Panel Data Analysis

Location: CIQSS, 3535 Queen-Mary, Suite 420, Montréal
Dates: July 2-5, 2013

Course objectives and content

This intensive training session deals with longitudinal (panel) data analysis. The course will cover topics in static and dynamic model specifications, as well as topics in duration data analysis. Emphasis will be placed both on theory and computer application of the methods using data from the *Youth in Transition Survey, cohort-A (YITS-A)* and *National Longitudinal Survey of Youth 1997 (NLSY-1997)*.

Part 1: Static panel data analysis
The first part of this course will introduce the concept of panel data and derive estimation methods suitable for this type of data in a static environment. Both linear and non-linear model specifications (such as Probit and Logit) will be considered. We will also discuss how to estimate causal effects using cross-sectional data and panel data.

Part 2: Dynamic panel data analysis
The second part of this course will introduce dynamic models (for example, models containing a lagged dependent variable) and describe appropriate estimation methods. As for static models, both linear and non-linear model specifications will be considered.

Part 3: Duration data analysis
The third part of this course will deal with continuous and discrete time duration data.

Eligibility

The course is open to graduate students and postdoctoral fellows as well as to professors and practising researchers. Participants should have some working knowledge of regression models prior to the course and a practical knowledge of a statistical package such as SAS, STATA or SPSS.

Trainer

This training session will be under the responsibility of Jorgen Hansen, associate professor, Department of Economics, Concordia University.

General course information

The seminar is scheduled from **9:30am to 5:30pm**, July 2.
The seminar is scheduled from **9:00am to 5:30pm**, July 3 to 5.

The sessions are in English. Morning sessions will be used for theoretical presentations and afternoon sessions will be reserved for computer exercises. Workshops are given using SAS and STATA.

Schedule

Day 1 :
- Estimation of static, linear regression models in both cross-sectional data and panel data.
- Workshop: Exercise 1.

Day 2 :
- Estimation of causal effects in both cross-sectional data and panel data.
- Workshop: Exercise 2.

Day 3 :
- Estimation of static, non-linear models in both cross-sectional data and panel data
- Estimation of dynamic models in panel data.
- Workshop: Exercises 3 and 4.

Day 4 :
- Estimation of duration data models
- Workshop: Exercise 5.

Readings

Arellano, Manuel and Stephen 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.

Arellano, Manuel and Bo Honore (2001) "Panel Data Models: Some Recent Developments" in *Handbook of Econometrics*, Vol. 5, eds. Heckman, J. and E. Leamer, North-Holland, 3229-3296.

Cameron, Colin A. and Pravin K. Trivedi (2005) *Microeconometrics: Methods and Applications*. Cambridge University Press, New York, NY.

Card, David and Daniel Sullivan (1988) "Measuring the Effect of Subsidized Training Programs on Movements In and Out of Employment" *Econometrica*, 56, 497-530.

Chay, Kenneth Y. and Dean R. Hyslop (2000) "Identification and Estimation of Dynamic Binary Response Panel Data Models: Empirical Evidence using Alternative Approaches" Working paper, UC Berkeley.

Hansen, Jorgen (2006) "The Effects of Human Capital and Earnings Supplements on Income Assistance Dependence in Canada" SRDC working paper 06-06 (downloadable at www.srdc.org)

Hansen, Jorgen and Magnus Lofstrom (2006) "Immigrant-Native Differences in Welfare Participation: The Role of Entry and Exit Rates" unpublished working paper

Heckman, James J. (1981a) "Statistical Models for Discrete Panel Data" Chapter 3 in Manski, Charles and Daniel McFadden (eds.), *Structural Analysis of Discrete Data*, MIT Press, Cambridge, MA.

Heckman, James J. (1981b) "The Incidental Parameters Problem and the Problem of Initial Conditions in Estimating a Discrete Time-Discrete Data Stochastic Process" Chapter 4 in Manski, Charles and Daniel McFadden (eds.), *Structural Analysis of Discrete Data*, MIT Press, Cambridge, MA.

Honoré, Bo E. and Ekaterini Kyriazidou (1998) "Panel Data Discrete Choice Models with Lagged Dependent Variables" *Econometrica*, 68, 839-874.

Hyslop, Dean R. (1999) "State Dependence, Serial Correlation and Heterogeneity in Intertemporal Labor Force Participation Behavior of Married Women" *Econometrica*, 67, 1255-1294.

Semykina, Anastasia and Jeffrey M. Wooldridge (2006) "Estimating Panel Data Models in the Presence of Endogeneity and Selecetion: Theory and Application" unpublished working paper, Michigan State University.

Wooldridge, Jeffrey M. (2002) *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge, MA.

Wooldridge, Jeffrey M. (2005) "Simple Solutions to the Initial Conditions Problem in Dynamic, Nonlinear Panel Data Models with Unobserved Heterogeneity," *Journal of Applied Econometrics*, 20(1), 39-54.