

ECONOMETRICS I – THE LINEAR REGRESSION MODEL

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1. Introduction

- Introduction to the econometrics courses at ECOSTAT
- Structure of the exam
- Notation

2. Linear regression model

- Ordinary Least Squares (OLS)
- Gauss Markov assumptions and small sample properties of the OLS estimator
- Hypothesis testing
- Asymptotic properties of the OLS estimator
- Heteroskedasticity

3. Endogeneity, Instrumental Variables and GMM

- Endogeneity, reverse causality, omitted variables bias and measurement errors
- The Instrumental Variables estimator (IV)
- The Generalised Instrumental Variables estimator (GIV/2SLS)
- The Generalised Method of Moments (GMM)

4. Maximum likelihood

- Maximum likelihood estimation
- Introduction to Maximum Likelihood Specification tests

Proposed references

- Greene, W.H. (2000), *Econometric Analysis*, Prentice-Hall.
- Hayashi, F. (2000), *Econometrics*, Princeton University Press.
- Verbeek, M. (2008), *A Guide to Modern Econometrics*, Wiley.