Overview

The objective of this course is to learn and practice the skills that help us link theory to data. The goal of much of empirical work is to test competing economic theories or to estimate and recover model primitives from data. In doing so, we have to think about how theory relates to actual data both formally and informally: What kind of variation in the data do we need in order to distinguish two competing economic theories? What kind of variation in the data drives the estimates of the model parameters? What are the key identifying assumptions that allow us to recover parameters? We want to think about these questions before we go ahead and write down a super complicated model and estimate it using maximum likelihood (or whatever your favorite estimator may be).

The course has three broad sections. First, we will look at the relationship between theory and data in a formal way. We will give a formal definition of identification and go through identification of general economic examples, such as binary threshold crossing models. I am going to cover only the basics in this class as this is not an econometric class and I am not an econometrician. The second part of the course will still retain the formal flavor, but we will examine identification of models that are more specific to industrial organization. Here, we will closely examine the balance between applicability (how reasonable are the data requirements? Do data sets that empirical researchers often work with satisfy the requirements? Required support conditions, e.g. identification at infinity?) and generality of the results/models. Topics include auctions, models of asymmetric information, bargaining, etc. We will cover a few topics to get a feel of the type of work that’s done. Lastly, in our third part of the course will look at empirical papers and we will discuss identification issues in a more informal sense.

Course Activity

The first two sections of the class will be lecture style. The last section will involve student presentation and class discussion. I plan to give out a few problem sets. Grades will be based on class participation. I am happy to accommodate your preferences when we get to the topics section as well as choosing papers for class discussion.

Tentative Class Schedule:

1st and 2nd week: Formal definition of identification and general applications.

References


C. Manski, Identification Problems in the Social Sciences, Harvard, 1995


3rd to 5 (or 6th) week: Identification in specific economic models

Potential Topics: (According to the interests of the class)

1. Auction Models

References


Athey, Susan and Phil Haile, Identification of Standard Auction Models, with, Econometrica, 70 (6), November 2002, 2107-2140.


Econometrica 63:953—980.

2. Adverse Selection/Moral Hazard


Perrigne, I. and Q. Vuong, "Nonparametric Identification of a Contract Model with
Adverse Selection and Moral Hazard," (forthcoming Econometrica)

3. Bargaining

References

Plea Negotiations”


Identification of a Strategic Deliberation Model”

4. Entry (and Multiple Equilibria)

References

Bajari, P., H. Hong, and S. Ryan (2010). Identification and Estimation of a Discrete Game of
Complete Information. Econometrica 78 (5), 1529 - 1568.

Beresteanu, A., I. Molchanov, and F. Molinari (2011). Sharp identification regions in models
with convex moment predictions. Econometrica 79 (6), 1785 - 1821.

Econometrica 77 (6), 1791-1828.


5. Demand Systems

References

Berry, S., and P. Haile, “Identification in a Class of Nonparametric Simultaneous Equations Models”

Berry, S., and P. Haile “Identification in Differentiated Products Markets Using Market Level Data”

Berry, S., P. Haile and A. Gandhi, (2012) “Connected Substitutes and Invertibility of Demand”

6. Dynamic Games, Dynamic Decision Problems

References


G. Steven Olley; Ariel Pakes. “The dynamics of productivity in the telecommunications equipment industry,” Econometrica, Volume 64, Issue 6 (Nov., 1996),


7. Matching, Coalition Formation
References

Fox, J. “Identification in Matching Games” QE 2010

Fox, J. “Estimating Matching Games with Transfers”


8. Quantal Response

References


9. Supermodular Games

References


Uetake, K. and Y. Watanabe “A Note on Estimation of Supermodular Games”

10. Social Interactions

References


6th-12th week: Informal discussion of ID in various applications