Panel Data

Course title - Intitulé du cours	Panel Data
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	POINAS Francois
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

François Poinas, T.509, francois.poinas@tse-fr.eu, office hours by appointment booked on the online agenda: https://francoispoinas.appointy.com

Course's Objectives - Objectifs du cours :

This course studies econometric methods to be applied when using panel data. It builds on Intermediate Econometrics and Applied Econometrics classes (M1). It presents standard panel data models and econometric methods to estimate parameters of those models, studies the main properties of the estimators and provides examples of application of those methods in economics. The models covered in the course are fixed and random effects models, dynamic panel data models and nonlinear models involving panel data.

At the end of the course, students should be able to apply the suitable methods depending on the context, should know their main properties and should know how to interpret the results in practice.

Prerequisites - Pré requis :

Prerequisites are Intermediate Econometrics (M1) and Applied Econometrics (M1). The students should be familiar with the following estimation methods: Ordinary (OLS) and Generalized Least Squares (GLS), Instrumental Variables (IV) Methods and Generalized Method of Moments (GMM), Maximum Likelihood Estimation (MLE). They should know in which context the methods should be used, the properties of the methods, how to interpret the results obtained and how to do hypothesis testing.

Practical information about the sessions - Modalités pratiques de gestion du cours :

The course will be composed of six chapters. For each chapter, the material will be posted on Moodle. The material will be made of lecture notes, auto-assessment quizzes, and elements to practice the methods covered. Students have to work the material in autonomy.

Classes will consist in discussing the corresponding material by answering questions raised by the students and focusing on some of the main. Classes will take place on site or remotely for students who cannot attend them for sanitary reasons.

Usage of laptops during classes is allowed for sessions covering "theoretical" aspects, and mandatory for sessions covering "practice" aspects. Practice sessions will make use of Stata software (https://www.stata.com/).

Plagiarism and academic integrity: when writing homeworks and projects, students have to be very careful about citing the source of all ideas that are not their own ones. Anything without citation is understood as being created by the students who wrote the piece. Failing to cite the source of an idea expressed by someone else is a case of plagiarism. Plagiarism will be penalized by a grade of 0 for the corresponding exercise and the case will be sent to the disciplinary council of the University that may take disciplinary sanctions, like university exclusion.

Grading system - Modalités d'évaluation :

Preparation of practice sessions: 30%

For each of the first 3 practice sessions, students will submit their preparation work. Each practice session material is graded on 10%.

One empirical project (70%). The project is done by groups of 2 or 3 students.

The empirical project consists in one of the following two types of exercises (up to the choice of the students):

- Replication or extension of a paper taken in the academic economics literature that includes a panel data analysis and uses methods studied in the course. The archive for the Journal of Applied Econometrics contains papers with datasets that would fit well for this exercise.

- Own study that involves methods presented in the course. Students select a question, use a panel dataset and perform an econometric analysis involving panel data.

The document handled in at the end of the project has to take the form of a short paper. More details will be given in class.

Exact copies or late submissions will not be considered for grading.

Bibliography/references - Bibliographie/références :

Lecture notes will be made available to the students all along the class. No textbook is officially required.

The following references may be useful to complement the content of the lecture slides:

Arellano, M., 2003, "Panel Data Econometrics", Advanced Texts in Econometrics, Oxford University Press.

Baltagi, B., 2013, "Econometric Analysis of Panel Data", 5th edition, Wiley.

Cameron, A., Trivedi, P., 2005, "Microeconometrics: Methods and Applications", Cambridge University Press.

Greene, W., 2011, "Econometric Analysis", 7th edition, Pearson Education.

Hsiao, C., 2014, "Analysis of Panel Data", 3rd edition, Econometric Society Monographs, Cambridge University Press.

Wooldridge, J., 2010, "Econometric Analysis of Cross Section and Panel Data", 2nd edition, The MIT Press.

Session planning - Planification des séances :

Week 1: course presentation

Week 2: Pooled model (Chapter 1)

Week 3: Fixed effects model (Chapter 2)

Week 4: Random effects model (Chapter 3)

Week 5: Practice session on the fixed and random effects models (Practice session 1)

Week 6: Instrumental variables (Chapter 4)

Week 7: Practice session on instrumental variables (Practice session 2)

Week 8: Dynamic linear panel data models (Chapter 5)

Week 9: Practice session on dynamic linear panel data models (Practice session 3)

Week 10: Nonlinear panel data models (Chapter 6)

Distance learning – Enseignement à distance :

Distance learning will be implemented during the whole semester for students who cannot attend class for health or other practical reasons. It will take the following form:

- All sessions will be held simultaneously on site and on Zoom (if necessary).

- Course material will be posted on the course webpage. It will include detailed lecture notes, slides, quizzes and exercises, material for practice sessions.