Concentration Indexes

The aims of the concentration indexes are:

- To measure the proximity of a market to the situations of perfect competition or monopoly
- The closer the market structure to one of the two extreme configurations, the closer will be also behaviour and results of the firms operating in the market.

Assumptions:

- n firms industry

- outputs $q_1 > q_2 > q_3 > \ldots > q_n$

- $Q = \sum_{i=1}^{N} q_i$

- We define the market share of firm i as

  $s_i = \frac{q_i}{Q}$

1.Reciprocal of the number of firms

$$R = \frac{1}{N}$$

Example 1:

	A	B	C	D
1	240	360	153	150
2	210	240	135	150
3	30	240	135	150
4	30	240	108	150
5	30	72	90	150
6	30	48	72	150
7	30		72	150
8			54	150
9			45	150
10			36	150

	A	B	C	D
R	0.143 (1/7)	0.1667 (1/6)	0.1 (1/10)	0.1 (1/10)

Problems:

- It only uses information on the number of firms and not of relative size of each firm

2. **Concentration ratio (C_k)**

$$C_k = \sum_{i=1}^{k} s_i$$

Sum of the market shares of the K largest firms in the market

Properties

- Minimum value: $\frac{k}{n}$ → Minimum concentration: when all firms have the same market share.

- Maximum Value: 1.

- Pros: easy calculus and interpretation

Problems :

- Arbitrary choice of *k*: this kind of index ignores any information available on the *n-k* smaller firms → lost/waste of information → possibility of obtaining contradictory results depending on the choice of *k* .

Example II:

	A	B	C	D
C_2	75	50	32	20
C_5	90	96	69	50

3. Herfindahl Index

$$H = \sum_{i=1}^{n} s_i^2$$

Sum of square of the market shares of ALL firms in the market

Properties

- Minimum value: $\frac{1}{n}$ → Minimum concentration: when all firms have the same market share

- Maximum value: 1 → Maximum concentration

- Pros: it uses information on the market shares of all firms in the market

Problems (cons):

It is difficult to obtain the market share of every firm that operates in a single market.

Example III:

	A	B	C	D
H	0.295	0.215	0.118	0.1

Alternative formulation of the Herfindahl

$$H = \frac{c^2 + 1}{n} \text{ con c} = \frac{\sigma_s}{\bar{s}}$$

H depende both on:

1. Variation coefficient (c): defined as the ratio of Standard deviation of market shares on average market share → it measures disparity in firms market share

2. n: number of firms in the market

H = 1 (c^2 = 0 y n = 1) → monopoly

H = 0 (c^2 = 0 y n → ∞) → perfect competition

Common problems to the three competition indexes:

1. How do they deal with the existence of holdings/conglomerates of firms: if concentration indexes should measure market power, to calculate the indexes we should not use firms' market share but decisión agents' market shares.

   Example: sector de la distribución alimentaría en España
   Carrefour: Carrefour + DIA + Simago
   El Corte Ingles SA : Supermercados El Corte Ingles+ Hipercor+Supercor+Opencor

2. Relevant market definition:
   Regional scale: high market share of the local Saving Banks (Bancaja-CAM in the Comunidad Valenciana, Caja Madrid en la Comunidad Autonoma of Madrid, Ibercaja in Aragón…)
   Nacional scale: high market share of the main commercial banks (BSCH, BBVA,…)