Panel Data Analysis – Short Panels (Micro Panels)

Introduction

This course focuses on the interpretation of short panel-data estimates (where the number of cross sectional unit (N) is greater than time series period (T), and the assumptions underlying the models that give rise to them. The workshop covers the analysis and implementation of linear, firm-level, dynamic panel data and non-linear estimations. The course is geared for researchers and practitioners in accounting, banking, economics and finance, and all fields that related to panel data structure. The workshop aims to familiarize participants with panel data structures and equip them with core skills in using panel data methods. This will be achieved through a combination of short lecturers and computer lab sessions, with greater emphasis on giving participants hands-on experience.

Specific questions include:
- How to use the traditional panel methods – Pooled OLS, Random Effects and Fixed Effects in the empirical work?
- How should firm-level panel data be dealt with in panel estimations?
- How to treat the dynamic model by nature?
- How to re-shape the data to panel data structure and transform the output to MS Word?

Learning Outcomes

1. elaborate the advantages of panel data structure
2. formulate static and dynamic models for panel data estimations
3. identify the correct method in estimating robust standard errors when using firm-level data sets
4. perform an empirical analysis, involving the construction of panel data models using real actual observations
5. interpret the empirical results of static, dynamic and non-linear panel data models

Key Topics

Static Linear Panel Models
- The Nature of Panel Data
- Pooled OLS and Unobserved Heterogeneity
- Fixed and Random Effects Models
- Individual and Time-Specific Effects
- Test for Misspecification (Multicollinearity, Heteroskedasticity & Serial Correlation)
- Rectifying using Robust Standard Error Estimations

Firm-Level Panel Data Estimations
- Estimating Standard Errors in Firm-Level Panel Dataset
- Test for firm and time effects
- Estimating Standard Errors using
  - White Standard Errors
  - Cluster Standard Errors
  - Fama-MacBeth Estimation
  - GLS and Panel Correction Standard Error

Dynamic Panel Models
- Micro (‘short T’) Panel
- The Arellano-Bond Difference GMM Estimator
- The Arellano-Bover / Blundell-Bond System GMM Estimator
- Postestimation Tests – Sargan and Autocorrelation
- Non-linear Model (Interaction and Square term models)
- Marginal Effect
- Reshaping Panel Data and transferring the estimated output to MS Word
Facilitator

The workshop will be conducted by Assoc. Prof. Dr. **Law Siong Hook** from the Faculty of Economics and Management, UPM. He holds a PhD in economics from the University of Leicester, United Kingdom. He was a visiting scholar at Department of Economics, University of California. He has published more than 90 articles in refereed journals, including 35 in journals indexed by Thomson ISI and 54 cited in Scopus index. Most of his published papers utilize panel estimation methods and time series analysis to address issues in economics and finance. Dr. Law has also collaborated with Prof. Badi H. Baltagi, a prominent figure in panel data analysis, and their work was published in the Journal of Development Economics. His publications include *Journal of Banking and Finance, World Economy, Economic Letters, Emerging Markets Finance and Trade, Economic Systems, Economic Modelling, Resources Policy, Journal of Economic Inequality, Economics of Governance, International Journal of Finance and Economics*, etc. He has conducted more than 40 panel data workshops in UPM, UNIMAS, UMS, UKM, USM, ISRA, Monash University Malaysia, Curtin University Sarawak, and Bank Negara Malaysia.

He is also actively involved in research activities; he has headed (as) and completed 10 research projects and 4 current on-going research projects as principal investigator. His research has also granted him several awards such as Top 10 most productive authors in the Arts, Humanities, and Social Sciences category for the 2001-2010 period (Malaysian Citation Centre), Ministry of Higher Education; the Vice Chancellor Fellowship Award 2013 and 2014 (Journal Publication and Excellence Researcher in Social Science category). He has supervised 8 Ph.D students and 8 Master of Science students. Currently he is the Editor-in-Chief for the *International Journal of Economics and Management* (cited in Scopus). He has also been a member of the Editorial Board for the *Economic Systems* (cited in Thomson SSCI index journal), *International Journal of Social and Economic Research* (cited in Scopus index). Currently he is a member of the Board of Directors of the Society for the Study of Emerging Markets (USA).