

# AS.180.102 (04): Elements of Microeconomics

## Chapters 16 and 17 - Monopoly

Kieran Allsop

November 22, 2024

# Midterm 2

- Grades are in Canvas
- Mean - 84.5%, Median - 87%, St. Dev. - 12.8%
- Please see Hank's announcement regarding regrade requests - **Note the part about not submitting requests through break**
- Questions on the exam?

## Question 4A

Hopkins Park is the only amusement park in the state of Maryland. The park faces a demand curve of  $Q = 40 - 0.4P$  and marginal cost of  $MC = 0.25Q$ , where  $Q$  is measured in hundreds of customers.

- 1 Calculate the amusement park's profit-maximizing output level
- 2 Calculate the amusement park's profit-maximizing price

$$P = 100 - 2.5Q$$

$$MR = 100 - 5Q$$

$$MR = MC$$

$$100 - 5Q = 1.25Q$$

$$Q = 16$$

$$P = 100 - 2.5(16) = 60$$

## Question 4B

What is the typical shape of Short-run and Long-run Average Cost curves, and why? Why is the Long-run Average Cost curve flatter than the short-run Average Cost curve?

- The short-run average cost (SAC) curve typically has a U-shape due to the **law of diminishing returns**.
- The long-run average cost (LAC) curve is typically U-shaped due to **economies and diseconomies of scale**
- In the long run, we have **greater flexibility** as input costs are variable. We have no fixed costs in the long run
- We don't get to pick our short run cost curve because it is based off of prior decisions. We can dictate which short run cost curve we end up on in the long run

# Outline

## Main Takeaway

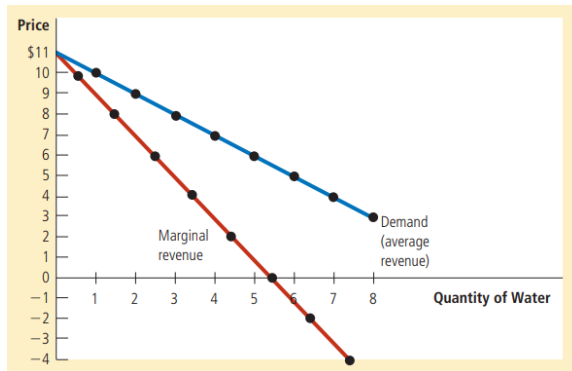
All of the same concepts from competitive markets transfer to monopolies, just our demand and marginal revenue now look different

# Characteristics of a Monopoly

- Single buyer
- Barriers to entry
- Implies they are **price-makers**
- Now that the firm sets the market price, we are back to our free market downward-sloping demand curve
- Recall  $TR = P \cdot Q$
- If we raise  $Q$ 
  - ▶ Quantity effect:  $\uparrow Q \Rightarrow \uparrow$  revenue
  - ▶ Price effects:  $\uparrow Q \Rightarrow \downarrow P \Rightarrow \downarrow$  revenue
- Therefore the change in revenue is unclear ex-ante

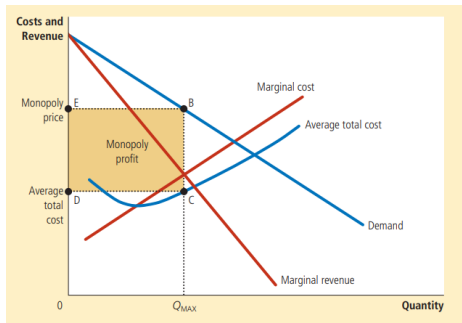
# Marginal Revenue

In a perfectly competitive market  $MR$  did not depend on your quantity. Now you are a monopolistic firm, you effectively *are* the supply side of the market and  $MR$  will depend on your quantity



# Profit Maximization

	Perfectly Competitive Market	Monopoly Market
Price	$P = AR = MR$	$P = AR$
Profit Max	$MR = MC$	$MR = MC$



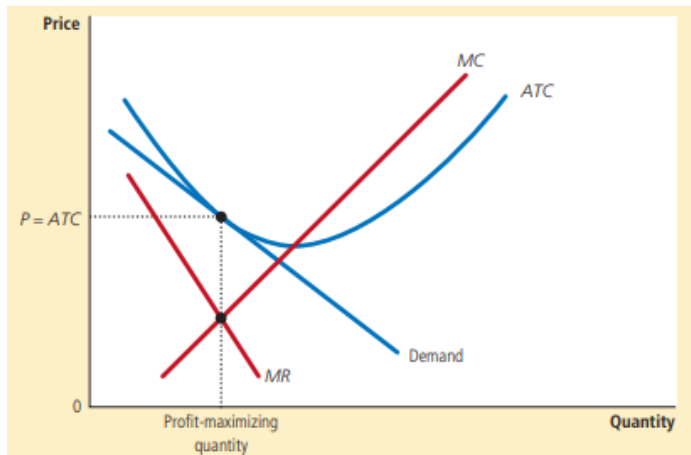


# Difference between the models

Perfect Comp	Monopoly	Monopolistic Comp
Many sellers	Single Seller	Many Sellers
Homogeneous product	One Product	Differentiated Products
Free Entry/Exit	Barriers to Entry	Free Entry/Exit
Flat Demand	Downward sloping Demand	Downward Sloping Demand

- Like in a perfectly competitive market, long-run profits will be zero as  $P = ATC$ 
  - ▶ Why do prices change if we are making profit in the short-run? How is this different to a competitive market or a monopoly?
- Like in a monopoly market, it is always the case that  $P > MC$ 
  - ▶ Why is demand still downward sloping in monopolistic competition?

# Long Run Equilibrium - Monopolistic Competition



# Application

You are a car dealer in a market with many car sellers where each seller is selling a different model of car. This car market has free entry and exit.

Due to a change in preferences, market demand suddenly increases for cars. What is the short term and long term change to the market?

# Prisoners' Dilemma

Prisoners' Dilemma is a classic “game theory” model in economics and is a story of why cooperation does not always occur.

- Consider two prisoners: prisoner A, and prisoner B
- If you both confess to the crime, you both get 8 years in jail
- If you both remain silent, you each only get 1 year in jail
- If one of you confesses and the other remains silent, the confessor walks free and the one who remains silent gets 20 years in jail

What should prisoner A and prisoner B do?

# Prisoners' Dilemma

	B confesses	B remains silent
A confesses	A gets 8 B gets 8	A gets 0 B gets 20
A remains silent	A gets 20 B gets 0	A gets 1 B gets 1

# Prisoners' Dilemma

	B confesses	B remains silent
A confesses	A gets 8 B gets 8	A gets 0 B gets 20
A remains silent	A gets 20 B gets 0	A gets 1 B gets 1

# Prisoners' Dilemma

	B confesses	B remains silent
A confesses	A gets 8 B gets 8	A gets 0 B gets 20
A remains silent	A gets 20 B gets 0	A gets 1 B gets 1

# Prisoners' Dilemma

	B confesses	B remains silent
A confesses	A gets 8 B gets 8	A gets 0 B gets 20
A remains silent	A gets 20 B gets 0	A gets 1 B gets 1



# Prisoners' Dilemma

	B confesses	B remains silent
A confesses	A gets 8 B gets 8	A gets 0 B gets 20
A remains silent	A gets 20 B gets 0	A gets 1 B gets 1

- **Dominant Strategy:** Regardless of the other player's strategy, you will always pick the same
- **Nash Equilibrium:** Given the choice of other player's no players would move from their current choice

# Prisoners' Dilemma and Oligopoly/Duopoly

A lack of cooperation is beneficial from a societal standpoint. Consider American Airlines and Delta Airlines profits from flying a certain number of flights a day from BWI to Miami over Thanksgiving break.

	Delta 20 flights	Delta 10 flights
AA 20 flights	AA profit \$20,000 Delta profit \$20,000	AA profit \$40,000 Delta profit \$15,000
AA 10 flights	AA profit \$15,000 Delta profit \$40,000	AA profit \$30,000 Delta profit \$30,000

How many flights would there be if they cooperated? How many flights will there be in equilibrium? What is the optimal result for consumers?