Economics 628
Topics in Applied Econometrics I
Term 1, 2011-2012

Instructors:

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Course Webpage: http://faculty.arts.ubc.ca/hkasahara/econ628.html

Time and Location: Monday and Wednesday from 12:30-14:00, West Mall Swing Space 309

Office Hours: TBA

Teaching Assistant: Chad Kendall, Email: cwk5@interchange.ubc.ca

Textbook:

Wooldridge, J. (2001). *Econometric Analysis of Cross Section and Panel Data*, MIT Press.

Other References:

Cameron, C. and P. Trivedi (2005). *Microeconometrics*, Cambridge Univ Press. [CT]
Train, K. (2003). *Discrete Choice Methods with Simulation*, Cambridge Univ Press.

Course Description: This course covers topics in applied econometrics including (1) estimation of nonlinear models, (2) simulation-based methods, (3) linear panel data analysis, (4) heterogeneous treatment effects, (5) quantile regression, and (6) estimation of structural dynamic models. The emphasis will be on learning how to use various applied econometric techniques. There will be six homework assignments that will require analyzing the data and writing computer codes in Matlab (or Octave)[1], and they will be an important part of the final grade. No work will be accepted after the lecture on the due date, unless a written proof of the emergency situation that causes the delay is provided. The final exam has two-parts: a theory part and a computer programming (take-home) part.

[1]Lectures and problem set questions and solutions will primarily use Matlab. Octave is an open-source program largely compatible with Matlab. You can download Octave for Windows or OS X from http://octave.sourceforge.net. There is a graphical interface for Octave on Windows that looks a lot like Matlab available at http://guioctave.com/. If you use Octave, you should be aware of the differences between Octave and Matlab, and try to write code that will run in Matlab as well, see http://www.gnu.org/software/octave/FAQ.html#MATLAB-compatibility.

Grading: Assignments (20% of the final grade), Final theory exam (40%), Final programming exam (40%).

Course Outline and Readings

***Required Readings**

1. Estimation of Nonlinear Models

    - Limited Dependent Variables (Discrete Choice/Censored Variables/Sample Selection): Wooldridge (2001, Chapters 15.1-15.7, 16.1-16.7, 17.1-17.6)*, CT (Chapters 14-16), Imbens and Wooldridge (2007, Lecture 11), Amemiya (1985, Chapters 9-10), Train (2003, Chapter 3), Heckman (1979)
    - Nonlinear Panel Data: Wooldridge (2001, Chapters 15.8 and 16.8)*, Arellano and Honoré (2001, Sections 4-5)*, CT (Chapter 23), Heckman (1981), Chamberlin (1984), Butler and Moffit (1982).
    - Examples: Goldberg (1995), Tybout and Roberts (1997)

2. Simulation-based Methods

    - Bootstrap Methods: Hansen (2010, Chapter 8)*, Efron and Tibshirani (1998), CT (Chapter 11), Hall (1992), Horowitz (2001)
    - Simulation-based Estimation Methods (Maximum Simulated Likelihood, Methods of Simulated Moments, Indirect Inference): Train (2003, Chapters 5, 9, and 10)*, Stern (1997)*, Smith (2010)*, CT (Chapter 12)*, Gourieroux, Monfort, and Renault (1993), McFadden (1989), Pakes and Pollard (1989), McFadden and Ruud (1994), Keane (1994), Geweke, Keane, and Runkle (1994), Hajivassiliou and McFadden (1998), Gourieroux, Monfort, and Renault (1993), Smith (1993), Gourieroux and Monfort (1996), Gallant and Tauchen (1996)
    - Examples: BLP (1995), Hyshop (1999)

3. 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: Arellano and Honoré (2001, Sections 1-3)*, Bond (2002), Wooldridge (Chapter 11), CT (Chapter 22), Arellano and Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998)
    - Examples: Blundell and Bond (2000)*, Ziliak (1997)

4. Treatment Heterogeneity

   - Local Average Treatment Effects (LATE): Angrist and Imbens (1994), Imbens and Wooldridge (2007, Lecture 5)
   - Marginal Treatment Effects (MTE) and Policy Relevant TreatmentEffects (PRTE): Heckman and Vytlacil (2007, Chapters 70-71)*, Heckman and Vytlacil (1999), Carneiro, Heckman, and Vytlacil (2010)
   - Examples: Carneiro, Heckman, and Vytlacil (2009)*, Björklund and Moffitt (1987)*, Alieva and Trefler (2007)

5. Quantile Regression

   - Quantile regression: Koenker and Basset (1978), Koenker and Hallock (2001), Koenker (2005)*
   - Quantile treatment effects (QTE): Abadie, Angrist, and Imbens (2002), Firpo (2007), Chernozhukov and Hansen (2005, 2006)
   - Quantile regression with instrumental variables: Chernozhukov and Hansen (2008), Lee (2007), Horowitz and Lee (2007)
   - Examples: Machado and Mata (2005), Chernozhukov and Hansen (2004), Kowalski (2009)

6. Estimation of Structural Dynamic Models

   - Single-agent dynamic programming models: Rust (1987, 1994a, 1994b)*, Aguirregabiria and Mira (2010)*, Pakes (1994), Hotz and Miller (1993), Aguirregabiria and Mira (2002)
   - Dynamic games: Aguirregabiria and Mira (2010)*, Aguirregabiria and Mira (2007), Bajari, Benkard, and Levin (2007), Pakes, Ostrovsky, and Berry (2007), Pesendorfer and Schmidt-Dengler (2008)
   - Examples: Rust (1987)*, Pakes (1986), Keane and Wolpin (1997), Das, Tybout, and Roberts (2007), Aw, Roberts, and Xu (2009), Benkard (1994), Collard-Wexler (2008), Aguirregabiria and Ho (2009)

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Aguirregabiria, V. and P. Mira (2002). "Swapping the Nested Fixed Point Algorithm: A Class of Estimators for Discrete Markov Decision Models," *Econometrica* 70(4), 1519-1543.

Aguirregabiria, V. and P. Mira (2007). "Sequential Estimation of Dynamic Discrete Games," *Econometrica* 75(1), 1-53.

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Aw, Y., M. Roberts, and D. Xu (2009). "R&D Investment, Exporting, and Productivity Dynamics," *NBER Working Papers 14670.*

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