Northeastern University **Fall 2022**

Econ 7772: Empirical Industrial Organization

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Lectures: T and F, 9:50-11:30 am

Course overview:

This is a graduate course on modern models and tools of empirical Industrial Organization. It includes demand analysis; production and cost function estimation; models of market competition and market power; entry, exit, mergers and market structure; and dynamic models. Subjects will start with theory, but the main focus is practical. Ideally, students should end by being able to estimate elementary models of each type covered in class. Examples with real data bases will be provided, and students are encouraged to gather and develop their own data. The aim of the course is preparing the PhD students for the developement of their own research in the area of industrial organization and the economic policy designed to address the negative effecs of imperfect competition.

Details:

Ths Syllabus makes implicitly a selection of subjects, but a further selection will be needed at the beginning of the couse so that the chosen subjects can be covered with some detail.

Subjects will be delivered as lectures, but there will be sessions of dicussion and presentations on the topics of each subject.

Stata or similar software will be useful, but students should be ready to work with either Gauss, Mathlab, R or Python.

Course requirements and evaluation:

There will be several Problem sets that should be handled in before they are briefly discussed in class. Students must complete the assigned estimation exercises and write a short report commenting on the results (probably 3 exercises). Students will choose a paper of their preference among the topics of each subject, and present it in class using their own slides (probably 3 presentations). Grading will be based on the completion of the problems, the work on the empirical exercises, and the student presentations.

Outline

A few background topics will be introduced at different moments of the course. Three of these topics are:

GMM estimation

Contractions

Semiparametric regression

1. Demand Analysis

Uses of demand.

A summary of classical theory.

Demand, products and characteristics.

The basic discrete choice models: Logit and Nested logit.

Estimation of the basic discrete-choice models.

More consumer heterogeneity. Vertical vs horizontal differentiation.

The random coefficients model. BLP.

Estimation of random coefficients models.

Measuring consumer welfare.

New products.

Topics on demand analysis: Geography, Products, Information and selection, Advertising.

2. Production and cost functions

Uses of production functions.

Unobserved efficiency, simultaneity and selection. Measurement.

Traditional approaches to estimation: Fixed effects, IV models.

The Blundell and Bond model.

The structural approach to estimating production functions: Olley and Pakes.

Proxying for the unobservable (LP, ACF, Wooldridge, GNR)

Discussion: "collinearity", parametrics and nonparametrics, scalar unobservable.

Comparing results under different approaches.

Hicks-neutral productivity, endogenous productivity.

Multidimensional productivity: biased technical change.

Topics in production and cost functions: Firm-level prices, Demand heterogeneity, Input heterogeneity, Utilization, Markups and monopsony markdowns.

3. Competition and market power

Modelling a market: demand, cost and behavior.

Monopoly pricing.

Static oligopoly: Cournot and Bertrand. Other equilibria.

Identification of price behavior.

Repeated games and Collusion.

4. Entry, exit, growth and market structure

Models of entry

Models of growth

Endogenous equilibrium outcomes: sunk costs, location, type.

5. Collusion, mergers and antitrust issues.

Collusion and antitrust policy.

Mergers: Unilateral and coordinated effects.

Mergers and antitrust policy.

Vertical mergers.

6. Dynamic models

Single agent models.

Example: Rust discrete choice model.

Example: dynamics of R&D choices.

Esimation of discrete choice dynamic models.

Multiple agent dynamics.

Example: entry and exit.

Estimation of a model of entry and exit.

References

General articles and background books

Theory:

Anderson, S., A. de Palma and J. Thisse (1992), Discrete choice theory of product differentiation, MIT Press.

Belleflame, P. and M. Peitz (2010), Industrial Organization: Markets and strategies, Cambridge University Press.

Tirole, J. (1989), The theory of Industrial Organization, MIT Press.

Martin, S. (2002), Advanced Industrial Economics, Blackwell Publishers.

Empirical examples, regulation and policy:

Carlton, D. and D. Perloff (2005), Modern Industrial Organization, Pearson.

Viscusi, K., J. Harrington and D. Sappington (2018), The Economics of Regulation and Antitrust, 5th ed., MIT Press.

Econometrics:

Wooldridge, J.M. (2010), Econometric Analysis of cross section and panel data. MIT Press.

Overviews:

Aguirregabiria, A. (2018), Empirical Industrial Organization: Models, Methods and Applications, Academia.

Ackerberg,D., L. Benkard, S. Berry, and A. Pakes (2007), Econometric tools for analyzing market outcomes, in Handbook of Econometrics, vol. 6A, Chapter 63, North-Holland.

Armstrong, M. and R. Porter (2007), Handbook of Industrial Organization, vol. 3, North-Holland.

Ho, K., A. Hortacsu and A. Lizzeri (2021), Handbook of Industrial Organization, vols. 4 and 5, North-Holland.

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Demand analysis

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Bresnahan, T. F. (1987), "Competition and collusion in the American automobile industry: The 1955 price war," Journal of Industrial Economics, 35, 4, 457-482.

Conlon, C. and J. Gortmaker (2020), "Best practices for differentiated products. Demand estimation with pyBLP," The Rand Journal of Economics, 1108-1161.

Deaton, A. and J. Muellbauer (1980), Economics and consumer behavior, Cambridge University Press.

Goldberg, P. (1995), "Product differentiation and oligopoly in international markets: The case of US automobile industry," Econometrica, 891-951.

Goolsbee, A. and A. Petrin (2004), "The consumer gains from direct broadcast satellites and the competition with cable TV," Econometrica, 72, 351-381.

Hausman, J. (1996), "Valuation of new goods under perfect and imperfect competition", en Bresnahan T.F. y R. Gordon, eds., The Economics of New Goods, Studies in Income and Wealth 58, NBER.

Hausman, J., G. Leonard and D. Zona (1994), "Competitive analysis with differentiated products," Annales d'Economie et de Statistique, 34,159-180.

Moral, M.J. and J. Jaumandreu (2007), "Automobile demand, model cycle and age effects," with M.Moral, Spanish Economic Review, 9, 193-218.

Nevo, A. (2000), "A practitioner's guide to estimation of random coefficient logit models of demand," Journal of Economics and management Strategy, 513-548.

Nevo, A. (2001), "Measuring market power in the ready-to-eat cereal industry," Econometrica, 69, 307-342.

Nevo, A. (2003), "New products, quality changes and welfare measures computed from estimated demand systems," Review of Economics and Statistics, 266-275.

Petrin, A. (2002), "Quantifying the benefits of new products: the case of the minivan," Journal of Political Economy, 110, 705-729.

Topics in demand analysis

Ackerberg, D. (2003), "Adevertising, learning, and consumer choice in experience goods market: An empirical examination," International Economic Review, 44, 1007-1040.

Crawford, G., N. Pavanini and F. Schivardi (2018), "Asymmetric information and imperfect competition in lending markets," American Economic Review, 1659-1701.

Crawford, G. and M. Shun, "Uncertaninty and learning in pharmaceutical demand," Econometrica, 1137-1173.

Crawford, G and A. Yurukoglu (2012), "The welfare effects of bundling in multi-channel television products," American Economic Review, 102, 643-685.

Fan, Y. (2013), "Ownership consolidation and product characteristics: A study of the US daily newspaper market," American Economic Review, 103, 1598-1628.

Gentzkow, M. (2007), "Valuing new goods in a model with complementarity: Online newspapers," Ameican Economic Review, 97, 713-744.

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Jacobi, L. and M. Goeree (2016), "Marijuana on main street? Estimating demand in markets with limited access," American Economic Review, 2009-2045.

Pinkse, J., Slade, M. and Brett, C. (2002), "Spatial price competition: a semiparametric approach," Econometrica, 70, 1111-1153.

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Trajtemberg, M. "The welfare analysis of product innovations, with an application to computed tomography scanners," Journal of Political Economy, 444-479.

Production and cost functions

Ackerberg, D., K. Caves and G. Frazer (2006), "Structural identification of production functions," Econometrica, 83, 2411-2451.

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Bond, S., A. Hashemi, G. Kaplan and P.Zoch (2021), "Some unpleasant markup arithmetic: production function elasticities and their estimation from production data," Journal of Monetary Economics, 121, 1-14.

Bond, S. y M.Soderbom (2004), "Adjustment costs and the identification of Cobb Douglas production functions," mimeo, IFS.

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Doraszelski, U. and J. Jaumandreu (2013), "R&D and productivity: estimating endogenous productivity," Review of Economic Studies, 80, 1338-1383.

Doraszelski, U. and J Jaumandreu (2018), "Measuring the bias of technological change," Journal of Political Economy, 126, 1027-1084.

Gandhi, A., S. Navarro and D. Rivers (2020), "On the identification of gross output production functions," Journal of Political Economy, 128, 2973-3016.

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Levinsohn, J. y A. Petrin, “Estimating Production functions using inputs to control for unobservables,” Review of Economic Studies, 70, 317-341.

Mairesse, J. and J. Jaumandreu (2005), “Panel data estimates of the production function and the revenue function. What difference does it make?” Scandinavian Journal of Economics, 107, 651-672.

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Wooldridge, J.M. (2009), “On estimating firm-level production functions using proxy variables to control for unobservables,” Economic Letters, 104, 112-114.

Topics in production and cost functions

Chan, M., S. salgado, F, Warzynski and M. Xu (2022), "Firm productivity and labor quality," mimeo, Queens University.

De Loecker, J. and F. Warzynski (2012), "Markups and firm-level export status," American Economic Review, 102, 2437-71.

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Foster, L., J. Haltiwanger and C. Syverson (2008), "Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability?," American Economic Review, 98, 394-495.

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Yeh, C., C. Macaluso and B. Hershbein (2022), "Monopsony in the US labor market," American Economic Review, 112, 2099-2138.

Competition and market power

Ashenfelter, O. and D. Sullivan (1987), "Non parametric tests of market structure: An application to the cigarette industry," Joournal of Industrial Economics, 483-98.

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Entry, exit, growth and market structure

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Asker, J. and V. Nocke (2021), "Collusion, mergers, and related antitrust issues," Handbook of IO 5, Chapter 12.

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Dynamic models

Aguirregabiria, V. (2010), "Dynamic discrete choice structural models: A survey," Journal of Econometrics, 38-67.

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