

Queen Mary, University of London, MSc. (Econ)

Course: ECOM OO32 ECONOMETRICS B: MACROECONOMETRICS

Lecturer: D.S.G.Pollock (room W310, email d.s.g.pollock@qmw.ac.uk)

COURSE PROSPECTUS

1. Aims of the unit

This course aims to teach some econometric techniques which have been developed mainly for the purpose of investigating macroeconomic relationships. The techniques include both single-equation and multi-equation methods. Some of these methods represent alternative approaches which are pursued by researchers who adhere to different and sometimes opposing methodological opinions.

The course also aims to expose the student to some modern software that can be used in estimating macroeconomic relationships.

2. Learning Outcomes

Students who complete the course will have had sufficient exposure to the tools and techniques associated with the chosen topics to enable them to carry out their own independent research at a modest level of technical difficulty. They will have had experience of some modern econometric software packages and they should have some understanding of the interface between economic theory and empirical investigation. They should therefore be aware of the difficulties and the compromises that typify applied econometric investigations.

3. Topics to be Studied

1. Simple Linear Difference Equations,
2. Dynamic Responses: The Impulse Response, the Step Response and the Frequency Response,
3. Autoregressive–Distributed Lag Models and Rational Transfer-Function Models,
4. Trended Variables and Cointegration in Single-Equation Models,
5. The Estimation of Single Dynamic Econometric Equations,
6. Systems of Multiple Difference Equations,
7. The Classical Simultaneous-Equation Model of Econometrics,
8. Single-Equation Estimation Methods Applied to the Classical Model: Limited Information Maximum-Likelihood Estimation and Two-Stage Least Squares Estimation,
9. Multi-Equation Estimation Methods Applied to the Classical Model: Full Information Maximum-Likelihood Estimation and Three-Stage Least Squares Estimation,

10. Vector Autoregressive–Moving Average Models: Alternative Forms of Dynamic Systems,
11. The Estimation of Vector Autoregressive Systems,
12. Cointegration in Systems of Equations: The Granger–Engle Representation Theorem,
13. The Estimation of Cointegrated Systems: The Method of Granger and Engle and the Method of Johansen.

4. Arrangements for Teaching and Assessment

The course is taught in the spring semester. The lectures are given each week in two consecutive hours (Thursday, 2–4pm) and they are followed by a class of one hour’s duration which is devoted to problems and to computer-based exercises. The students are expected to take accurate notes during the lectures and to access the adjunct material which is to be found on the associated web page and in the textbooks mentioned below.

The examination of the course is combined with the examination of PART A: MICROECONOMERTICS. PART A and PART B are equally represented on the examination paper. The exam counts for 80 percent of the marks. The remaining marks are derived from coursework.

5. Readings

Some of the essential reading is to be found on the website of the lecturer at the following address:

⟨qmw.ac.uk.\economics\staff\ugte133⟩.

In addition, there are many texts that can be consulted. A excellent text with covers most of the topics of the courses is

Hamilton. J.D., (1994), *Time Series Analysis*, Princeton University Press, Princeton, New Jersey.

A good reference for vector autoregressive systems is

Lütekepol, H., (1993), *Introduction to Multiple Time Series Analysis: Second Edition*, Springer-Verlag, Berlin.

The classical simultaneous-equation model of econometrics and the associated methods of estimation are treated extensively in

Pollock, D.S.G. (1979), *The Algebra of Econometrics*, John Wiley and Sons, Chichester.

The following two books are useful references for the topic of co-integration:

Engle, R.F., and C.W.J. Granger, (1991), *Long-Run Economic Relationships*, Oxford University Press, Oxford.

Banerjee, A., J. Dolado, J.W. Galbraith and D.F. Hendry, (1993), *Co-integration, Error-Correction, and the Analysis of Non-Stationary Data*, Oxford University Press, Oxford.