

# Resources for Teachers

LC Economics

Market structures 3.1

The Herfindahl-Hirschman Index (HHI)

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# The Herfindahl-Hirschman Index (HHI)

## Definition

The Herfindahl-Hirschman Index (HHI) is a **measure of market concentration**. It is used to **understand the level of competition** in an industry.

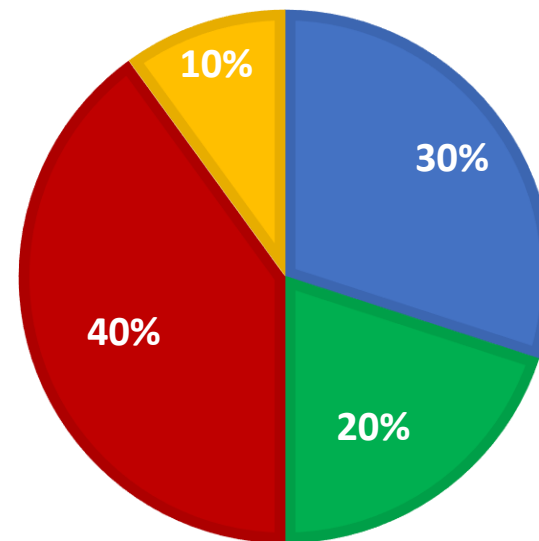
## Market concentration

Market concentration measures how market shares are **concentrated between a small number of firms**.

In the example, the market shares are concentrated between four firms.



An example market

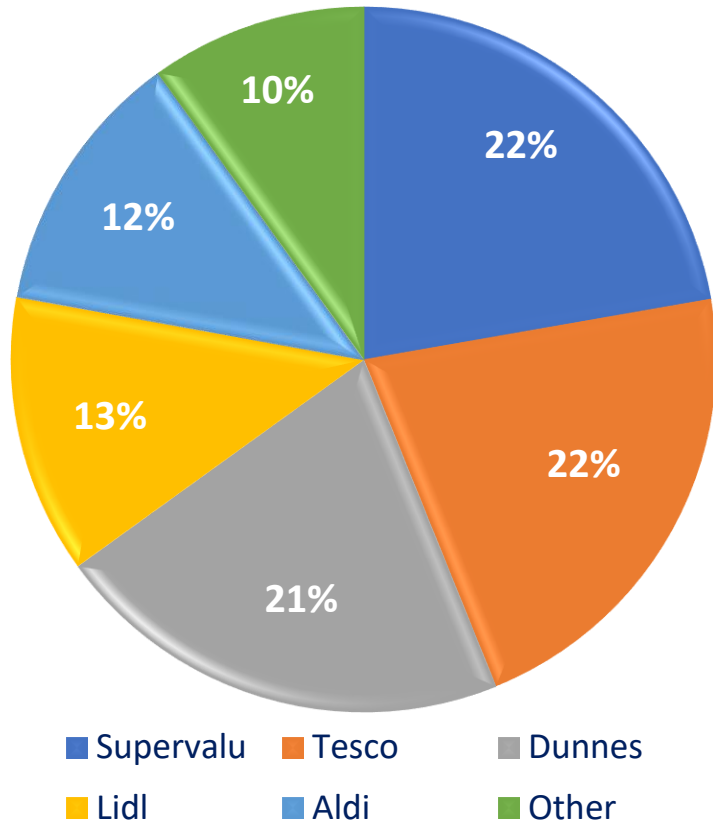


■ Firm A ■ Firm B ■ Firm C ■ Firm D



## Calculating The Herfindahl-Hirschman Index (HHI)

**Example** - the market share of grocery stores in Ireland.



The Herfindahl-Hirschman Index (HHI) is **calculated** by adding up the **squared market share**, which is expressed as a percentage, of each firm competing in a given market.

**Calculating the HHI for the grocery stores in Ireland:**

1. Take the percentage market share for each store and square.

$$22^2 + 22^2 + 21^2 + 13^2 + 12^2 + 10^2 =$$

2. Add up the squared results.

$$484 + 484 + 441 + 169 + 100 = 1678$$

**The HHI is therefore 1678**

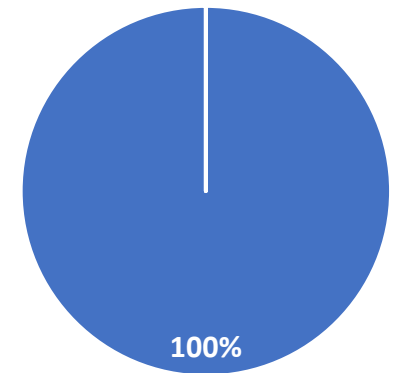
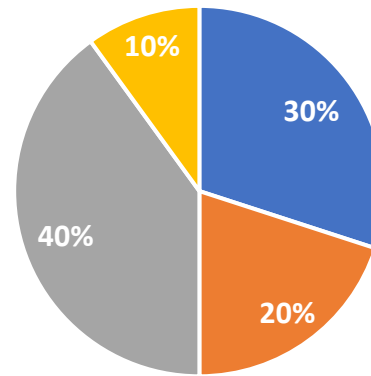
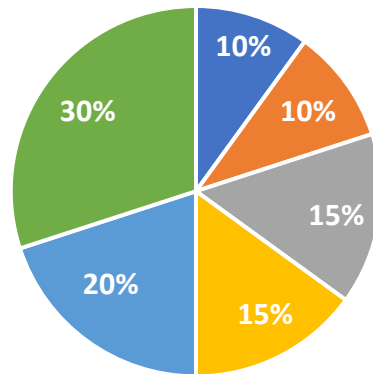
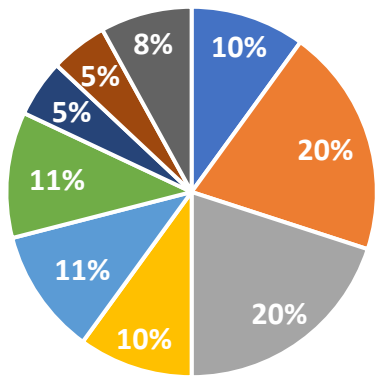


## Interpreting The Herfindahl-Hirschman Index (HHI)

- HHI less than 1,500 - is considered to be a **competitive marketplace**
- HHI of 1,500 to 2,500 - is considered to be a **moderately concentrated marketplace**
- HHI of 2,500 or greater - is considered to be a **highly concentrated marketplace**
- HHI of 10,000 - is a **monopoly with no competition.**

### Task

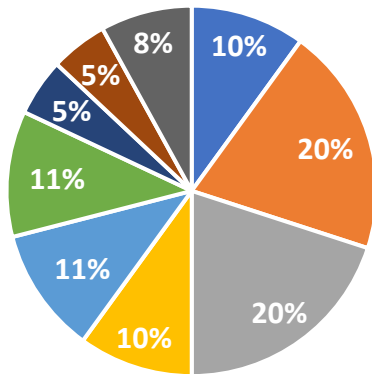
Work out the HHI index figures in example markets below and explain the type of market places.



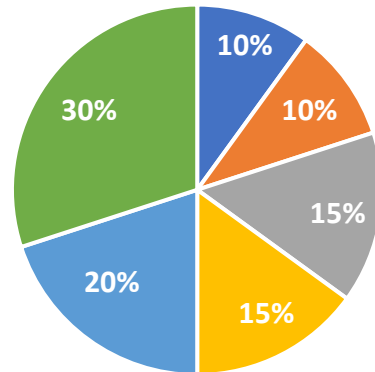
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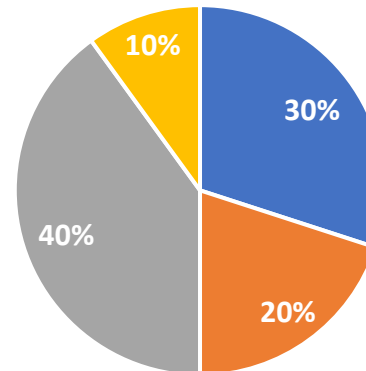
### Answers - to the HHI index figures in example markets



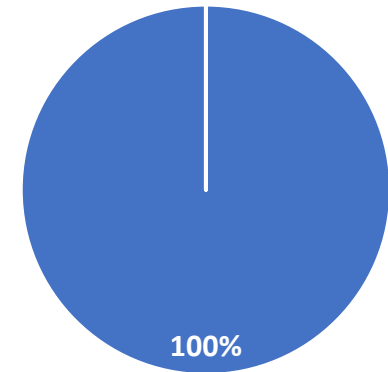
HHI = 1356  
Competitive



HHI = 1950  
Moderately concentrated



HHI = 3,000  
Highly concentrated



HHI = 10,000  
Monopoly



# Advantages and Disadvantages of The Herfindahl-Hirschman Index (HHI)

## Advantages of HHI

- It is useful for evaluating potential **mergers** issues
- The **simplicity** of the calculation necessary to determine the HHI
- **Only a small amount of data** required for the calculation.

## Disadvantages of HHI

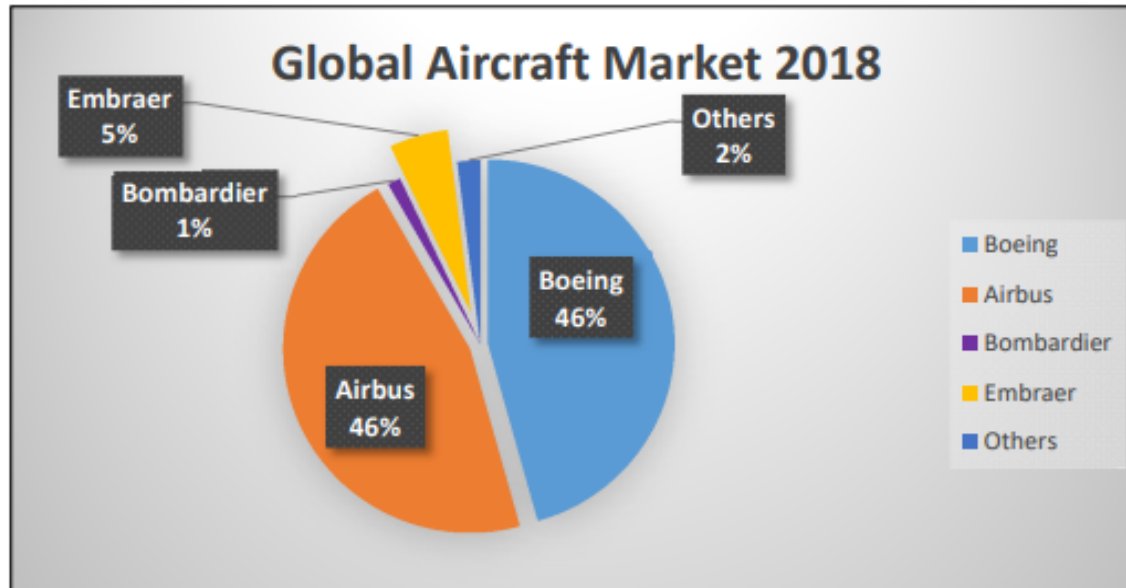
- It fails to take into account the **complexities of various markets** in a way that allows for a **genuinely accurate assessment** of competitive or monopolistic market conditions.



## Examination Questions – 2021 paper

### Question 11

The pie chart below shows the market share of the Global Aircraft Market in 2018.



Adapted from Industry and Research.com

- (a) (i) Using the data provided above, calculate the Herfindahl Hirschman Index (HHI) for the Global Aircraft Market in 2018. Show your workings.
- (ii) Would you consider this market to be **competitive**, **moderately concentrated**, or **highly concentrated**? Explain your answer.



## Answer – Q11 2021

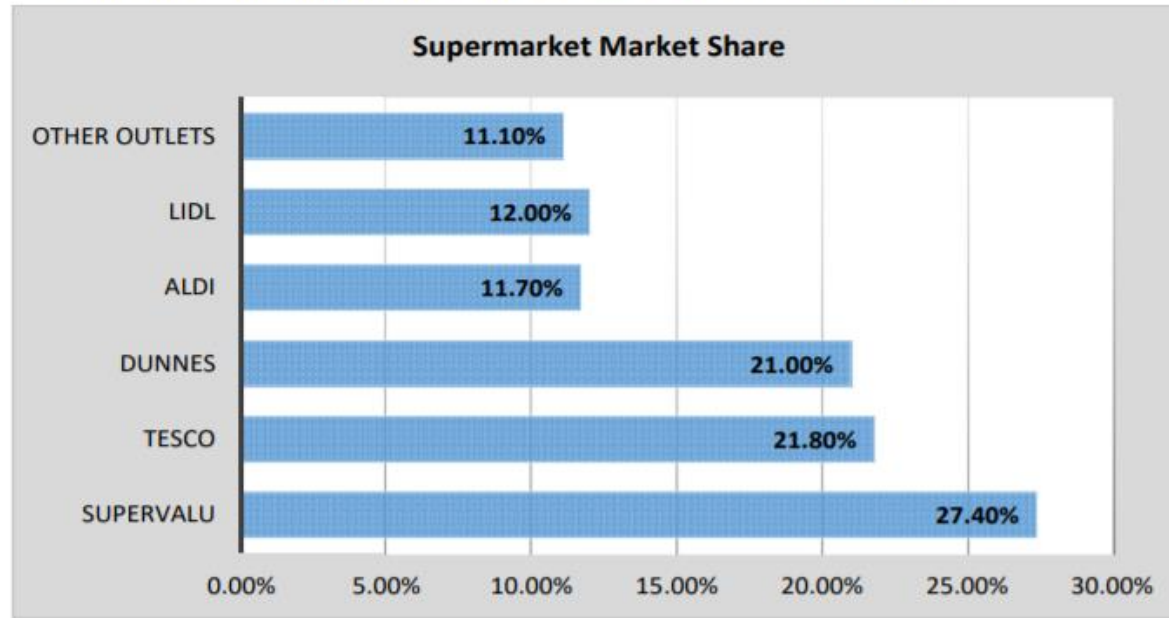
<b>(a)</b>	<p><b>(i)</b> Using the data provided calculate the Herfindahl Hirschman Index for the Global Aircraft Market in 2018. Show your workings.</p> $46^2 + 46^2 + 5^2 + 2^2 + 1^2 = 4262$ <p><b>(ii)</b> Would you consider this market to be <b>competitive, moderately concentrated, or highly concentrated</b>? Explain your answer.</p> <p><b>Highly concentrated</b> because</p> <ul style="list-style-type: none"><li>• The HHI is greater than 2500.</li><li>• 92% of the market share is shared between two firms.</li><li>• The industry is dominated by two firms.</li></ul>	<p><b>7</b></p> <p><b>8</b> <b>(3 + 5)</b></p> <p><b>[15]</b></p>
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## Examination Questions – 2020 sample paper

### Question 2

The diagram below shows the market concentration for supermarkets.



Adapted from Kantor

- Using the information provided in the diagram above, calculate the market concentration of the supermarket industry, using the Herfindahl-Hirschman index (HHI).
- Identify the type of market structure from the data provided above.



## Answer – Q2 2020 sample paper

- (a) Using the information provided in the diagram above, calculate the market concentration of the supermarket industry, using the Herfindahl-Hirschman index (HHI).

HHI in the supermarket industry:

If there is a market with 6 supermarkets, with market shares of 11.10%, 12.00%, 11.70%, 21.00%, 21.80% and 27.40%, the HHI would be:

$$11.10^2 + 12.00^2 + 11.70^2 + 21.00^2 + 21.80^2 + 27.40^2 =$$

$$123.21 + 144 + 136.89 + 441 + 475.24 + 750.76 = \mathbf{2071.1}$$

- (b) Identify the type of market structure from the data provided above.

This is a **moderately concentrated market** because

HHI is between **1,500 to 2,500**

The market is dominated by 6 supermarkets and 70% of the market is controlled by 3 firms.



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- ✓ **Important definitions** highlighted in every section
- ✓ **Detailed revision notes** organised by topic
- ✓ **Original diagrams** aimed to clarify topics and promote understanding
- ✓ **Audio files** to make revision more flexible
- ✓ **Quizzes** provided at the end of each topic aimed at improving retention
- ✓ All available **exam questions** included by topic, helping to focus the study.

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