Market structure and market power, bundling and tying

Industrial organization – lecture 1

Market structure and market power

Pepall et al. (2010, pp. 65–66)

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What is the dead-weight loss under perfect competition and monopoly?

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Why do we measure market structure/market power?

Measuring of market structure

Pepall et al. (2010, pp. 66–68)

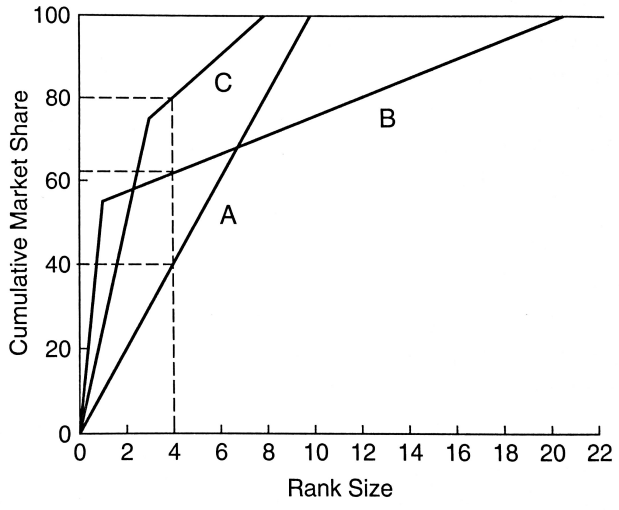
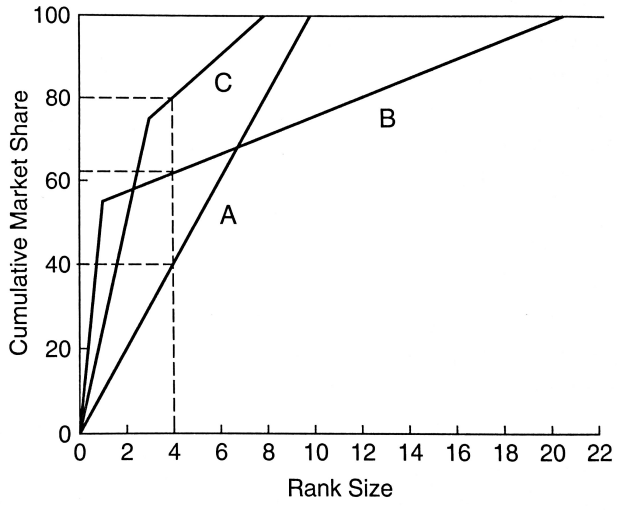


Figure 4.1 Some possible concentration curves

Measuring of market structure

Pepall et al. (2010, pp. 66–68)



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Measures of market structure:

- concentration ratio (CR4, CR8)
- Herfindahl-Hirschman index
- Lerner index

Measuring of market structure

Pepall et al. (2010, p. 69)

Table 4.1 Concentration measures for selected industries

Industry	*NAICS Code*	CR_4	H
Breakfast Cereals	311230	78.4	2521.3
Creamery Butter	311512	57.5	1046.1
Soft Drink Mfg	312111	51.9	895.7
Textile & Fabric Finishing Mills	313311	19.5	166.7
Women's Footwear	316214	64.2	1556.1
Manufactured Mobile Home	321991	44.6	685.3
Paper Mills	322121	25.8	259.3
Petroleum Refineries	324110	41.2	639.7
Petrochemical Mfg	325110	84.7	2661.6
Pharmaceuticals & Medicine	325410	34.0	506.0
Explosives	325920	54.2	991.3
Cement Mfg	327310	38.7	568.5
Aluminum Sheet/Plate/Foil	331315	70.8	1856.1
Small Arms Manufacturers	332994	43.3	637.0
Lawn Equip & Garden Tractors	333112	61.6	1117.8
Electronic Computers	334111	75.5	2662.4
Telephone Apparatus	334210	55.6	1398.5
Semiconductors/Related Devices	334413	56.5	1417.1
Electric lamp bulbs & parts	335110	88.5	2757.6
Household Refrigerators	335222	84.5	1998.5
Storage Battery	335911	61.8	1252.8
Automobiles	336111	75.5	1910.9
Heavy Duty Truck	336120	69.5	1512.5
Aircraft	336411	80.7	2560.7
Dolls & stuffed toys	339931	42.8	622.2

Source: "Concentration Ratios in Manufacturing," Bureau of the Census, 2002 Census of Manufacturing. http://www.census.gov/epcd/www/concentration.html

Measuring of market structure

Pepall et al. (2010, pp. 68–71)

Two problems of concentration measures (CR4, H):

1. vertical relationships
2. consideration of entry and exit

Is the market definition according to industry classifications sensible?

- geographical considerations
- SSNIP

The idea of the SSNIP test

Pepall et al. (2010, p. 70)

A narrow market – assume that the market is monopolized.

Can a hypothetical monopolist impose profitably a Small but Significant and Non-transitory Increase in Price (SSNIP)?

The idea of the SSNIP test

Pepall et al. (2010, p. 70)

A narrow market – assume that the market is monopolized.

Can a hypothetical monopolist impose profitably a Small but Significant and Non-transitory Increase in Price (SSNIP)?

- Yes – the narrow market is the relevant market
- No – include producers of closest substitutes and repeat the test

Problems of SSNIP

- Cellophane fallacy

  Case study:

  Passenger train transport, Praha–Brno, ČD

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- Selecting the initial market and prices

  Case study:

  Long distance coach market, Praha-Brno, Student Agency and Eurolines, similar competitive prices (prices of SA 10% lower), same stations.

  Clearly the narrow market should include both companies, but if only SA increases prices by 5%, its profit increases.

  What does it mean?

Bundling and tying

Pepall et al. (2010, pp. 128–137)

Firms with market power can increase their profit using many price and non-price tactics:

- price discrimination
- two part tariff
- bundling
- tying

Bundling and tying – interesting aspects of product design

Bundling

Pepall et al. (2010, pp. 128–131)

= selling of two or more products together at a specific ratio
(e.g. Office = Word + Excel + ...; restaurant menu = soup + main dish)

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A simple model of bundling:

- monopoly produces goods 1 and 2 at constant marginal costs c_1, c_2, the cost of producing a bundle 1+2 is $c_B = c_1 + c_2$
- consumer's willingness to pay for goods 1 and 2 are R_1 and R_2, the reservation price for a bundle 1+2 is $R_B = R_1 + R_2$
- consumers buy exactly 1 unit of good if $p_1 < R_1$ and $p_2 < R_2$
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Three possible pricing strategies:

1. selling the products separately at monopoly prices
2. pure bundling – selling only the bundle 1+2
3. mixed bundling – selling goods both separately and in bundle

Tie-in-sales

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A simple model of tie-in-sales :

- service requires two inputs
  - **a fixed input** required for any volume of consumption (printer)
  - **a variable input** required for every unit of the service (cartridge)
- the fixed input is produced by a *monopoly supplier*
- for simplicity assume zero cost of production of both inputs
- two types of consumers that the *monopoly supplier* cannot distinguish:
  - n_1 consumers 1, each with a VTP: $V^1(q) = Aq - q^2/2$
  - n_2 consumers 2, each with a VTP: $V^2(q) = \alpha Aq - q^2/2$, $\alpha > 1$
- consumers need to buy 1 fixed input at a price F and q units of variable input at a price P – total expenditure is $F + Pq$

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If the variable input is produced in a *competitive market*, then $P = 0$.
Is it profitable for the monopoly to monopolize the variable input market?