Strategy I: Econometric tools for strategy research
B30.4301.20

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Time: Friday 14:00 to 17:00 in 7-191.

This course is intended to develop the toolbox of PhD students intending to pursue research in strategy (or other business related fields). It focuses on the set of tools that are provided by the discipline of economics, hence a focus on models of oligopoly and contract theory, and a focus on empirical tools such as the measurement and identification of treatment effects and basic econometrics.

In the core strategy course that you took in the fall, you should have formed a strong sense of what research in Strategy involves at a meta-level. That is, you should have a sense of an answer to the questions 'What is Strategy?', 'What does research in Strategy mean?' and 'What is an interesting question to ask in my research?'. We won't spend much time at all delving into these issues (that said, you should be mulling over them almost continually).

Instead, this course is about tools that are useful for the execution of the research spurred by your answers to these questions. The tools covered in this course will be drawn from the field of economics. Hence, this will feel like a applied micro course most of the time. As a result it will likely also be useful to people looking at doing research Industrial Organization, Labor Relations, Marketing, Empirical Corporate Finance, Empirical Accounting and other areas of business related research when field data needs to be interrogated and interpreted.

We will cover some areas of micro theory that are important for understanding firm behaviour. This will cover the first 4 weeks of the course. We will assume you have done a micro course at the PhD level before, and that this course covered basic game theory and demand and supply (price theory). Bits of these four weeks will likely feel like revision, but it is good to go over this stuff from an applied perspective anyway.

Following that we will think about how to use data to understand the world. Economics has been quite successful at developing ways to infer stuff from data. The field of econometrics combines ideas from economic theory models and statistical methods in a way that gives a very powerful approach to inference when confronting data that are contaminated by market forces (ie. when the data comes from a market interaction rather than a lab or field experiment).

In the language of econometrics we will be looking at reduced form micro-econometrics with particular attention on issues of identification, both theoretical and in application. To do this well, you need to understand econometric technique, theory and how to mesh the two together and it is an appreciation of this meshing process that is our ultimate goal for the course.

Increasingly, applied work lives or dies on how compelling the identification strategy is, and the art of constructing a good identification strategy in data work is important to being a good applied researcher.

Lastly, go to at least one seminar a week. If you don't, you are wasting your time at grad school.

1 Assessment

Three problem sets: One theory and two empirical.

PS 1: Theoretical problem set - cull from text books. 30%

PS 2: Empirical problem set 1 30%

PS 3: Empirical problem set 2 30%

In class participation will count for an additional 10%. Participation means reading the assigned papers and thinking about them. You lose 1% every time you have to admit that you didn't read the paper being discussed. Occasionally we will ask you to present papers. This will be good practice for you so you should be eager to do this. good presentation skills are critical to a successful career.

2 Recommended Books

- B. Salanie: A Primer on Contract Theory.

- An Econometrics Textbook (Woodford [Econometric Analysis of Cross Section and Panel Data] for details of specific approaches and Hayashi [Econometrics] for general approach, we assume you already own a copy of Bill Greene's book).

- Fudenberg and Tirole: Game Theory (good for more detail on some theory stuff)

- Tirole: The Theory of Industrial Organization (classic textbook statement of IO theory (up to 1990))

- Williamson: The Economic Institutions of Capitalism (easy reading and full of cool ideas about what determines the structure of firms and inter-firm interactions, touches on a lot of stuff we will talk about, from a slightly different perspective)

Topics and reading by week

Week 1: Review of non-cooperative game theory approaches to basic industry models

[29th of January] JOHN

Solution concepts; Cournot; Bertrand; Stakleberg; Product Differentiation; HHI; other stuff

Reading: Lecture Notes supplemented by Tirole; Oz Shy (aka baby Tirole); Mas-Collel, Whinston and Green; Fudenberg and Tirole

Week 2: Theory of the firm and organisations I: The moral hazard model

[5th of February] ALLAN

- Basic Model with a few extensions

- The first-order approach.

Reading: Salanie Ch 5,

Week 3: Theory of the firm and organisations II: The adverse selection model

[12th of February] JOHN
Mussa-Rosen, extensions to regulation, auctions, lemons markets
Reading: Salanie

Week 4: Theory of the firm and organisations III: The incomplete contracts model and bargaining
[19th of February] JOHN
Property rights approach, Bargaining
Reading: Hart Ch 1,2 and 4, Salanie Ch 7, Binmore Ch 5

Week 5: Review of basic econometrics with focus on identification
[26th of February] JOHN
Conditional Expectations, Identification in a formal sense, Selection, Treatment and Simultaneity, GMM and MLE, OLS, Endogeniety, Working 1928, IV, 2SLS,
Reading: Manski (1995) 'Identification Problems in the Social Sciences', Hayashi Ch 1,2 and 3

Week 6: Natural experiments
[5th of March] ALLAN
Reading: Greenstone "Million Dollar Plants" and random bombing. Angrist and Pischke will be used as well.
I will cover about 1 hour on bootstrap as well. Kernel Density estimation as well as kernel regression.
*Greenstone, Moretti, and Foundation (????)

Week 7: Differences-in-difference methods for causal inference
[12th of March] ALLAN
Readings: Card and Kreuger, Leslie and Jin, Alex Mas JMP (resale data), Helena Smoking. *Woolridge and Imbens chapter 11.
Bertrand, M., E. Duflo, and S. Mullainathan (2004), "How Much Should We Trust Differences- in-Differences Estimates?", Quarterly Journal of Economics, February, 119(1): 249-275.

Week 8: Propensity score matching
[26th of March] JOHN
Readings: De Loecker slovenian productivty jie
Maybe Collard-Wexler and Chandra in JEMS as well?

Week 9: Regression discontinuity
[2th of April] ALLAN
Readings: Angrist and Lavy, Sandra Black Lee, David, ÒRandomized Experiments from Non-random Selection in U.S. House Elections,Ó Journal of Econometrics, 2008, 142:2, 675-697. *Woolridge and Imbens chapter 12.

Week 10: Parametric approaches: Probits and count data
[9th of April] JOHN
Reading: Mas and Kreuger , Goolsbee and Syverson

Week 11: Panel data, time series and correlation of observations
[16th of April] ALLAN

Fixed Effects, Serially Correlation of observations, clustering standard errors.
Reading: Lanier AER, Catherine Tucker, find a panel data paper and clustering
*Woolridge and Imbens chapter 11.

Week 12: Quantile and median regression
[23th of April] JOHN
Reading: Goldberg 'Price Discrimination'

Week 13: Drawing inference from raw data and careful observation
[30th of April] JOHN
Reading: Joskow coal mines and Mulin and Mullin sugar cartel Sargent, Shepard, and Glantz (2004)
Angrist and Lavy (1999) Brandenburger and Stuart (1996) Loecker (2007) DellaVigna and Kaplan (2007)
Lyall (2009)

References

ANGRIST, J., AND V. LAVY (1999): "Using Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement," *The Quarterly Journal of Economics*, 114(2), 533–575.

BRANDENBURGER, A., AND H. STUART (1996): "Value-based business strategy," *Journal of Economics and Management Strategy*, 5, 5–24.

DELLAVIGNA, S., AND E. KAPLAN (2007): "The Fox News Effect: Media Bias and Voting*," *The Quarterly Journal of Economics*, 122(3), 1187–1234.

GREENSTONE, M., E. MORETTI, AND A. FOUNDATION (????): "Bidding for Industrial Plants: Does Winning a'Million Dollar Plant'Increase Welfare?," .

LOECKER, J. D. (2007): "Do exports generate higher productivity? Evidence from Slovenia," *Journal of International Economics*, 73(1), 69–98.

LYALL, J. (2009): "Does Indiscriminate Violence Incite Insurgent Attacks?: Evidence from Chechnya," *Journal of Conflict Resolution*, 53(3), 331–362.

SARGENT, R. P., R. M. SHEPARD, AND S. A. GLANTZ (2004): "Reduced incidence of admissions for myocardial infarction associated with public smoking ban: before and after study," *BMJ*, 328(7446), 977–80.