# Lesson 5: Identification of Market Structure

## Identification of Market Structure

### Econometic Approaches

Estimate the price elasticity of market demand:

- If demand is relatively elastic, the market is probably close to perfect competition.
- If demand is relatively inelastic supplying firms may enjoy pricing power.

**Limitation:**

- Problem of endogeneity: Observed prices and quantities are equilibrium prices and quantities (which are determined through the interaction of demand and supply). The entire demand and supply curves cannot be observed and therefore, must be estimated.

*Time Series Analysis*

- Compute price elasticity using historical sales and market price data.

**Limitations:**

- A large number of observations are required.
- There is always the possibility that the market structure and elasticities have changed over the sample period (e.g. mergers may cause the supply curve to change).

*Cross Sectional Regression Analysis*

- Examine sales made by different companies in the market over a specific period; or
- Look at single transactions from different buyers.

**Limitations:**

- It is very complicated.
- Obtaining data can be difficult.

## Other Measures

N-firm concentration ratio: Simply computes the aggregate market share of the N largest firms in the industry.
The ratio will equal 0 for perfect competition and 100 for a monopoly.

- It does not quantify market power. For example, a monopoly may currently enjoy a 100% market share, but if barriers to entry are insignificant, it will not have any pricing-power and will likely behave like a firm in perfect competition to remain competitive and keep potential rivals from entering the market.
- It is unaffected by mergers in the top tier. For example, if the two largest firms in the market were to merge, the pricing power of the combined entity would have improved, but the ratio will not have significantly changed.

Herfindahl-Hirschman Index (HHI): Adds up the squares of the market shares of each of the largest N companies in the market.

- The HHI equals 1 for a monopoly.
- If there are M firms in the industry with equal market shares, the HHI will equal 1/M.
- Just like the concentration ratio, the HHI does not account for the possibility of entry, nor does it consider the elasticity of demand.

**Example: Calculating HHI and the Concentration Ratio**

There are 7 producers of a certain good in an economy whose market shares are given in the following table:

| Firm | Market share |
|---|---|
| 1 | 30% |
| 2 | 25% |
| 3 | 15% |
| 4 | 12% |
| 5 | 8% |
| 6 | 5% |
| 7 | 5% |
| **Total** | **100%** |

1. Calculate:
   a. The four-firm concentration ratio.
   b. HHI of the four largest firms.
2. Now suppose that the two largest firms merge. Based on the new market shares, calculate:
   a. The four-firm concentration ratio.
   b. HHI of the four largest firms.
3. Comment on the change the two ratios before and after the merger.