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Lecture 4

Market power – part II

micro2
first module
m2

Pricing: monopoly vs. PC

- Monopoly

$$p > MC$$

price exceeds MC by an amount that depends inversely on the ***elasticity*** of demand

- Perfect Competition

$$p = MC$$

demand for the firm is ***perfectly elastic*** at $p = MC$

Taxation

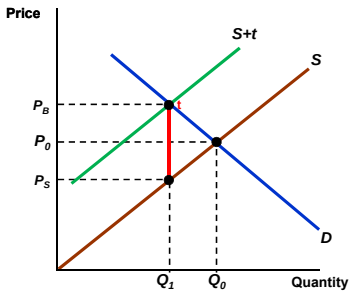
- Consider a ***specific tax*** on a good sold in a perfectly competitive market

  a ***fixed*** ruble amount ***over the price*** of the good

- The per-unit tax causes price to rise by ***less than the tax***

  the tax burden is ***split*** between the consumer and the producer

A specific tax in PC

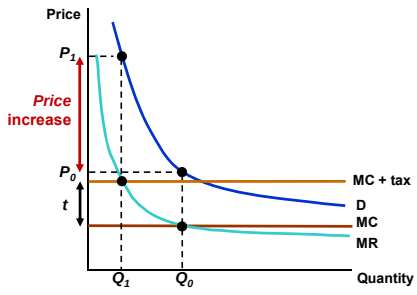


Taxation to a monopoly

- How is a tax going to affect a monopolistic market?
- A fixed tax will ***affect the MC*** of the firm

$$MC' = MC + t$$

Fixed tax on monopolist – graph



Effect of fixed tax on monopolist

- The amount the price increases due to the tax ***depends*** on ***elasticity of demand***
- Price ***may*** or ***may not*** increase by more than the tax
- ***Profits*** for monopolist will ***fall*** with a tax
- In a competitive market, the price ***cannot increase*** by more than tax

Multi-plant monopoly

- For some firms, production takes place in ***more than one plant***
- What if each plant has ***different costs***?
- How will the firm ***distribute production*** between both plants?
  - $MC_1 + MC_2 = MR$?
  - $MR = \min(MC_1, MC_2)$?
  - $MR = \log(MC_1 + MC_2/3.14) - 7/8$?

Profit maximization in plant 1

- Consider a firm who owns ***two plants*** with ***cost*** $C_1(q_1)$ and $C_2(q_2)$
- ***Demand*** for the good is $p(Q)$ that is $p(q_1 + q_2)$
- Let's set up the ***profit*** function

$$\Pi = p(q_1 + q_2) \cdot (q_1 + q_2) - C_1(q_1) - C_2(q_2)$$

- ***Maximizing*** with respect to q_1

$$\frac{\partial \Pi}{\partial q_1} = \frac{\partial [p(q_1 + q_2) \cdot (q_1 + q_2)]}{\partial q_1} - \frac{\partial C_1}{\partial q_1} = MR - MC_1 = 0$$

- Thus, profit maximizing ***condition*** is $MR = MC_1$

Profit maximization with 2 plants

- We can show ***the same*** for plant 2

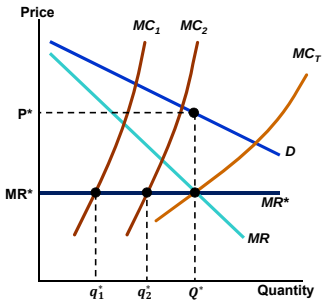
$$MR = MC_2$$

- Therefore, we can conclude that the firm should choose to ***produce*** where

$$MR = MC_1 = MC_2$$

- Lets see it graphically…

Production with two plants



- $MR = MC_T$ gives total output
- This point shows the MR^* for each plant
  - MR^* crosses MC_1 & MC_2 at the profit maximizing output for each plant

Example – producing an additional unit

Q	TC_1	TC_2
1	1	3
2	2	4
3	3	5
4	5	7
5	7	9
6	11	13
7	20	32

Q_{total}	Q_1	Q_2	TC
1	1	0	1
2	2	0	2
3	3	0	3
4	4	0	5
5	5	0	7
6	5	1	7+3 = 10
7	5	2	7+4 = 11

- You want to ***start using*** your least effective plant as the increase in production causes your effective plant to hit the ***diseconomies*** of scale

Market power with more than one firms

- ***Market power*** is the ability of charging
$$p > MC$$
- This can happen ***even*** if the firm is ***not alone*** in the market
- A firm has market power when ***it faces*** a ***downward sloping*** demand curve
- Pure monopoly is ***rare*** but its ***principles*** can be applied to firms that ***possess some market power***

Assessing market power

- We ***measure*** market power by the extent to which *price exceeds the MC*
- For this purpose, we use the ***Lerner's index***
$$L \equiv \frac{p - MC}{p}$$
the ***larger*** the index the greater the power
- Recall that
$$L = \frac{1}{\varepsilon_d}, \quad \varepsilon_d\text{: for the firm}$$

Market power and profits

- Market power ***does not guarantee*** profits
- If the product has ***insufficient demand***, monopolization will not help
- Profit depends on ***average cost*** relative to ***price***
- A firm may have ***more market power*** but ***lower profits*** due to high average costs

Supermarkets & convenience stores

Supermarket	Convenience store
Cheaper ***prices***	More ***expensive***
Takes more ***time*** to shop	***Quicker*** service
Far away from customers	***Closer*** to customer
Store ***elasticity*** -10	Store ***elasticity***, near -5
Markup calculated to 10%	***Markup*** much higher, 20%

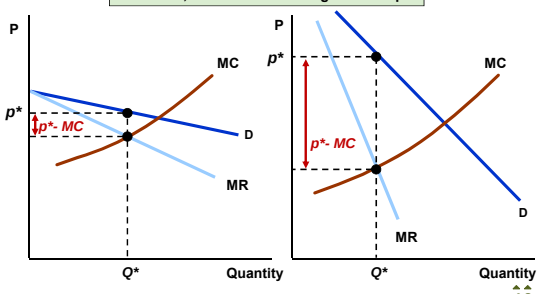
- Convenience store has ***more market power***
higher ***profit margin*** than supermarket
- Supermarkets have usually ***higher profit***, however ***higher volume*** of sales and ***lower AC***

The rule-of-thumb revisited

- Optimal pricing for ***any firm*** with market power
$$p = MC \cdot \left(1 - \frac{1}{\varepsilon_d + 1}\right)$$
- Now ε_d is the elasticity of demand for the brand
  - Elastic products will be have a ***low*** markup
  - Inelastic products will have a ***high*** markup

Elasticity and profit margin / markup

The more elastic is demand, the smaller the margin / markup



Creating market power

- Make your product ***better***
  - ***differentiate your product*** so that consumers cannot ***substitute it easily*** with other products
- Close the ***door*** behind you
  - create ***barriers to entry*** so that potential competitors will keep out of your profits
- ***Kill*** the competition
  - Not literally!
  - Apply strategies that can constrict the competition and ***drive rivals out*** of business

Sources of market power

- ***Why*** do some firms have considerable market power, and others have ***little or none***?
- Market power is determined by ***ability*** to set price above MC
- This is affected by the ***firm's elasticity of demand***
  - firms with ***inelastic*** demand curve, have more market power
- The firm's elasticity of demand is ***determined by***:
  1. Elasticity of ***market demand***
  2. The ***number of firms*** in market
  3. The ***intensity of competition*** among firms

1. Elasticity of market demand

- With one firm, the market demand and the firm's demand curve ***coincide***
  - market power is determined ***completely*** by elasticity of market demand
- With more firms, individual demand ***will differ*** from market demand
- Demand for a firm's product is ***more elastic*** than the market elasticity
- ***Why?***

2. Number of firms

- The market power of a firm ***falls*** as the number of firms ***increases***; all else equal
  - More importantly, the number of firms with ***significant market share***
  - Market is ***highly concentrated*** if only a few firms account for most of the sales
  - Incumbent firms would like to create ***barriers to entry*** to keep new firms out of market

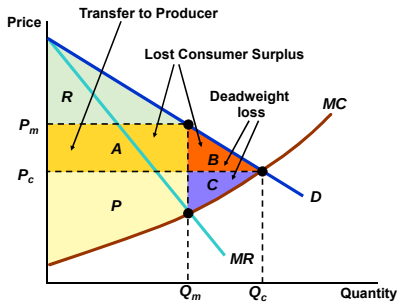
3. Intensity of competition

- Firms can be aggressive in gaining market share
  - undercutting, offers, aggressive R&D etc.
- Then ***prices*** may ***fall*** close to ***competitive levels***
- In other industries firms collude
  - agree to ***moderate*** competition
- Firms can co-exist with ***substantial market power***
- Markets are ***dynamic*** and therefore, so is the concept of market power

Efficiency of non-competitive markets

- Market power results in ***higher prices*** and ***lower quantities***
- However, does market power ***improve or worsen*** market ***efficiency***?
- We can ***compare CS*** and ***PS*** under PC and under monopoly

Efficiency under market power



Social costs of monopoly

- The ***social cost*** of monopoly is likely to ***exceed*** the deadweight loss
- ***Rent Seeking:*** firms may use resources to gain market power instead of using them in the production process
  - lobbying, advertising, building excess capacity
- The ***incentive*** to engage in monopoly practices is determined by the profit to be gained
  - the transfer from consumers to the firm

ευχαριστώ!

(thank you!)

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