Market Structure and Market Power

Introduction

- Industries have very different structures
  - numbers and size distributions of firms
    - **ready-to-eat breakfast cereals: high concentration**
    - **newspapers: low concentration**
- How best to measure market structure
  - summary measure
  - concentration curve is possible
  - preference is for a *single number*
  - **concentration ratio** or **Herfindahl-Hirschman index**

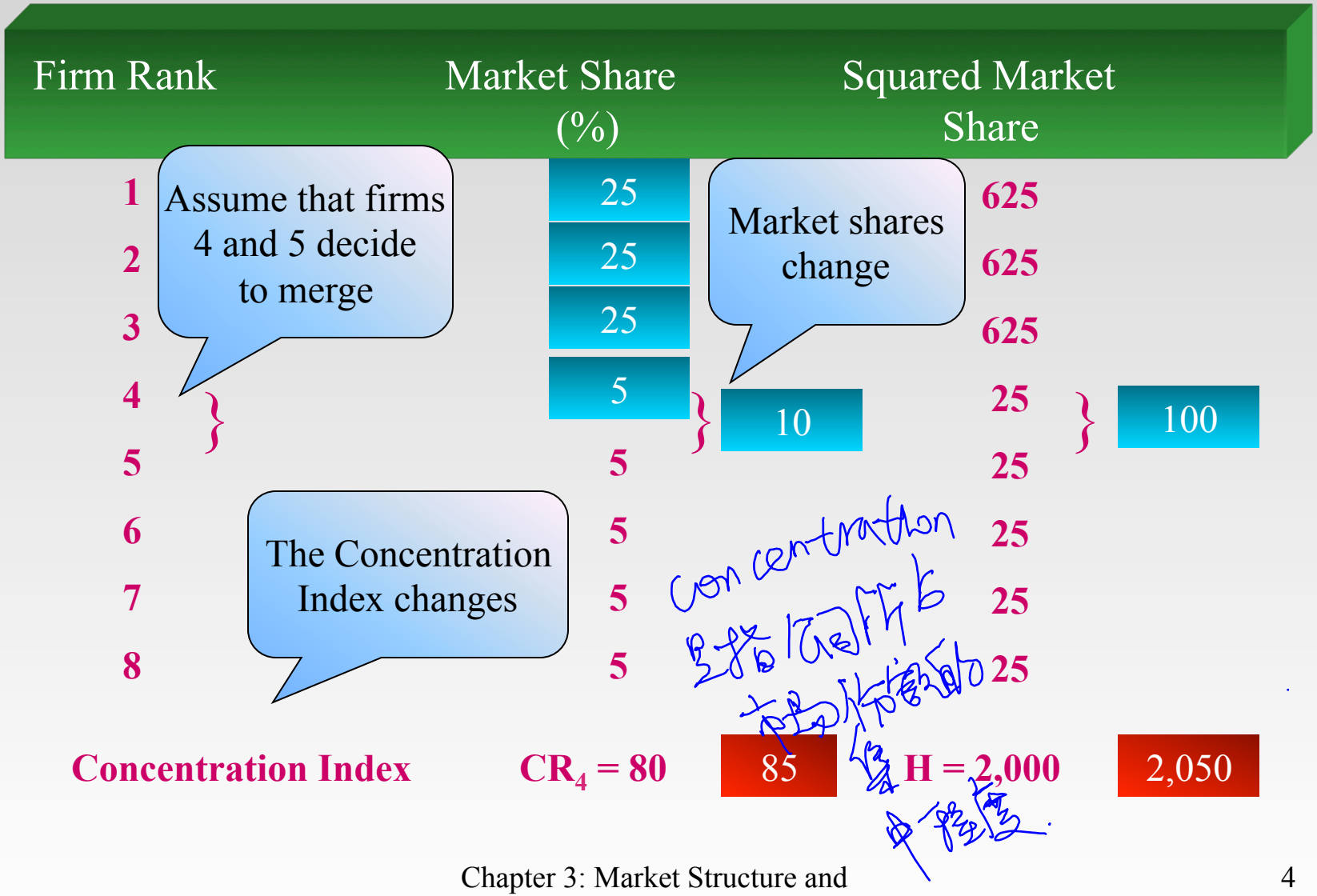
Measure of concentration

- Compare two different measures of concentration:

Firm Rank Market	Market Share (%)	Squared Share
1	25	625
2	25	625
3	25	625
4	5	25
5	5	25
6	5	25
7	5	25
8	5	25
Concentration Index	$CR_4 = 80$	H = 2,000

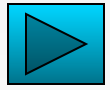
concentration ratio

Concentration index is affected by, e.g. merger



What is a market?

- **No clear consensus**
  - **the market for automobiles**
    - ***should we include light trucks; pick-ups SUVs?***
  - **the market for soft drinks**
    - ***what are the competitors for Coca Cola and Pepsi?***
  - **With whom do McDonalds and Burger King compete?**
- **Presumably define a market by *closeness* in substitutability of the commodities involved**
  - **how close is close?**
  - **how homogeneous do commodities have to be?**
    - ***Does wood compete with plastic? Rayon with wool?***



Market definition 2

- **Definition is important**
  - **without consistency concept of a market is meaningless**
  - **need indication of competitiveness of a market: affected by definition**
  - **public policy: decisions on mergers can turn on market definition**
    - ***Staples/Office Depot* merger rejected on market definition**
    - ***Coca Cola* expansion turned on market definition**
- **Standard approach has some consistency**
  - **based upon industrial data**
  - **substitutability in production not consumption (ease of data collection)**

Market definition 3

- **Government statistical sources**
  - **FedStats**
  - **Naics**
- **The measure of concentration varies across countries**
- **Use of production-based statistics has limitations:**
  - **can put in different industries products that are in the same market**
- **The international dimension is important**
  - **Boeing/McDonnell-Douglas merger**
  - **relevant market for automobiles, oil, hairdressing**

Market definition 4

- **Geography is important**
  - **barrier to entry if the product is expensive to transport**
  - ***but* customers can move**
    - **what is the relevant market for a beach resort or ski-slope?**
- **Vertical relations between firms are important**
  - **most firms make *intermediate* rather than *final* goods**
  - **firm has to make a series of make-or-buy choices**
  - **upstream and downstream production**
  - **measures of concentration may assign firms at different stages to the same industry**
    - **do vertical relations affect underlying structure?**

Market definition 5

- **Firms at different stages may also be assigned to *different industries***
  - **bottlers of soft drinks: low concentration**
  - **suppliers of soft drinks: high concentration**
  - **the bottling sector is probably not competitive.**

- In sum: market definition poses real problems
  - **existing methods represent a reasonable compromise**

The Role of Policy

- Government can directly affect market structure
  - **by limiting entry**
    - **taxi medallions in Boston and New York**
    - **airline regulation**
  - **through the patent system**
  - **by protecting *competition* e.g. through the Robinson-Patman Act**

Measuring Market Power/Performance

- **Market structure is often a guide to market performance**
- **But this is not a perfect measure**
  - **can have near competitive prices even with "few" firms**
- **Measure market performance using the *Lerner Index***

$$LI = \frac{P\text{-}MC}{P}$$

Market Performance 2

- **Perfect competition: LI = 0 since P = MC**
- **Monopoly: LI = 1/η – inverse of elasticity of demand**
- **With more than one but not "many" firms, the Lerner Index is more complicated: need to average.**
  - **suppose the goods are homogeneous so all firms sell at the same price**

$$LI = \frac{P - \Sigma s_i MC_i}{P}$$

Lerner Index: Limitations

- **LI has limitations**
  - **measurement: as with "measuring" a market**
  - **meaning: measures outcome but not necessarily performance**
  - **misspecification:**
    - **if there are sunk entry costs that need to be covered by positive price-cost margin**
    - **low price by a high-cost incumbent to protect its market**

Empirical Application: How Bad is Market Power Really?

- Harberger (1954) exercise: Welfare Loss (WL) is:

$$WL = \frac{1}{2}(P - MC)(Q^C - Q)$$

- **Welfare Loss in relation to sales:**

$$\frac{WL}{PQ} = \frac{1}{2}\frac{(P - MC)}{P}\frac{(Q^C - Q)}{Q}$$

- This can be expressed as:

$$\frac{WL}{PQ} = \frac{1}{2}\varepsilon_D(LI)^2$$

How Bad is Market Power Really? 2

- **Because most industries are not perfect monopolies, Harberger (1954) calculates**

$$\frac{WL}{PQ} = \frac{1}{2}\varepsilon_D(\Delta P)^2$$

  - **For 73 manufacturing industries assuming $\varepsilon_D=1$. Multiplying the result by each industry's output and summing over all industries he estimates a total welfare loss from monopoly power of about two-tenths of one percent of gdp**

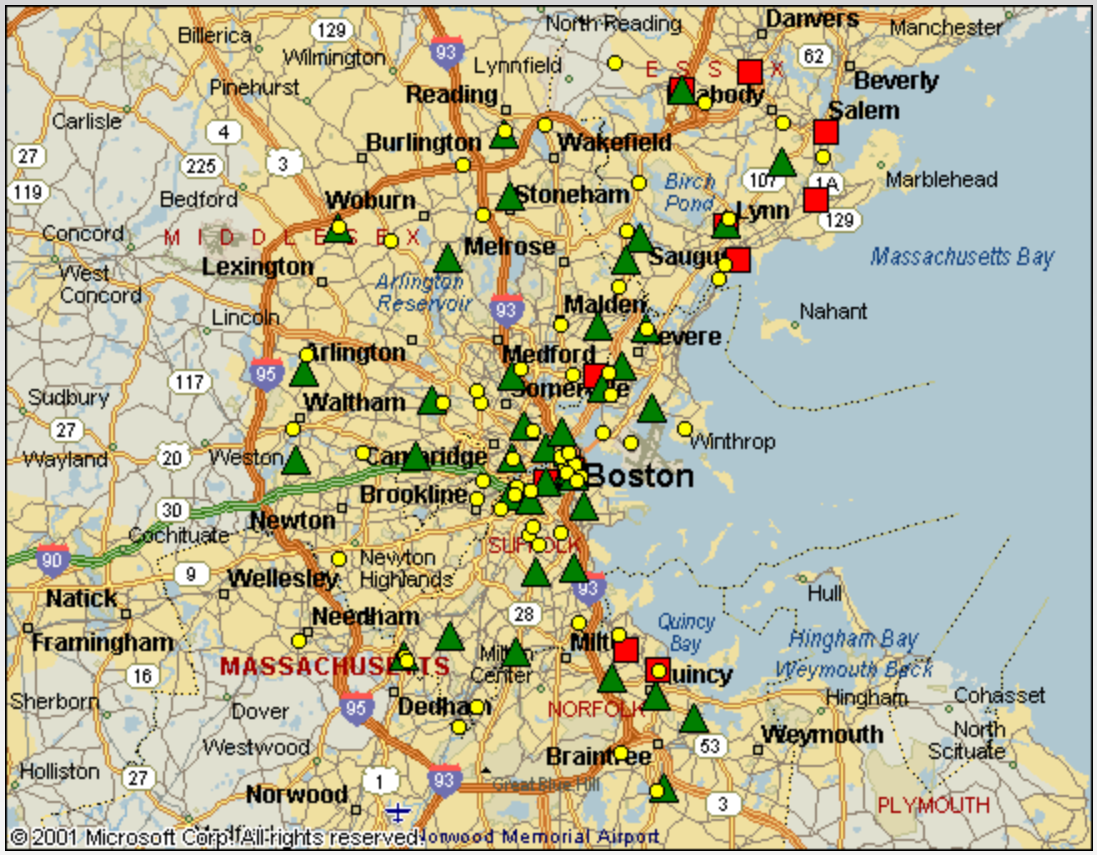
How Bad is Market Power Really? 3

- **One problem is cost, possibly due to how advertising is treated**

$$\frac{WL}{PQ} = \frac{1}{2}\,\varepsilon_D \left[\frac{(P - MC)}{P}\right]^2$$

  - **Under imperfect competition, MC may not be minimized, so P – MC may be artificially low.**
  - **Corrections by Cowling and Mueller (1978) and Aiginger and Pfaffermayr (1997) raise total cost substantially to between 4 and 11 percent of gdp**

Fast-Food Outlets



McDonald's **Burger King** **Wendy's**