

The Nature of An Industry

**Structure:** Concentration, Market Power, Technology

**Conduct:** Decisions on pricing, advertising, R&D, etc

**Performance:** Profits and the effect of the industry on social well-being

Market power: The ability of a single firm to raise its product price and keep a lot of its customers.

Examples:

A single dry cleaner has very little market power, because if it raises its prices it will lose most of its business to competitors.

Comcast cable has a lot of market power; when it raises prices they don't lose a lot of customers.

Industries that are highly concentrated (in which a few large firms produce most of the output) tend to charge high prices and be profitable.

Examples: Drug companies, Cellphone companies

Industries that are not highly concentrated (in which many small firms produce most of the output) tend to charge low prices and struggle to be profitable.

Examples: Dry cleaners, nail salons

Concentration: What portion of sales in an industry is concentrated among a few large firms?

Examples:

Low concentration in the dry cleaning industry, because most sales occur in small individually owned businesses.

High concentration in package delivery; most business concentrated in large firms (USPS, UPS, DHL, FedEx.)

## Two methods of measuring concentration

1. Four-firm concentration ratio. (Range: 0 to 1. Higher means more concentration)

The percentage of total sales in an industry that are sold by the four largest firms in the industry.

2. Herfindahl-Hirschmann Index (HHI)  
(Range: 0 to 10,000. Higher means more concentration)

A number that measures concentration, placing increased emphasis on larger firms.

Example: A fake industry consists of 5 firms (and no other firms). Their sales are:

Firm 1: \$49 million

Firm 2: \$40 million

Firm 3: \$30 million

Firm 4: \$20 million

Firm 5: \$6 million

So total industry sales:

$$49+40+30+20+6 = \$145 \text{ million}$$

Calculating the 4-firm concentration ratio:

1. Add up total firm sales in the industry.  
(We already did this--it's 145 million)

2. Add up the sales of the four largest firms  
in the industry

The sales of the largest 4 firms  
 $49+40+30+20 = \$139$  million

3. Divide. The four firm concentration ratio  
 $\$139 / \$145 = 0.96$

This is very, very high (close to 1)

Example: A fake industry consists of 5 firms (an no more). Their sales are:

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Firm 3: \$30 million

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Firm 5: \$6 million

So total industry sales:

$49+40+30+20+6 = \$145$  million

$49/145 = 0.3379$  % of industry sales going to firm 1

$40/145 = 0.2759$  % of industry sales going to firm 2

$30/145 = 0.2069$  % of industry sales going to firm 3

$20/145 = 0.1379$  % of industry sales going to firm 4

$6/145 = 0.0414$  % of industry sales going to firm 5

2nd way to calculate concentration:

### **Herfindahl-Hirschmann Index (HHI)**

Step 1: Calculate market share of each and every firm in the industry. (We did this on the last page)

Step 2: Square each market share number that you calculated in step 1

$$0.3379 \times .3379 = 0.1142$$

$$0.2759 \times .2759 = 0.0761$$

$$0.2069 \times .2069 = 0.0428$$

$$0.1379 \times .1379 = 0.019$$

$$0.0414 \times .0414 = 0.0017$$

Step 3: Add up results from step 2:

$$.1142 + .0761 + .0428 + .019 + .0017 = 0.2538$$

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Step 4: (Last step)

Multiply the result of step 3 by 10,000

$$.2538 \times 10000 = 2538.0$$

Anti-trust laws are supposed to prevent mergers and acquisitions among industry competitors.

Rule of thumb (used in the past): A merger or acquisition that increases HHI by more than 100 points is prohibited by the Justice Department. (Unless there are extenuating circumstances, e.g one of the companies is near bankruptcy.)

Also, don't forget international competition when calculating HHI.

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HHI under the U.S. Department of Justice,  
**Antitrust Division**

HHI < 1000: A competitive industry  
1000 < HHI < 1800: Moderately concentrated  
HHI > 1800: Highly concentrated

In the past, mergers in highly concentrated industries were denied if the merger increased HHI by more than 100 points