

Multiple Equation Estimation Techniques (PhD)

Academic year 2010-2011

Instructors:

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Topics:

The course covers the following topics:

1. Data structures, econometric models and the identification problem
 2. Instrumental variable techniques: LATE interpretation of the IV estimator
 3. Maximum likelihood and other optimization methods
 4. Limited dependent variable models:
 - a. Discrete response models: Probit model, Logit model, binomial and multinomial models, ordered data models.
 - b. Censored and truncated dependent variables: Tobit models.
 - c. Sample selection: models with linear and non-linear selection rules.
 5. Econometrics of panel data
 - a. Static linear models: random- and fixed-effects models
 - b. Dynamic linear models
 - c. Non-linear models
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Logistics:

The course will combine lectures and four problem set sessions. The problem sets count 30% of the final grade. The remaining 70% is determined by a final exam. Students who do not hand in all 4 problem sets will not be given a mark and their final grade will be determined exclusively by the final exam.

References:

Although the lectures will not follow closely any specific book, all the following textbooks are good references:

General econometric textbooks:

- Wooldridge, Jeffrey M. 2002. *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
- Cameron, Colin A. and Pravin K. Trivedi. 2005. *Microeconometrics. Methods and Applications*. Cambridge University Press.
- Angrist, Joshua D. and Jorn-Steffen Pischke. 2009. *Mostly Harmless Econometrics*. Princeton University Press.
- Arellano, Manuel. 2003. *Panel Data Econometrics*, Oxford University Press.

Additional readings:

On identification in econometrics:

- Fisher, Franklin M. 1966. *The identification problem in econometrics*. New York: McGraw Hill.
- Manski, Charles F. 1995. *Identification Problems in the Social Sciences*. Harvard University Press.
- Hurwicz, Leonid. 1950. "Generalization of the concept of identification", in *Statistical inference in dynamic economic models*. Cowles Commission Monograph 10, New York, John Wiley.
- Wald, Abraham. 1950. "Note on identification of economic relations", in *Statistical inference in dynamic economic models*. Cowles Commission Monograph 10, New York, John Wiley.

On the LATE interpretation of IV:

- Heckman, J. 1997. "Instrumental variables: A study of implicit behavioral assumptions used in making program evaluations", *Journal of Human Resources*, vol. 32(3), pages 441–462.
- Imbens, Guido W. and Angrist, Joshua D. 1994. "Identification and Estimation of Local Average Treatment Effects", *Econometrica*, vol. 62(2), pages 467-475.

On panel data:

- Arellano, M. and S.R. Bond (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and a n Application to Employment Equations", *Review of Economic Studies*, vol. 58, pages 277-297.
- Arellano, M. and B. Honoré (2001), "Panel Data Models: Some Recent Developments", in Heckman J.J. and E. Leamer (eds.), *Handbook of Econometrics*, 5, chapter 53, North-Holland.
- Hausman, J.A. and W.E. Taylor, "Panel Data and Unobservable Individual Effects", *Econometrica*, vol. 49, pages 1377-1398.
- Nickell, S. (1981), "Biases in Dynamic Models of Fixed Effects", *Econometrica*, vol. 49, pages 1417-1426.