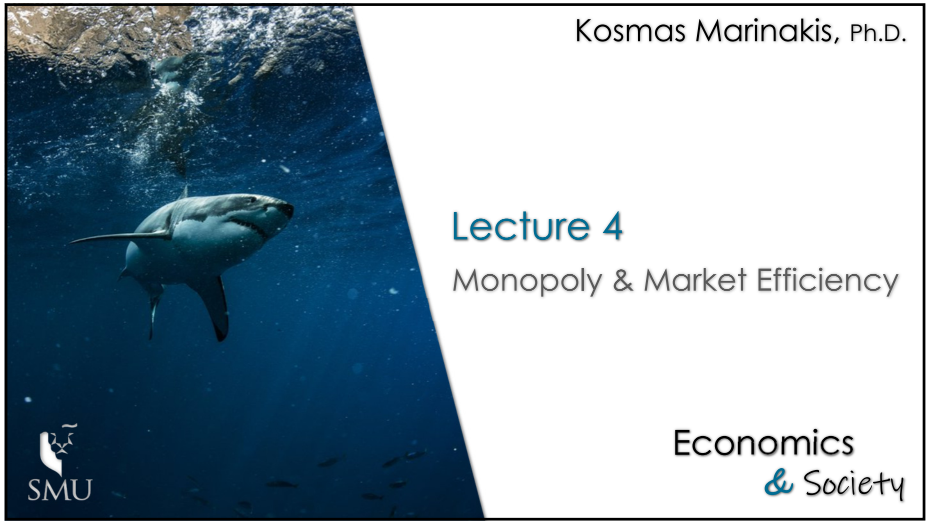


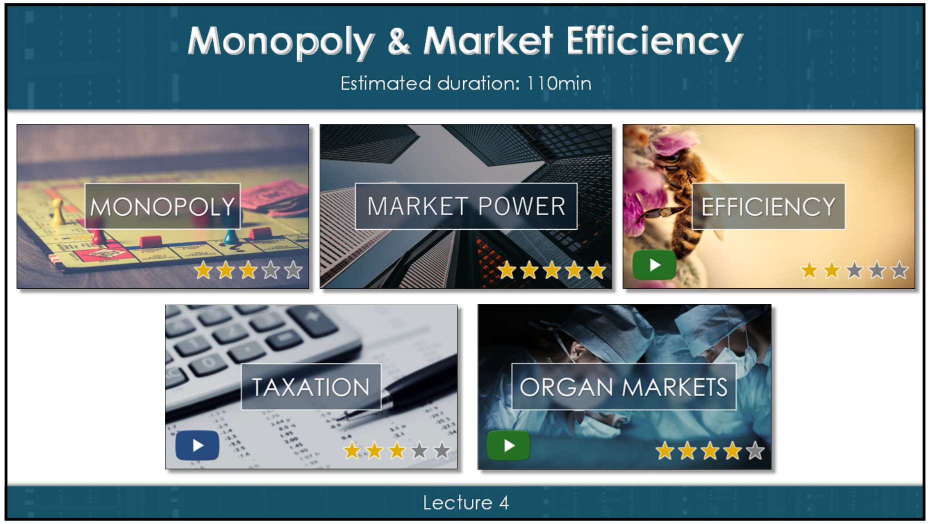

1

## Previously in E&S

- Production function
- Cost of production
  short-run vs. long-run
- Returns and Economies of Scale
- Assumptions of PC
- Profit maximization condition
  in general and in PC
- S-R supply of a PC firm
- Zero profit in the L-R

2




3


4

## Monopoly assumptions



A market is a ***pure monopoly*** when:

1. There is only one ***seller*** but many ***buyers***
2. The ***product*** has no (close) substitutes
3. Existence of ***barriers*** to entry:
   - ***Legal***: patents, copyright, licensing, exclusive relations
   - ***Economic***: Economies of scale
   - ***Production***: Access to resources, physical access to the market
   - Ecosystems, Network effects.

- ***Examples*** of (near) monopolistic markets:

  patented medications, water utilities, airports, MRT





## Price setting



- The monopolist is the ***entire supply-side*** of the market

  has ***complete control*** over the whole quantity offered for sale
- The monopolist is ***NOT a price taker***

  the seller can ***set*** the price
- Still, however, the monopolist must ***consider the market demand***:
  - Raising the price
  - Dropping the price
- As with every market structure, the monopolist ***maximizes profit*** when

$$MR = MC$$

- In monopoly, $MR$ is ***NOT*** the price





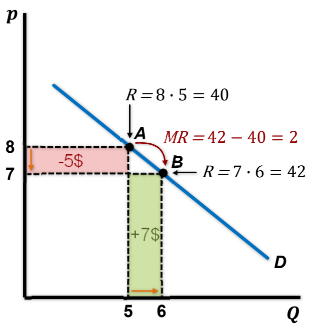
## Price and MR



- The monopolist serves ***the entire*** market demand
- If the monopolist sets the price at $8

  will serve ***all 5 consumers*** who are willing to pay $8
- If the seller wants to sell ***additional units***

  the price must be ***decreased***
- If the price is ***decreased*** to $7:
  - The seller ***earns*** +$7 from selling a 6th unit
  - BUT ***loses*** -$1 from each of the previous 5 units
  - MR of the 6th unit is $7 – $5 = +$2.
- Thus, in monopoly, ***always*** $MR < p$








## MR for linear demand



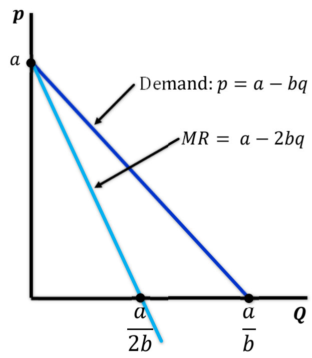
- Consider a ***linear*** demand

$$p = \underbrace{a}_{\text{y-intercept}} - \underbrace{b}_{\text{gradient}}q$$

- Then, ***marginal revenue*** is

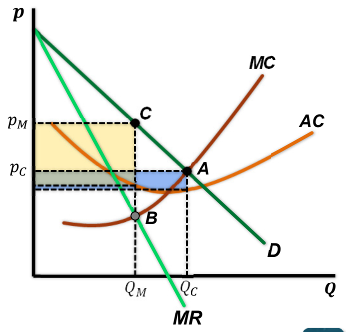
$$MR = a - 2bq$$

- ***When*** demand is a straight line, then the *MR*:
  1. Is also a ***straight*** line
  2. Starts from the ***same*** y-intercept
  3. Has ***double*** the gradient



## Profit maximization in Monopoly vs. PC

- A monopoly, maximizes profit when $MR = MC$
  - Profit maximizing ***quantity*** is $Q_M$
  - ***Price*** $p_M$ is given by the demand curve at *C*.
- If this was a PC market, profit maximization would occur when $p = MC$
- ***Profit*** in monopoly will always be ***higher***
- ***Price*** in monopoly will always be ***higher***
- ***Quantity*** in monopoly will always be ***lower***









## Supply curve in monopoly !

- A ***supply curve*** shows

  *the **quantity** a seller chooses to supply for any **given price***
- However, a monopolist thinks and acts in the ***reverse*** way

  *what price to **set** for the **profit maximizing quantity***
- An ***increase in demand*** may cause the monopolist to supply a ***higher quantity*** at a ***higher*** price, OR at the ***same*** price, OR at a ***lower*** price

  depending on where ***MR = MC*** occurs
- In monopoly, price and quantity supplied ***do NOT correspond uniquely***

  thus, we ***cannot define*** a supply curve for firms that are not price takers






## How real firms set prices

- The '$MR = MC$' condition is as ***mathematically simple*** as it gets

  however, it is quite ***impractical*** to use in the ***real world***
- There is a much ***simpler expression***, mathematically ***equivalent*** to $MR = MC$:

$$p = MC \cdot \left[1 + \underbrace{\frac{-1}{1+\varepsilon_d}}_{\text{markup as \% of MC}}\right]$$

  the seller maximizes profit when ***MC is marked up*** by $\frac{-1}{1+\varepsilon_d}$
- The markup ***depends solely*** on the $\varepsilon_d$

  the ***lower the elasticity***, the ***higher the markup***
- If, ***for example***, $\varepsilon_d = -4.333$

  the ***markup*** is $\frac{-1}{1-4.333} = 30\%$




## Assessing market power

* Market power is ***NOT an abstract*** notion

  is defined as the extent to which ***price exceeds the MC***

* Market power can even exist in industries with ***more than one firms***

  when there is ***some degree of substitution*** among brands but ***not perfect*** substitution

* Firms in such markets can still use the ***markup rule*** to maximize profit

$$p = MC \cdot \left[1 + \frac{-1}{1 + \varepsilon_d}\right]$$

in this case, $\varepsilon_d$ refers to elasticity of demand ***for the firm's brand***, not for the product in general







## Market power & Profit

* Market power ***does NOT necessarily lead*** to high profit
* If a brand has ***low demand***, monopolization will not help
* Market power is the difference between ***price*** and ***MC***
* Profit depends on ***quantity*** sold and the difference between ***price*** and ***AC***
* A firm may have ***high market power*** but ***low profit*** (or even losses) due to high average costs or low sales


* Cheaper ***prices***
* ***Less*** convenient
* Store ***elasticity*** -11
* ***Markup*** calculated to 10%

* More ***expensive***
* ***More*** convenient
* Store ***elasticity***, -6
* ***Markup*** at 20%.








## Sources of market power

Market power for a brand ***originates*** in its ***elasticity of demand***

1. A brand's elasticity is ***positively*** affected by the ***elasticity of the product***
   * If the demand of ***cars*** becomes less elastic, ***VW cars*** will also become less elastic
2. A brand's elasticity is ***negatively*** affected by ***entry*** of new firms:
   * Consumers are offered more chances for ***substituting*** the product
3. A brand's elasticity is ***negatively*** affected by the ***intensity of competition*** among brands:
   * When firms compete ***aggressively,*** prices fall closer to *MC*
   * If firms agree to ***moderate*** competition and ***co-exist***, prices may stay way above *MC*







## How to create market power

1. ***Work*** on your product

   ***innovate*** or ***differentiate*** so that consumers cannot ***substitute it easily*** with other products

2. ***Close the door*** behind you

   create ***barriers to entry*** so that potential competitors will keep out of your profits

3. ***"Kill"*** the competition

   apply strategies that can constrict the competition and ***drive rivals out*** of business

Thank you!

(you are welcomed to stay for *consultation* or *discussion*)

34

# WARNING!

The slides in this handout are created with the intention to serve a visual aid for the audience during the live presentation of the material in the lecture. As such, **they are not designed to be standalone reading material** and should be used strictly as **reference**, side by side with notes taken in the lecture. Studying solely from the slides **is not recommended** and might in some cases **mislead** those who have not attended the relevant lecture. **Less than 20% of tasks in test and exam can be answered solely from the slides**.

35