

## Econometrics

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There are three components, the first of which is a review of basic econometric theory. In formal lectures, the following topics are covered:

- (a) Statistical theory and methods - probability, random variables, sampling, estimation, and hypothesis testing;
- (b) Econometric theory - the simple two-variable linear regression model, and the k-variable linear regression model;
- (c) Statistical inference - single-parameter tests and interval estimators of coefficients, linear restrictions, tests of joint hypotheses and structural stability, and dummy variables;
- (d) Econometric problems - autocorrelation, heteroscedasticity, and simultaneous equation models.

The second component examines the theory of prediction as a statistical problem and, at an intermediate technical level, recent developments in the analysis of non-stationary series. Simulation is used to illustrate the theory. The topics studied are:

- (a) Motivation - the prediction problem, the mean square error criterion, and linear least squares;
- (b) Stationary time series - ARMA models as approximations to first and second moments, autocovariance, and autocorrelation functions;
- (c) Non-stationary - the sampling distributions of regression estimators, spurious regression, cointegration, error correction models, and testing for unit roots.

The third component is training in the analysis of economic data and the interpretation of econometric results. In formal lectures, the following topics are covered:

- (a) Dynamic modelling - the general to simple methodology, and estimation of the consumption function;
- (b) Application of cointegration - the Engle-Granger two-step procedure, Johansen's technique, modelling foreign exchange markets, and estimation of demand for money functions;
- (c) Modelling the labour market - wage equations.

## Assessment

A 1-hour multiple-choice test in January (20%), computer exercises (20%) and a 3-hour written examination (60%)