

BST169 Econometrics

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1 Outline

This module covers the fundamentals of econometric theory and practice. The aim is to provide sufficient background for students to engage with applied research in various areas. The emphasis is on estimation and hypothesis testing in the context of the Classical Linear Model. Finite and large sample properties of least squares estimators will be studied with computer-based simulations. Alternative econometric approaches to estimation and testing will be discussed. The module will focus mainly on the analysis of cross sectional data with observations whose order does not affect analysis.

Topics will include:

1. Review of relevant matrix algebra necessary for linear regression model;
2. Estimation and inference in linear regression model
3. Introduction of R software
4. Monte Carlo methods and Bootstrap

5. Maximum likelihood and binary dependent variable models
6. Instrumental variable estimation and generalized method of moments (GMM)

2 Teaching Arrangements

See Learning Central.

3 Readings

For those of you who need to brush up on your undergraduate econometrics and regain the intuitions of many econometric theories, Wooldridge (2008) is an excellent source. Though it has two nice appendices dealing with multiple linear regression models using matrix algebra, more advanced mathematical treatment should be expected on a graduate level. Greene (2011), Hayashi (2000) and Wooldridge (2001) are the more appropriate textbooks. The computer software for the module is R. Kleiber and Zeileis (2008) provide many hands-on examples of various econometric models. More references will follow during the course of the module.

4 Assessment

60% of the module marks will be based on the exam paper to be taken at the end of autumn semester while another 40% will be attributed to a computer-based project.

References

- [1] W.H. Greene, *Econometric Analysis*, 7th ed., Pearson Education, 2011.
- [2] F. Hayashi, *Econometrics*, Princeton University Press, 2000.
- [3] C. Kleiber and A. Zeileis, *Applied Econometrics with R*, Springer, 2008.
- [4] J. M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, MIT Press, 2001.
- [5] J.M. Wooldridge, *Introductory Econometrics (a modern approach)*, 4th ed., South Western College, 2008.