

TOPICS IN ECONOMETRICS  
ECONOMICS 712  
FALL 2009

**Instructor:** Áureo de Paula

Office: 535 McNeil Building

Phone: 215-898-1506

e-mail: [aureo@sas.upenn.edu](mailto:aureo@sas.upenn.edu)

Office Hours: By appointment.

**Class Webpage:** Blackboard Courseware (<http://courseweb.library.upenn.edu>)

I expect this course to be a joint learning experience for the students and myself. The objective is to investigate the items below with an eye on “why people wrote this particular paper” and “how can this result be used in other fields and/or applications”. We will cover topics on identification (from its original foundations to contemporary developments), duration analysis and strategic and social interactions models. The first topic, identification, is ultimately about “what conclusions can and cannot be drawn given specified combinations of assumptions and data” (Manski, 1995). Such considerations are a necessary first step in the empirical analysis of economic theories and their relevance could not be overstated. Though we will also talk about estimation, identification concerns will permeate our discussion of the other two topics listed above. We will do a brief discussion of identification issues in a few different contexts before delving into the second topic. Duration analysis relates to the study of transition or survival data. It appears in one way or another in many areas of Economics and has been used to analyze issues in labor economics, demography, finance, macroeconomics, etc. I hope to end with models of strategic and social interactions. These models pose additional challenges for identification and estimation and their analysis is an active area of methodological and applied research.

The class will meet on Wednesdays, 5:30-8:30pm at 395 McNeil Building.

**Evaluation:** The evaluation will be based on a paper presentation (to be determined in agreement with the instructor) and a research project to be handed in by the end of the semester.

**Calendar:**

September 23: No class (make-up class to be announced)

November 25: Thanksgiving (we will finish earlier or reschedule the class).

**Course Plan (check website for updates):**

**1. Identification:**

KOOPMANS AND REIERSOL (1950), “The Identification of Structural Characteristics”, *Annals of Mathematical Statistics*, V.21 (especially sections 1 and 2)

MARSCHAK (1953), “Economic Measurement for Policy and Predictions” **in** Hood and Koopmans, *Studies in Econometric Methods*

(available at <http://cowles.econ.yale.edu/P/cm/m14/index.htm>)

HECKMAN (2007), “Haavelmo’s Legacy”, Working Paper.

MANSKI (1988), “Identification of Binary Response Models”, *Journal of the American Statistical Association*, V.83

MAGNAC AND THESMAR (2002), “Identifying Dynamic Discrete Decision Processes”, *Econometrica*, V.70

HECKMAN (1990), “Varieties of Selection Bias”, *The American Economic Review*, V.80

TAMER AND KHAN (2009), “Irregular Identification, Support Conditions, and Inverse Weight Estimation”, Working Paper

KASAHARA AND SHIMOTSU (2009), “Nonparametric Identification of Finite Mixture Models of Dynamic Discrete Choices”, *Econometrica*, V.77

HU AND SHUM (2009), “Nonparametric Identification of Dynamic Models with Unobserved State Variables” Working Paper

See also:

MATZKIN (2007), “Nonparametric Identification” **in** Heckman and Leamer, *Handbook of Econometrics*, V.6B

MANSKI (1995), *Identification Problems in the Social Sciences* (selected passages)

## 2. Duration Models:

ELBERS AND RIDDER (1982), “True and Spurious Duration Dependence: The Identifiability of the Proportional Hazard Model”, *Review of Economic Studies*, V.49

HECKMAN AND SINGER (1984a), “The Identifiability of the Proportional Hazard Model”, *Review of Economic Studies*, V.51

RIDDER (1990), “The Non-Parametric Identification of Generalized Accelerated Failure-Time Models”, *Review of Economic Studies*, V.57

HECKMAN AND HONORÉ (1989), “The Identifiability of the Competing Risks Model”, *Biometrika*

LEE AND LEWBEL (2009), “Nonparametric Identification of Accelerated Failure Time Competing Risks Models”, Working Paper.

ABBRING AND VAN DEN BERG (2003), “The Nonparametric Identification of Treatment Effects in Duration Models”, *Econometrica*

HECKMAN AND SINGER (1984b), “A Method of Minimizing the Impact of Distributional Assumptions in Econometric Models of Duration Data”, *Econometrica*, V.52.

MEYER (1995), “Semiparametric Estimation of Hazard Models”, Working Paper

HOROWITZ (1999), “Semiparametric Estimation of a Proportional Hazard Model with Unobserved Heterogeneity”, *Econometrica*, V.67

HAM AND LALONDE (1996), “The Effect of Sample Selection and Initial Conditions in Duration Models: Evidence from Experimental Data on Training”, *Econometrica*

CHIAPPORI AND KOMUNJER (2008), “Correct Specification and Identification of Nonparametric Transformation Models”, Working Paper

ABBRING (2009), “Mixed Hitting Time Models”, Working Paper

HONORÉ AND DE PAULA (2008), “Interdependent Durations”, Working Paper

See also:

KIEFER (1988), “Economic Duration Data and Hazard Functions”, *Journal of Economic Literature* (a survey paper on the basic aspects of duration models)

LANCASTER (1990), *The Econometric Analysis of Transition Data*.

VAN DEN BERG (2001), “Duration Models: Specification, Identification and Multiple Durations” in Heckman and Leamer, *Handbook of Econometrics*, V.5

Applications:

HECKMAN AND HONORÉ (1990), “The Empirical Content of the Roy Model”, *Econometrica*, V.58

ATHEY AND HAILE (2002), “Identification of Standard Auction Models”, *Econometrica*, V.70

HONORÉ AND LLERAS-MUNNEY (2006), “Bounds in Competing Risks Models and the War on Cancer”, *Econometrica*, V.74

### 3. Empirical Models of Social and Strategic Interactions:

BRESNAHAN AND REISS, “Econometric Models of Discrete Games”, *Journal of Econometrics*, V.48

TAMER (2003), “Incomplete Simultaneous Discrete Response Model with Multiple Equilibria”, *Review of Economic Studies*

BERRY AND TAMER (2006) “Identification in Models of Oligopoly Entry”, in Blundell, Newey and Persson, *Advances in Economics and Econometrics*, V.2, Ninth World Congress

SWEETING (2008), “The Strategic Timing of Radio Commercials: An Empirical Analysis Using Multiple Equilibria”, Working Paper

MANSKI (1993), “Identification of Endogenous Social Effects: The Reflection Problem”, *Review of Economic Studies*

BROCK AND DURLAUF (2007), “Identification of Binary Choice Models with Social Interactions”, *Journal of Econometrics*

LEE (2007), “Identification and estimation of econometric models with group interactions, contextual factors and fixed effects”, *Journal of Econometrics*

BRAMOULLE, DJEBBARI AND FORTIN (2009), “Identification of Peer Effects Through Social Networks”, *Journal of Econometrics*

See also:

BROCK AND DURLAUF (2001), “Interactions Based Models” **in** Heckman and Leamer, *Handbook of Econometrics*, V.5

GLAESER AND SCHEINKMAN (2001), “Measuring Social Interactions”, **in** Durlauf and Peyton Young, *Social Dynamics*

MOFFITT (2001), “Policy Interventions, Low Level Equilibria and Social Interactions”, **in** Durlauf and Peyton Young, *Social Dynamics*

DE PAULA (2009), “Inference in a Synchronization Game with Social Interactions”, *Journal of Econometrics*, V.148

Xun Tang will speak about his research on the identification of bargaining models (with Antonio Merlo).