Industrial Organization

Monopolistic Competition

Week 4

Monopolistic Competition

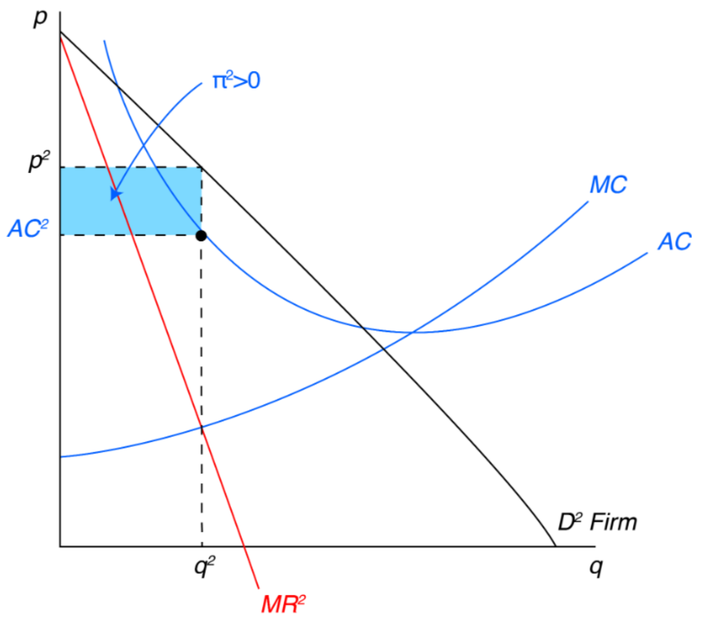
	Perfect competition	Monopolistic competition	Monopoly
Characteristics	Homogeneous product Many firms Many consumers Free entry and exit	Many firms Many consumers Differentiated product Free entry and exit ($\pi^{LR} = 0$)	Only one firm Unique product Entry barriers
Behaviour	Takes market determined price as given and chooses quantity to maximizes profits ("Price-takers")	Sets price and quantity to maximize profits ("Price-maker")	Sets price and quantity to maximize profits ("Price-maker")
Optimal decision	$P = MC$	$MR = MC$	$MR = MC$

EXAMPLE: RESTAURANTS

- ✓ Many restaurants;
- ✓ Many consumers;
- ✓ Differentiated product (italian, portuguese, chinese, etc.)
- ✓ Free entry and free exit (the investment needed to open a restaurante is small).

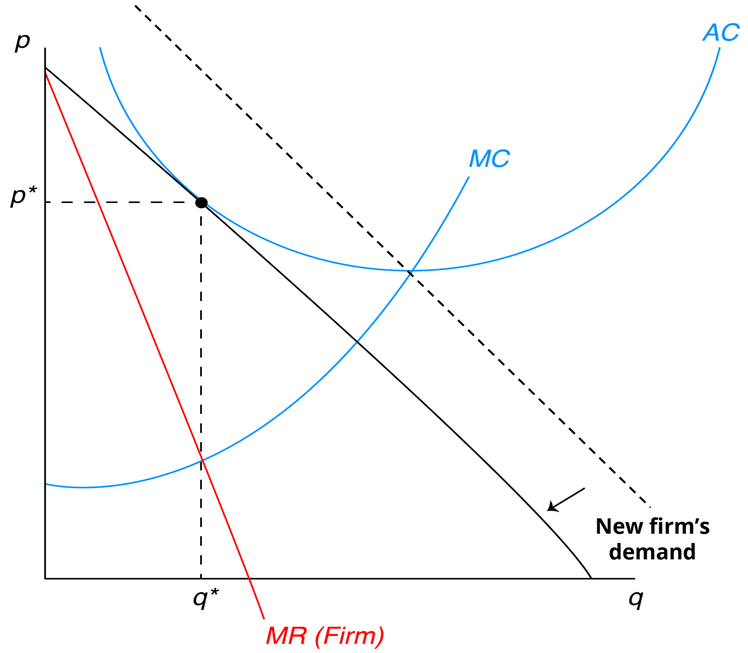
Monopolistic Competition

Short run equilibrium



$$\textbf{Due to product differentiation} \rightarrow MR = MC$$

Long run equilibrium



$$\textbf{Due to free entry} \rightarrow \begin{cases} MR = MC & \text{As in a monopoly} \\ \pi_i = 0 & \text{As in a perfectly competitive market} \end{cases}$$

Monopolistic Competition

EXERCISE

4. Suppose that all firms in a market under a Monopolistic Competition environment face an individual demand of $P = 90 + \frac{20}{n} - 4q, n \geq 1$. The total cost function of each firm operating in this market is $TC(q) = q^2 + 414.05$.

(a) Assume that **in the short-run there are only 4 firms in the market**, a firm named "SBE" and three other **similar competitors**. Find the **optimal quantity and price as well as the profit earned in the short-run** by SBE. What does the sign of the profit level tell you about potential market entry (or exit)?

(b) Monopolistic Competition implies **zero profits in long-run equilibrium**. Use this fact to **find the number of firms, and SBE's quantity and price in the long-run**. What do you expect will happen in the long-run equilibrium if the fixed cost F=414.05 increases? Justify.

Monopolistic Competition

EXERCISE

4. Suppose that all firms in a market under a Monopolistic Competition environment face an individual demand of $P = 90 + \frac{20}{n} - 4q, n \geq 1$. The total cost function of each firm operating in this market is $TC(q) = q^2 + 414.05$.

(c) Compare the **short-run and long-run consumer surplus**.

(d) Considering the computed equilibrium quantities in (a) and (b) and given the total cost function, what can you conclude about the **productive efficiency of the firms operating in this market**?

(e) Compute the **Lerner index** $\left(L = \frac{P-MC}{P}\right)$ when $n = n_0$ and show that it is independent of the number of firms n_0. Explain intuitively the reason why SBE's market power does not decrease with the number of competitors when $n \to \infty$.

Monopolistic Competition

EXERCISE

6. Consider a market under a monopolistic competition environment, with $n = 101$ firms with identical demand and cost functions:

$$P = 150 - q_i - \frac{1}{50}\sum_{k=1}^{n-1} q_k \qquad TC(q_i) = \frac{1}{2}q_i^3 - 20q_i^2 + 270q_i$$

with $i \neq k$ and $i = 1, 2, \ldots, n$.

(a) Assume that the number of firms in the market does not change. Find the optimal quantity and price as well as the profit earned in the **short-run** by each firm.

(b) Assume now that there is free entry of new firms. What is the **long-run equilibrium** in this market?

Recommended readings

CABRAL, LUIS MB. INTRODUCTION TO INDUSTRIAL ORGANIZATION. MIT PRESS, 2017.

- ✓ Chapter 6.4: Monopolistic Competition