The main advantage of the Herfindahl index is we have a general expression for Cournot models relating it to the Lerner index

\[ L = \frac{H}{\epsilon} \]

where \( \epsilon \) denotes the price elasticity of demand.

This is important as it illustrates the positive relationship between market concentration and market power.

More generally speaking we will have the structure, conduct, performance (SDP) paradigm.

Any industry can be characterized by structure (concentration), conduct((pricing) behavior,, performance (market power).
Market Concentration and Power

- Furthermore the SCP paradigm conveys a causal relationship between structure, conduct, and performance.
- Specifically, structure influences conduct and they both influence performance.
- The relationship between structure and conduct was seen in Chapter 8: collusion was easier among a small number of easier firms.
- The relationship between conduct and performance is the more competitively firms behave, the less market power there is and greater allocative efficiency.
- The relationship between structure and performance was seen in the last equation. With Cournot behavior, the more concentrated an industry was the greater the market power.
- We will focus on seeing (empirically) if there is a positive relationship between concentration and market power.
One testable implication is the structure performance hypothesis.

Specifically, test for a positive relation between concentration and market power.

For this we need data on both variables.

Concentration is relatively easy: market shares from sales data.

Market power is harder, mainly because of getting costs.
Market Concentration and Power

- But if fixed costs are 0 and marginal costs are constant (within a firm) the profit rates are equal to margins.
- That’s because

\[ r_i = \frac{pq_i - c_i q_i}{pq_i} = \frac{p - c_i}{p} = m_i \]

- So the Lerner index can be measured by the average profit rate.
- So with this data we would expect a positive coefficient in the regression of profit rate on concentration.
- However, most studies find a weak statistical link between structure and performance.
- One main reason for this is they ignore the possibility of reverse causation.
- For example, if one for prices aggressively low it could drive another out of the industry, so conduct effects structure, not the other way around.
Now suppose we have two industries, which have the same demand curve and cost functions, but differ in the degree of collusion for some exogenous reason.

Suppose also that any firm may enter an industry by incurring an entry cost $F$.

Denote total industry profits by $\Pi(p)$ where $p$ is the industry equilibrium price.

Because there is free entry in each industry firms will enter as long as profits are positive.

Profits per firm become zero whenever the number of firms is such that

$$\Pi(p)/n - F = 0 \text{ or } n = \Pi(p)/F$$

So if we increase $p$, profits rise so $n$ rises, co concentration falls.
Market Concentration and Power

- But

\[ L = \frac{p - MC}{p} \]

so market power increases, implying a negative relation between concentration and market power.

- Why the opposite results?

- First, we took market structure as given, whereas the degree of competition was treated as an endogenous variable.

- Now, the degree of competition was treated as exogenous, whereas market structure was assumed endogenous.

- This may explain why the statistical relation between concentration and profitability appears insignificant.

- How do we interpret this?

- In the first case, the collusion hypothesis is that concentration implies market power through increased collusion.
Market Concentration and Power

- In this case policymakers should be concerned with anything increasing concentration.
- On the other hand is the efficiency hypothesis for explaining the positive relation between structure and performance.
- To illustrate this, suppose one firm in an oligopoly improves its efficiency, lowering marginal cost.
- This implies a redistribution of market shares, so both concentration and market power increase.
- But now the increase in market power is associated with an increase in productive efficiency as less efficient firms have less market share.
A more general approach can be explained with the following equation:

\[ L = \theta \frac{H}{\epsilon} \]

Where \( \theta \) is a parameter representing type of collusive behavior. We saw \( \theta = 1 \) corresponded to Cournot behavior. In contrast, under Bertrand competition, price was marginal cost, so \( \theta = 0 \). Under monopoly, or perfect collusion, we have

\[ L = \frac{1}{\epsilon} \]

so \( \theta = 1/H \).

To summarize, we can now conclude that market power depends on 1) demand elasticity 2) market concentration 3) degree/type of collusion.