STRUCTURAL ECONOMETRICS:
Methods and Applications to Labour Economics

PhD Programme in Economics
European University Institute
Department of Economics

Instructor
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Course Information
Spring Term, A.Y. 2014-2015
Schedule: Monday, 8:45-10:45, from April 13 to May 11.
Room: TBA, Villa San Paolo

Course overview
During the last decades, the use of structural estimation methods has gained a growing relevance for the understanding of labor market and education dynamics. This course introduces structural econometric approaches in the field of labor economics. The course is structured in two parts. In the first part, we overview the overall methodology for the model solution and estimation. The first lectures are devoted to the solution and identification of static and dynamic models, with a special attention to models of labour supply. This part is concluded by presenting the methods used for the estimation of structural models. First, we review the methods not using simulation (Maximum Likelihood and Method of Moments), and then we describe the main simulation-based methods (Method of Simulated Moments and Simulated Maximum Likelihood). We also discuss the identifying assumptions needed for the model estimation and the validation techniques used in the literature so far. The second part mainly involves the discussion of empirical applications in the fields of labour economics and economics of education. Particular attention will be devoted to papers analyzing the determinants of female labor supply and of the schooling decisions.

Prerequisites
The 1st year exams on Econometrics represent a prerequisite for this course.

Objectives
At the end of the course, students will be able to:
A. Understand structural/theory-based econometric methods
B. Recognize the goals that these techniques can reach and the main identifying assumptions
C. Evaluate the worthiness of such assumptions and their implications in terms of model validity
D. Assess the advantages and disadvantages of different methods used for the estimation of structural model
Assessment
The evaluation for this course is based on a referee report. On the day of the 3rd class (April 27, 2015), students receive a structural paper to review, taking into considerations the concepts and methods explained in class. The referee report must be sent by Sunday, May 31 2015. Additional details and information on the structure of the report will be given in class. Moreover, the last two lectures of the course, based on the discussion of existing papers using structural econometrics, are also aimed at presenting to students the most important aspects to consider when writing the report.

Course structure and selected reading list

This class mainly follows:


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A more formal review of dynamic programming and numerical methods can be found in Adda, J. and R. Cooper (2003), Dynamic economics: quantitative methods and applications, the MIT Press, Chapters 2 and 3.

April 27, 2015. Optimization algorithms, simulation methods and estimation methods (GMM, Maximum Likelihood, Method of Simulated Moments and Simulated Maximum Likelihood)
This class mainly follows:
- Adda, J. and R. Cooper (2003), Dynamic economics: quantitative methods and applications, the MIT Press, Chapter 4.
May 4, 2015. Applications in labour economics: female labour supply.

In this class, we discuss the papers:


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(A more comprehensive) Reading list

This reading list includes books and papers useful to understand the econometric methods and their implementation (Methods section), and papers, which are applications of the structural methods presented in class (Applications section).

Methods:

- Attanasio, O., Meghir, C., Santiago A. (2011), Education choices in Mexico: Using a Structural Model and a Randomized Experiment to evaluate Progresa, mimeo, University College London.
• Flinn, C. J. (2010), *The minimum wage and labor market outcomes*, The MIT Press.

**Applications:**
