



Lecture: Semiparametric Methods in Econometrics and Applications

Chair of Labor Market Economics

Prof. Bernd Fitzenberger, PhD – Lecture

Leonie Wicht, M.Sc. – Exercises

This course presents nonparametric and semiparametric regression techniques which are part of the tool set of modern microeconomic methods and applications. The course covers saturated OLS regression, kernel density estimation, nonparametric regression, partially linear models, semiparametric selection models, inverse probability weighting, penalized regression models as well as parametric and nonparametric quantile regression as basic tools. These methods are used for cross-section data and longitudinal data. Students will familiarize themselves with applying the methods based on selected applications in economic research papers.

Students

- learn how to learn to think of regression as modelling conditional expectations and features of conditional distribution
- learn how that there is a bias and variance trade-off between choosing a flexible regression specification and obtaining precise estimates in light of the curse-of-dimensionality
- learn that flexible regression methods require the choice of tuning parameters and how to use statistical approaches to choose the tuning parameters
- learn how semiparametric methods are applied in real world econometric studies

Recommended prerequisites are the master course “Einführung in die Ökonometrie (Introduction into econometrics)” (mandatory) and a further course (recommended) in micro-econometrics such as “Panel and Evaluation Methods” or “Mikroökonomie und Maschinelles Lernen”.

The course can be integrated in the following Master programmes:

- Master Economics: Elective Area
- Master Arbeitsmarkt und Personal: Elective Area
- Master Sozialökonomik: freier Vertiefungsbereich
- Master Management, Marketing, FACT, Gesundheitsmanagement und –ökonomie, IIS: Elective Area

The module is held each winter semester. Grading is based on a written examination (90 minutes). The workload is 24h for the course attendance and 40h for independent study. The course language is English.

The course (lecture/exercise) takes place every second week on **Wednesdays, 16.30-20.30** in room [FG 3.023](#). The **first lecture** is on Wednesday, **October 19**.

The **exam** will be held on **February 13** from 15.00-16.30 in the room FG 1.036.

Recommended Reading:

- Pagan, A. and A. Ullah (1999): Nonparametric Econometrics, Cambridge University Press.
- Wooldridge, J. M. (2010): Econometric Analysis of Cross Section and Panel Data. 2nd edition, Cambridge, MA: MIT Press.

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