

230347 ADVANCED MICROECONOMETRICS

Instructor

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Recommended Prerequisites

Econometrics 1 (CentER), Econometrics 2 (CentER), Econometrics 3 (CentER).
Students should be familiar with static linear panel data models (fixed effects, random effects).

Assessment

Computer assignment (20%) and final exam (80%).
The resit will be an oral examination and will also count for 80%. There will not be a resit of the computer assignment.

Aim and Course Content

Empirical researchers make more and more use of microeconomic panel data to analyze the economic decisions of individuals, households or firms. These models are powerful because they allow researchers to control for individual heterogeneity.

The aim of the course is to give an overview of different microeconomic models used to analyze panel data. We will build upon the linear panel data models that have been discussed in previous courses, and study both static and dynamic models for binary, count and censored dependent variables. We will study the theory behind the econometric models and techniques for estimation, testing and model selection. There will be an emphasis on how to use these models in applied work. In computer demonstrations, we will estimate models with real and simulated data using R.

Course Structure

There will be 6 lectures and 2 computer classes. The lectures will focus on theory, while the computer classes will focus on programming in R. All teaching will take place in person and will not be recorded.

Topics

- Static and dynamic linear panel data models.
- Static and dynamic binary panel data models.
- Static and dynamic count panel data models.
- Static and dynamic censored panel data models.

Books

There is no required book for this course. The lecture slides, practice problems and computer assignments will include all the material relevant for the exam. However, the following are useful references:

- Colin Cameron and Pravin Trivedi. *Microeconometrics: methods and applications*. Cambridge university press, 2005
- Jeffrey M Wooldridge. *Econometric analysis of cross section and panel data*. MIT press, 2010
- Badi Baltagi. *Econometric analysis of panel data*. John Wiley & Sons, 2013
- Yves Croissant, Giovanni Millo, et al. *Panel Data Econometrics with R*. Wiley Online Library, 2018

I will also provide recommended readings (such as journal articles and book chapters) to go with each lecture.

Software

I will show programming demonstrations with R. R is open source and has become very popular among econometricians and applied microeconomicians. Packages exist to estimate most of the models we will cover, and it is easy to write your own estimators from scratch. You can download R and RStudio (an interface with which you can interact with R) for free from:

- <https://mirror.lyrahosting.com/CRAN/>
- <https://posit.co/download/rstudio-desktop/download>

Final Exam

The final exam can include theoretical questions and interpretation of model output from statistical software. Example questions with each topic and past exams will be provided to guide your study.

Computer Assignment

The computer assignment will be a variation of the exercises in the R demonstrations. These will involve estimating models with both simulated and real data. You are not restricted to using R for the assignment but are free to complete the computer assignment using other software (e.g. Python).

References

Badi Baltagi. *Econometric analysis of panel data*. John Wiley & Sons, 2013.

Colin Cameron and Pravin Trivedi. *Microeconometrics: methods and applications*. Cambridge university press, 2005.

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