



Panel data analysis

TRAINING SESSION
organized by the

QUEBEC INTER-UNIVERSITY CENTRE FOR SOCIAL STATISTICS (QICSS)

Location: CIQSS, 3535 Queen-Mary Road, local 420, Montreal
Dates: 10 – 14 July 2006

Financial support for this Data Training School is provided by the Social Sciences and Humanities Research Council of Canada, the Fonds québécois de la recherche sur la société et la culture and the universities affiliated to QICSS¹.

COURSE OBJECTIVES

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 *Survey of Income and Labour Dynamics (SLID)*.

COURSE CONTENT

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.

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.

¹ Université de Montréal, INRS-UCS, McGill University, Concordia University, Université Laval, Université du Québec à Montréal, Université de Sherbrooke.

TRAINER

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

GENERAL COURSE INFORMATION

The sessions are in English from **9 am to 5 pm**. 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:

- Introduction to and estimation of static, linear regression models in both cross-sectional data and panel data.
- Presentation of the Survey of Income and Labour Dynamics (SLID).
- Workshop: Extracting and organizing SLID data. Applying linear regression methods to SLID data. Exercise 1.

Day 2:

- Introduction to and estimation of static, non-linear models in both cross-sectional data and panel data.
- Workshop: Applying non-linear estimation methods to SLID data. Exercise 2.

Day 3:

- Introduction to and estimation of dynamic, linear regression models in panel data.
- Workshop: Estimation of a dynamic, linear regression model using SLID data. Exercise 3.

Day 4:

- Introduction to and estimation of dynamic, non-linear models in panel data.
- Workshop: Estimation of a dynamic, non-linear regression model using SLID data. Exercise 4.

Day 5:

- Introduction to and estimation of duration data models, with an emphasis on discrete-time data
- Workshop. Estimation of a discrete-time duration model using SLID data. 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.

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 Selection: 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.

PARTICIPANTS PROFILE

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. The course is open to approximately 15 participants who will be selected on the basis of the relevance of the course to their curriculum, research, or teaching.

APPLICATION PROCEDURE

Those wishing to attend the course are invited to register on our website (<http://www.ciqss.umontreal.ca/>). Graduate students and postdoctoral fellows who are selected to participate will be eligible for a fellowship covering registration fees and, if they live outside the greater Montreal area, transportation costs as well as lodging in the student residences of the Université de Montréal.

Registration fees are **\$200 for students and postdoctoral fellows, \$300 for professors and researchers affiliated with QICSS, \$500 for other university professors and researchers and \$750 for individuals from any other category.** Registration fees must be paid by money order or cheque made out to: QICSS – Université de Montréal.

The application deadline for the course is **June 3, 2006**. The results will be announced during the week of **June 12, 2006**.

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