Students are strongly recommended to keep a photocopy of their assignment to insure against loss.

In early Week 9, tutorial boxes designated ECON232 will be prepared in the ERIC where students can submit their assignments. A list of the students who will have submitted before or on the due date will be posted soon after the due date. So, check the unit home page or the door (or the wall near the door) of

the LIC's office (C5C370) for this. Students who find their record in that list incorrect should see the LIC immediately.

    (3)   **Final Examination**   70%

        Computer outputs and statistical tables are provided. Only non-programmable calculators are allowed into the examination room. The time and venue of the exam will be organised and announced in due time by the University.

Under the current grading system, a **standardised numerical grade (SNG)** will be awarded together with a band grade HD, D, Cr, P, PC, or F.

It is important for students to note that the SNG is NOT the weighted aggregate of the raw marks for the above three assessment components. It is rather a detailed grade that is chosen from 0 to 100 based on other criteria as well as the raw marks. For instance, the SNG for a student who gains a raw aggregate mark of 55 but fails the test/examination would be lower than 45 indicating that he/she fails the unit.

As such, an SNG of, say, 73 or 74 does NOT mean that the student's aggregate mark is one or two marks below the threshold for a D. It means that his/her work and performance in the unit is of predominantly good quality and did better than other students in the Cr band but not quite of superior quality needed for a D.

8. Requirements to Pass This Unit

To pass ECON232, students must satisfy each of the following requirements:

    (1)   An overall satisfactory performance in all assessment components;
    (2)   A combined pass in the mid-semester test and final examination; and
    (3)   Submission of the assignment and gaining a pass mark for it.

9. Plagiarism

Students are strongly warned against plagiarism. If detected, the marks for **all** assignments involved will be forfeited or/and students involved will be referred to the Disciplinary Committee.

10. Application for Special Consideration

Students may apply for special consideration if they are unable to attend an examination or if they consider that their examination preparation or overall performance in the unit has been affected by unavoidable disruption or misadventure. All claims have to be substantiated by signed *Professional Authority Form*, and if they are based on non-medical grounds, supporting documentation (such as statutory declarations by independent witnesses, police reports, or statements from sufficiently senior officials in the place of employment) must also be provided.

                                  ECON232.doc(30/09/05)

If accepted, in most cases, the students will be required to sit a supplementary examination on a date set by the Division. So, students who intend to be away must take account of this rule in scheduling any travel after lodging the request.

The format of the supplementary examination may be different from the usual examination. To prevent students from abusing this facility and to protect only the students with genuine reasons, **the result of supplementary examination will <u>replace</u> the result of the usual examination if a student tries a supplementary examination as well as the usual examination**. This implies that a student will fail the unit if he/she fails the supplementary examination regardless of his/her performance in the usual examination. If you believe this rule unfairly disadvantages you, contact the lecturer in charge <u>before</u> lodging the request form.

11. Unit Homepage

<u>http://online.mq.edu.au/pub/ECON232</u>

(Note that ECON should be capital letters.)

The unit homepage will be gradually constructed at the above URL over the semester. Students must NOT use this unit homepage as a sole source of information needed for the course. Although the staff will endeavour to place as much information and as quickly as possible, there is always possibility that the information provided in the homepage will be incomplete and/or late. The complete and primary source of necessary information is **lectures/tutorials** and the unit homepage should only be used as a supplementary source.

12. Course Outline

Topic 1: Review

(1) Review of statistical concepts (Appendix A)[1]
Constants and random variables
Probability distribution
Population and random sample
Estimators and estimates
Sampling distribution of an estimator
Point estimation and interval estimation
Expected values
Unbiasedness of an estimator
Variance
Efficiency of an estimator
Consistency of an estimator
Mean Squared Error (MSE) criterion
Joint, marginal, and conditional distributions
Statistical independence

(2) Review of Regression Analysis (Chs. 1,2,3,4)

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[1] The codes in parentheses indicate relevant sections in the text by Gujarati, 4th edition.

Simple (gross) Correlation
Causality
Population regression models
OLS estimation
Sample regressions
Interpretation of coefficient estimates (7.1–7.3)
Standard (classical) assumptions
Gauss-Markov Theorem
Normality assumption and the sampling distribution of the OLS estimator
Probability distributions related to Normal distribution
Central limit theorem
Measures of goodness of fit (7.5, 7.8)
Analysis of variance (ANOVA)
Scaling and units of measurement (6.2)
Functional forms (brief)

Topic 2: Hypothesis Testing (Chs. 5, 8)

Equality restrictions and restricted regression
Single equality hypothesis testing
Testing the significance of individual coefficients
Confidence intervals and hypothesis testing
Types of errors in hypothesis testing
Significance level and power of a test
P-value method
Multiple equality hypothesis testing
Structural stability test (Chow test)
Choosing between linear and log-linear (double-log) regression models

Topic 3: Multicollinearity (Ch. 10)

Nature of the problem
Perfect collinearity
Multicollinearity (imperfect)
Consequences
Detection
Remedy

Topic 4: Heteroscedasticity (Ch. 11)

Nature of the problem
Consequences
Detection
Remedy
ARCH models (22.10–11)

Topic 5: Dummy variables (Ch. 9)

        Dummy independent variables
        Structural change and dummy variables
        Interaction effects
        Seasonal dummies
        Combining time-series and cross-sectional data
        Dummy dependent variables (Binary-choice models) (15.1–4)

Topic 6: Autocorrelation (Ch. 12)

        Nature of the problem
        Consequences
        Detection
        Remedy

Topic 7: Functional Forms and Specification Errors (6.4–10, 7.9–10, Ch. 13)

        Functional form
        Omitting relevant variable(s)
        Including irrelevant variable(s)
        Measurement errors

13. Course Diary

Week	Dates	Lecture	Tutorial
1	March 5,6	Review	X
2	March 12,13	Review	**Tut 1** (C5C 213)
3	March 19,20	Hypothesis Testing	**Tut 2**
4	March 26,27	Hypothesis Testing	X
5	April 2,3	Multicollinearity	**Tut 3**
6	April 9,10	**Mid-Semester Test** Heteroscedasticity	X
April 14 – April 27		**Mid-semester Break**	
7	April 30, May 1	Heteroscedasticity	**Tut 4**
8	May 7,8	Dummy Variables	**Tut 5** (C5C 213)
9	May 14,15	Dummy Variables	X
10	May 21,22	**Assignment due on Monday** Autocorrelation	**Tut 6**
11	May 28,29	Autocorrelation	X
12	June 4,5	Specification & Measurement Errors	**Tut 7**
13	June 11,12	Functional Forms Examination Briefing	**Tut 8**

14. Staff

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