EC 607 – Seminar in Industrial Organization

Structural Methods and Applications in Microeconomics and Industrial Organization

Sample Syllabus

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Course Description:

The field of industrial organization (IO) focuses on the structure of the firm and interactions between and among firms and markets. Primary questions include the determinants of demand, the allocation of resources to heterogeneously productive ends, and strategic interactions among agents, all in a context of imperfect competition. Over the past 20 years, the field has been transformed by the introduction of computationally tractable structural models – models in which restrictive assumptions are made about the primitives of the market participants and the form of their interaction. While the assumptions are, at times, strong, they have allowed the field to make significant progress on empirical questions and more precisely understand the impact of alternative policies through the practice of counterfactual simulations and exercises. As a result, IO specialists play a key role in determining policy in many domains.

As an advanced graduate field seminar, this course is designed to fuel the transformation of graduate students into practitioners. This is done in three ways: First (and foremost) by immersing students in the literature, starting with formative work in the field – both theoretical and empirical – and progressing to the cutting edge. Students will practice learning-by-doing and work with each other to reproduce several classic results. Second, students will critique the work of others in the field by writing reports on current working papers, and develop their presentation skills by discussing important applied work. Finally, students will generate proposals for future work in the field with an eye toward the third year paper requirement of the PhD program.

Prerequisites:

Economics PhD students must have completed the CORE requirements of the PhD program. Masters students must have taken the 9 CORE classes and demonstrated competency in econometrics. Other students are encouraged to contact me to discuss their suitability for the course.

Course Materials:

All materials will be available electronically via Canvas. I will post papers.

Office Policy:

I have scheduled office hours on Mondays and Wednesdays from 8:45 AM – 9:45 AM. As I am teaching a section of Principles (EC 201) this term, graduate students should expect the possibility of heavy demand during certain weeks of the term during my formal office hours.

I am happy to chat immediately before class or schedule appointments via e-mail (I teach Principles immediately after this class).

Assignments:

Readings

Papers and book chapters will be posted on Canvas. Students are expected to read posted material before the next class.

Problem Sets

The course will have a number of problem sets. Each problem set will consist of theoretical and practical questions regarding the material we have recently covered. Students are encouraged to work together on problem sets, but must submit their own work and identify their discussion partners.

Programming

There will be programming assignments during the term. These assignments will ask you to implement selected methodologies discussed in class and reproduce major results. To replicate real-world research conditions, students may complete programming assignments in groups of three (or fewer). However, each group must identify a "lead coder" for each assignment (i.e. the person actually writing the code) and each student must be identified as "lead coder" at least once during the term.[1]

Students will submit their results and code as a group, and will be graded on their ability to replicate published results as well as the quality of their code (measured subjectively, but with the general rubric of "can I understand what is going on?").

Students may write code in any non-esoteric[2] programming language. I recommend Julia, Python, or R. Less recommended are Stata/Mata, Matlab, and C/C++. Students who choose to write in other languages should take extra-care to ensure the comments accompanying their code are sufficient to enable a non-user of the language to understand their work.

Paper Presentation

In addition to theoretical and methods papers, the IO literature maintains a strong tradition of applied work. Each student shall prepare a 15 minute presentation discussing one of these papers for delivery to the class during the term. I will provide a list of possibilities and time slots, though students may suggest others. Students will be graded in part on their ability to distill the work to key points in a way that allows their colleagues to understand the contribution and impact of the work.

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[1] The intent here is to allow students with a less sophisticated background in programming to learn-by-doing with the assistance of their colleagues.

[2] If you do not know what esoteric programming languages are, you probably don't need to worry. Talk to me if you are concerned about the suitability of your choice of language.

Referee Report

In the second half of the course, students will be assigned a working paper and will be asked to complete a referee report – a short (2 pages) critical take on the work. Referee reports generally consist of three sections: first, a short summary of the work and its place in the field, second, an overall evaluation of its strengths, weaknesses, and contributions to the field, and third, a number of specific, constructive, criticisms of the work. Finally, a separate note is often written to the editor to provide a publication recommendation. Students will be graded on their ability to provide constructive feedback.

Final Project Proposal and Presentation

In lieu of a traditional examination, students will write a short (1-2 pages) proposal for new research. Proposals will include the motivation for the research, a clearly stated research question, a short summary of the related literature, an explanation of the potential contribution, data requirements (if any) and a plan for executing the project. Proposals will be graded on (in somewhat descending order of importance) clarity, practicality, and novelty. In particular, the size of the potential contribution is not important – but students should not merely propose a replication of previous work.

Students will also prepare a short oral presentation (approximately 10 minutes) to accompany their proposal. Presentations will be delivered in front of the class during the assigned examination period, with order determined randomly. Presenters should be prepared to take questions from the audience. Presentations will be graded on clarity and delivery of both verbal remarks and slides, as well as their skill in handling questions.

Grading

Grades will be weighted as follows: 20% problem sets, 20% programming assignments, 15% paper presentation, 15% referee report, 15% project proposal, 15% project presentation

Academic Dishonesty

Academic dishonesty (such as plagiarizing work or cheating on exams) is completely unacceptable and violates the Student Conduct Code. If I have reason to believe a student is violating the Student Conduct Code, I will inform the Student Judicial Affairs Office immediately. Additionally, the student in question will receive a score of zero on the assignment.

Accessibility

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of this course that result in disability related barriers to your participation. For more information or assistance, you are also encouraged to contact the Accessible Education Center, 164 Oregon Hall, 346-1155; website: http://aec.uoregon.edu/

Tentative Schedule and Reading Materials

The list of papers below is designed to be highly correlated with the list of papers we cover in class and I assign for outside reading. However, the correlation coefficient is likely to be somewhat less than 1. In

particular, this list was compiled for the spring term of the 2015-2016 academic year. I will be modifying the content somewhat based on the lessons from subsequent terms.

1. Introduction / Review

Rust, J. (1987). Optimal replacement of GMC bus engines: An empirical model of Harold Zurcher. *Econometrica: Journal of the Econometric Society*, 999-1033.

Hayashi, F. (2000) Econometrics. *Princeton University Press, Princeton NJ*

Deaton, A., & Muellbauer, J. (1980). An almost ideal demand system. *The American economic review*, *70*(3), 312-326.

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

Porter, R. H. (1983). A study of cartel stability: the Joint Executive Committee, 1880-1886. *The Bell Journal of Economics*, 301-314.

Ellison, G. (1994). Theories of cartel stability and the joint executive committee. *The Rand journal of economics*, 37-57.

2. Demand

Berry, S. T. (1994). Estimating discrete-choice models of product differentiation. *The RAND Journal of Economics*, 242-262.

Berry, S., Levinsohn, J., & Pakes, A. (1995). Automobile prices in market equilibrium. *Econometrica: Journal of the Econometric Society*, 841-890.

Berry, S., Levinsohn, J., & Pakes, A. (2004). Differentiated Products Demand Systems from a Combination of Micro and Macro Data: The New Car Market.*Journal of Political Economy*, *112*(1), 68-105.

Goolsbee, A., & Petrin, A. (2004). The consumer gains from direct broadcast satellites and the competition with cable TV. *Econometrica*, *72*(2), 351-381.

Petrin, A. (2002). Quantifying the Benefits of New Products: The Case of the Minivan. *Journal of Political Economy*, *110*(4), 705-729.

Goeree, M. S. (2008). Limited information and advertising in the US personal computer industry. *Econometrica*, *76*(5), 1017-1074.

Berry, S., Gandhi, A., & Haile, P. (2013). Connected substitutes and invertibility of demand. *Econometrica*, *81*(5), 2087-2111.

Berry, S. T., & Haile, P. A. (2014). Identification in differentiated products markets using market level data. *Econometrica*, *82*(5), 1749-1797.

Bento, A. M., Goulder, L. H., Jacobsen, M. R., & Von Haefen, R. H. (2009). Distributional and efficiency impacts of increased US gasoline taxes. *The American Economic Review*, 667-699.

Miller, K. S., Petrin, A., Town, R., Chernew, M. (2016) The costs and benefits of varying the Medicare Advantage reimbursement rate. *Working Paper*

Gandhi, A., Lu, Z., & Shi, X. (2013). Estimating Demand for Differentiated Products with Error in Market Shares. *Working Paper*

Nevo, Aviv and Turner, John L. and Williams, Jonathan W., Usage-Based Pricing and Demand for Residential Broadband (October 2015). *Econometrica, Forthcoming*.

3. Dynamic Oligopoly

Aguirregabiria, V., & Mira, P. (2007). Sequential estimation of dynamic discrete games. *Econometrica*, *75*(1), 1-53.

Aguirregabiria, V., & Ho, C. Y. (2012). A dynamic oligopoly game of the US airline industry: Estimation and policy experiments. *Journal of Econometrics*,*168*(1), 156-173.

Borkovsky, R. N., Ellickson, P. B., Gordon, B. R., Aguirregabiria, V., Gardete, P., Grieco, P., ... & Sweeting, A. (2015). Multiplicity of equilibria and information structures in empirical games: challenges and prospects.*Marketing Letters*, *26*(2), 115-125.

Bajari, P., Benkard, C. L., & Levin, J. (2007). Estimating dynamic models of imperfect competition. *Econometrica*, *75*(5), 1331-1370.

Doraszelski, U., & Pakes, A. (2007). A framework for applied dynamic analysis in IO. *Handbook of industrial organization*, *3*, 1887-1966.

Doraszelski, U., & Judd, K. L. (2012). Avoiding the curse of dimensionality in dynamic stochastic games. *Quantitative Economics*, *3*(1), 53-93.

Ericson, R., & Pakes, A. (1995). Markov-perfect industry dynamics: A framework for empirical work. *The Review of Economic Studies*, *62*(1), 53-82.

Fershtman, C., & Pakes, A. (2012). Dynamic games with asymmetric information: A framework for empirical work*. *The Quarterly Journal of Economics*, qjs025.

Pakes, A., & McGuire, P. (2001). Stochastic algorithms, symmetric Markov perfect equilibrium, and the 'curse'of dimensionality. *Econometrica*, *69*(5), 1261-1281.

Pakes, A., Porter, J., Ho, K., & Ishii, J. (2015). Moment inequalities and their application. *Econometrica*, *83*(1), 315-334.

Pakes, A., Ostrovsky, M., & Berry, S. (2007). Simple estimators for the parameters of discrete dynamic games (with entry/exit examples). *The RAND Journal of Economics*, *38*(2), 373-399.

Seim, K. (2006). An empirical model of firm entry with endogenous product-type choices. *The RAND Journal of Economics*, *37*(3), 619-640.

Weintraub, G. Y., Benkard, C. L., & Van Roy, B. (2008). Markov perfect industry dynamics with many firms. *Econometrica*, *76*(6), 1375-1411.

Weintraub, G. Y., Benkard, C. L., & Van Roy, B. (2010). Computational methods for oblivious equilibrium. *Operations research*, *58*(4-part-2), 1247-1265.

Weintraub, G. Y., Benkard, C. L., Jeziorski, P., & Van Roy, B. (2008). Nonstationary Oblivious Equilibrium. *Manuscript, Columbia University*, 1375-1411.

4. Spatial Competition and Equilibrium

Adams, B. & Williams, K. (2014) Zone Pricing and Spatial Menu Costs: Evidence from Drywall. *Working Paper*

Matsa, D. A. (2011). Competition and Product Quality in the Supermarket Industry*. *Quarterly Journal of Economics*, *126*(3).

Ho, K., & Ishii, J. (2011). Location and competition in retail banking. *International Journal of Industrial Organization*, *29*(5), 537-546.

Houde, J. F. (2012). Spatial differentiation and vertical mergers in retail markets for gasoline. *The American Economic Review*, 2147-2182.

Miller, N. H., & Osborne, M. (2014). Spatial differentiation and price discrimination in the cement industry: evidence from a structural model. *The RAND Journal of Economics*, *45*(2), 221-247.

Holmes, T. J. (2011). The Diffusion of Wal-Mart and Economies of Density.*Econometrica*, *79*(1), 253-302.

Quan, T. W. & Williams, K. (2015) Product variety, across-market demand heterogeneity, and the value of online retail. *Working Paper*

5. Competition in Health Markets

Aizawa, N., & Kim, Y. S. (2015) Advertising and Risk Selection in Health Insurance Markets. R&R at *American Economic Review*

Cohen, A., & Einav, L. (2007). Estimating Risk Preferences from Deductible Choice. *The American Economic Review*, *97*(3), 745-788.

Fang, H., Keane, M. P., & Silverman, D. (2008). Sources of Advantageous Selection: Evidence from the Medigap Insurance Market. *Journal of Political Economy*, *116*(2), 303-350.

Finkelstein, A., & McGarry, K. (2006). Multiple dimensions of private information: evidence from the long-term care insurance market. *American Economic Review*, *96*(4), 938-958.

Gowrisankaran, G., Nevo, A., & Town, R. (2013). *Mergers when prices are negotiated: Evidence from the hospital industry* (No. w18875). National Bureau of Economic Research.

Ho, K. (2009). Insurer-Provider Networks in the Medical Care Market.*American Economic Review*, *99*(1), 393-430.

Ho, K., & Lee, R. S. (2013). Insurer competition and negotiated hospital prices. *NBER Working Paper Series*, 19401.

Ho, K., & Pakes, A. (2014). Hospital Choices, Hospital Prices, and Financial Incentives to Physicians. *THE AMERICAN ECONOMIC REVIEW*, *104*(12), 3841-3884.

Ericson, K. M. M., & Starc, A. (2015). Pricing regulation and imperfect competition on the Massachusetts health insurance exchange. *Review of Economics and Statistics*, *97*(3), 667-682.

Miller, K. (2016) Do private Medicare firms face lower costs? *Working Paper*