



Course: Economics I

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1. DESCRIPTION OF IMPERFECT COMPETITION. MAIN CAUSES OF IMPERFECT COMPETITION

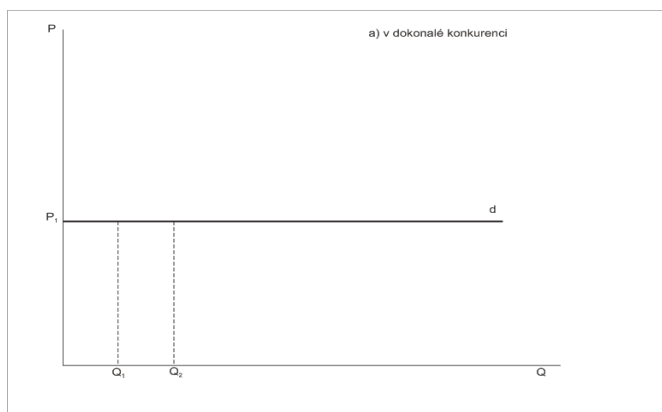
The current market analysis was based on the assumption of perfectly competitive market. The reality is different. In practice, firms produce in conditions where at least one of the assumptions of perfect competition violated and therefore we speak of imperfect competition.

Imperfect competition can be characterized generally as a market where is at least one seller who can influence the price. But of course many more features, which are listed as follows:

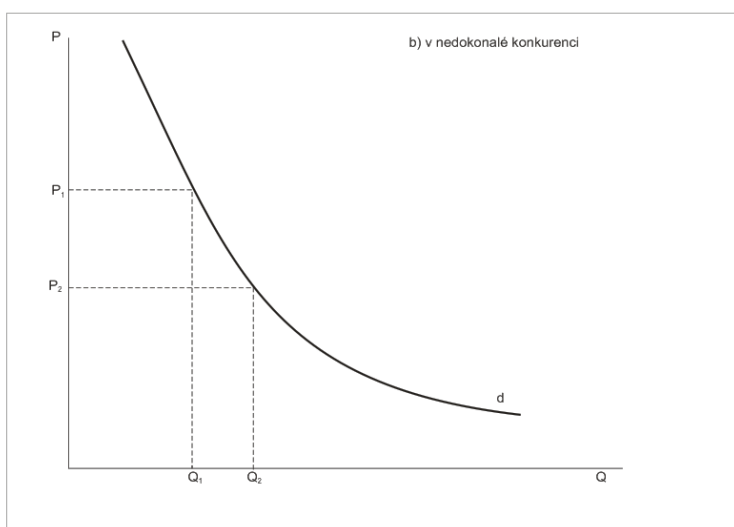
- **differentiated product**,
- existence of at least one seller who can influence the price – **price maker**
- **decreasing demand curve** for companies production,
- company decides on the **optimal level of production volume** as well as price,
- **company size**.

An essential feature of imperfect competition is the characteristic that the firm can set the price of the product. If the company wants to sell more products, must, ceteris paribus, decrease the price. This is reflected in the negative slope of the demand curve for company's production. Here we can compare individual demand for the company's production in conditions of perfect and imperfect competition. (graph individual demand curve in perfect competition and graph individual demand curves in imperfect competition).

The slope is defined as the change of variable in the vertical axis to change the variable on the horizontal axis.



Graph n. 1: Individual demand curve in perfect competition



Graph n. 2: Individual demand curve in imperfect competition

Forms of imperfect competition:

- monopoly (pure monopoly, natural monopoly, monopsony)
- oligopoly (contractual oligopoly, oligopoly with a dominant firm)
- monopolistic competition

The main causes of imperfect competition:

- **cost conditions** (increasing returns to scale):

- Company whose MC and AC are constantly decreasing. With the growth of the output volume are AC declining - therefore economies of scale are realized. It pays to increase the volume until the intersection with the sector demand curve - the whole demand provided by *monopolist*.

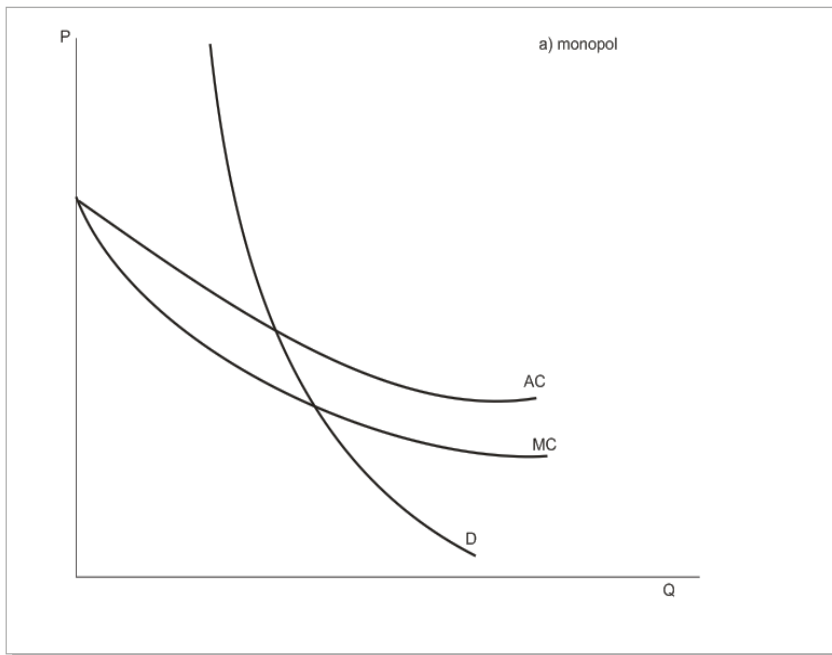
- Economies of scale have been exhausted and the growth of production volume represents an increase of AC. The demand curve does not provide enough large market, for the existence of a large number of firms, but only for a few firms - demand provided by *oligopolistic competition*.

- Companies unit costs are growing quite soon. Market demand curve is very far from efficient production of a single producer. That provides a space for a large number of firms - *perfect competition*.

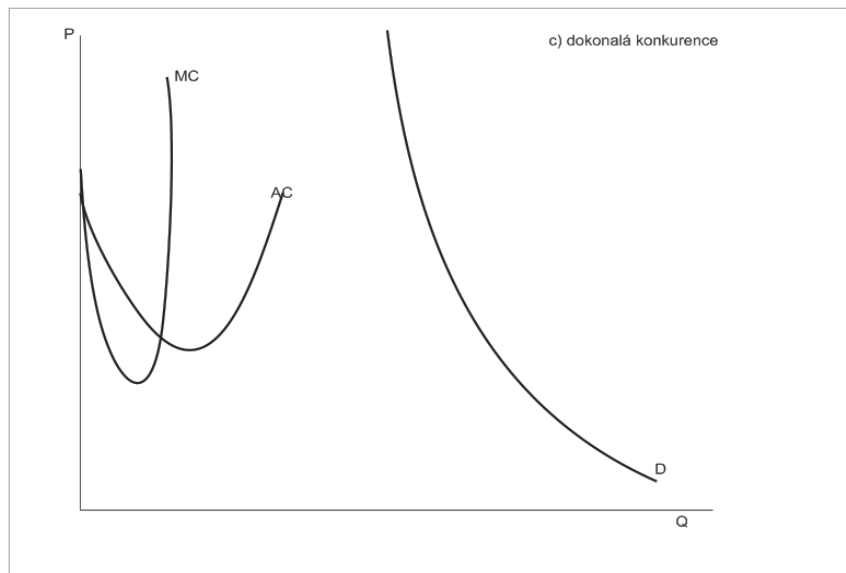
- **barriers to competition**

- Patent protection, licenses and concessions - have the character of barriers to entry,

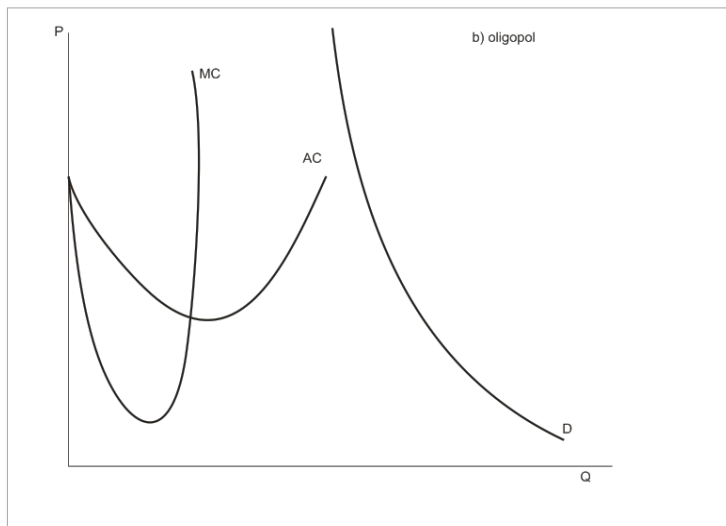
- Product differentiation and other factors.



Graph n. 3: Monopoly cost conditions



Graph n. 4: Perfect competition cost conditions



Graph n. 5: Oligopoly cost conditions

2. COMPANIES BALANCE IN IMPERFECT COMPETITION

To determinate the optimum firm production volume in conditions of perfect competition we come out the conclusions:

- profit is the difference between total revenue and total costs,
- profit is maximized at such a volume of production, where is the biggest difference between total revenues and total costs,
- company is in balance, producing the volume of production, in which maximizes its profits. The equilibrium production volume is derived from the relationship

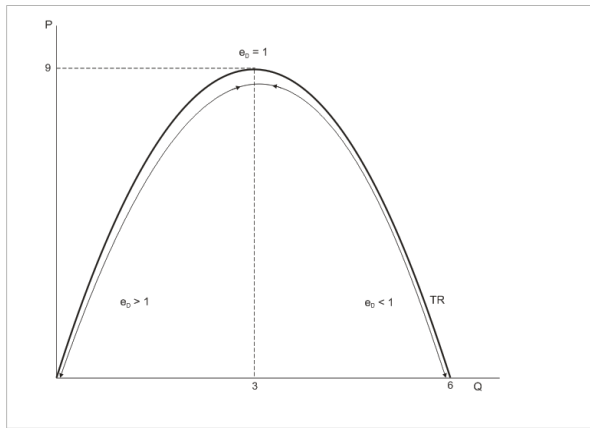
$$\mathbf{MR = MC.}$$

Costs are influenced by production and character of competition does not affect them.

On the contrary character of income is fundamentally influenced by the character of competition. Manufacturers may affect price and we know that with the increase of the production volume the price is reduced. The decline in prices will therefore affect the revenues of the firm.

Total revenue in imperfect competition

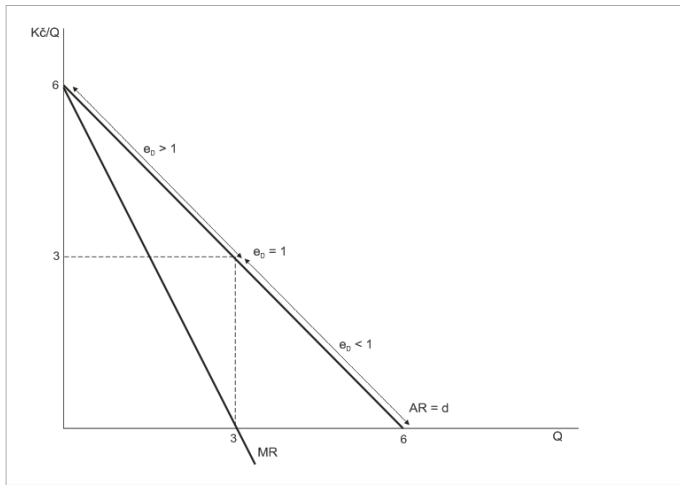
- total volume of production is obtained from the relation $\mathbf{TR = P.Q,}$
- total income may rise or fall (depending on the elasticity of companies production demand).
- *Demand is elastic* - a percentage increase in the volume of the sold production is greater than the percentage decrease in price, so even though the decreases price, the total income is growing.
- *Demand is inelastic* - percentage growth in the volume of the sold production is less than the percentage decrease in price, so if the company lowers the price, its total revenue is decreasing.



Graph n. 6: Total revenue in imperfect competition

Marginal revenue in imperfect competition

- As in the case of imperfect competition is demand curve decreasing, marginal revenue (MR) decreases with the increase of production and must be lower than the price at which is sold the last unit (**MR < P**)
- MR like TR is affected by the elasticity of demand:
 - MR > 0 - demand is elastic,
 - MR = 0 - demand is unitary elastic,
 - MR < 0 - demand is inelastic.



Graph n. 7: Average and marginal revenue in imperfect competition

Marginal and average income in imperfect competition

- definition of unit revenue:

- $MR = TR / Q$

- $AR = TR / Q = P$

- two basic differences from perfect competition:

- AR and MR curves have a negative slope, which is the result of a negative slope of individual demand curve,

- MR curve is identical with the curve of the AR, but decreases rapidly.

Profit

Profit is the difference between total revenue and total costs, which are calculated using the following formula

$$\text{Profit} = TR - TC$$

MR = MC determines the equilibrium volume of the production

$$MR = \Delta TR / \Delta Q$$

$$AR = TR / Q$$

3. MONOPOLY

Is a company that is the sole manufacturer of the goods without close substitutes.

Characteristics of monopoly

- monopoly is a form of competition, the counterpart of perfect competition,
- existence of a single subject on the supply side,
- insurmountable barriers to entry,
- monopoly firm is called "Price maker"
- close substitutes to the production offered by the monopoly,
- individual demand = market demand curve,
- its production is the production of the entire sector,
- existence of a monopoly is closely associated with geographic definition of the market.

Monopoly origin causes:

- amount of the average cost
 - NATURAL (NETWORK) MONOPOLY (distribution networks of water, electricity, gas, railways, highways, etc.)
- control of natural resources (single firm controls the natural resources needed to manufacture the product)
 - NATURAL MONOPOLY,
- State intervention (State grants the exclusive right to manufacture the product to a particular firm)
 - Artificially created monopoly (CNB, Czech Post)
- Legal restrictions - patents and copyrights
 - Artificially created monopoly (the rights of film companies, etc.).

Monopoly equilibrium

Determination of the monopoly production volume, in which the monopoly maximizes profit, is the same as with perfect competition. We are looking for the intersection of MC and MR.

Monopoly production price

- depends on the willingness of consumers to pay it, thus on the market demand,
- is intended above MC ($P > MC$).

The difference between price and marginal cost

- is influenced by the price elasticity of demand,
- with increasing elasticity of demand decreases.

Monopoly supply curve

- is impossible to be constructed,
- can not be identified with the MC curve monopoly.

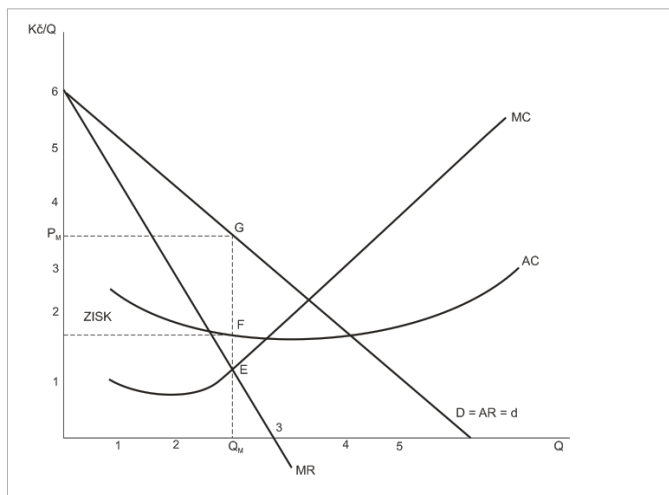
Absolute monopoly

This is an extreme case, when there is market is only one seller. Monopoly is facing only to the competition across the market. Can not freely raise its prices, must take into account the potential demand. Monopolies are now quite rare. The most important cases are licensed services - gas, water.

Monopoly realizes the maximum profit when the difference between TR and TC is the highest and where $MR = MC$. The optimal scale of production is lower than in perfect competition, which is due to falling demand curve of the monopoly

production. Optimal production volume is achieved when $P > MC$ (= economically inefficient).

There is no individual supply curve in terms of monopoly because there is no clear relationship between price and quantity. Deciding on the optimal production volume is determined by the falling demand curve, because it shows the shape of the marginal revenue. Change in demand causes a change of the optimum production volume and thus the change in optimal price.



Graph n. 8: Optimal production volume, price and monopoly profit

Absolute monopoly allocative efficiency

The optimal volume of production is located at point A ($MR = MC$), where the price is higher than marginal cost. Consumers who are willing to buy a smaller amount than the optimal volume of production is and for a higher price than is given by a demand curve, generates consumer surplus (yellow area). This is smaller than in perfect competition.

The manufacturer surplus (shaded area) is greater than the surplus of the perfect competitor. Since the price is higher with the last unit of the optimum production volume is $P > MC$. The red area represents the monopoly costs or the costs of deadweight lost. The total surplus is lower than in perfect competition. It follows that the monopoly is not efficient.

Monopoly power

The price at which the monopoly sells its products contains the monopoly profit since $P > MC$. The higher the excess of price over marginal cost is, the higher is the monopoly power. Monopoly power is measured by the Lerner index, which has the following form:

$$L = \frac{P - MC}{P}$$

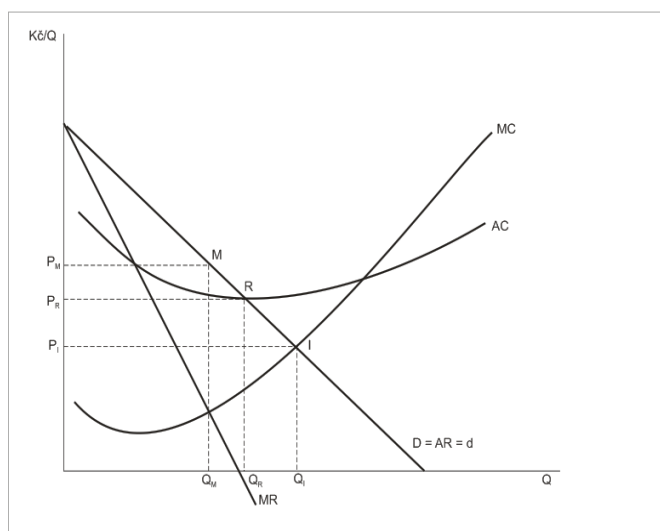
For a perfectly competitive market, applies $L = 0$, since $P = MC$. Values greater than zero indicate monopoly power.

Monopoly regulation

Monopolist sets up the price above marginal cost, what leads to a loss of efficiency. For these reason is the government trying to reduce the costs of monopoly with the following tools:

- **Increasing taxes** reduces monopoly profits, but it does not show in reduction in output.
- **Price regulation** means that the price is officially set up at a certain level. Inappropriate pricing would consequently lead to a shortage of goods with regulated prices.
- **State ownership** is frequently used tool. Examples are e.g. telephone networks, railroad, power generation, etc.
- **Antitrust policy** takes the form of laws that prohibit certain behaviors (joining companies, agreements on prices etc.).

- **Economic regulation** consists in laws or regulations, which the state uses to influence the firms behavior. This is the supervision of the prices, output size and so on.

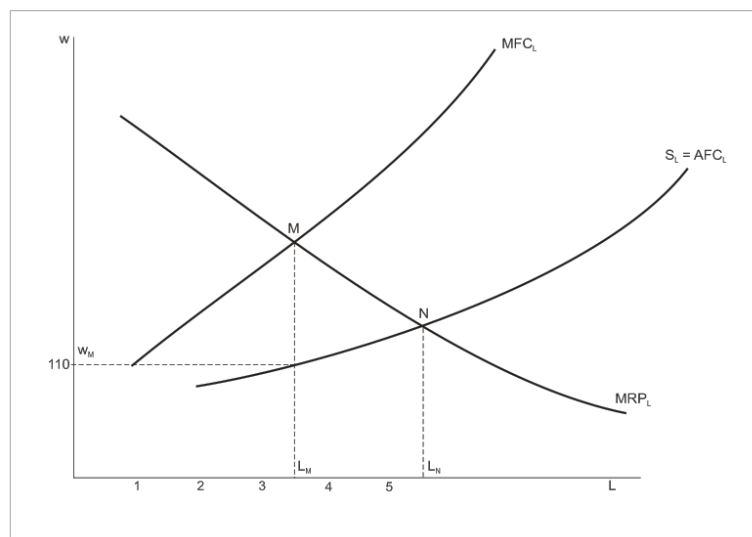


Graph n. 9: Monopoly regulation

Monopsony

- is the opposite of monopoly,
- represents a market in which there is only one buyer,
- monopsony power is the ability of the buyer to affect price in its favor,
- allows the buyer to purchase goods at a lower price than in perfect competition.

For example: the state is the only buyer of a military production



Graph n. 10: Monopsony

4. OLIGOPOLY

Represents a few sellers on the market. Companies have a great economic power and the ability to interact. It is a market with a small number of firms in the industry (oligo - a few duopoly - two firms in the sector), with a high degree of dependency of decision. The product is similar or identical, each company is so strong that it can affect the price and there are barriers to entry to the sector. Companies can cooperate on the basis of agreements on cooperation or possible individual competition.

There are two types oligopoly:

- oligopoly may be one of the few sellers who produce almost the same goods. For example, steel, air transport etc. In these markets there are price wars.
- oligopoly may be one of the few sellers who produce differentiated goods. These include the automobile sector - Skoda Fabia differs from the Opel Corsa, but are close substitutes, with different characteristics and properties. They can create artificial shortages on the market, with less stress and realize even greater profits.

Oligopoly types

According to the type of offered product:

- pure oligopoly,
- differentiated oligopoly.

Depending the side of the market it operates:

- supply oligopoly,
- demand oligopoly - oligopsony.

Depending on the number of firms and their market share

- duopoly
- contractual oligopoly,
- oligopoly with a dominant firm.

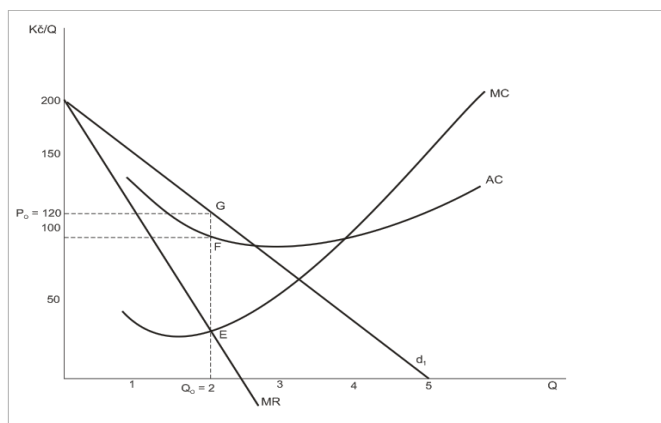
4.1 Contracting oligopoly

Contracting oligopoly arises if a few companies produce very similar product and find out that their prices are on a very close level. In that case they decide to cooperate in prices setting or in the market splitting. Firms jointly conclude a secret agreement (cartel)

on reciprocal behavior, which agree on a price, on the volume of production in order to maximize profit. The graph shows the situation of one of a few cooperating oligopolists.

Cartel - a group of companies in the market, acting in agreement (OPEC):

- Better for them is to increase the joint profits by increasing prices or market splitting,
- conclude a secret agreement and set up of monopoly prices for individual firms or production quotas - each firm in an oligopoly then acts as a monopoly.



Graph n. 11: Contracting oligopoly

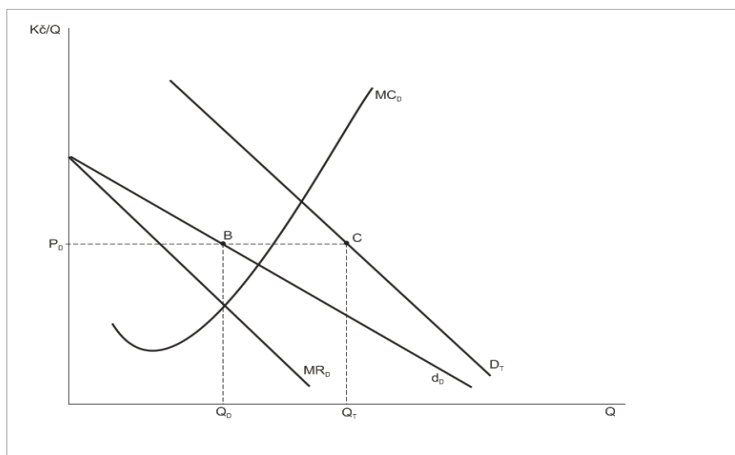
Dual oligopoly or duopoly

The market has only two firms. Both companies are very well readable to each other. They adapt their behavior.

4.2 Oligopoly with dominant company

Frequently sector consists of one large and dominant company which is surrounded by a number of smaller rivals. It therefore has two components:

- Dominant firm - one firm acts as a monopolist, but respects competing hem.
- Competitive hem – a number of small firms that act as perfect competition,
ie. accept the price set by the dominant firm.



Graph n. 12: Oligopoly with dominant company

The market situation in which one strong (dominant) firm is called the price leader, and several weaker, smaller firms (competitive firm) operate on the market. Small firms are unable significantly influence the market.

- competitive firm takes the price from the dominant firm,
- maximizing profit for the dominant firm $MR = MC$,
- maximizing profit for competitive firm $P = MC$.

The market demand curve D shows the demand for and production of dominant firms which is represented by a curve d . At a price of P dominant company offers a number of A and competitive firm offers a variety of B . If we deducted competitive firm offer from the market demand we get the demand for the production of dominant firm. With the increasing price of the dominant firm loses its market share in favor of a competing firm.

5. MONOPOLISTIC COMPETITION

Monopolistic competition is the closest to perfect competition, eg. retail or, accommodation services.

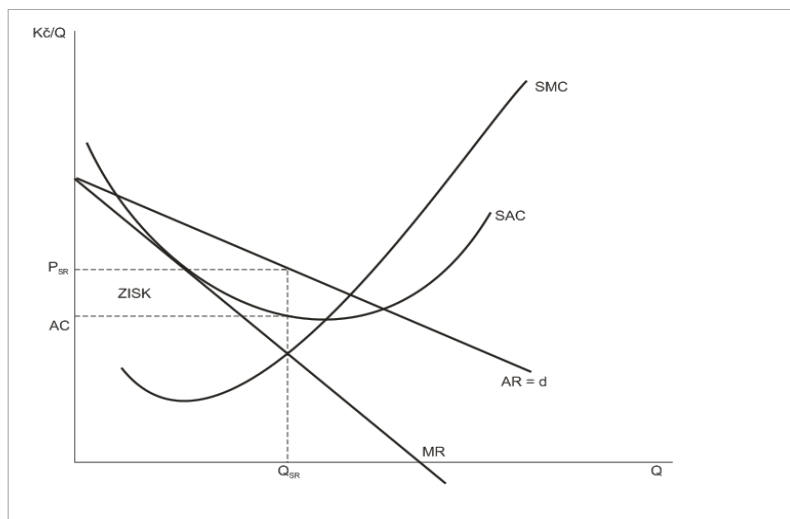
Basic assumptions of monopolistic competition:

- large number of companies in sector,
- goods are heterogeneous with a small differentiations
- location of the company,
- packaging, related services, sales conditions,
- price.
- absence of barriers to entry of firms into the industry,
- existence of a well-informed,
- there are no market risk.

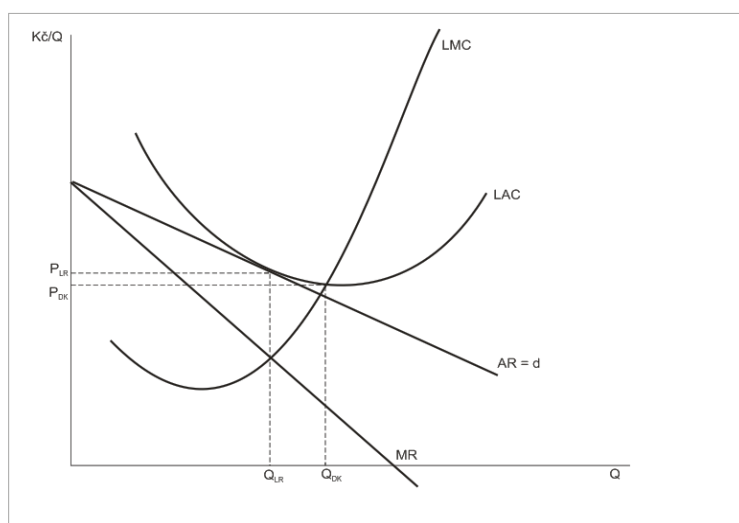
In the long run there is similar situation to the perfect competition. Equilibrium occurs when the intersection of the AR is the same amount as the intersection MR (Gain = 0).

In a *short run* monopolistic firms can realize economic profit, while in the *long run* due to the input of companies into sector and the subsequent decline in prices is realized zero economic profit.

Monopolistic competition is not 100% effective as perfect competition, since the optimal production volume does not produce at minimum average cost. This would be achieved only at high production volumes.



Graph n. 13: Monopolistic competition in the short run



Graph n. 14: Monopolistic competition in the long run

6. TYPES OF COMPANIES

Division of companies in terms of ownership:

- Companies owned individually - on his account go all gains and losses and the company is liable for the obligations of its property,
- Commercial companies - capital association of two or more people = increase the possibility of financial development at the cost of increased legal complexity,
- Joint Stock Company - wider possibilities of obtaining funds through the issue of shares.

6.1 Joint Stock Company

Shares - valuable paper that gives its holder the right to co-decide on the fundamentals of firms business (General Meeting). Number of votes depends on the number of shares.

Dividend - profit that is for each company owners (shareholders).

Joint stock company profit:

- undistributed profit for the company's development,
- profits distributed to shareholders as dividends.

Control activities carried out by professional managers - a contradiction in the interests of managers and shareholders.

The control package is a number of shares sufficient to gain control of the company (51%, but 20% or even 5%).

Bonds - a kind of promissory note, the owner is creditor of the company. Bonds bring contractually agreed interest (the amount of shares depends on the results of the company).

6.2 The behavior of large firms

- conditions of equilibrium profit-maximizing firms: marginal cost (MC) = marginal revenue (MR)
- Reality is more complex - in fact of impossibility to construct a curve D and curve MC for a large number of different goods
- $P = AC$ (average cost) + premium (profit)
- Main limiting factor in determining premiums is demand
- Profit remains the goal of the company and a major impetus to the business
- The firm maximizes its profit when maximizing the difference between TR (total revenue) and TC (total cost). Can be divided into two components:
 - Reducing the cost of production - the search for savings
 - Revenue maximizing - increase the volume
 - Price competition - the voluntary renunciation of profits
 - Non-price competition - increases business costs, but increase the production volume without a price drop.

7. ALTERNATIVE COMPANY OBJECTIVES

The most common alternative goals of the company:

- maximize turnover
- increase market share
- achieve a satisfactory level of profit
- survival
- growth and expansion
- ensuring solvency
- increasing independence
- achieving a certain level of economic power

Managerial theory of the firm:

- Simple management model
- Baumol model

Behaviorist theory of the firm.

Model of the employee company.

Managerial theory of the firm

- firmly influenced by neoclassical economics and institutionalism,
- emphasize the separation of ownership and management,
- focus on the behavior of large companies, which are managed by professional managers (managers goals may be different from the objectives owners).

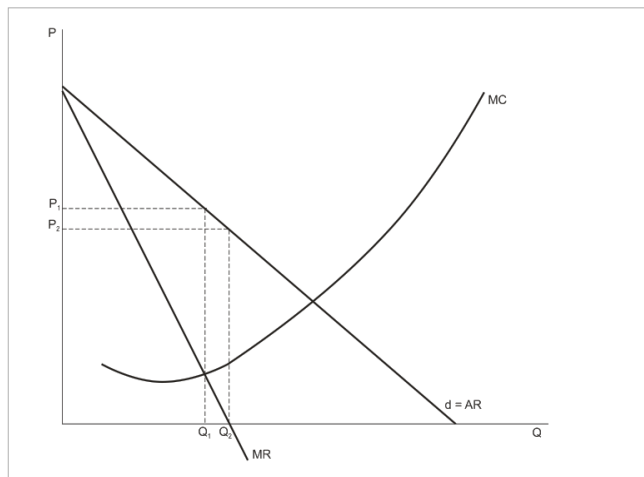
Simple managerial model:

Goal – to maximize the benefit of managers

- Base management model adopted in joint stock companies
- benefit is given to a manager by the position in the company,
- Model where the utility function is profit and ancillary benefits and revenue managers.

The objectives of managers:

- Efforts to increase their own salaries,
- Efforts to increase the number of employees,
- New development investments,
- Efforts to obtain additional benefits:
 - Car for private purposes,
 - Laptop,
 - Business mobile phone,
 - Free training opportunities,
 - Corporate apartment for free,
 - Pension insurance,
 - Health extras,
 - Premium rewards
 - Severance pay, and others.



Graph n. 15: Company maximizing turnover (sales)

Baumol model:

- assumption
 - Imperfect competition,
 - The existence of entry barriers.
- The goal of managers is to maximize the company's turnover - $TR = P \cdot Q$
- maximizing turnover company always produces more volume at a lower price than the profit-maximizing firm and $MR < MC$.

Behaviorist theory of the firm:

- goal of the company is the result of clashes of interests and goals of individuals and groups within the company,
- The company is seen as a coalition of various interest groups, with the goal of a firm can vary with changes in the objectives of individual groups and changes their power within the company,
- target function is not to maximize a certain variable (profit, turnover), but achieving its "satisfactory" level, thus achieving an acceptable outcome for all groups.

Non-profit companies:

- group of companies whose aim is not profit maximization,
- their goal is not to achieve a profit, but certain needs of the society,
- are usually funded by the state (state budget),
- there are also non-market actors that contribute to meeting the needs of society as a whole - schools, hospitals, churches,
- some may operate on a commercial basis (private schools, ...).

List of tasks for students:

1. Graphically plot the demand curve, marginal revenue curve and marginal cost curve of the monopoly. Plot the production volume profit-maximizing firm and profit-maximizing price. Fill the average cost curve your graph depicted:
 - a) existence of a positive net economic gain
 - b) existence of a zero economic profit
 - c) existence of "monopoly losses."
2. Assume that the monopoly demand curve has the form: $P = 75 - 0,5Q$, and the total costs behave according to function: $TC = 125,000 + 5Q - 0,25Q^2$. Determine the price and volume of production, in which the monopoly producer maximizes its profits.
3. Monopoly producer has $MC = AC = 5$ CZK. Market demand curve is given by: $Q = 53 - P$. Specify:
 - a) volume of production and price at which the monopoly maximizes total net economic gain,
 - b) volume of production and price of perfect competition,
 - c) consumer surplus in a monopoly situation (graphical representation).
4. Market demand curve is given by $P = 40 - 2Q$, part of market demand, which accounts for a dominant firm can be expressed as $p = -q + 20$. The amount of dominant firms expenses: $AC = MC = 4$. All companies in the sector are maximizing total profit. Calculate:
 - a) the volume of production offered by the dominant firm,
 - b) the price at which the dominant firm sells,
 - c) the volume of production, which will offer by a "competitive firm",
 - d) the price at which small businesses sell.

5. Graphically display the situation:
- a) firms in monopolistic competition in the long run, when the firm realizes zero economic profit,
 - b) firms in monopolistic competition in the short term, when company realizes positive economic profit,
 - c) firms in monopolistic competition in the short run, when the firm realizes zero economic profit,
 - d) firms in monopolistic competition in the short term, when company carries out an economic loss in the amount of fixed costs,
 - e) firms in monopolistic competition in the short term, when company implements economic loss less than fixed costs.
6. Characterize the nature of managerial and behaviorist theory of the firm.
What is the target function of the firms owned by employees?

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