

Panel Data Econometrics

Taking advantage of rich data structures

PROGRAMME
Master 2

SEMESTER
Semester 1

CREDITS
3 ECTS

CONTACT HOURS
18h Lectures

Course Description

In this course, students will be introduced to fundamental concepts and techniques for panel data analysis. Panel data refers to datasets collected over time on a cross-section of units, such as individuals, households, or businesses.

Key topics include the development and estimation of commonly used models, including fixed effects, random effects, and dynamic panel models. Students will also learn to tackle the usual challenges encountered when using panel data and perform hypothesis testing and diagnostic checks. Practical applications using the R software complement the theoretical part of the course.

This course is shared with Master 2 QAE

Learning Outcomes

- Choose the correct visualization method to represent data with a panel structure.
- Understand and explain the challenges associated with the statistical processing of panel data.
- Appropriately model observed phenomena through panel data methodologies.
- Estimate various models and perform tests using the statistical software (R).
- Take advantage of panel data structures to identify causal relationships.

Indicative Content

- 1. Introduction:** Challenges and opportunities in panel data structures.
- 2. Fixed and Random Effects:** Understanding and estimation of core panel models.
- 3. Dynamic Panel Models:** Modelling complex temporal relationships.
- 4. Diagnostic Steps:** Tackling usual challenges and performing hypothesis testing.
- 5. Applied Analysis in R:** Analyzing panel data using the R software.

Teaching & Learning Approach

This course aims to equip students with the practical skills to undertake real-world econometric analyses involving panel data. Instruction bridges theoretical understanding of statistical processing challenges with hands-on technical application in R.

Assessment

Written Exam