

# Organization and Chaos: Two Sides of my Dismal Science

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# Introduction

- I'm a bit scatter-brained, I do some:

- 1 Economics

- Industrial
- Theory and methodology
- Labor
- Finance

- 2 Philosophy

- Political
- Epistemology
- Science

- 3 History of economic thought

- 4 Evolutionary theory

- Today focus on two major interests

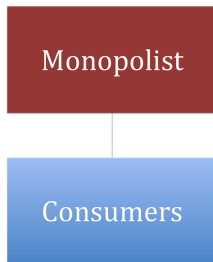
- 1 Day job: Industrial organization

- 2 What keeps me up at night: chaos in the markets

# What is “Industrial Organization”?

- Most of my time: industrial economics or “IO”
- IO studies how
  - 1 Companies cooperate/compete to provide services
  - 2 How quality depends on organization, regulation
  - 3 How policy should be made to improve
- Basically correspond to three steps
  - 1 Measurement (empirics)
  - 2 (Counter-factual) Prediction (positive theory: me)
  - 3 Prescription (normative theory)
- Goal: improve industrial regulation and competition policy
- Today
  - 1 Examples of industry structures, questions about them
  - 2 Bit on modeling monopoly

# Monopoly



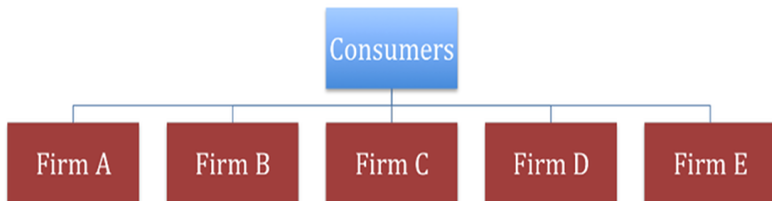
- How much can monopolist extract?
  - How much left to consumers ?
- Effect of subsidies on prices
  - Are subsidies a good tool?
- When is IP a good way to incentivize innovation?

# Double marginalization



- Basic idea: integration good
- But how much incentive to integrate?
- How large are benefits?
  - Weigh against costs of integrating on other dimensions
- How does timing affect? How to test?

# Oligopoly



- Consumers buy variety of goods from many competitors
- How does one firm's price affect others?
- Subsidy pass-through and effect of competition on it?
- What is the effect of merger?
- How does this depend on quantities vs. prices?
- Welfare benefits of new good

# Two-sided markets



- Platform connecting two groups
  - Credit cards, video games, ISPs, newspapers, etc.
- How does pricing to two sides interact?
- What are effects of mergers, costs changes?
- What are effects of price controls?
- How to detect predatory pricing, market power

# Modeling monopoly

- Answer questions by using model
  - Firm's optimization has *identifying* power
- Simple example: monopoly
  - Firm has linear cost of production  $c$
  - Consumer demand  $D(\cdot)$ ,  $D' < 0$
  - Firm chooses price  $p$  to maximize  $(p - c)D(p)$

$$m \equiv p - c = -\frac{D(p)}{D'(p)} \equiv \mu(p)$$

- Assume  $\frac{1}{D}$  concave for second-order condition
- How much of a subsidy pass-through to consumers?

$$\rho \equiv \frac{dp^*}{dc} = \frac{1}{1-\mu'}$$

- We can often observe this (exogenous cost shocks)
- Linked to other properties

# Uses of pass-through

- This pass-through matters in all model above
- More motivation than monopoly...but more complicated

## 1 Quantity parallel

- Monopolist, but exogenous  $\tilde{Q}$
- Monopolist produces  $Q_M$  for total  $Q^*$
- $\rho_Q \equiv \frac{dQ^*}{d\tilde{Q}} = \rho$
- Reason: Unitless measure of sharpness:

$$\rho = \frac{1}{-\frac{d^2\pi}{dm^2} \frac{m^2}{\pi}}$$

## 2 Division of surplus

- Consumer *surplus*  $V(p) = \int_p^\infty D(q) dq$
- Monopoly profits  $\mu(p^*) D(p^*)$

$$\frac{V(p)}{\mu(p)D(p)} \equiv \frac{\int_p^{\bar{p}} \nu(q)\rho(q) dq}{\int_p^{\bar{p}} \nu(q) dq}$$

# My research on the crisis

- Morbidly, this has been a boon for economics
  - ⇒ I am one of many voices
- My thoughts only loosely connected (formal and informal)
  - 1 How did we get here?
    - No reason to think arbitrage is good
    - Financial innovation creates perverse incentives
  - 2 Why did so many people go into finance?
    - Low taxes
  - 3 Where should we go from here?
    - Regulation: FDA for financial innovation
    - Taxation: Better allocation of talent

# “Is Arbitrage Socially Beneficial?”

- Old idea in finance
  - Stupid people make prices  $\neq$  fundamentals
  - So arbitrage good because it brings prices to fundamentals
- But why is price=fundamentals good?
- Two possibilities
  - 1 Misallocated resources: arbitrage good
  - 2 Confused investors: arbitrage bad
- Anecdotal second more common
- Same problem with financial innovation
- Prices to fundamentals good for allocating capital
  - But at what cost?
  - Vigilantes in Wild West

# “What Goes Wrong with Financial Innovation?”

- So confused investors  $\implies$  arbitrage, innovation bad
- But many were sophisticated investment banks. Why?
  - Hard to monitor their own employees
  - But why not prohibit trading in complex products?
    - 1 Best banks best at monitoring
    - 2 Clients want to work with best banks
    - 3 So trade in dangerous new product to show expertise
    - 4 This signaling makes everyone worse off

# Everyone goes into finance!

- None of this would be a problem if finance was small
- But everyone has been doing finance
  - Princeton '07: 44% of employed in financial services
- But it isn't like this everywhere and always
  - Post-war: Princeton students doctors, managers, scientists, public servants
  - In Sweden today, 5 times as many PhDs per-capita
- Why the change/difference?

# “Psychic Income, Taxes and the Allocation of Talent”

- Smart people enjoy science over finance
  - ① Better schedule
  - ② More prestigious
  - ③ Warm glow
  - ④ Show others you are a good person
- But finance pays better
- Progressive taxation  $\implies$  science
  - So Reagan  $\implies$  finance
- Economists: low, flat taxes mean hard work
  - No! Low, flat taxes mean greed
  - Greed may spur work...or rent-seeking

# What to do?

- We want better allocation of talent
- Higher, more progressive taxes
- Better yet: targeted taxes
- Conditional loan forgiveness, incentives from universities
  - Unless (social darwinism) earn money and do good after

# “A Global FDA for Financial Innovation”

- How should we deal with dangerous innovation?
- Well-worn tool: pre-approval (FDA)
- Why does it make sense in medicine?
  - 1 Large risks
  - 2 Spillovers
  - 3 Complexity and value of expertise
  - 4 Conflicts of interest among experts
- So finance natural
  - 1 Must be global or sharp orders
  - 2 Adversarial
  - 3 Different for banks and consumers
    - Blanket approval v. non-approval for consumers
    - Greater capital requirements for banks
  - 4 Dynamic adjustment as market matures