

I.O.

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# What is I.O.

## Industrial Organization (I.O.) ...

investigates the **behaviour (strategies)** and the **internal organization** of **firms** in markets with **imperfect competition**.

Market power of firms:  
reasons / consequences / remedies

- ⊙ ,There is no limit to Google's market power' (The New York Times, April 28th, 2016)
- ⊙ ,Across the West powerful firms are becoming even more powerful' (The Economist, Nov. 15th, 2018)
- ⊙ ,The next capitalist revolution: Market power lies behind many economic ills. Time to restore competition' (The Economist, Nov. 15th, 2018)
- ⊙ ,Time for US to act on monopolies' (The Times, February 1st, 2019)
- ⊙ ,America has a monopoly problem' (Forbes, April 11th, 2019)
- ⊙ ,The growing demand for more vigorous antitrust action' (The Economist, January 10th, 2022)

A few observations

De Loecker J., Eeckhout J., Unger G. (2020). The Rise of Market Power and the Macroeconomic Implications, *The Quarterly Journal of Economics*, 135(2), pp. 561 – 644.

RISE OF MARKET POWER AND MACROECONOMIC IMPLICATIONS 575

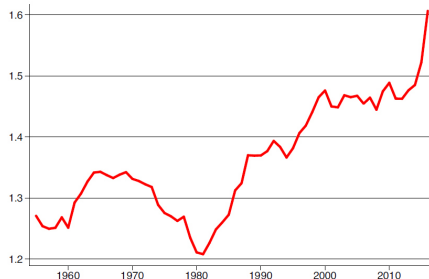


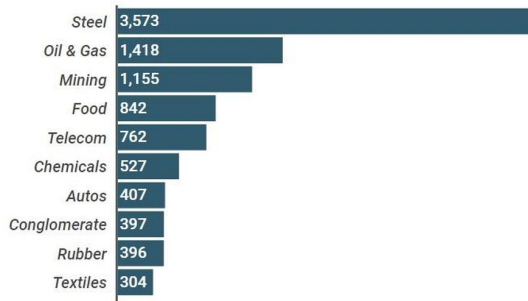
FIGURE I

Average Markups

Output elasticities  $\theta_{st}$  from the estimated production function are time-varying and sector-specific (two-digit). The average is revenue weighted. The figure illustrates the evolution of the average markup from 1955 to 2016.

# Largest Firms 1917 in U.S.

The Largest Firms by Sector, 1917 (Asset Value in \$ Millions)



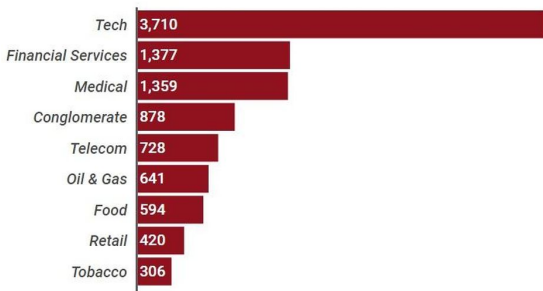
Industries not shown made up 2% or less of total assets among the top 50 companies.

## Among Top 5 in 1917:

U.S. Steel (*J.P. Morgan*), Standard Oil (*J.D. Rockefeller*), Bethlehem Steel (*J. Wharton*), Armour & Co.

# Largest Firms 2017 in U.S.

The Largest Firms by Sector, 2017 (Market Value in \$ Billions)



Industries not shown made up 2% or less of total market value among the top 50 companies.  
Market values are as of July 31, 2017.

## Among Top 5 in 2017:

Apple Inc. (*S. Jobs*), Microsoft Corp. (*B. Gates*), Amazon Inc. (*J. Bezos*), Alphabet Inc. (*L.E. Page*)

Table: The 10 largest companies in the world by market value in 2019 (Forbes)

Company (Sector)	Market value in billion U.S. Dollars
Apple (IT)	961.3
Microsoft (IT)	946.5
Amazon (IT)	916.1
Alphabet (IT)	863.2
Berkshire Hathaway (Conglom.)	516.4
Facebook (IT)	512
Alibaba (IT)	480.8
Tencent Holdings (Conclom)	472.1
JPMorgan Chase (Fin.Serv.)	368.5
Johnson & Johnson (Medical)	366.2

Table: Time to reach \$ 50 billion in annual revue (inflation adjusted)

Company	Years to reach \$ 50 billion
Berkshire Hathaway (Conglom.)	162
JPMorgan Chase (Fin.Serv.)	133
Johnson & Johnson (Medical)	116
AT&T (Telecom)	114
Exxon Mobile (Oil & Gas)	73
Apple (IT)	33
Microsoft (IT)	33
Amazon.com (IT)	17
Alphabet (IT)	14
Facebook (IT)	14



- Do these firms have market power and how can we find out? What about asset management companies like BlackRock (,common ownership')?
- Can mergers explain these phenomena? Why do firms merge and why do mergers come in waves? What are the economic consequences of mergers and why do so many mergers fail?

Mergers and Acquisitions

- Why did companies in the IT business (Facebook, Amazon, ...) grow so incredibly fast? What is so specific about ,information products'? Platforms and Network Effects
- Is market power (always) harmful to customers? What are its effects on prices, (product) innovation and product quality?
- (How) should we protect IP? Are patents the most appropriate instrument? What about (compulsory) licensing? Patents & Corona
- Why do cartels occur in some sectors more often than in others and how can we fight collusion?
- Do consumers benefit from privacy (the fact that firms do not know their characteristics)?
- Why do companies (like Microsoft and Google) tie different products together and why do competition authorities impose fines for tying? Tying: Microsoft and Google

## I. Static Models with Imperfect Competition

1. Strategic Substitutes: Cournot
2. Strategic Complements: Bertrand
3. Bertrand vs. Cournot and Mixed Oligopolies
4. Identification/Estimation of Market Power
5. Collusion, Cartels and Mergers

## II. Strategic Firm Behaviour

6. Collusion in Repeated Games
7. Classification of Strategic Behaviour (with Applications)
8. Horizontal and Vertical Product Differentiation
9. Vertical Relations and Control

## III. Market Power in the Information Age

- 10. Innovation
- 11. Search, Reputation, and Privacy
- 12. Network Effect, Platforms and Two-sided Markets

*,One should hardly have to tell academicians  
that information is a valuable resource: **knowledge is power.**  
And yet it occupies a slum dwelling in the town of economics.  
Mostly it is ignored.'*

(Stigler, G., 1961, *JPE*, p. 213)

- ⊙ Introduce/explain key models/approaches in I.O.
  - Many different oligopoly models
  - Presentation/discussion of key models in class
  - Practice with problem sets
- ⊙ Guide towards recent (empirical) research in I.O.
  - Voluminous literature in I.O. since 1980s
  - Specialized journals: *Rand Journal of Economics*, *International Journal of Industrial Organization* (1983), *Journal of Industrial Economics* (1952), *Review of Industrial Organization* (1984), ...
  - Short references in class
- ⊙ Provide starting point for master thesis (this includes searching for and studying scientific literature)

I am available for supervising theoretical and empirical work in all areas of industrial organization. I am specifically interested in the following topics:

- ⊙ Vertical product differentiation (product quality)
- ⊙ Horizontal (spatial) product differentiation
- ⊙ Prices: (asymmetries in) price adjustment, price dispersion, price endings
- ⊙ Consumer information about product prices
- ⊙ Firm growth, entry and exit and structural change
- ⊙ Food and energy (gasoline) markets

Recent Examples:

- ⊙ *„Competition and Discrimination against Women - An Analysis of Knowledge and Technology Intensive Sectors‘*
- ⊙ *„Focal Point Pricing and Consumer Information in the Austrian Retail Gasoline Market‘*
- ⊙ *„Competition and Price Dispersion: Empirical Evidence from U.S. Airlines‘*

## ⊙ **Field Course: Industrial Organization (4201), 6 ECTS**

- From March 15<sup>th</sup> until May 25<sup>th</sup>  
Wednesday, 14:30 - 16:30 D4.0.019 and  
Thursday, 15:30 - 17:30 TC.5.02
- No compulsory attendance (but problems sets! **Problems**)
- Two exams: **Grading**

„Field Course: IO“ is requirement for

## ⊙ **Research and Policy Seminar: Industrial Organization (5582)**

- March 15<sup>th</sup> and from May 31<sup>st</sup> until June 29<sup>th</sup>  
Wednesday, 14:30 - 16:30 D4.0.019 and  
Thursday, 15:30 - 17:30 D3.0.222

## ⊙ Do Powerful Retailers Exploit Consumers?

- Busso, M., and Galiani, S., (2019). The Causal Effect of Competition on Price and Quality: Evidence from a Field Experiment. *American Economic Journal: Applied Economics*, 11(1): 33 – 56.
- Matsa, D., (2011). Competition and Product Quality in the Supermarket Industry. *Quarterly Journal of Economics*, 126(3): 1539 – 91.

## ⊙ BlackRock: Does (Common) Ownership Matter?

- Azar, J., Schmal, M., and Tecu, I. (2018). Anticompetitive Effects of Common Ownership. *The Journal of Finance*, 73(4): 1513 – 1565.
- Backus, M., Conlon C., and Sinkinson M., (2021) Common Ownership and Competition in the Ready-to-Eat Cereal Industry. NBER WORKING PAPER 28350.

## ⊙ IP Protection: Should We Abolish Patents?

- Kremer, M., Levin, J., and Snyder, C.M. (2020). Advanced Market Commitments: Insights from Theory and Experience. *American Economic Association: Papers and Proceedings*, 110: 269 – 273
- Watzinger, M., Fackler, T.A., Nagler, M., and Schnitzer, M., (2020). How Antitrust Enforcement Can Spur Innovation: Bell Labs and the 1956 Consent Decree. *American Economic Journal: Economic Policy*, 12(4): 328 – 359.

Thanks for your attention!



‘... two tools that have revolutionized the discipline over the past forty years: game theory and information theory’ (Tirole, J., 2017, p. 80)

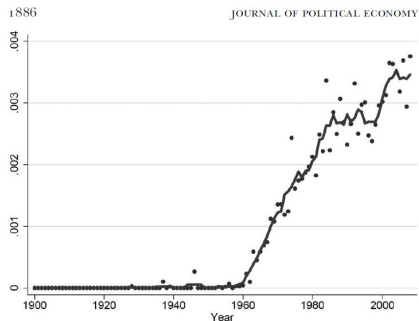
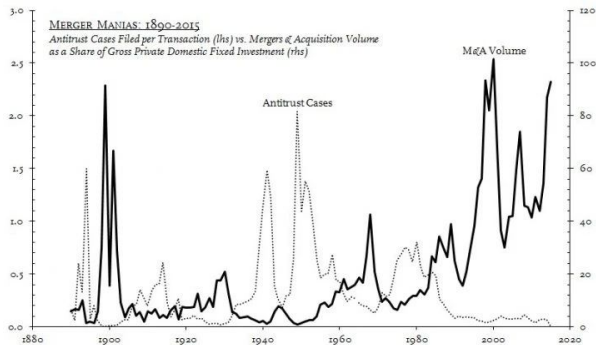


FIG. 1.—Information economics over time. Data from Google Books Ngram Viewer (Michel et al. 2011). The y-axis depicts the share of “information economics” among all 2-grams plus the share of “economics of information” among all 3-grams divided by the share of “economics” among all 1-grams (all phrases case insensitive) in books published that year. The dots indicate raw data by year while the solid line depicts a 5-year moving average.

Source: Kamenica E., (2017). Information Economics. *Journal of Political Economy*, 125(6), p. 1886

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# One Source of Market Power: Mergers



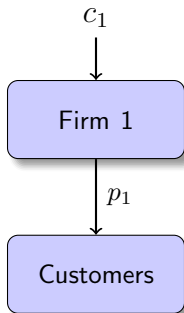
Source: Case Filings – Cohen, Mark A. *The Causes and Consequences of Antitrust: The Public Choice Perspective*. Chicago: University of Chicago Press, 1995. doi: 10.1002/mde.4000160612. Table 5.1, pp. 74. *The Federal Antitrust Laws With Summary of Cases Instituted by the United States (1890-1991; 1992-1996 Supp. (1997) Trade Reg. Rep. 10<sup>th</sup> ed., Transfer Binder, New U.S. Antitrust Cases – Complaints, Indictments, Developments 1997-1998; 5 Trade Reg. Rep. 1997-2002. Sourcebook of Criminal Justice Statistics Online, Table 5.41. 2012 (see Sources). Transactions – 1887-1900, Conant, Jr., Luther (1901) 'Industrial Consolidations in the United States', Publications of the American Statistical Association, 7, 33, 1-20; 1895-1920, Nelson, Ralph L. (1988) *Merger Movements in American Industry 1895-1956* (Princeton, NJ: Princeton University Press); 1919-1930, Eis, Carl (1969) 'The 1919-1930 Merger Movement in American Industry', *Journal of Law and Economics*, 12, 2, 267-96; 1948-1979, *Mergerstat Review (1991) 'Twenty-Five Year Statistical [sic] Review'*, via LexisNexis; 1981-thereafter, Thomson One Banker. All transaction data via Joseph A. Francis (2013), 'The Buy-to-Build Indicator: New Estimates for Britain and the United States', *Review of Capital as Power*, Vol. 1, No. 1, pp. 63-72. Fixed Investment – Kuznets, Simon (n.d.) 'Annual Estimates, 1869-1955', Table T-8; 1955-thereafter, Bureau of Economic Analysis, Table 1.1.5.*

PINE CAPITAL

## The Information Revolution and Market Power

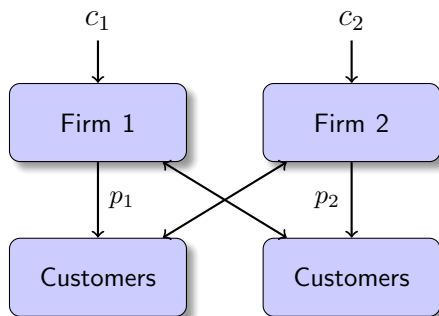
- ⊙ Information changes **consumer behaviour**
  - Consumer search and pricing
  - Privacy and the ‚privacy paradox‘
  - Consumer demand with network effects
- ⊙ Information changes **firm behaviour**
  - Price discrimination
  - Price conditioning
  - New managerial strategies (compatibility and standardisation, ...)
- ⊙ Information changes **market structure** and **organization of businesses**
  - Platforms and Two-Sided Markets

„Traditional“ (textbook) models:



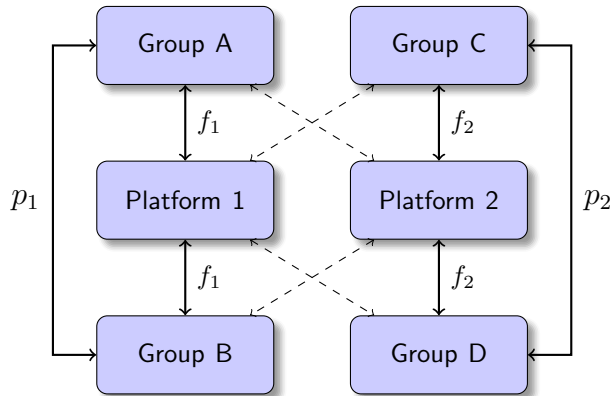
**Monopoly**

„Traditional‘ (textbook) models:



**Duopoly**

# Platforms and Two-sided Network Effects



## New Strategies:

- ⊙ Expectation management
- ⊙ Compatibility / Exclusivity
- ⊙ Penetration pricing

## Implications:

- ⊙ Winner-take-all and lock-in effects
- ⊙ Tipping and critical-mass phenomena
- ⊙ Multiple equilibria and high speed of market penetration

Examples:



, ...

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Questions

## Microsoft and the Windows Media Player (Commission Decision of 24.3.2004, COMP/C-3/37.792)

*„In a nutshell, tying WMP with the dominant Windows makes WMP the platform of choice for complementary content and applications which in turn risks foreclosing competition in the market for media players.“ ...*

*„Microsoft’s tying practice creates a serious risk of foreclosing competition and stifling innovation.“*

The European Commission imposed large fines:

2004: € 497 million

2006: € 280 million

2008: € 899 million

2013: € 561 million

The European Commission imposed even larger fines:

- ⊙ June 27th, 2017: Commission fines Google € **2.42 billion** for abusing dominance as search engine by giving illegal advantage to own comparison shopping service.
- ⊙ July 18th, 2018: Commission fines Google € **4.34 billion** for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine.
- ⊙ March, 20th, 2019: Commission fines Google €, **1.49 billion** for abusive practices in online advertising.

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To receive the 10 % for class participation and problem sets, at least 50 % of problem sets must be solved.

*„John von Neumann, who deserves to be on a short list of the greatest minds of the 20th century, is reported to have said that you don't understand a theory or an abstract structure until you have seen and worked through hundreds of examples of it. Even if he didn't say that (and I think he did), I agree with it.“*

(Michael Spence in his Nobel Prize Lecture on ‚Signaling in Retrospect and the Informational Structure of Markets‘, December 8 2001.)

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- ⊙ Option 1: two partial exams
- ⊙ Option 2: one final exam
- ⊙ Option 3: first partial exam and final exam; in this case, the result from the first partial exam will be ignored/deleted.
- ⊙ Final grade will be determined by the results of the exam(s) (45 % each) as well as class participation and problem sets (10 %). To receive the 10 % for class participation and problem sets, at least 50 % of problem sets must be solved.

Points (in Percent)	Grade
$\geq 60$	4
$\geq 70$	3
$\geq 80$	2
$\geq 90$	1

'Former world leaders call on Biden to suspend Covid-19 vaccine patents'

(Financial Times, April 14th, 2021)

A group of 175 former world leaders and Nobel laureates is urging the US to take 'urgent action' to suspend intellectual property rights for Covid-19 vaccines to help boost global inoculation rates.

*'A WTO waiver is a vital and necessary step to bringing an end to this pandemic. It must be combined with ensuring vaccine knowhow and technology is shared openly.'*

Alternatives to patents?

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Rally in Berlin, March 10th 2021