ECON 101
Introduction to Economics1

Session 12 –Market Structures(Monopoly)

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Session Overview

- This session provides analysis of the behavior of the firm if it is the only producer in the market.

Session Objectives

- At the end of the session, the student should be able to:
  - Understand the monopoly market structure
  - Identify and explain the assumptions/characteristics of monopoly.
  - Understand how price and output is determined by the monopolist.
  - Calculate the Total Revenue, Average Revenue and Marginal Revenue of the firm.
  - Understand equilibrium of a monopolist and how the firm determines its output/price.
  - Have a good understanding of the graphical determination of profit-maximizing output/price
  - Understand the short and long run profitability of the monopolist.

Session Outline

The key topics to be covered in the session are as follows:

- What is a Monopoly?
- Why Monopolies Exist
- Production and Pricing decisions by Monopolists
- Monopoly vs. Competitive Market
- Monopolists' Demand and Revenue Curves
- Profit Maximization of a Monopolist
- The Welfare Cost of Monopoly

Reading List

- Lipsey R. G. and K. A. Chrystal. (2007). *Economics*. 11th Edition. Oxford University Press.

- Bade R. and M. Parkin. (2009). *Foundations of Microeconomics*. 4th Edition. Boston: Pearson Education Inc.

- Begg. D. Fischer S. and R. Dornbusch. (2003). *Economics*. 7th Edition. McGraw-Hill

Introduction

- While a competitive firm is a ***price taker***, a monopoly firm is a ***price maker***.

- A firm is considered a *monopoly* if . . .
  – it is the sole seller of its product.
  – its product does not have close substitutes.

Why Monopolies arise

- The fundamental cause of monopoly is ***barriers to entry*.**

Why Monopolies Arise

- Barriers to entry have three sources:
  - Ownership of a key resource.
  - The government gives a single firm the exclusive right to produce some good.
  - Costs of production make a single producer more efficient than a large number of producers.

Why Monopolies Arise

Monopoly Resources

- Although exclusive ownership of a key resource is a potential source of monopoly, in practice monopolies rarely arise for this reason8.

Government-Created Monopolies

- Governments may restrict entry by giving a single firm the exclusive right to sell a particular good in certain markets.
- Patent and copyright laws are two important examples of how government creates a monopoly to serve the public interest.

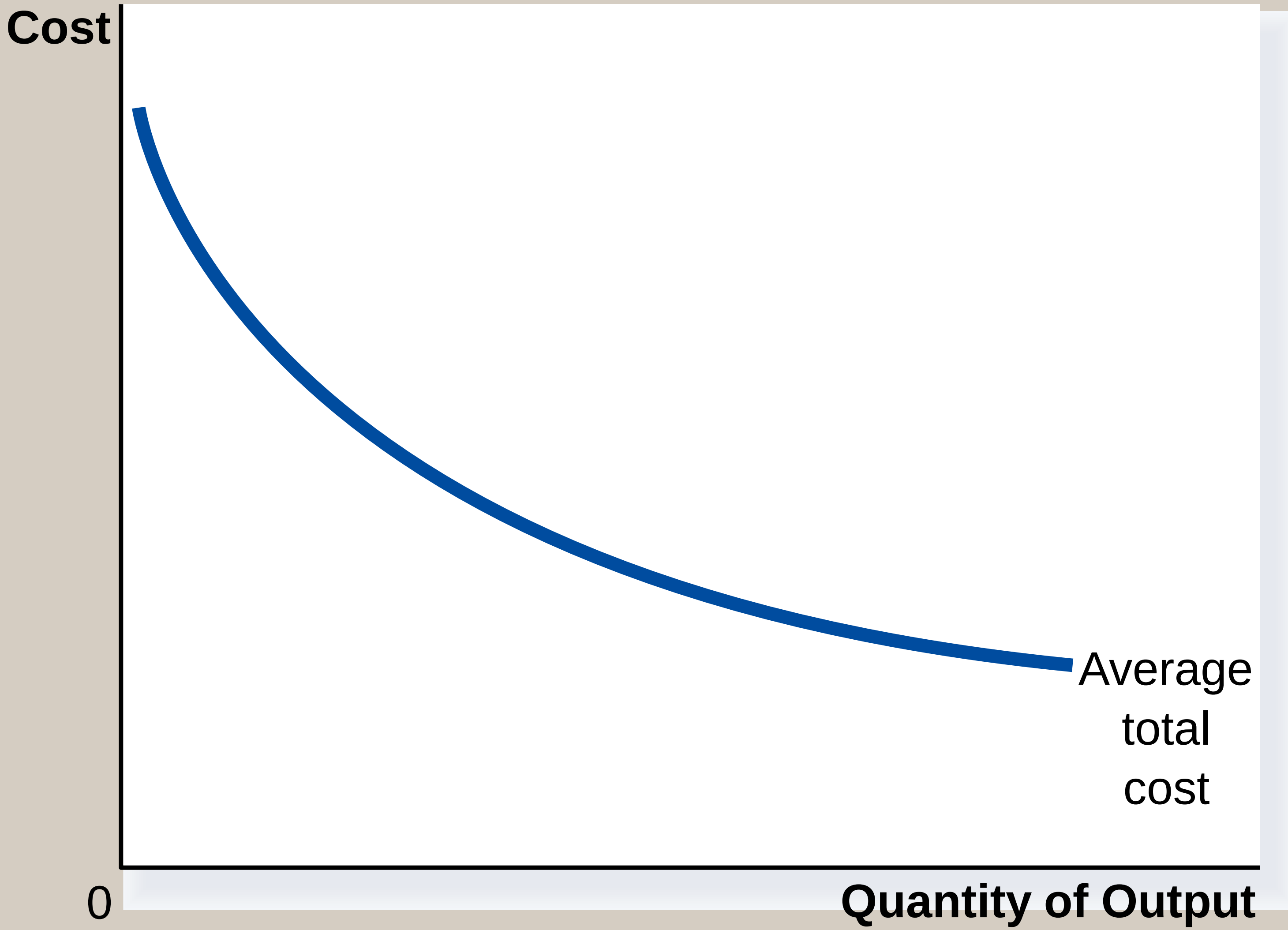
Why Monopolies Arise

Natural Monopolies

- An industry is a ***natural monopoly*** when a single firm can supply a good or service to an entire market at a smaller cost than could two or more firms.

- A ***natural monopoly*** arises when there are economies of scale over the relevant range of output.

Figure 1: Economies of Scale as a Cause of Monopoly



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How Monopolies make Production and Pricing Decisions

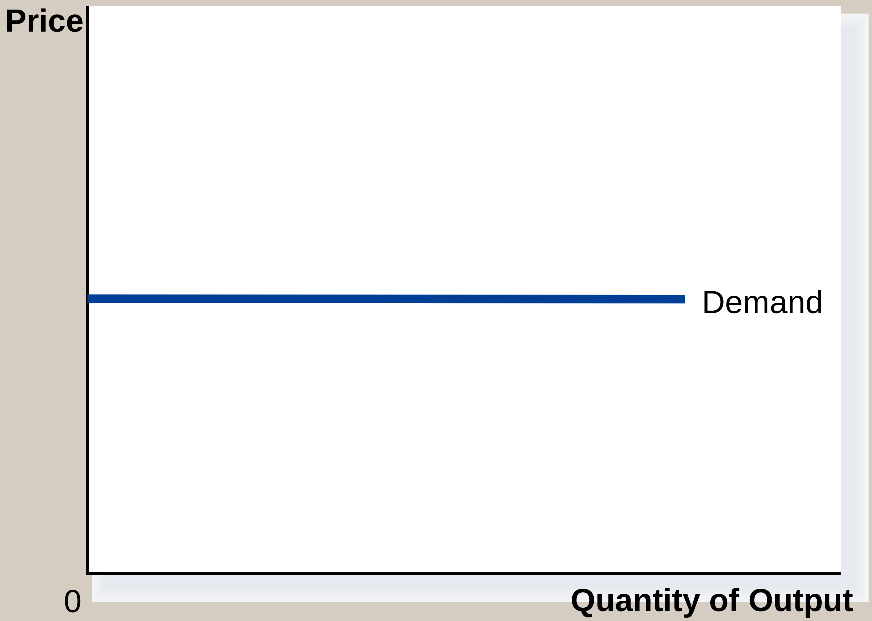
Monopoly versus Competition

- **Monopoly**
  - Is the sole producer
  - Faces a downward-sloping demand curve
  - Is a price maker
  - Reduces price to increase sales

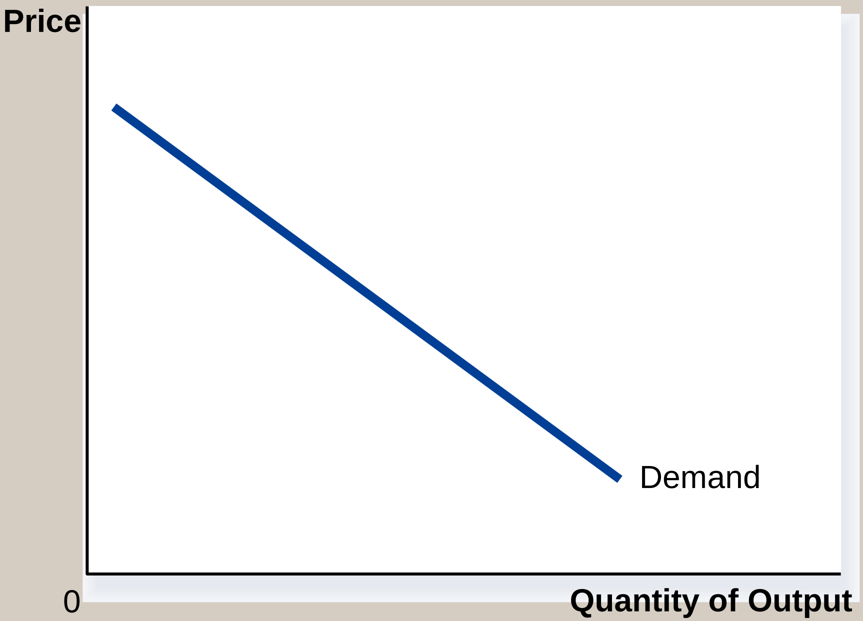
- **Competitive Firm**
  - Is one of many producers
  - Faces a horizontal demand curve
  - Is a price taker
  - Sells as much or as little at same price

Demand Curves for Competitive and Monopoly Firms

(a) A Competitive Firm's Demand Curve



(b) A Monopolist's Demand Curve



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A Monopoly's Revenue

- Total Revenue

$$P \times Q = TR$$

- Average Revenue

$$TR/Q = AR = P$$

- Marginal Revenue

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

A Monopoly's Total, Average, and Marginal Revenue

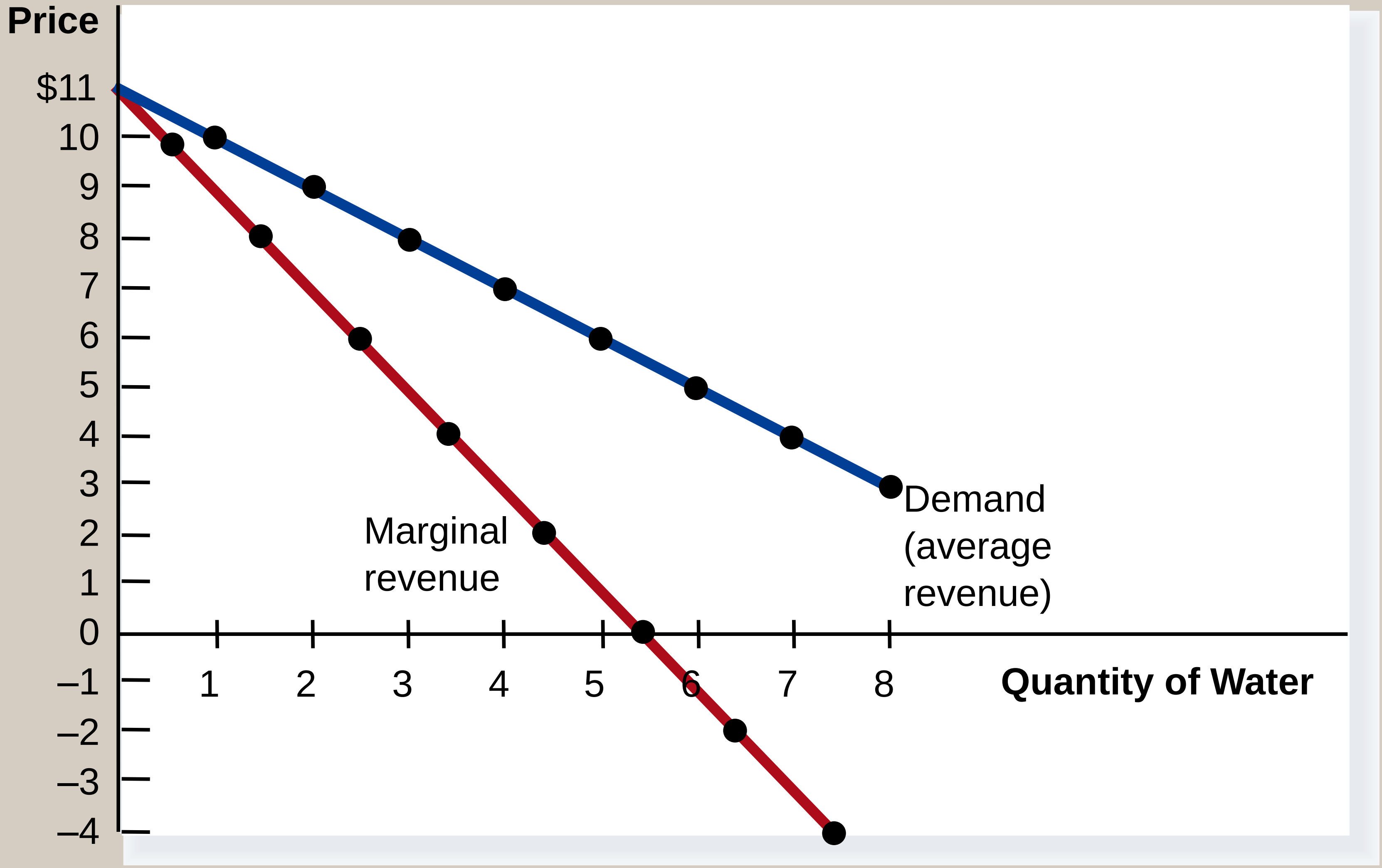
Quantity of Water (Q)	Price (P)	Total Revenue ($TR = P \times Q$)	Average Revenue ($AR = TR/Q$)	Marginal Revenue ($MR = \Delta TR/\Delta Q$)
0 gallons	$11	$ 0	—	
				$10
1	10	10	$10	
				8
2	9	18	9	
				6
3	8	24	8	
				4
4	7	28	7	
				2
5	6	30	6	
				0
6	5	30	5	
				−2
7	4	28	4	
				−4
8	3	24	3	

A Monopoly's Revenue

- A Monopoly's Marginal Revenue
  - A monopolist's marginal revenue is always *less than* the price of its good.
    - The demand curve is downward sloping.
    - When a monopoly drops the price to sell one more unit, the additional revenue received decreases.

  - When a monopoly increases the amount it sells, it has two effects on total revenue ($P \times Q$).
    - The output effect—more output is sold, so Q is higher.
    - The price effect—price falls, so P is lower.

Demand and Marginal-Revenue Curves for a Monopolist



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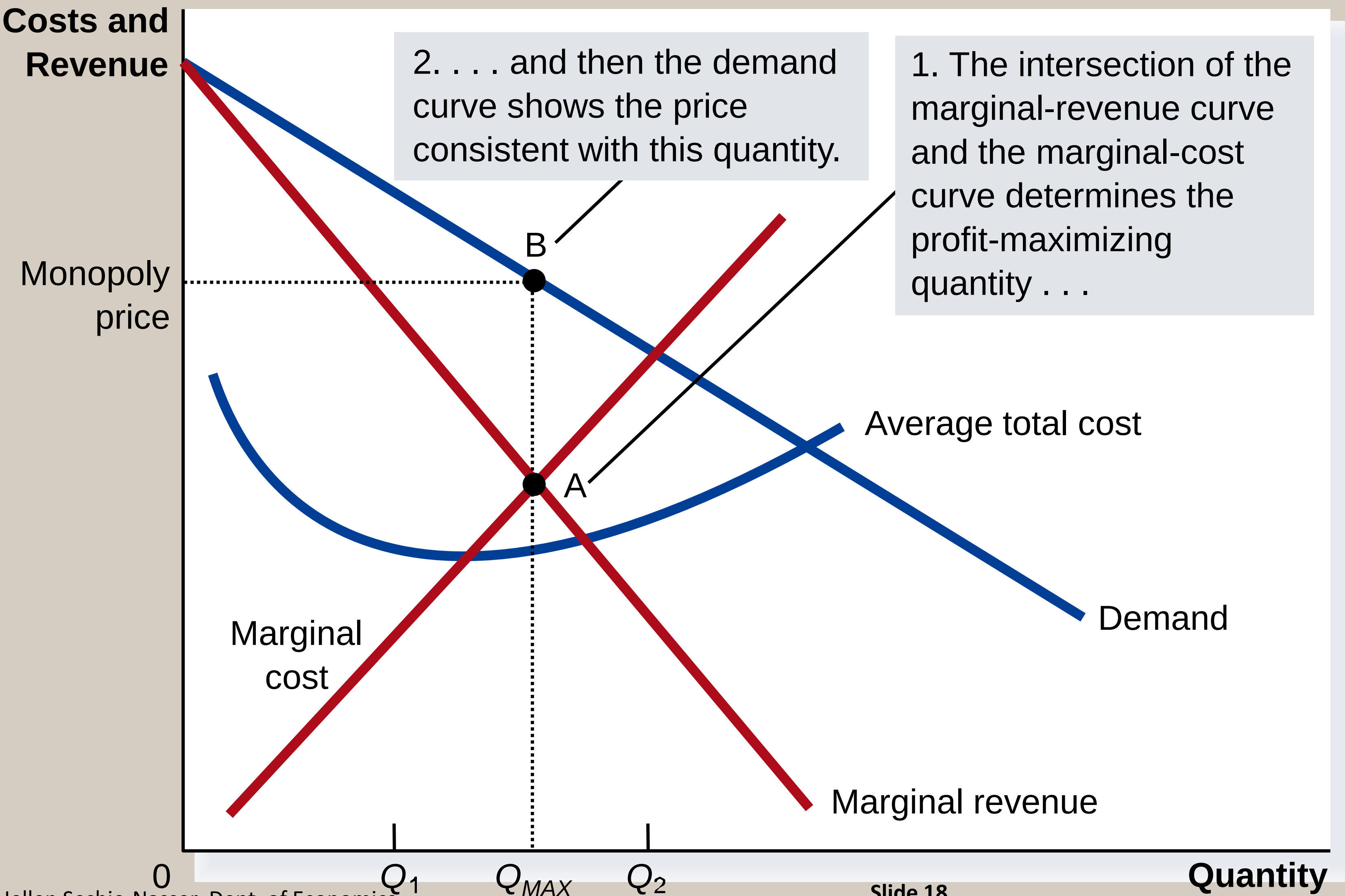
Profit Maximization

- A monopoly maximizes profit by producing the quantity at which marginal revenue equals marginal cost.

- It then uses the demand curve to find the price that will induce consumers to buy that quantity.

Profit Maximization for a Monopoly



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Profit Maximization

- Comparing Monopoly and Competition
  - For a competitive firm, price equals marginal cost.

    $$P = MR = MC$$

  - For a monopoly firm, price exceeds marginal cost.

    $$P > MR = MC$$

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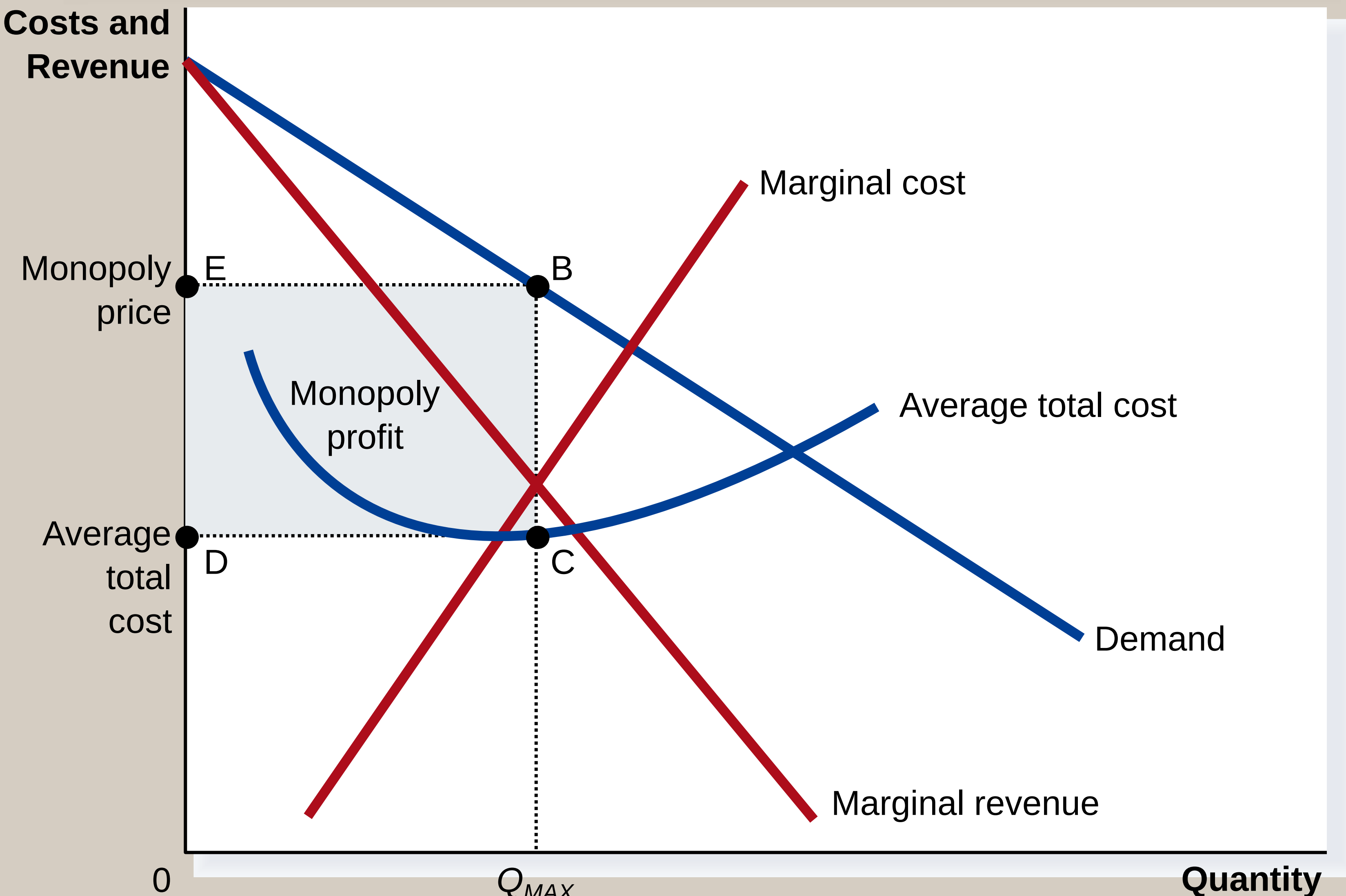
A Monopoly's Profit

- Profit equals total revenue minus total costs.
  - Profit = TR - TC
  - Profit = (TR/Q - TC/Q) $\times$ Q
  - Profit = (P - ATC) $\times$ Q

Figure 5: The Monopolist's Profit



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A Monopolist's Profit

- The monopolist will receive economic profits as long as price is greater than average total cost.

The Welfare Cost of Monopoly

- In contrast to a competitive firm, the monopoly charges a price above the marginal cost.

- From the standpoint of consumers, this high price makes monopoly undesirable.

- However, from the standpoint of the owners of the firm, the high price makes monopoly very desirable.