

F10.19 Microeconomic Panel Data

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Aims/Description

Economic decisions and outcomes are often observed repeatedly for the same agents. Examples are expenditures of private households on food or other commodities, savings and portfolio choices, labour force participation and labour supply decisions of individuals or couples, individuals' health outcomes or health care use, decisions on smoking, drinking and other health related behaviour, firms' hiring decisions, profits, investment in research and development, etc.

To analyze these decisions and outcomes, empirical researchers make more and more use of specific techniques for the analysis of this type of data – panel data. Panel data techniques are also useful for the analysis of economic experiments where the same subjects make a number of consecutive decisions.

This course presents theory and applications of panel data models. It discusses static models in which current values of the dependent variable are explained by current values of explanatory variables, as well as dynamic models in which lagged dependent variables play a role. It will look at linear models as well as nonlinear models, in particular models for binary and discrete choice and censored regression (tobit) models.

Students will learn the main econometric models and techniques for estimation, testing and model selection and will discuss articles in which these models and techniques are applied to a variety of micro-economic issues. Applications will be taken from labour economics, consumer behaviour, development economics, environmental economics, and health economics.

Credits

3 ECTS

Programme

- 1: Panel data and static linear panel data models with random and fixed effects
- 2: Dynamic linear panel data models; IV and GMM estimation
- 3: Static and dynamic binary choice models with random and fixed effects
- 4: Other discrete choice models for panel data
- 5: Censored regression models

Background Literature

The main reference is:

M. Verbeek (2008), *A Guide to Modern Econometrics* (3rd edition), Wiley, Chichester (Chapter 10).

The course will loosely follow this chapter (plus applications and a few additional models and techniques). For more details on methods and technicalities, the following texts can be used:

- B. Baltagi (2008), *Econometric Analysis of Panel Data* (4th edition), Wiley, Chichester.
- C. Cameron and P. Trivedi (2005), *Microeconometrics, Methods and Applications*, Cambridge University Press, Cambridge.
- M.J. Lee (2002), *Panel Data Econometrics*, Academic Press, San Diego.
- J.W. Wooldridge (2002), *Econometric Analysis of Cross Section and Panel Data*, MIT Press, Cambridge MA
- M. Arellano and B. Honoré (2001), Panel data models: some recent developments, in J. Heckman and E. Leamer (eds.), *Handbook of Econometrics Volume 5*, North-Holland, Amsterdam, pp. 3229-3296.

Selected applications (preliminary)

1. Khandker, S.R. (2005), Microfinance and poverty: evidence using panel data from Bangladesh, *World Bank Economic Review*, 19, 263-286.

Khanna, J., J. Posnett and T. Sandler (1995), Charity donations in the UK: New evidence based on panel data, *Journal of Public Economics*, 56, 256-272.

2. Arellano, M. and S. Bond (1991), Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *Review of Economic Studies*, 58, 277-297.

Witt, R., A. Clarke and N. Fielding (1999), Crime and economic activity: a panel data approach, *British Journal of Criminology*, 39(3), 391-400.

3. Banfi, S., M. Farsi, M. Filippini and M. Jakob (2008), Willingness to pay for energy-saving measures in residential buildings, *Energy Economics*, 30, 503-516.

Arulampalam, W. and S. Bhalotra (2006), Sibling death clustering in India: state dependence *versus* unobserved heterogeneity, *Journal of the Royal Statistical Society*, 169, 828-849.

Demoussis, M. and N. Giannakopoulos (2006), The dynamics of home computer ownership in Greece, *Information Economics and Policy*, 18, 73-86.

4. Euwals, R., A. Eymann and A. Börsch-Supan (2004), Who determines household savings for old age? Evidence from Dutch panel data, *Journal of Economic Psychology*, 25(20), 195-211.

Revelt, D. and K. Train (1998), Mixed logit with repeated choices: household choices of appliance efficiency level, *Review of Economics and Statistics*, 80, 647-657.

Lee, K.J. and S. Kobayashi (2001), Proportional treatment effects for count response panel data: effects of binary exercise on health care demand, *Health Economics*, 10, 411-428.

Heitmueller, A. (2007), The chicken or the egg? Endogeneity in labour market participation of informal carers in England, *Journal of Health Economics*, 26, 536-559.

5. Vella, F. and M. Verbeek (2001), Two-step estimation of panel data models with censored endogenous variables and selection bias, *Journal of Econometrics*, 90, 239-263.

Grzybowski, L and P. Pereira (2008), The complementarity between calls and messages in mobile telephony, *Information Economics and Policy*, 3(9), 279-287.

Kang, S.J. and M.J. Lee (2003), An analysis of private transfers with panel fixed-effect censored model estimator, *Economics Letters*, 80, 233-237.