UNIVERSITÀ DEGLI STUDI DI MILANO
Dipartimento di Economia, Management
e Metodi Quantitativi

INTRODUCTION TO ECONOMETRICS

Reference book: *Introduction to Econometrics* - J.H. Stock and M.W. Watson

- Linear Regression with Multiple Regressors
  - Omitted Variable Bias
  - The Multiple Regression Model
  - The OLS Estimator in Multiple Regression
  - Measure of Fit in Multiple Regression
  - The Least Squares Assumptions in Multiple Regression
  - The Distribution of the OLS Estimators in Multiple Regression
  - Multicollinearity
- Hypothesis Tests and Confidence Intervals in Multiple Regression
  - Hypothesis Tests and Confidence Intervals for a Single Coefficient
  - Tests of Joint Hypotheses
  - Testing Single Restrictions Involving Multiple Coefficients
  - Model Specification for Multiple Regression
  - Analysis of the Test Score Data Set

- Nonlinear Regression Functions
  - A General Strategy for Modelling Nonlinear Regression Functions
  - Nonlinear Functions of a Single Independent Variable
  - Interactions Between Independent Variables
  - Nonlinear Effects on Test Scores of Student-Teacher Ratio

- Assessing Studies Based on Multiple Regression (to read only)
  - Internal and External Validity
  - Threats to Internal Validity of Multiple Regression Analysis
  - Internal and External Validity when the Regression is Used for Forecasting
  - Example: Test Scores and Class Size

- Regression with a Binary Dependent Variable
  - Binary Dependent Variables and the Linear Probability Model
  - Probit and Logit Regression
  - Estimation and Inference in the Logit and Probit Models
  - Some applications

- Instrumental Variable Regression
  - The IV Estimator with a Single Regressor and a Single Instrument
  - The General IV Regression Model
  - Checking Instrument Validity
  - Where Do Valid Instruments Come From?
  - Appendix 2: Derivation of the Formula for the TSLS Estimator
  - Appendix 3: Large-Sample Distribution of the TSLS Estimator

Via Celoria, 2 - 20133 Milano - Tel. 02 503 16475/16471 - Fax 02 503 16486
Via Conservatorio, 7 - 20122 Milano - Tel. 02 503 21501/21522 - Fax 02 503 21505/21450

- Introduction to Time Series Regression and Forecasting
  - Using Regression Model for Forecasting
  - Introduction to Time Series Data and Serial Correlation
  - Autoregressions
  - Time Series Regression with Additional Predictors and ADL Model
  - Lag Length Selection Using Information Criteria

- The Theory of Linear Regression with One Regressor (to read only)
  - The Extended Least Squares Assumptions and the OLS Estimator
  - Fundamentals of Asymptotic Distribution Theory (basic notions only)
  - Asymptotic Distribution of the OLS Estimator and t-Statistic
  - Exact Sampling Distributions When the Errors Are Normally Distributed
  - Weighted Least Squares (basic notions only)

- The Theory of Multiple Regression
  - The Linear Multiple Regression Model and the OLS Estimator in Matrix Form
  - Asymptotic Distribution of the OLS Estimator and t-Statistic
  - Test of Joint Hypotheses