NOVA SCHOOL OF BUSINESS & ECONOMICS

Econometrics II –Panel Data Econometrics

2nd Semester - First part

Academic Year 2021/2022

Ph.D. in Economics and Finance

Instructor: Paulo M. M. Rodrigues

Short Biography: Paulo M. M. Rodrigues (PhD, University of Manchester; Agregação, Universidade do Algarve). He was a Jean Monnet Fellow at the European University Institute in Florence. He was also Visiting Scholar at the Institute for Advanced Studies in Vienna, Austria, the University of British Columbia, Vancouver, Canada and the University of Navarra, Spain. Research interests include time-series econometrics, financial econometrics and empirical macroeconomics. He has published a number of peer-reviewed articles in several internationally renowned scientific journals, including Journal of Econometrics, Econometric Theory, Econometrics Reviews, Journal of Financial Econometrics and Oxford Bulletin of Economics and Statistics, Review of Economics and Statistics.

Contact: prodrig@novasbe.pt
Office: B109

COURSE AIMS

This module on topics in time series econometrics introduces some key topics in economics and finance. It is designed to help students understand and apply several important contributions in Dynamic Panel data econometrics. By the end of the course, students should be able to analyze economic problems using rigorous econometric techniques. This course will emphasize solid foundations and major empirical applications with real data.

COURSE CONTENT

1. Estimation of linear panel data models
2. Specification tests for panel data models
3. Estimation of autocorrelated panel data models
4. Instrumental variables estimation and Hausman-Taylor models
5. Dynamic panel data models
6. Macro Panel Methods

LEARNING OBJECTIVES

Upon completion of this unit, students will be able to demonstrate an understanding of how econometric methods can and should be applied to explore a range of issues. In specific, students will be able to,

in terms of knowledge and understanding

- demonstrate understanding of verbal, graphical, mathematical and econometric representation of economic and financial ideas and analysis, including the relationship between them
- show understanding of relevant mathematical and statistical techniques
- demonstrate more extensive knowledge and skills of quantitative or theoretical modeling areas of economics, finance and econometrics.

in terms of subject-specific skills

- become familiar with main features of time series econometrics
- study particular types of models and their special features
- conduct applied independent econometric research

in terms of general skills

- select and apply appropriate techniques to solve problems

TEACHING AND LEARNING METHODS

While lectures cover the core material, it is important that students supplement classroom time with pre-class preparation, through independent study. Background reading is strongly recommended.

ASSESSMENT

Students will be assessed on one assignment (40%) and a final exam (60%).

BIBLIOGRAPHY (Suggested reading)

Arellano, M (2003) *Panel Data Econometrics*, Oxford University Press.

Arellano, M. and O. Bover (1995): Another Look at the Instrumental Variable Estimation of Error Components Models, *Journal of Econometrics* 68, 29-51.

Bai, J. (2003) Inferential Theory for Factor Models of Large Dimensions, *Econometrica* 71(1) 135-172.

Bai, J. (2009) Panel Data models with interactive fixed effects, *Econometrica* 77(4) 1229-1279.

Bai, J & Ng, S (2002) Determining the number of factors in approximate factor models, *Econometrica* 70, 191-221.

Bai, J & Ng, S (2004) A PANIC attack on unit roots and cointegration, *Econometrica* 72(4) 1127-1178.

Baldwin, R.E. and D. Taglioni (2006): Gravity for Dummies and Dummies for Gravity Equations, NBER Working Paper 12516.

Baltagi, B.H. (2008) *Econometric Analysis of Panel Data*, 4th edition New York: Wiley.

Baltagi B H, G Bresson & A Pirotte (2003) Fixed effects, random effects or Hausman-Taylor? A pre-test estimator, *Economics Letters* 79 p361-369.

Bernanke, B.S. J. Boivin & P. Eliasz (2005) Measuring the Effects of Monetary Policy: A Factor-Augmented Vector Autoregressive (FAVAR) approach, *Quarterly Journal of Economics* 387-422.

Bick, A., Kremer, S., Nautz, D. (2013) Inflation and Growth: New Evidence From a Dynamic Panel Threshold Analysis. Empirical Economics 44: 861-878.

Binder, M., C. Hsiao & M.H. Pesaran (2005) Estimation and Inference in Short Panel Vector Autoregression with Unit Roots and Cointegration*, Econometric Theory* 21 (4) 795-837.

Blundell, R. and S. Bond (1998): Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, Journal of Econometrics 87, 115-143.

Breitung J. & S. Das (2008) Testing for unit roots in panels with a factor structure, *Econometric Theory* 24, p88-106.

Bruno, G.S.F. (2005) Approximating the Bias of the LSDV estimator for dynamic unbalanced panel data models, *Economics Letters* 87, 361-366.

Bun, M.J.G. & M.A. Caree (2006) Bias-corrected estimation in dynamic panel data models with heteroskedasticity, *Economics Letters* 92, p220-227.

Bussiere, M. A. Chudik & A. Mehl (2011) Does the Euro make a difference: spatio-temporal transmission of global shocks to real effective exchange rates in an infinite VAR, ECB working paper 1292.

Chudik, A. M.H. Pesaran & E Tosetti (2011) Weak and strong cross- section dependence and estimation of large panels, *Econometrics Journal* 14, C45-C90.

Dang, V.A., M. Kim and Y. Shin (2014): In search of robust methods for dynamic panel data models in empirical corporate finance, mimeo. University of York.

Favero, C.A. M. Marcellini & F. Neglia (2005) Principal Components at Work: The empirical analysis of monetary policy with large data sets, *Journal of Applied Econometrics* 20, 603-620.

Fedderke, J., Y. Shin and P. Vaze (2012) Trade, Technology and Wage Inequality in the South African Manufacturing. *Oxford Bulletin of Economics and Statistics* 74:

808-830.

Hall S, S Lavarova & G Urga (1999) A principal components analysis of common stochastic trends in heterogeneous panel data: some Monte Carlo Evidence, *Oxford Bulletin of Economics and Statistics* 61, 749-767.

Harris, R.D.F. & E. Tzavalis (1999a) Inference for Unit Roots in Dynamic Panels Where the Time Dimension is fixed*, Journal of Econometrics* 91, 201-226.

Hsiao, C. (2003) Analysis of Panel Data, 2/e, Cambridge: Cambridge University Press.

Im, K.S., M.H. Pesaran & Y. Shin (2003) Testing for unit roots in heterogenous panels, *Journal of Econometrics* 115, 53-74.

Kapetanios, G. (2007) Dynamic Factor Extraction of Cross-sectional Dependence in panel unit root tests, *Journal of Applied Econometrics* 22, p313-338.

Lagana G. & A. Mountford (2005) Measuring Monetary Policy in the UK: A Factor-Augmented Vector Autoregression Model Approach, *Manchester School* Supplement, 77-98.

Mitchell, J., K. Mouratis & M.Weale (2005) An assessment of factor based economic indicators: a comparison of factor and regression based preliminary estimates of euro-area GDP growth, NIESR.

Nickell, S. (1981) Biases in Dynamic Models with Fixed Effects, *Econometrica* 49, 1417-1426.

Onatski, Alexei (2009) Testing hypotheses about the number of factors in large factor models, *Econometrica* 77(5), 1447-1479.

Pesaran, M.H. (2006) Estimation and Inference in Large Heterogeneous Panels with a multifactor error structure, *Econometrica* 74(4) 967-1012.

Pesaran, M.H. (2013) Testing Weak Cross-Sectional Dependence in Large Panels, Cambridge Working Paper 1208.

Pesaran, M.H., Y. Shin & R.P. Smith (1999) Pooled Mean Group Estimation of Dynamic Heterogenous Panels, *Journal of the American Statistical Association* 94, 621-634.

Pesaran, M.H. & R.P. Smith (1995) Estimating Long-run relationships from Dynamic Heterogenous Panels, *Journal of Econometrics* 68, 79-113.

Robertson, D. & J. Symons (1992) Some Strange Properties of Panel Data Estimators, *Journal of Applied Econometrics* 7, 175-89.

Serlenga, L. and Y. Shin (2013): "The Euro Effect on Intra-EU Trade: Evidence from the Cross Sectionally Dependent Panel Gravity Models," mimeo. University of York.

Smith R.P & A. Fuertes (2012) Panel Time-Series. cemmap course