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Office hrs: T 4-5, Tr 5-6  
& by appointment

## Industrial Organization: 4061 (U/G)

**The Subject.** Industrial Organization is the branch of microeconomics that studies the behavior of firms and performance of markets when the conditions of the perfectly competitive model don't apply. IO addresses very "real-world" issues, both positive (explaining various practices) and normative (devising public policy, such as antitrust or regulation). I will spend considerable time developing the relevant theory, but will provide examples from antitrust, regulation, and elsewhere.

Topics include: sources and welfare effects of market power; price discrimination and related practices such as tying; vertical control — contractual arrangements between firms at complementary stages (e.g. manufacturers / distributors); and models of oligopoly behavior with applications. I defer to my other course (Topics in Competition & Regulation) a deeper treatment of some core antitrust areas, such as mergers, exclusion, and cooperation among competitors.

**Course Requirements.** Intermediate micro is a prerequisite. Course Grade: mid-term exam (20%), final (40%), four exercises (20%), and a mock trial (20%). In exceptional cases, I will give credit for class participation. I will post more information about the mock trials. (We may not be able to fit all students into the trials. If not, then shortly after the Mid-Term: (a) I will request volunteers to skip the trial and shift their points (20%) to the Final or write a report on a trial. (b) if there are too few or too many volunteers, I will use a lottery.) Work on the exercises in groups but write your answers individually! Due dates:

Exercise 1	Friday, Sep 15 (5 pm)
Exercise 2	Friday, Oct 6 (5 pm)
<b>Mid-Term</b>	<b>Thursday, Oct 12 (Final: Saturday Dec 16, 9-11 am)</b>
Exercise 3	Friday, Nov 3 (5 pm)
Exercise 4	Friday, Nov 17 (5 pm)
Mock Trials	<i>Kodak Tr Nov. 16, Reverse Paym'ts T Nov. 21, Google T Nov. 28</i>

**Honor Code.** A student found to have violated the Georgetown Honor Code will receive a grade of F, and any penalties imposed by the Honor Council: <http://gervaseprograms.georgetown.edu/honor/> Mobile devices are *not allowed* during exams. **Instructional Continuity.** If in-person lectures are suspended due to Covid or other reasons, I will teach via Zoom on the same days & times.

**Readings.** All items listed on this syllabus are posted in Canvas (though most are optional). I will post handouts before each lecture. A useful (but optional) book is: J. Church and R. Ware, *Industrial Organization: A Strategic Approach*, Irwin/McGraw-Hill 2000 ("CW"). It's out of print but the authors have authorized free downloads for personal use. I posted a copy, and an errata sheet, on Canvas in the folder SYLLABUS & MISC. The book is long so consult only the pages referenced below in the syllabus.

NOTE: To print from CW, add 34 to page #s referenced in this syllabus, e.g. to print 19-25 select 53-59 (because first 34 pages in the pdf version of the book are Table of Contents, etc.).

\* on next pages denotes strongly recommended readings. Note: the exams are based *heavily* on the lectures, so be sure to attend them (and use the readings as a complement not a substitute!).

Approximate # of classes per topic is shown at right tab (e.g., Introduction is 1 class).

## **0 Introduction and Welfare Background (1)**

- \* CW, ch. 1 (Introduction to IO), pp. 3-16
- \* CW, ch. 2, pp. 19-29 (competitive model and welfare background)

## **1 Uniform Price Monopolist and Product Choice (6)**

### **1.1 Monopoly Price, Output Restriction, and Welfare Loss (2)**

- \* CW, ch. 2, 29-40 (monopoly price and effects of MC and demand elasticity; welfare loss)
- \* D. Malueg, "Monopoly Output and Welfare: The Role of Curvature of the Demand Function," *Journal of Economic Education*, 25, 1994, 235-250

### **1.2 Shifts in Cost or Demand (1.5)**

- \* M. Schwartz, "Monopoly Comparative Statics," class notes

### **1.3 Other Potential Welfare Losses or Gains from Monopoly, and Policy Overview (1)**

- \* M. Schwartz, "Welfare Losses or Gains from Monopoly," class notes (3 pp.)
- \* CW, ch. 3.1, 50-62 (cost functions review); ch. 4.1, 113-24 (Sources of Market Power ch. 4.4, 145-8 (Market Power: A Second Look); ch. 4.5, 148-9 (Benefits of Monopoly)

### **1.4 Product Selection: Too Few or Too Many? (1.5)**

- \* J. Tirole, *The Theory of Industrial Organization*, MIT Press, 1988, ("Tirole 1988"): 97-99 (Hotelling model; will return to it when studying oligopoly), 104-6 (number of products)

## **2 Price Discriminating Monopolist (6)**

### **2.1 Overview and Perfect Price Discrimination ("1<sup>st</sup> degree") (0.5)**

- \* CW, ch. 5, 155-62 (purpose of price discrimination, examples, and necessary conditions), 162-4 (perfect discrimination)
- \* M. Schwartz, "Price Discrimination," class notes, pp. 1-5
- \* J. Zaslow, "If TiVo Thinks You Are Gay, Here's How to Set It Straight," *WSJ*, Nov. 26, 2002

### **2.2 Direct Price Discrimination ("3<sup>rd</sup> degree") (1.5)**

- \* CW, ch. 5, 164-66
- \* M. Schwartz, "Price Discrimination," class notes, pp. 6-10
- \* D. Malueg and M. Schwartz, "Parallel Imports, Demand Dispersion, and International Price Discrimination," *JIntE*, 37, 1994, 167-195
- \* A. Odlyzko, "The Evolution of Price Discrimination in Transportation and its Implications for the Internet," *RNE*, 3, 2004 323-46

- 2.3 Indirect Price Discrimination (“2<sup>nd</sup> degree”) (2)**
- \* M. Schwartz, “Price Discrimination,” class notes, p. 11-12 (skip 13), 14-17 and Figure 1  
CW, ch. 5, 166-8 (two-part tariffs)
  - R. Deneckere and P. McAfee, “Damaged Goods,” *JEMS*, 5, 1996, 149-174 (math is a bit hard,  
but Introduction has nice examples)
- 2.4 Tying and Bundling for Indirect Price Discrimination (0.5)**
- \* CW, ch. 5, 168-70 (tying for metering, bundling)
  - \* M. Schwartz, “Vertical Restraints,” class notes, pp. 13-14 (tying-for-metering)
  - \* M. Schwartz, “Price Discrimination,” class notes, p. 18 (bundling)
- 2.5 Pricing of Complements & 2-Sided Platforms (1)**
- \* M. Schwartz, class notes
  - T. Valletti & C. Genakos, “Mobile Regulation and the ‘Waterbed’ Effect,” 2010: <http://voxeu.org>
- 2.6 Policy towards Price Discrimination, and Identification Problems (0.5)**
- \* CW, ch. 5, 177-8 (antitrust treatment of price discrimination)
  - \* M. Schwartz, “The Perverse Effects of the Robinson–Patman Act,” *AB*, 31, 1986, 733-757  
(discrimination among intermediate buyers, not final consumers)
  - M. Schwartz, “Price Discrimination,” class notes, pp. 19-20
  - Y. Chen and M. Schwartz, “Differential Pricing When Costs Differ: A Welfare  
Analysis,” *RJE*, 46, 2015, 442-60 (cost-based pricing vs. 3<sup>rd</sup> degree price disc’n)
- 3 Vertical Control by Secure Monopolist: Goals & Means (5)**
- 3.1 Introduction: Vertical / Horizontal Distinction; Methods of Vertical Control;  
Fixed-Proportions Case and “One-Monopoly-Rent” Argument (1)**
- \* M. Schwartz, “Vertical Restraints,” class notes, 1-5  
CW, ch. 22, 683-4, 688-90 (until 22.2.1)
- 3.2 Avoid Double Marginalization by Complementary Monopolists (0.5)**
- \* M. Schwartz, “Vertical Restraints,” 5-6  
CW, ch. 22, 684-7 (until 22.1.4)
- 3.3 Facilitate Price Discrimination (0.5)**
- \* M. Schwartz, “Vertical Restraints,” 12-13 (integration to enforce 3<sup>rd</sup> degree discrimination)
  - M. Perry, “Forward Integration by Alcoa: 1888-1930,” *JIndE*, 29, 1980, 37-53

### 3.4 Address Contracting Problems / Transaction Costs (2)

P. Milgrom and J. Roberts, *Economics, Organization and Management*, 1992, 126-140  
(why contracts are imperfect)

#### ***Non-contractible Services & Free Riding***

- \* M. Schwartz, "Vertical Restraints," class notes, 7-9
- L. Telser, "Why Should Manufacturers Want Fair Trade?" *JLE* 3, 1960, 86–105  
CW, Ch. 22, 690-6 (RPM, and intrabrand vs. interbrand competition)
- R. Winter, "Vertical Control and Price versus Non-Price Competition," *QJE*, 108, 1993, 61-76
- H. Marvel, "Exclusive Dealing," *JLE*, 25, 1982, 1–25
- W. Lynk, "Tying and Exclusive Dealing: *Jefferson Parish Hospital v. Hyde* (1984)," in J. Kwoka and L. White eds, *The Antitrust Revolution*, Oxford U Press, 3<sup>rd</sup>, ed. 1999, 342-63

#### ***Specialized Investments and Holdup ("ex post opportunism")***

- \* CW, ch. 3, 69-79 (on holdups, and contracts vs. integration; read through Case Study 3.6)
- B. Klein, R. Crawford, and A. Alchian, "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *JLE*, 21, 1978, 297–326
- P. McAfee and M. Schwartz, "Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity," *AER*, 84, 1994, 210-30

#### ***Pros & Cons of Vertical Integration vs. Contracts / Vertical Restraints***

- \* M. Schwartz, "Vertical Restraints," 10-11
- \* CW, Ch. 3, 81-84 (paradox of selective intervention), 101-2 (chapter summary)
- P. Milgrom and J. Roberts, 1992, 192-4 (Influence Activities and Unified Ownership)
- S. J. Forbes and M. Lederman, "Adaptation and Vertical Integration in the Airline Industry," *AER*, 99, 2009, 1831-49
- T. Muris, D. Scheffman, and P. Spiller, "Strategy and Transaction Costs: The Organization of Distribution in the Carbonated Soft Drink Industry," *JEMS* 1, 1992, 83-128
- B. Holmstrom and J. Roberts, "The Boundaries of the Firm Revisited," *JEP*, 12, 1998, 73-94

### 3.5 Evade Price Regulation by Integrating into Adjacent Unregulated Markets (1)

- \* M. Schwartz, "Vertical Restraints," 16-17
- \* CW, ch. 26.3, 861-70 (concerns with regulated monopolists operating also in unregulated adjacent markets: cross-subsidies, and competitors' access to monopoly bottleneck)
- \* M. Schwartz, "Reforming Telecom Regulation: An Essay Review of Nuechterlein and Weiser's *Digital Crossroads*," *RNE* 7, 2008, read only sections 3.1 and 4: pp. 419-420 and 421-431
- J. Farrell and P. Weiser, "Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age," *Harvard Jr. of Law and Technology*, 17, Fall 2003, 85-134
- R. Pittman, "Structural Separation to Create Competition? The Case of Freight Railways," *RNE*, vol. 4, 2005, 181-196
- M. Cave, "What Lessons Can Be Drawn for Digital Platforms from the Regulation of Traditional Networks?" *CPI TechReg*, Dec. 2021, 21-27 (fn. 6 cautions on interoperability for platforms)

- 4 Oligopoly (6)**
- 4.1 Static Non-Cooperative Oligopoly: Cournot and Bertrand (2.5)**
- \* CW, ch. 7, 215-8, 220-6 (game theory background)
  - \* CW, ch. 8. 231-246 (Cournot competition), 256-262 (Bertrand competition)  
Tirole 1988, 221-3 (concentration indices and industry profitability)
- 4.2 Welfare Tradeoffs from Entry: Fixed Costs, Asymmetric Costs or Demands (0.5)**
- \* CW, ch. 8, 247-56 (entry under Cournot competition)  
M. Schwartz, “Investments in Oligopoly: Welfare Effects and Tests for Predation,” *OEP*, 41  
1989, only pp. 698–709  
J. Brander and P. Krugman, “A Reciprocal Dumping Model of International Trade,” *JIntE*,  
15, 1983, 313-21
- 4.3 Innovation Incentives under Monopoly vs. Rivalry, and Bidding for Monopoly (1)**
- \* Y. Chen and M. Schwartz, “Product Innovation Incentives: Monopoly vs. Competition,”  
*JEMS*, 22, 2013, 513-528  
CW, Ch. 18, 578-82  
R. Gilbert and D. Newbery, “Preemptive Patenting and the Persistence of Monopoly,”  
*AER*, 72, 1982, 514–526
- 4.4 Practices to Soften Competition (1)**
- \* Google-Yahoo search-advertising deal, abandoned 2008: M. Schwartz, class notes, pp. 2, 5-9  
(cooperation among competitors, with both efficiency and anti-competitive potential)  
M. Schwartz, “No Surcharge Rules in Oligopoly,” class notes (6 pp)
- 4.5 Vertical Control in Oligopoly (1)**
- \* M. Schwartz, Class Notes  
S. Moresi and M. Schwartz, “Vertical Mergers with Input Substitution: Double  
Marginalization, Foreclosure and Welfare,” *Economics Letters*, 22, May 2021.  
H. Zenger, “Analyzing Vertical Mergers,” *Competition Policy International*, October 2020  
J. Asker and H. Bar-Isaac, “Raising Retailers’ Profits: On Vertical Practices and the  
Exclusion of Rivals,” *AER*, 104, 2014, 672-686 (and Online Appendix, only section 2)
- 4.6 Collusion (Time Permitting) (1)**
- \* M. Schwartz, “Tacit Collusion: Repeated Games Approach,” class notes, 7pp  
CW, Ch. 10, 305-28 (reaching an agreement); 328-34 (punishing cheaters); 340-58 (factors  
and practices that facilitate collusion); 355-8 (antitrust approach to collusion)

**5 Mock Trials** (Readings will be assigned later in the course) **(3)**

**5.1 U.S. v. Kodak** (switching costs and ‘monopolizing’ aftermarkets)

**5.2 Reverse Payments in Pharmaceuticals** (legitimate or prolong monopoly?)

**5.3 U.S. v. Google** (exclusionary behavior in search engines or legitimate competition?)