



## Lesson plan

**Course Name: Economics II**

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**Lecturer: Ing. Martin Pop**

**Topic: Firm behavior and supply shaping, part II.**

### **Course Objectives:**

The second lecture is going to describe the assumptions of the model of perfect competition and explain the offer of perfectly competitive firm in the short and long term. The next goal is to explain the balance of perfectly competitive industry in the short term and in the long term.

## **7. DECISION-MAKING FIRM IN PERFECT COMPETITION.**

### **7.1 Optimal Output Choice in the Perfect Competition**

Zero economical profit means that inputs bring as much as they bring their best alternative use. In this case, there is no impulse to move to another industry.

**Economic profit ( $\pi$ )** is the difference between total revenue and total costs:

$$\pi = TR - TC$$

$$\pi = P \cdot Q - w \cdot L - r \cdot K$$

$$\pi = P \cdot f(K, L) - w \cdot L - r \cdot K$$

$$\pi(Q) = TR(Q) - TC(Q)$$

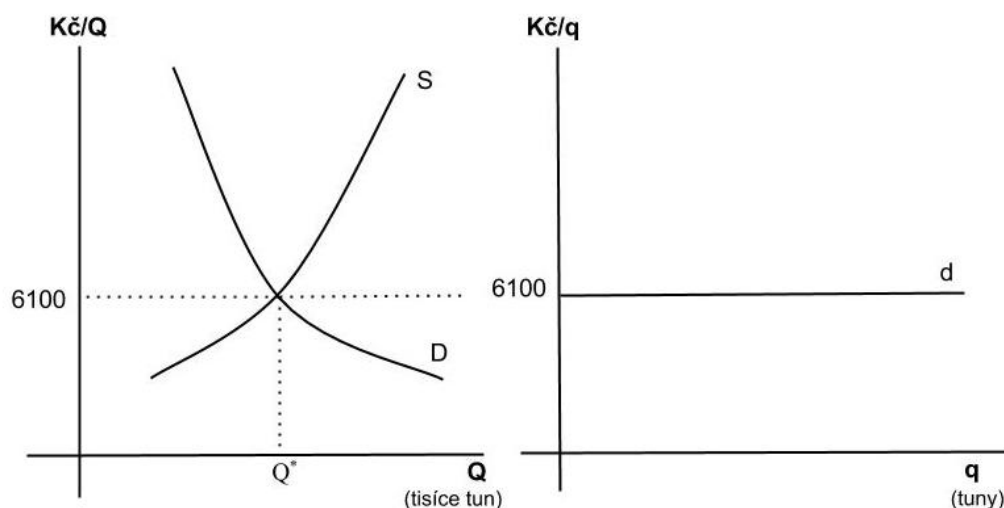
Economic profit will be maximized in the case of:

$$MR = MC$$

### **7.2 Perfect competition model assumptions**

- In every market there are a large number of buyers and sellers, none of which are strong enough to influence price or output sectors.
- All goods are homogeneous.
- Free entry and exit to and from the market.
- Consumers are having perfect information about the prices and quantities.
- Firms maximize profits, consumers maximize utility.

Note: Some authors stress free access to information about the companies technology.



### 7.3 Company output in the short term

The optimum output of the company can be determined in two ways:

- based on the difference between total revenue and total costs,
- on the basis of equality of marginal revenue and marginal cost.

For each designated level of output is true:

**q \***: an optimal output at which the firm maximizes profit; at this point is equal to the slopes of the curves TR and STC, ie.  $MR = MC$ ; marginal cost function is increasing.

**Q'**: at this point is equal to the slopes of the curves TR and STC, ie.  $MR = MC$ , but at the same time as the total income is less than the total cost, the firm maximizes loss; marginal cost function is decreasing.

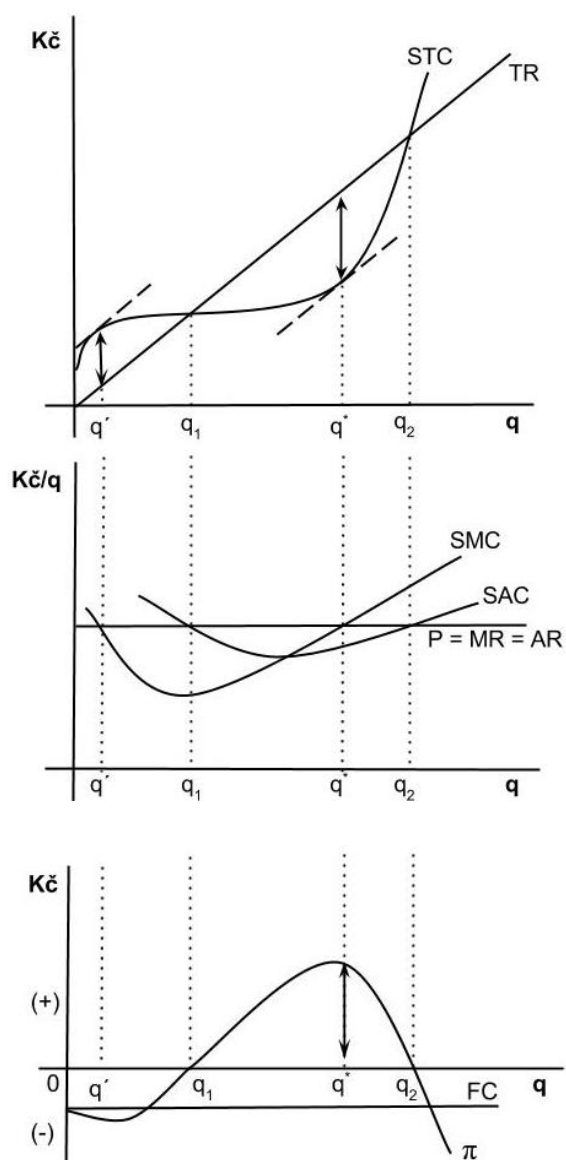
**q1**: the line leading from the beginning to curve TR and STC have the same directive, ie. at this point  $AR = SAC$ . STC curve ceases to fall and begins to grow, which means that the marginal revenue are at its lowest.

**q2**: the same directive lines leading from beginning to curve TR and STC, which means again equality AR and SAC.

## 7.4 Company Supply in the Short Run

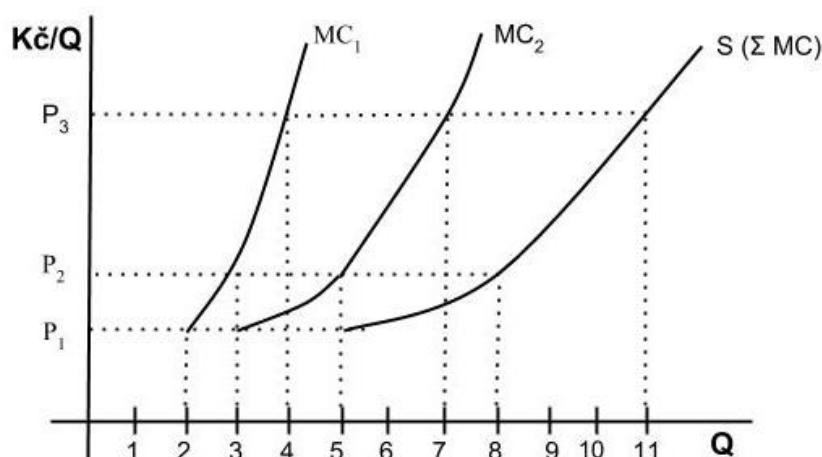
In the case of perfectly competitive firm taking over the market price is the short-term supply curve of the company formed by growing part of the marginal cost curve, the lower limit is min. AVC.

$$q_s = q^*(P, w, r)$$



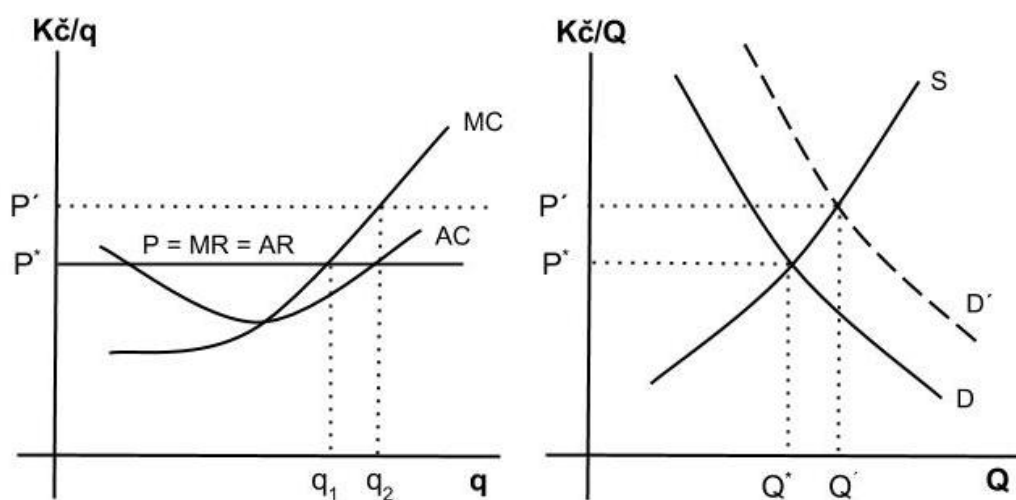
## 7.5 Industry Supply in the Short Run

In the short term we expect a constant number of firms in the industry. Industry supply curve is given by the sum of short horizontal curves offers of all firms in the industry at any price.



## 7.6 Balance of Perfectly Competitive Industry in the Short Run

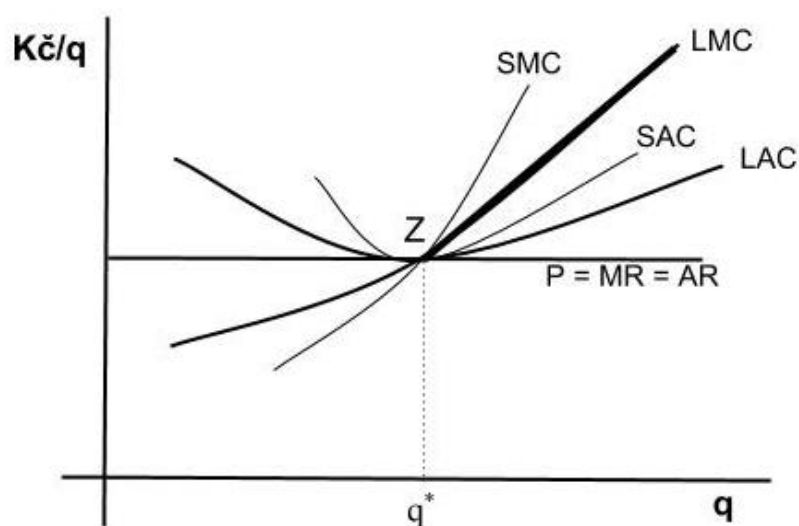
The balance perfectly competitive industry in a short period occurs when the market is „cleaned“, ie. in the short-term equilibrium price  $P^*$  is demanded and the quantity offered the farm ( $Q^*$ ).



## 2.7 Company output in the long run

Considering the long-term optimal output we use the application of the „golden rule“ profit maximization conditions for long periods. We assume that the company may change the amount of used inputs. The optimum output of the company in the long term is then derived from the equality of marginal revenue and long-term marginal cost ( $P = MR = LMC$ ).

The arrival of new companies to the sector will continue as long as the market price falls at the average cost ( $P = AR = LAC$ ) and economic profit to zero. The number of firms in the industry can be considered as balanced.

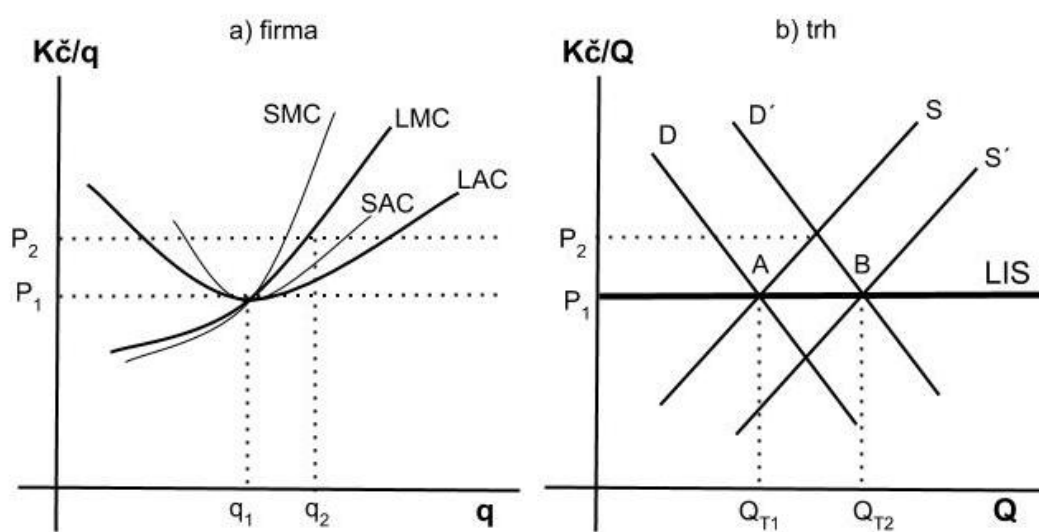


## 7.8 Industry output in the long term

Supply curve perfectly competitive industry in the long term (LIS) is obtained as a set of long-term equilibrium points at the intersection of emerging industries shifting the demand curve and the short supply curves.

### 7.8.1 LIS curve in the case of constant input prices

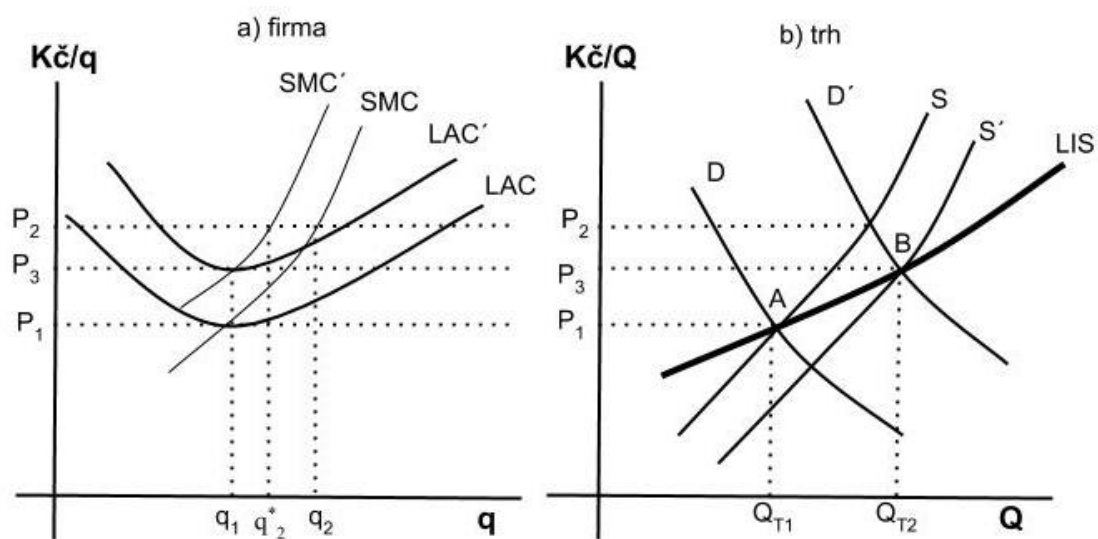
LIS curve formation.



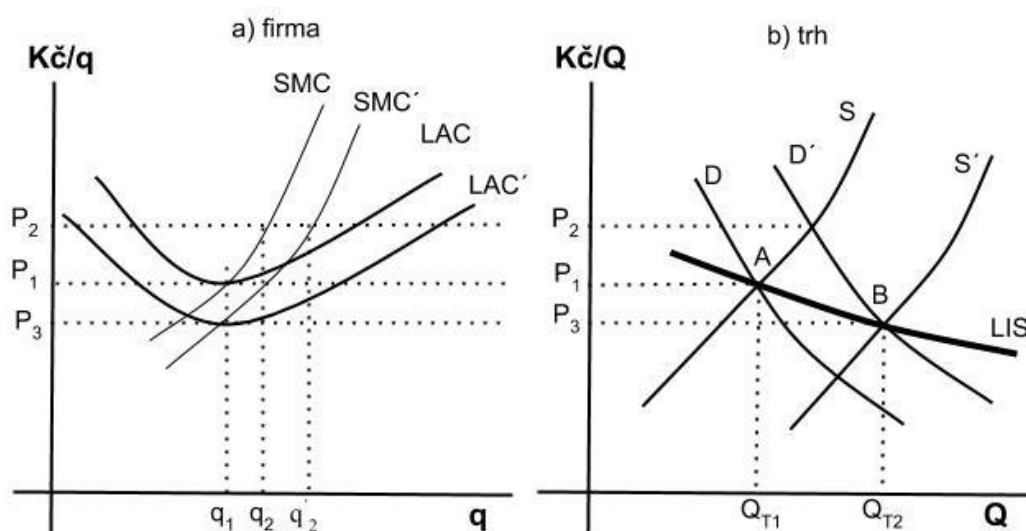
$$P = LMC = LAC$$

LIS curve in the form of a horizontal line at the level of prices  $P_1$  is one of the three cases that may occur.

### 7.8.2 LIS curve in case of rising input prices



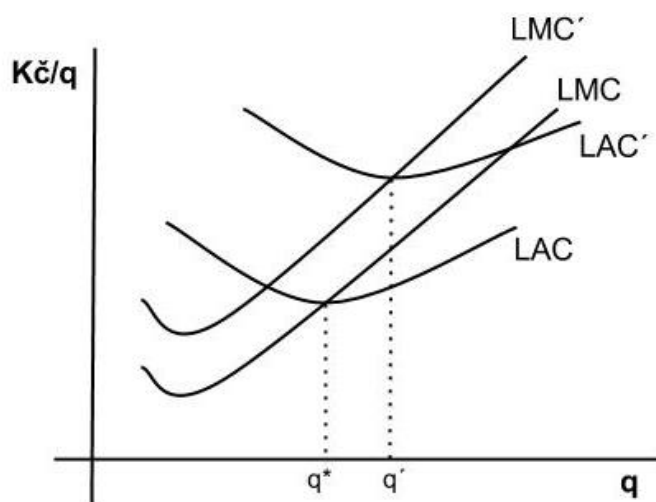
### 7.8.3 LIS curve in case of inputs declining prices





#### 7.8.4 Market supply elasticity in the long run

- sector with the constant cost - LIS curve is perfectly elastic,
- sectors with rising costs - LIS curve is growing and occurs with an increase in the market price. Elasticity will have positive value,
- sectors with declining cost - LIS curve is falling. Elasticity will have negative value.



**List of tasks for students:**

- 1. Explain differences in graphical representation of the total revenue in perfect and imperfect competition.**
- 2. Explain differences in graphical representation of the marginal revenue in perfect and imperfect competition.**
- 3. Explain differences in graphical representation of the average revenue in perfect and imperfect competition.**
- 4. Explain and graphically plot the formation of prices and volume of manufactured products in a perfectly competitive market.**