ECO 2404
EMPIRICAL APPLICATIONS OF ECONOMIC THEORY

University of Toronto. Department of Economics. Spring 2019

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Lectures: Wed 11:00am-1:00pm. Room IN 204
Office hours: Wed 10:00am-11:00am

COURSE DESCRIPTION

The course covers methods and applications in economic theory. The focus is on structural econometric methods that are at the core of Empirical Industrial Organization. I will emphasize the interactions between economic theory and empirical methods rather than focusing just on statistical analysis.

I have divided the course in three parts. The first part covers estimation of demand functions and static oligopoly models. The second part studies static two-period models using a revealed preference approach. It normally leads to moment inequalities and to partial identification. We also will see some of the econometrics problems related to moment inequalities estimators. The third part focuses on the estimation of production functions and the use of control function methods.

COMPUTATION

Both MA and PhD students must be familiar with MATLAB and statistical packages like STATA, R or SAS, as well as some basic computer programming (or be prepared to learn them during the semester). There will be a teaching assistant who will provide an introduction to MATLAB. If you plan to apply for a PhD and are interested in empirical work, then you should seriously consider learning a computational language as soon as possible.

EVALUATION

The final grade will be based on one problem set (50%) and a final project (50%). I will give you some problems during the semester relating to each part of the course and you can return the solutions to all problems by the end of the semester. I will focus on computer based questions. You are strongly encouraged to collaborate with other students. However, you should write the final answers on your own, and submit them individually. You also must
acknowledge the help of classmates and others by citing their names in the problem set. The final project can be either a research proposal or a referee report. You can select the paper of your preference for the referee report, but the paper must relate to the topics covered in class. Problem sets and final projects submitted within 24h after the deadline will receive 50% of the points. If they are submitted 24h after the deadline or more will receive zero points.

CONTENTS OF THE COURSE

1. Introduction to Structural Models – Early Models in IO
2. Estimation Method: GMM
3. Estimation of Demand and Supply for Homogeneous Products in Oligopoly Markets
4. Estimation of Demand for Differentiated Products: Random Coefficient Models
5. Estimation of Demand and Supply for Differentiated Products in Oligopoly Markets: Nash Equilibrium
6. Estimation of Demand and Supply for Differentiated Products in Oligopoly Markets: Computational Issues
7. Applications
8. Two-Period Empirical Models: Moment Inequalities
9. Applications of Moment Inequalities: Revealed Preference Methods
10. Estimation of Production Functions: Simultaneity and Selection
11. Production Functions: 2-Step Estimators/Control Functions
12. Extensions to Production Function Estimators
References

* Indicates required reading

1. Introduction to Structural Models - Early Models in IO
   - * Notes for Grad IO

2. Estimation Method: GMM
     Sections: 1, 2.1, 2.2, 2.5, 3.1, 3.3, 4.1, 4.3

Only Chapters 2, 3, and 6.


**Only Section 1.**
Available at http://www.stanford.edu/~lanierb/research/tools8l-6-8.pdf


4. Estimation of demand and supply functions: Nash Equilibrium


5. Estimation of demand and supply of differentiated products: Computational Issues

6. **Nonparametric Identification of Simultaneous Equations**


7. **Applications**

- **Merger Analysis:**

- **New Product:**

- **Advertising:**

- **Environmental Policy:**

- **Vertical Contracting:**

- **Media Bias:**

- **Asymmetric Information and Insurance:**

- **Trade:**

- **Residential Sorting:**
School Choice:

8. Two Period Empirical Models: Moment Inequalities

9. Applications of Moment Inequalities: Revealed Preference Methods


10. Estimation of Production Functions: Simultaneity and Endogenous firm exit

• * [ABBA], Section 2.


11. Production Function : 2-Step Estimator/Control Function


12. Extensions to Production Function Estimators