

Lecture on panel data models and simulation-based estimation methods

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References:

Various journal articles.

Wooldridge, J. (2010). *Econometric Analysis of Cross Section and Panel Data*, 2nd Edition, MIT Press. [Wooldridge]

Cameron, C. and P. Trivedi (2005). *Microeconometrics*, Cambridge Univ Press. [CT]

[Train, K. \(2009\). *Discrete Choice Methods with Simulation*, Cambridge Univ Press.](#) [Train]

Course Description: This two-week course covers topics in estimation of panel data models and simulation-based estimation methods. After briefly reviewing estimation methods for linear panel data models (fixed effects, first differences, Arellano and Bond, the system GMM), I will cover estimation methods for non-linear panel data models including correlated random effects probit models, fixed effects logit models, and dynamic discrete choice models. For simulation-based methods, I will cover the simulation maximum likelihood, the method of simulation moments, and the indirect inference while using the multinomial probit model as an example. The emphasis will be on learning how to use various applied econometric techniques rather than technical details. In the second week, the students will present their own work. Regardless of topics and fields, any students who would like to present their work are welcomed. This will give a great opportunity to present your work and get feedback.

1. Linear Panel Data Analysis

- Strict Exogeneity Assumption and Random Effects/Fixed Effects/First Difference: Wooldridge (Chapter 10)*, CT (Chapter 21)
- Dynamic Panel Regression and GMM: Wooldridge (Chapter 11)*, [Bond \(2002\)*](#), Arellano and Bond (1991)*, Blundell and Bond (1998)*, Arellano and Bover (1995), Arellano and Honoré (2001, Sections 1-3), CT (Chapter 22)
- Example: Blundell and Bond (2000), Ziliak (1997)

2. Nonlinear Panel Models

- Nonlinear Panel Data: Wooldridge (Chapters 15.8 and 16.8)*, Arellano and Honoré (2001, Sections 4-5), CT (Chapter 23), Heckman (1981), Chamberlin (1984), Butler and Moffit (1982).
 - Example: Goldberg (1995), Tybout and Roberts (1997)
3. Simulation-based Estimation Methods (Maximum Simulated Likelihood, Methods of Simulated Moments, Indirect Inference)
- [Train \(Chapters 5, 9, and 10\)*](#), [Gourieroux, Monfort, and Renault \(1993\)*](#), Stern (1997), Smith (2010), CT (Chapter 12), McFadden (1989), Pakes and Pollard (1989), McFadden and Ruud (1994), Keane (1994), Geweke, Keane, and Runkle (1994), Hajivassiliou and McFadden (1998), Smith (1993), Gourieroux and Monfort (1996), Gallant and Tauchen (1996)
 - Example: BLP (1995), Hyshop (1999).

References

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