MASTER 1

MENTION ECONOMIE
PARCOURS EXPERTISE ECONOMIQUE

PANEL DATA / S2

INSTRUCTOR:

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OBJECTIVE OF THE COURSE:

The seminar focused on panel data techniques, a methodology that makes an analysis of a large number of objects through short periods in time. It can be particularly relevant for studying dynamic changes in household behavior, enterprise productivity, investment, regional growth, etc. Each class is a three hours lectures. Two hours will be dedicated to the lesson and one hour to applications on STATA or Eviews.

PRE-REQUISITE :

Studying these methods requires good knowledge of linear and matrix algebra.

COURSE PLAN

1- INTRODUCTION TO PANEL DATA
- Classical linear regression: review
- Structure of panel data: cross-sectional and time-series dimension
- Fixed and random effects

2- PANEL DATA ESTIMATOR
- Fixed effect: LSDV estimation

- Random effect: GLS estimation
- Between and within estimators

3- TESTING HYPOTHESIS
- Poolability
- Hausman specification test

4- ENDOGENEITY
- C-test of endogeneity
- IV estimation

5- DYNAMIC PANEL REGRESSION
- Serial correlation in error component

6- VECTOR AUTOREGRESSIONS
- Panel Stationary VAR with individual effects
- Panel nonstationary VAR with individual effects

7- BINARY DEPENDANT VARIABLES
- Fixed effect logit
- Random effect probit

8- DIFFERENCE in DIFFERENCE
- Introduction to difference in difference estimator
- Matching techniques

9- VARYING COEFFICIENT MODELS

- Error-components model
- Random Coefficient Panel Data Model

10- BAYESIAN APPROACH

- Dynamic Random Coefficients Model
- Family of shrinkage estimators
- Bayesian Iterative shrinkage estimator

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- Angrist, J. D., & Pischke, J. S. (2009). Mostly harmless econometrics: An empiricist companion. *Princeton Univ Pr*.

- Baltagi, B.H., Bresson, G. and Pirotte, A., 2008. *To pool or not to pool?* in The Econometrics of Panel Data: Fundamentals and Recent Developments in Theory and Practice, (L. Mátyás and P. Sevestre eds.). Series: Advanced Studies in Theoretical and Applied Econometrics 33. Springer-Verlag, New York.

- Hsiao, C. and Pesaran, M. H., 2008. *Random Coefficient Models*, in The Econometrics of Panel Data, (L. Mátyás and P. Sevestre eds.), Third Edition, Ch 6, pp. 185-213.

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- Maddala, G. S., Hu, W., 1996. *The Pooling Problem*. In: Matyas, L., Sevestre, P. (Eds.), The Econometrics of Panel Data: a Handbook of Theory with Applications, Kluwer Academic Publishers, 2nd Ed., Boston, 307-322.

- Maddala, G. S, Trost, R. P., Li, H., Joutz, F., 1997. *Estimation of Short-Run and Long-Run Elasticities of Energy Demand From Panel Data Using Shrinkage Estimators*. Journal of Business and Economic Statistics 15, 90-100.