These lecture represents the **first** part of a two course sequence designed to introduce participants to a number of estimators and concepts that represent central aspects of microeconometrics.

As a guide to the level of the course, we will use *Introductory Econometrics: A Modern Approach* by J. Wooldridge as a point of departure.

**Part 1: Linear Models** Topics covered include the linear regression model, programme evaluation and treatment effects, instrumental variables, static and dynamic panel Data models, and Generalised Method of Moments.

Each session will be accompanied by a STATA practical which will utilise one or more applications to demonstrate the theory.

Course notes will be provided. The set of notes that will be distributed are extensive. Not all slides will be covered since some of the material is designed for more general reference purposes.
In a follow-on course we turn our attention to nonlinear models.


Participants that attend this course will benefit from having already taken the course on linear models. However, the structure of the lectures is such that this the course may also be taken as a stand-alone module.
DAY 1

Afternoon Session

14:00-15:15 - Session 1: Policy Evaluation

(a) Causality and Inference
(b) Economic Policy Evaluation
   - Treatment Effects
   - The Self-Selection Problem
   - Matching


15:30-16:45 - Session 2: The Linear Regression Model

(a) OLS and The Method of Moments
(b) Gauss Markov Assumptions
(c) Endogeneity and the Instrumental Variable Estimator


17:00-18:00 - Session 3: Endogeneity and Instrumental Variable Estimation

(a) Conditional and Unconditional Moments
(b) The OLS and the IV Estimator
(c) Instruments
   - The Validity of Instruments
   - The Relevance of instruments


STATA session Internal vs External Instruments and Panel Data
Application Estimating the Price Elasticity of Demand for Cigarettes
DAY 2

10:00-11:15 - Session 5: Programme Evaluation and Treatment Effects

(a) Overview
(b) Types of Treatment Effects
(c) The Difference-in-Difference Estimator
(d) Selection on Unobservables: ATE and LATE

Readings - Cameron and Trivedi (2005) Chapter 25.8.5 pages 893-6

11:30-12:30 - Session 6: Applications of Treatment Models

(a) Overview
(b) The Treatment effect of Training on Earnings
(c) Propensity Score Matching

STATA session: Propensity Score Matching

12:45-14:00 - Session 7: Linear Unobserved Effects Panel Data Models

(a) Introduction to Panel Data Models
(b) Fixed Effects Models
(c) Random Effects
(d) Hausman Tests

Readings - Cameron and Trivedi (2005), Chapter 21

16:00-18:00 - Session 8: Stata Session Re and Fe

(a) xtreg: Fixed and Random Effects Models
(b) Robust Inference with Panel Data Estimators
(c) Hausman Tests

STATA session: Linear Fixed Effects Models

Application The Responsiveness of Labour Supply to Wages
DAY 3

10:00-11:15- Session 9: Generalised Method of Moments I & II

Generalised Method of Moments I: Introduction

(a) Introduction
(b) Optimal Weight Matrices: Some Intuition

Generalised Method of Moments II: The Linear Model

(a) The Method of Moments
(b) OLS and IV Moment Estimators

Readings - Cameron and Trivedi (2005), Chapter 6

11:30-12:30 Session 10: Generalised Method of Moments III: Testing

(a) Introduction
(b) Overidentification Tests: The Validity of Moment Restrictions
(c) Identification Tests: The Relevance of Moments
(d) Weak Identification
(e) IV/2SLS or GMM

Readings - Cameron and Trivedi (2005), Chapter 6

STATA session: Estimation using IV, 2LS and GMM.
Application Isolating the effect of Education on wages from Ability
12:45-14:00 - Session 11: Dynamic Panel Data Models

(a) Weak versus Strict Exogeneity
(b) LSDV Bias in Dynamic Models
(c) The Difference GMM Estimator
(d) The System GMM Estimator
(e) Pooled Mean Group Estimators

Readings - Cameron and Trivedi (2005), Chapter 22

16:00-18:00 - Session 12: Dynamic Panel Data Models - Applications

STATA session: Dynamic Panel Data Models

END
Principal Texts


Readings

Evaluating Policy


### Treatment Effects


### IV and Generalised Method of Moments


### Weak Instruments


Robust Estimation


Quantile Regression


Static Panel Data Models


Dynamic Panel Data Models


Bayesian Discrete Choice Models [Not Covered]

chotomous response data”, Journal of the American Statistical Associ-
ation 88, 669-679.


