Johannes Gutenberg-Universität
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Econometric analysis of experimental data

Outline

Description and objectives

The aim of this course is to introduce students to the econometric analysis of experimental data. The course will focus on methods and models which can be easily estimated in STATA. Programming skills are not required. Code and data sets will be provided as well as practice exercises. The course is structured in four parts covering issues related to the relationship between testing behavioral hypotheses, experimental design, and statistical power.

- **Part 1 : Parametric and nonparametric tests**: This part will cover common parametric tests, nonparametric rank tests (Wilcoxon, Mann-Whitney, Kolmogorov-Smirnov), as well as the potential benefits of using quantile regression to test for the presence of treatment effects.

- **Part 2: Data dependance and clustering** : This part will discuss experimental data structures where correlation across observations is present. Topics covered will include cluster robust and cluster specific effects. We will also discuss designing experiments with the purpose of meeting requirements for proper inference, as well as approaches to explain choice dependance in non-linear models.

- **Part 3: Bootstrap methods** : This part will present bootstrap methods (parametric and nonparametric) for inference in economic experiments. Topics will include estimator variance approximation, statistical testing with asymptotic refinement, and bias reduction.

- **Part 4: Power computation and design of experiments** : This part will present issues related to the design of economic experiments and statistical power. Topics will include computing power using large sample theory and power computations using simulation based methods. We will also discuss possible sign errors to emphasize that little if anything can be learned from underpowered experiments.

Course material

We will cover parts of Cameron and Trivedi's (2009) : *Microeconometrics : Methods and Applications* dealing with regression analysis pertinent to the course. A series of papers will be discussed in each part of the course. Some papers will illustrate methods, others applications. A selected subset of the papers covered is presented below. A web site with teaching material and STATA codes will be activated a few days before the course.

References

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