

Course Introduction

Peter W. Newberry

ECON 8210: Grad IO

Fall 2025

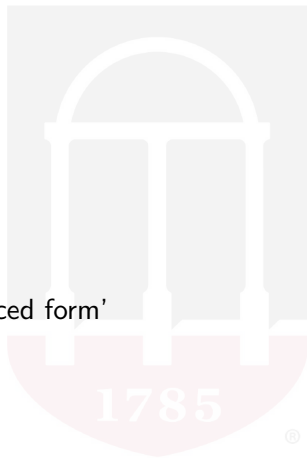


Terry College of Business
Department of Economics
UNIVERSITY OF GEORGIA

Agenda

This slide deck:

- Introductions.
- What is IO?
- History of the field.
- 'Structural' v 'reduced form'
- Course details.



A Little Bit about Me

- 6th year at UGA.
- Education/work:
 - Undergrad: Colby College
 - RA: Federal Trade Commission
 - Grad: Wisconsin
 - First Job: Penn State
- My research:
 - Online markets: competition, information.
 - Franchising: regulation, antitrust.
 - Economics of retail: pricing, location.

IO Defined

Industrial organization is concerned with the workings of markets and industries, in particular the way firms compete with each other.

-Introduction to Industrial Organization, Cabral.

High-level questions:

- 1 What is the level of competition? Is there market power?
- 2 What level of competition is “optimal”? What are the implications of market power?
- 3 What is the role of government policy to encourage optimal markets?

SCP Paradigm

1. Early work by Bain introduced the Structure-Conduct-Performance (Harvard) paradigm (1940-1960):

Structure \rightarrow *Conduct* \rightarrow *Performance*

- Structure (i.e., number of sellers, buyers, entry barriers \rightarrow concentration) determines conduct (i.e., how firms behave).
- Conduct determines performance (i.e., prices, markups, efficiency).
- So can “identify” conduct by the relationship between performance and structure.

Example: in the Cournot model, there is a direct relationship between mark-ups (performance) and concentration (structure).

$$\mu \equiv \frac{p - c}{p} = \frac{HHI}{\underbrace{\eta}_{\text{demand elasticity}}}$$

Question: does relationship in *data* look like 4-firm Cournot?

Empirical Work

Attempt to verify this model, or 'measure' conduct, with a cross-industry OLS regression:

$$\ln(\mu_j) = \alpha_0 + \alpha_1 HHI_j + \varepsilon_j$$

or

$$\ln(\mu_j) = \alpha_0 + \alpha_1 \ln(HHI_j) + \alpha_2 \ln(\eta_j) + \varepsilon_j$$

$\alpha_1 > 0$: argued that high concentration caused high prices which led to anti-trust legislation.

Problems:

- Data: how to find price-cost margins?
- Simultaneity - What causes variation in structure across industries?
 - Assumes structure is exogenous (correlation = causation).
 - Assumes away important differences between industries.
- Interpretation - What does a high α_1 really mean in terms of a model? How high is too high?

New (as of 1980) Empirical IO

Move away from cross-industry studies to model specific industries:

- Data: do not assume you can observe price cost margins, instead estimate them from observed data (prices and quantities).
- Simultaneity: Study a specific industry, use cross-section or time series variation from (hopefully) plausibly exogenous sources.
- Interpretation: Conduct is an explicit parameter (or object) to be estimated.

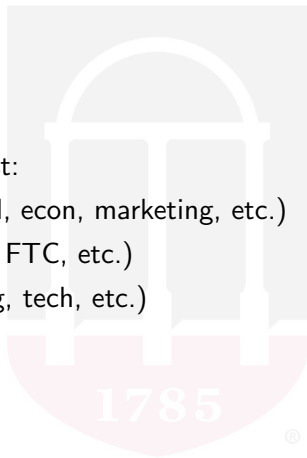
Back to Cournot example:

- Can derive the relationship between concentration (HHI) and mark-ups directly from the estimates of demand elasticities and costs.
- Allows us to answer the other questions of interest:
 - What are the implications of market power?
 - What is the role of government intervention?

What can we do with IO?

Jobs for an IO economist:

- Academia (b-school, econ, marketing, etc.)
- Government (DOJ, FTC, etc.)
- Industry (consulting, tech, etc.)



Antitrust in Practice

Sherman Act (1890):

- Outlaws “every monopolization, attempted monopolization, or conspiracy or combination to monopolize.” (e.g., Google case)
- Outlaws “contract, combination, or conspiracy in restraint of trade.” (e.g., NCAA case)
- Supreme Court decided that it does not prohibit every restraint of trade, only those that are unreasonable (ie, have big effects).

Clayton Act (1914):

- Amends Sherman Act to address specific practices.
- Prohibits mergers and acquisitions where the effect “may be substantially to lessen competition, or to tend to create a monopoly.”
- Bans certain discriminatory prices, services, and allowances in dealings between merchants (Robinson-Patman, 1936).
- Firms required to notify gov’t of large mergers or acquisitions (Hart-Scott-Rodino, 1976).

Antitrust in Practice

Federal Trade Commission Act (1914):

- Established the Federal Trade Commission (FTC) – a government entity to regulate questionable business practices.
- The FTC is empowered to
 - prevent unfair methods of competition, and unfair or deceptive acts or practices in or affecting commerce;
 - seek monetary redress and other relief for conduct injurious to consumers;
 - prescribe trade regulation rules defining with specificity acts or practices that are unfair or deceptive, and establishing requirements designed to prevent such acts or practices;
 - conduct investigations relating to the organization, business, practices, and management of entities engaged in commerce; and
 - make reports and legislative recommendations to Congress.

Regimes of Antitrust Enforcement

Harvard School (Structure-Conduct-Performance era) (1950-1960s):

- Interventionist approach.
- Viewed market power skeptically, no matter how it was obtained (e.g., natural monopoly).

Chicago School (1960-1980s):

- Markets work (self-correct).
- Monopoly is more often alleged than confirmed; when it exists, it is often transitory due to entry or threat of entry.
- “Efficiency” (e.g., scale) important: intervention usually interferes.
- More laissez-faire approach: big not necessarily bad.
- → focused on more explicit actions that impact prices (price-fixing)
- Consumer welfare standard (high prices bad, all else equal).

Regimes of Antitrust Enforcement

'New' IO (1980-2010s):

- Efficiency/prices still the focus.
- Concerns about acquisitions and market power more important.
- Use of game theory/modeling to understand effects of market power.

New Brandeisian (2010-2020s):

- Big is bad.
- Consider effects on labor market, inequality, etc.
- New legislation: go after tech companies.

IO is a 'structural' field(?)

Maybe heard at the water cooler:

- Empirical IO is a 'structural field' and labor is a 'reduced form' field.

What people usually mean:

- IO economists estimate an overly-complicated theoretical model that takes months to run, in order to run counterfactuals.
- Labor economists run regressions in order to determine the relationship between X and Y.

Structural estimation is more about 'what' we are trying to estimate rather than 'how' we estimate it.

IO is a 'structural' field(?)

In structural estimation, we are trying to estimate an object or parameter that is derived from a model

- That doesn't mean we actually have to write down the model: 'reduced form' analysis may or may not come from a model in the background.
- A lot of times, what some people call 'reduced-form' estimation, is actually estimation of a structural object.
 - I can run a 2SLS IV regression of Q on P (with cost instruments for price) in order to estimate the own-price elasticity of demand.
 - A model of demand/supply says that we can use supply shocks (instruments) in order to map out the demand curve.
 - I can also start from utility/profit maximization to derive demand/supply equations that lead to a mapping between market shares and price.
 - The difference lies in what we want to do with the estimates.
 - The first would allow us to see how much demand would change with a 1% increase in price, all else equal.
 - The second would allow us to analyze the welfare effects of a merger.

IO is a 'structural' field(?)

So the terms 'reduced-form' and 'structural' are being abused, IMO.

- Reduced form estimates are parameters/objects that don't have a structural interpretation.
- Structure-conduct-performance paradigm is a (poorly done) example of this.
 - A model says that concentration and mark-ups should be related.
 - But α_1 (the estimated relationship), has no meaning.

Another dichotomy: descriptive v model-based

- Descriptive is looking purely at relationships or covariation in the data.
- Model-based: see discussion above.

See notes by Haile on eLC for a better discussion of Structural v Reduced form and the recent paper by Mahoney (2022) for a discussion of descriptive v model based.

IO is a 'structural' field(?)

Point:

- IO (as a field) is 'structural', in that the goal is to estimate structural parameters in order to do counterfactuals.
- Many questions are answered by starting with a model, and estimating the primitives of that model via non-linear estimation.
- Though, not all questions require writing down and solving a (linear or non-linear) model.
- Also, descriptive analysis is important input into structural estimation:
 - What is the variation in the data that you are using to identify the structural model?

This Class

Two part class:

- This semester: yours truly.
- Spring: professor Thurk.

Schedule this fall:

- Static demand (6 weeks)
- Production functions (2 weeks)
- Extensions of static demand(5 weeks)

Nest semester: more static demand, dynamic demand, entry, machine learning.

Materials

No textbook for the course. Good resources:

- Tirole's "Theory of Industrial Organization" for all things IO theory.
- Einav and Levin (2010): "Empirical Industrial Organization: A Progress Report" for a general overview of the field.
- Lectures will be based on papers that you are expected to read before class.
 - If it becomes apparent that you aren't reading the papers ahead of time, we will start randomly having people summarize the paper at the begging of class.

Grading

Grading (equally weighted)

- Participation
 - Instructor will let you know ahead of time what paper(s) we are discussing that day. You are expected to have read those papers and ready to discuss them
- 3-4 empirical problem sets.
 - Can use whatever programming language you want.
 - You can work together but each person is expected to hand in their own code/results.
- 1 Presentation.
 - Indicate your preferences for topics and I will select a paper for you to present sometime during the semester.
 - If you have even more specific preferences, let us know.

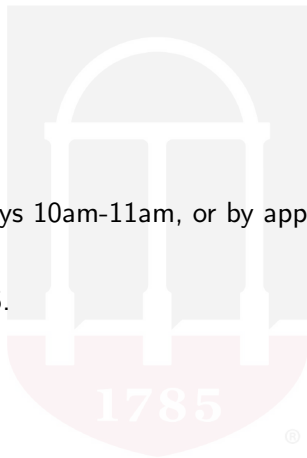
Ins and Outs

Office Hours

- Newberry: Thursdays 10am-11am, or by appointment.

Schedule notes:

- NO CLASS: Oct 15.



To Do list

Review concepts

- Game theory (e.g., best response, equilibrium, strategies).
- Producer theory (profit max, cost min, production function)

Get up to speed with your favorite coding language.

