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PRINCIPLES OF

ECONOMICS

Eight Edition

CHAPTER

15

Monopoly

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Why Monopolies Arise Part 1

- Market power
  - Alters the relationship between a firm's costs and the selling price
- Monopoly
  - Charges a price that exceeds marginal cost
  - A high price reduces the quantity purchased
  - Outcome: often not the best for society

Why Monopolies Arise Part 2

- Governments
  - Can sometimes improve market outcome
- Monopoly
  - Firm that is the sole seller of a product without close substitutes
  - Price maker
  - Cause: barriers to entry

Why Monopolies Arise Part 3

- Barriers to entry
  - A monopoly remains the only seller in the market
    - Because other firms cannot enter the market and compete with it

1. Monopoly resources
2. Government regulation
3. The production process

Why Monopolies Arise Part 4

- Monopoly resources
  - A key resource required for production is owned by a single firm
  - Higher price

"Rather than a monopoly, we like to consider ourselves 'the only game in town.'"

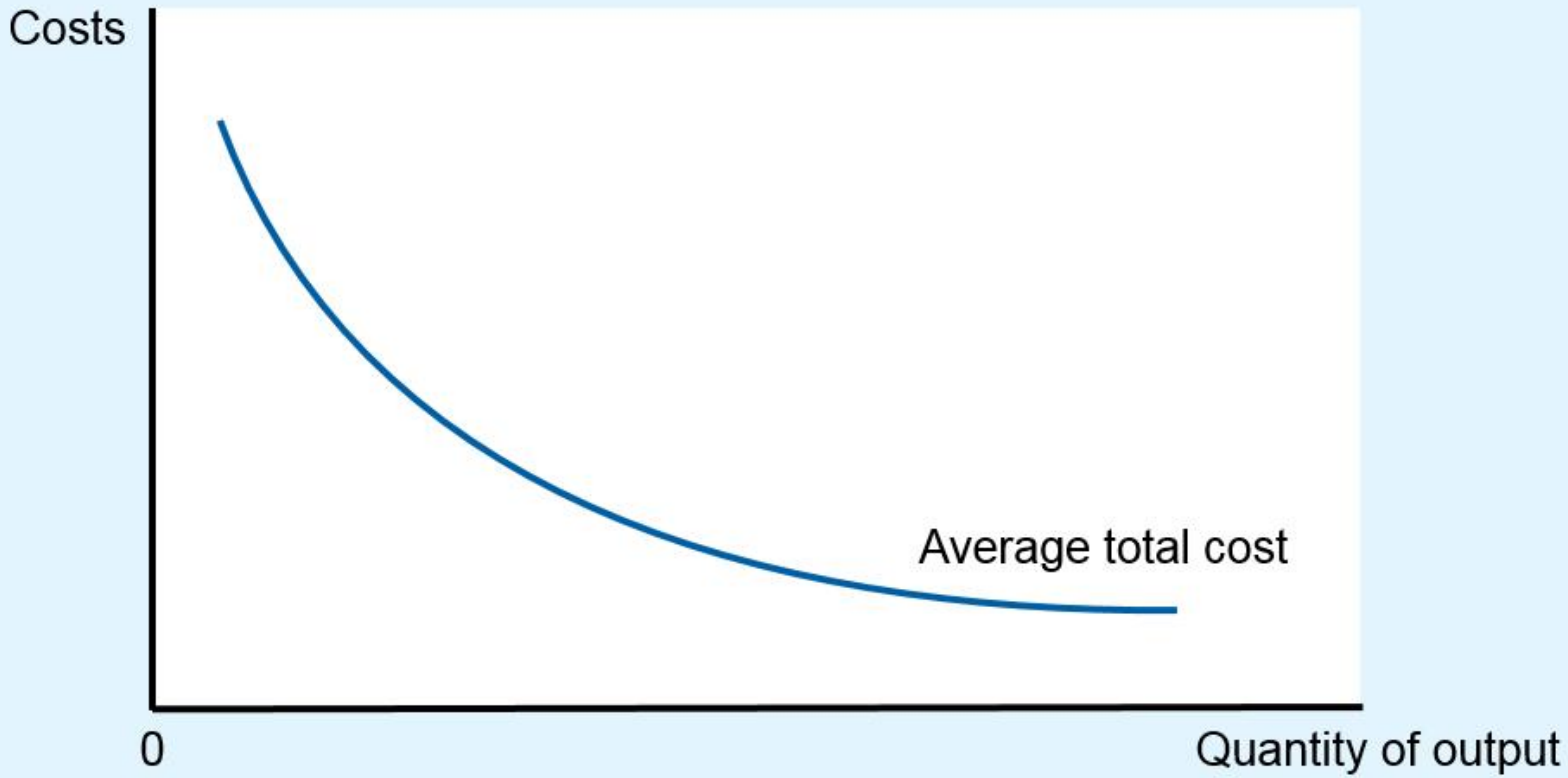
Why Monopolies Arise Part 5

- Government regulation
  - Government gives a single firm the exclusive right to produce some good or service
  - Government-created monopolies
    - Patent and copyright laws
    - Higher prices
    - Higher profits

Why Monopolies Arise Part 6

- Natural monopoly
  - A single firm can supply a good or service to an entire market
    - At a smaller cost than could two or more firms
  - Economies of scale over the relevant range of output
  - Club goods
    - Excludable but not rival in consumption

Figure 1 Economies of Scale as a Cause of Monopoly

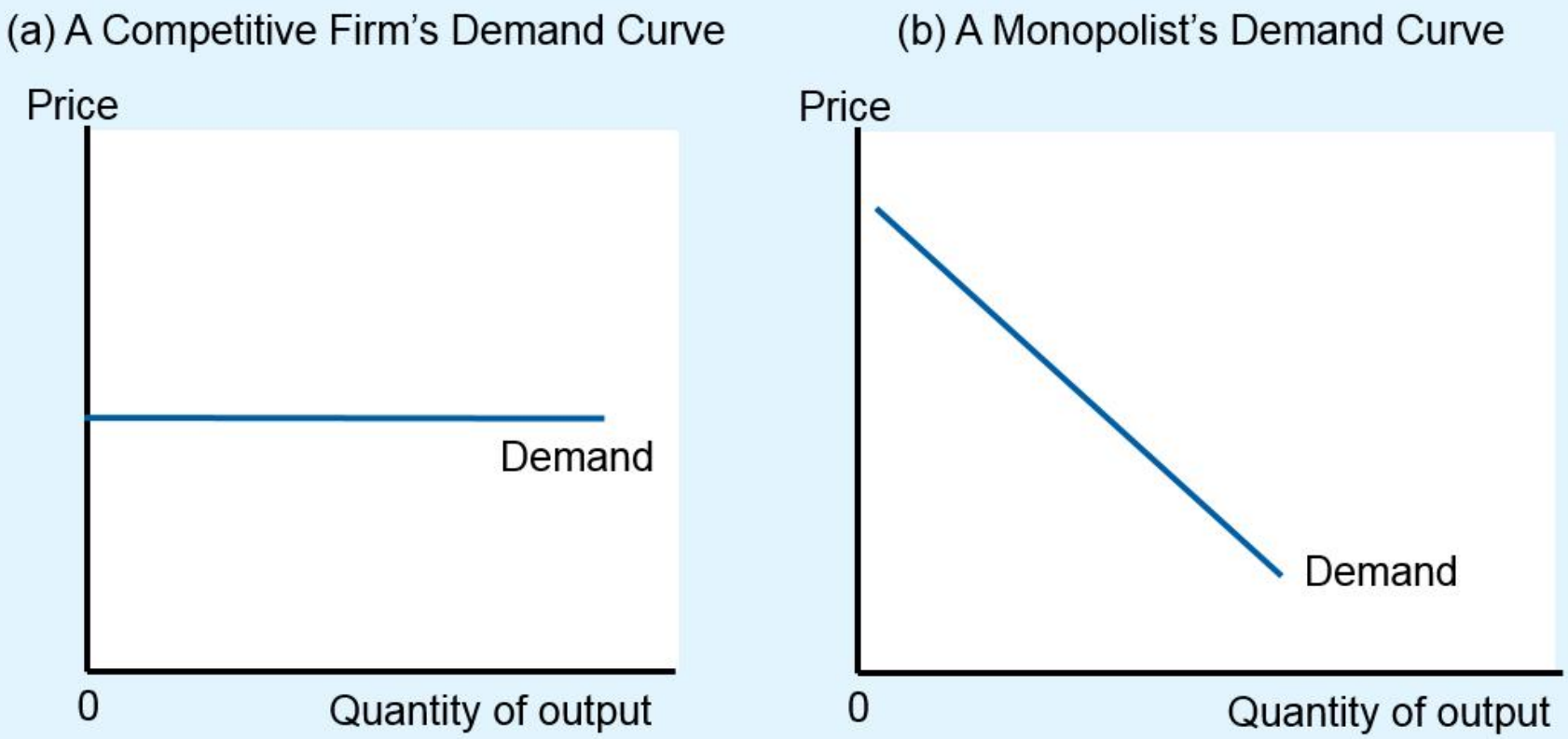


When a firm's average-total-cost curve continually declines, the firm has what is called a natural monopoly. In this case, when production is divided among more firms, each firm produces less, and average total cost rises. As a result, a single firm can produce any given amount at the lowest cost.

Production and Pricing Decisions Part 1

- Monopoly
  - Price maker
  - Sole producer
  - Downward sloping demand: the market demand curve
- Competitive firm
  - Price taker
  - One producer of many
  - Demand is a horizontal line (Price)

Figure 2 Demand Curves for Competitive and Monopoly Firms



Because competitive firms are price takers, they face horizontal demand curves, as in panel (a). Because a monopoly firm is the sole producer in its market, it faces the downward-sloping market demand curve, as in panel (b). As a result, the monopoly has to accept a lower price if it wants to sell more output.

Production and Pricing Decisions Part 2

- A monopoly's total revenue
  - Total revenue = price times quantity
- A monopoly's average revenue
  - Revenue per unit sold
  - Total revenue divided by quantity
  - Always equals the price

Production and Pricing Decisions Part 3

- A monopoly's marginal revenue
  - Revenue per each additional unit of output
    - Change in total revenue when output increases by 1 unit
  - MR < P
    - Downward-sloping demand
    - To increase the amount sold, a monopoly firm must lower the price it charges to all customers
  - Can be negative

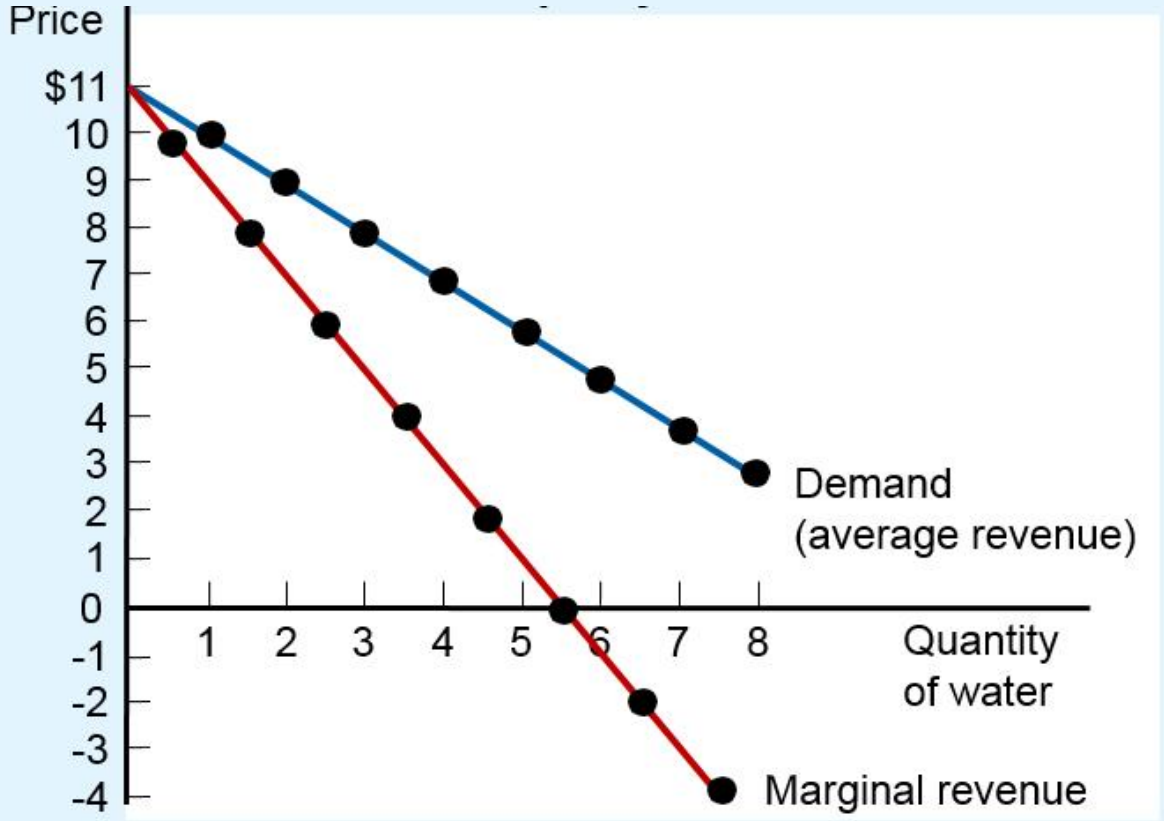
Table 1 A Monopoly's Total, Average, and Marginal Revenue

(1) Quantity of Water (Q)	(2) Price (P)	(3) Total Revenue (TR = P x Q)	(4) Average Revenue (AR = TR/Q)	(5) Marginal Revenue (MR = (ΔTR/ΔQ)
0 gallons	$11	$ 0	-	
1	10	10	$10	$10
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4
5	6	30	6	2
6	5	30	5	0
				-2
7	4	28	4	-4
8	3	24	3	

Production and Pricing Decisions Part 4

- Increase in quantity sold
  - Output effect
    - Q is higher: increase total revenue
  - Price effect
    - P is lower: decrease total revenue
- Because MR < P
  - Marginal-revenue curve is below the demand curve

Figure 3 Demand and Marginal-Revenue Curves for a Monopoly

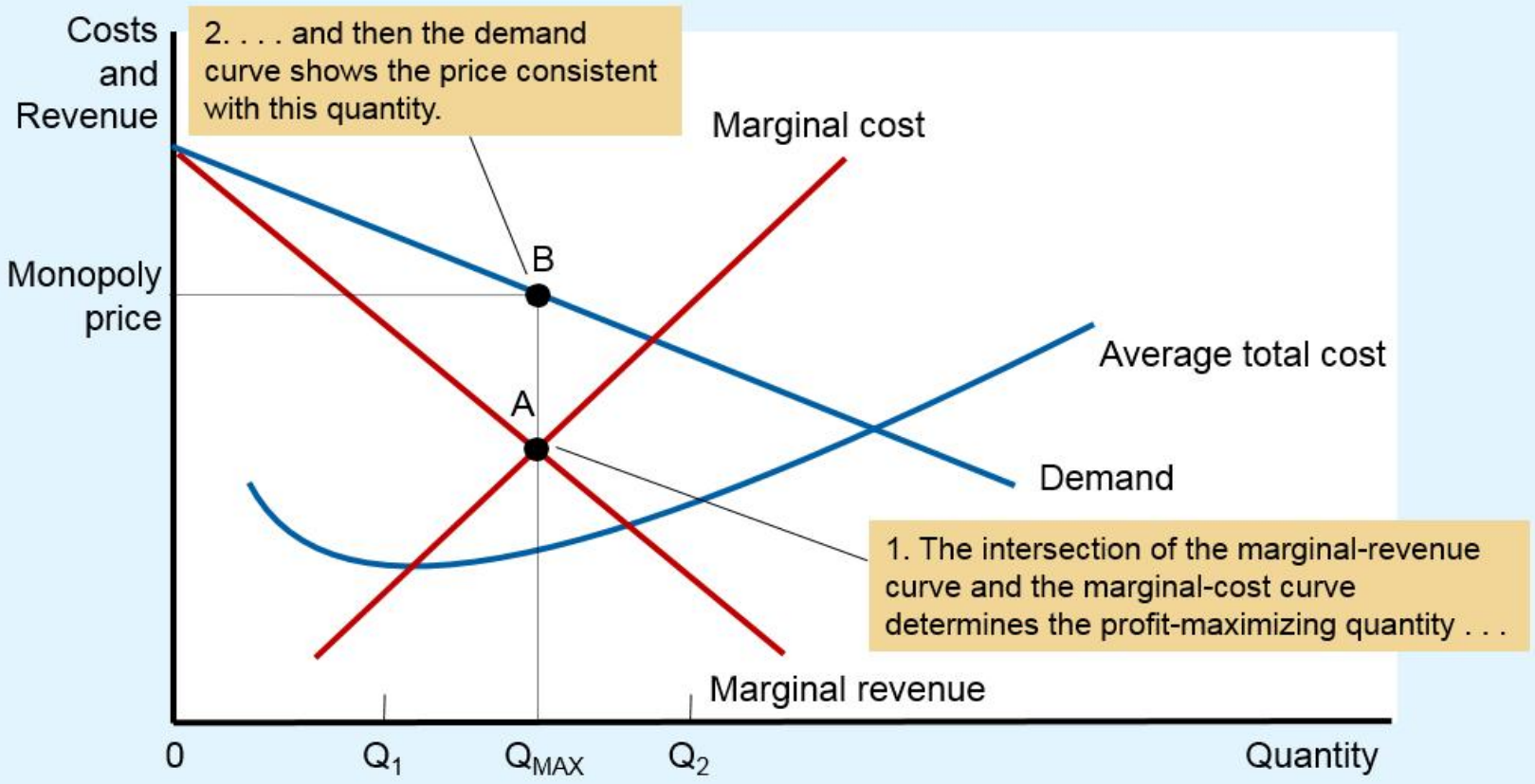


The demand curve shows how the quantity sold affects the price of the good.
The marginal-revenue curve shows how the firm's revenue changes when the quantity increases by 1 unit.
Because the price on all units sold must fall if the monopoly increases production, marginal revenue is less than the price.

Production and Pricing Decisions Part 5

- Profit maximization
  - If MR > MC: increase production
  - If MC > MR: produce less
  - Maximize profit
    - Produce quantity where MR=MC
    - Intersection of the marginal-revenue curve and the marginal-cost curve
    - Price: on the demand curve

Figure 4 Profit Maximization for a Monopoly

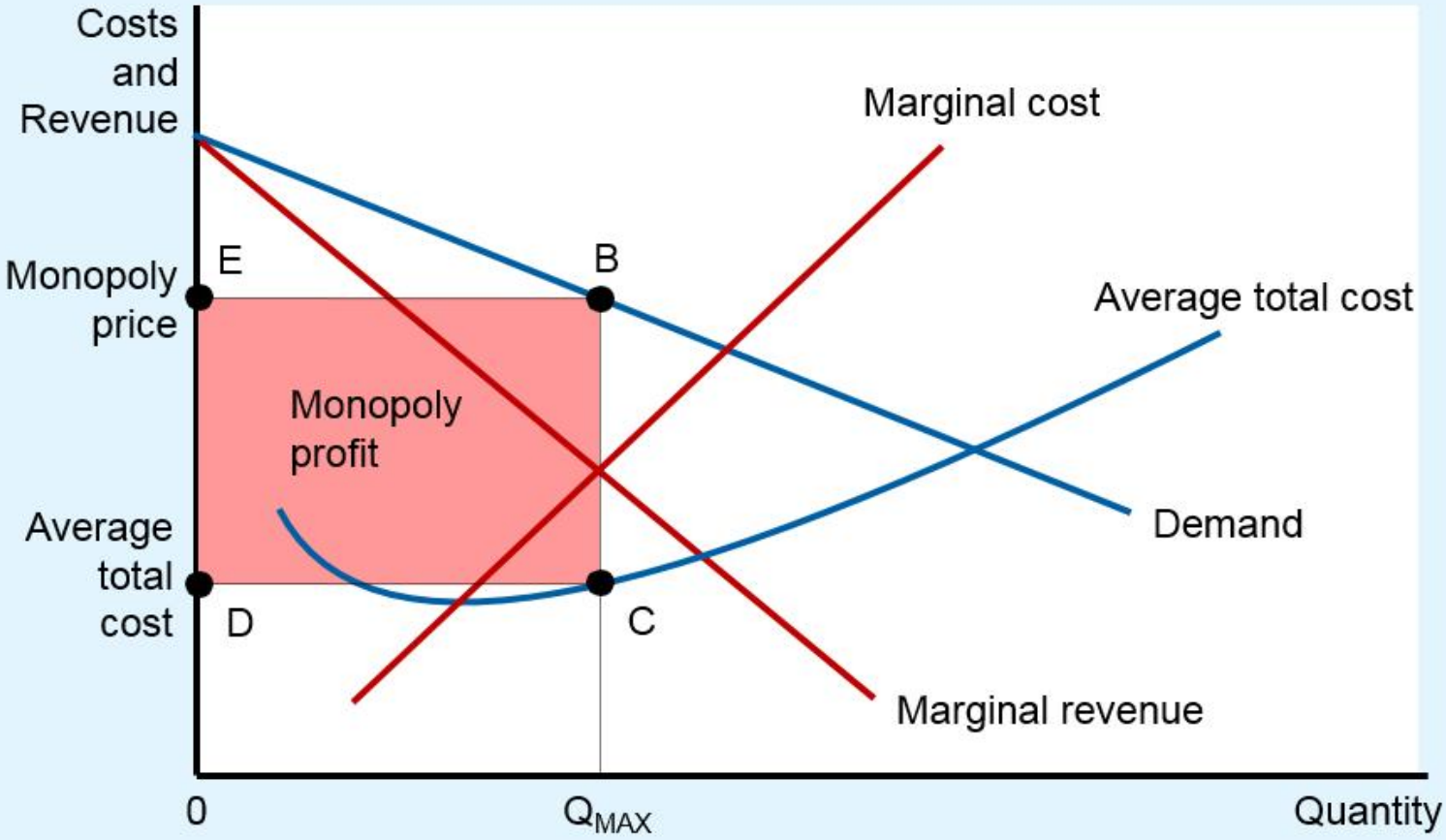


A monopoly maximizes profit by choosing the quantity at which marginal revenue equals marginal cost (point A).
It then uses the demand curve to find the price that will induce consumers to buy that quantity (point B).

Production and Pricing Decisions Part 6

- Profit maximization
  - Perfect competition: P=MR=MC
    - Price equals marginal cost
  - Monopoly: P>MR=MC
    - Price exceeds marginal cost
- A monopoly's profit
  - Profit = TR – TC = (P – ATC) x Q

Figure 5 The Monopolist's Profit



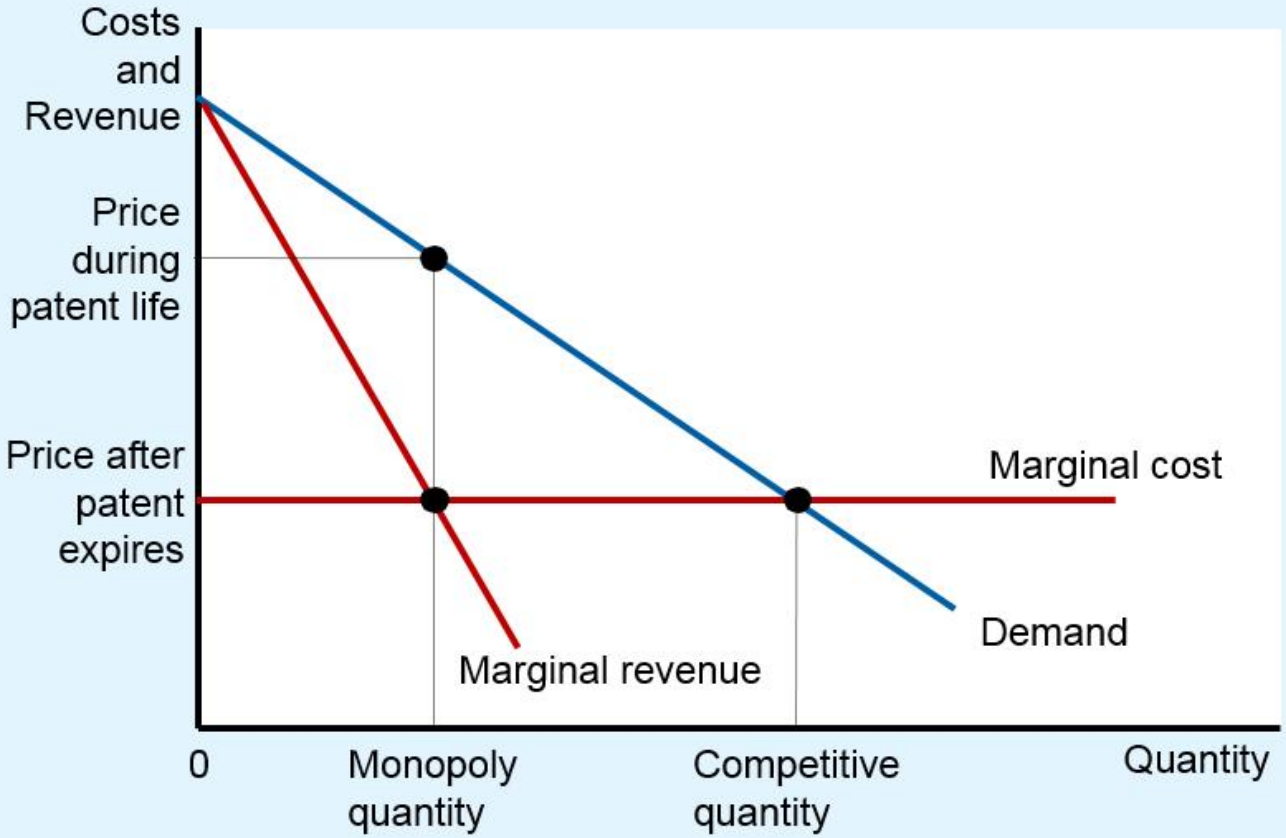
The area of the box BCDE equals the profit of the monopoly firm.
The height of the box (BC) is price minus average total cost, which equals profit per unit sold.
The width of the box (DC) is the number of units sold.

CASE STUDY

Monopoly Drugs versus Generic Drugs

- Market for pharmaceutical drugs
  - New drug, patent laws, monopoly
    - Produce Q where MR=MC
    - P>MC
  - Generic drugs: competitive market
    - Produce Q where MR=MC
    - And P=MC
- Price of the competitively produced generic drug
  - Below the monopolist's price

Figure 6 The Market for Drugs



When a patent gives a firm a monopoly over the sale of a drug, the firm charges the monopoly price, which is well above the marginal cost of making the drug. When the patent on a drug runs out, new firms enter the market, making it more competitive. As a result, the price falls from the monopoly price to marginal cost.

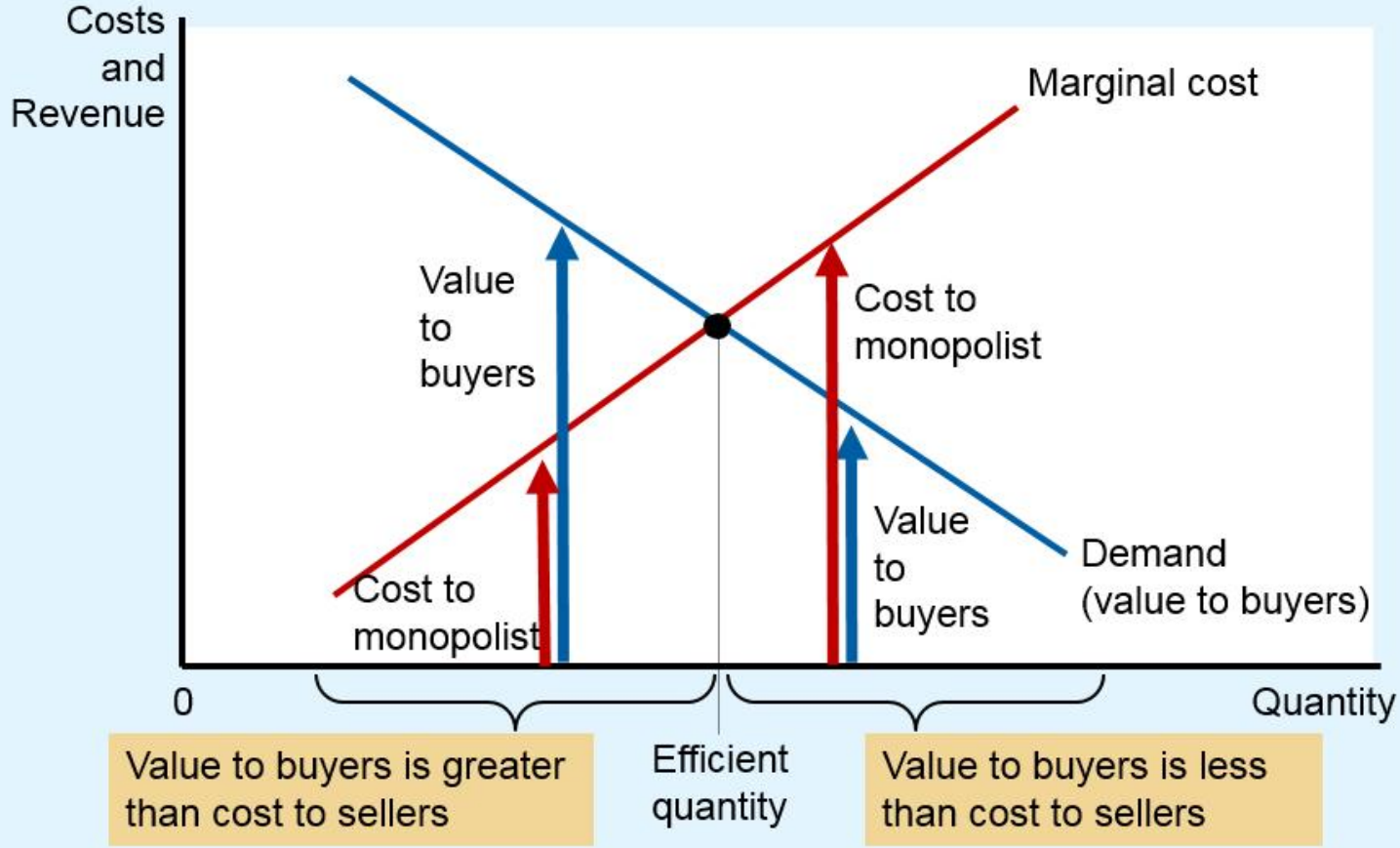
The Welfare Cost of Monopolies Part 1

- Total surplus
  - Economic well-being of buyers and sellers in a market
  - Sum of consumer surplus and producer surplus
- Consumer surplus
  - Consumers' willingness to pay for a good
  - Minus the amount they actually pay for it

The Welfare Cost of Monopolies Part 2

- Producer surplus
  - Amount producers receive for a good
  - Minus their costs of producing it
- Benevolent planner: maximize total surplus
  - Socially efficient outcome
  - Produce quantity where
    - Marginal cost curve intersects demand curve
  - Charge P=MC

Figure 7 The Efficient Level of Output

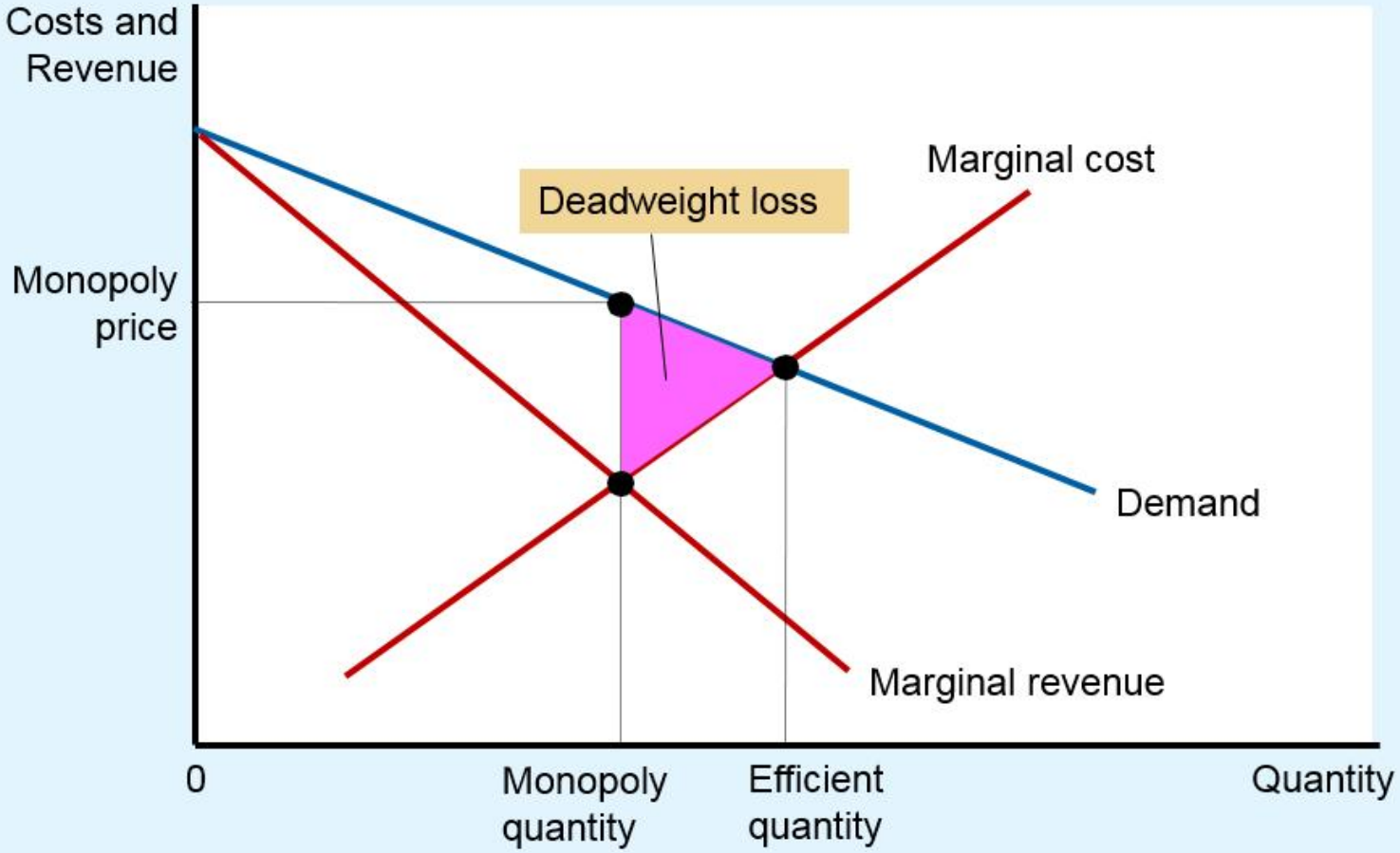


A benevolent social planner maximizes total surplus in the market by choosing the level of output where the demand curve and marginal-cost curve intersect.
Below this level, the value of the good to the marginal buyer (as reflected in the demand curve) exceeds the marginal cost of making the good.
Above this level, the value to the marginal buyer is less than marginal cost.

The Welfare Cost of Monopolies Part 3

- Monopoly
  - Produce quantity where MC = MR
  - Produces less than the socially efficient quantity of output
  - Charge P > MC
  - Deadweight loss
    - Triangle between the demand curve and MC curve

Figure 8 The Inefficiency of Monopoly



Because a monopoly charges a price above marginal cost, not all consumers who value the good at more than its cost buy it. Thus, the quantity produced and sold by a monopoly is below the socially efficient level. The deadweight loss is represented by the area of the triangle between the demand curve (which reflects the value of the good to consumers) and the marginal-cost curve (which reflects the costs of the monopoly producer).

The Welfare Cost of Monopolies Part 4

- The monopoly's profit: a social cost?
  - Monopoly - higher profit
    - Not a reduction of economic welfare
      - Bigger producer surplus
      - Smaller consumer surplus
    - Not a social problem
  - Social loss = Deadweight loss
    - From the inefficiently low quantity of output

Price Discrimination Part 1

- Price discrimination
  - Business practice
  - Sell the same good at different prices to different customers
  - Rational strategy to increase profit
  - Requires the ability to separate customers according to their willingness to pay
  - Can raise economic welfare

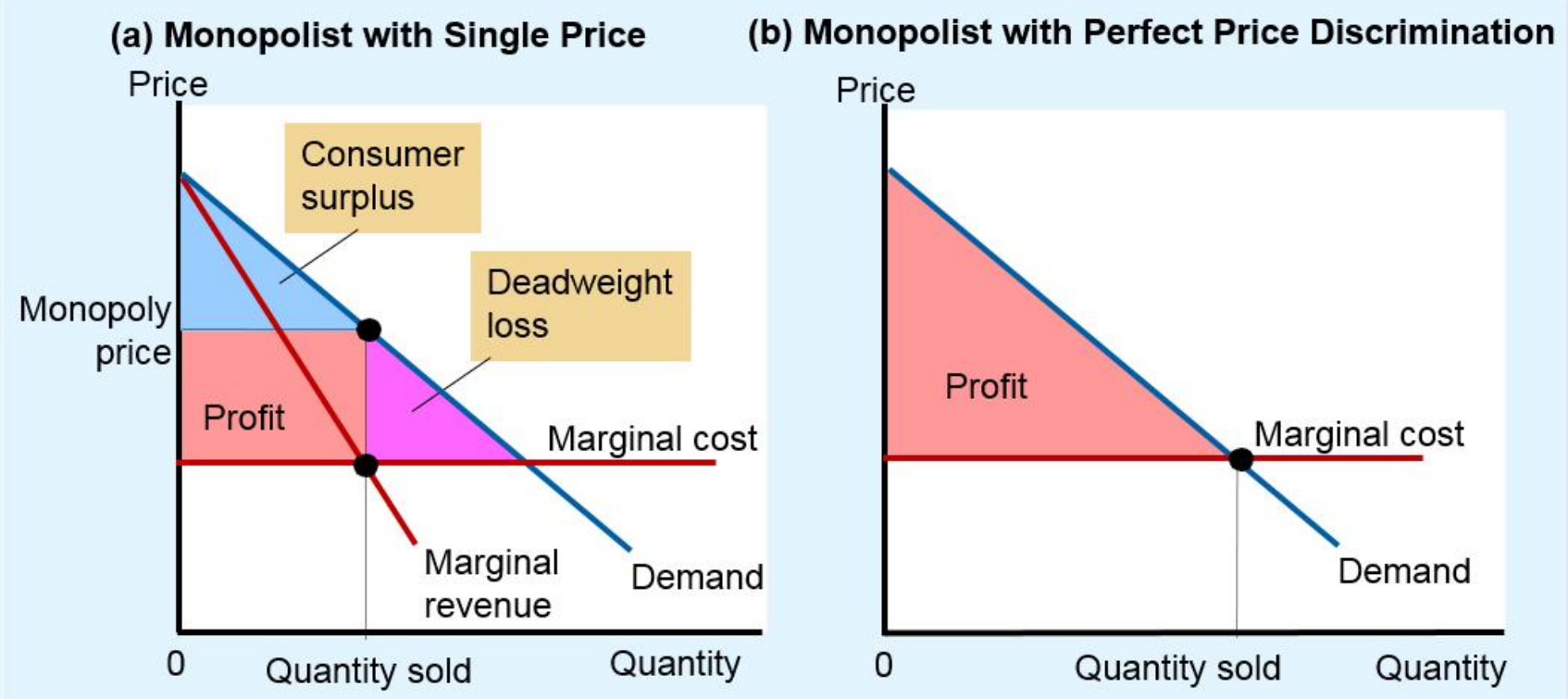
Price Discrimination Part 2

- Perfect price discrimination
  - Charge each customer a different price
    - Exactly his or her willingness to pay
  - Monopoly firm gets the entire surplus (Profit)
  - No deadweight loss

Price Discrimination Part 3

- Without price discrimination
  - Single price > MC
  - Consumer surplus
  - Producer surplus (Profit)
  - Deadweight loss

Figure 9 Welfare with and without Price Discrimination



Panel (a) shows a monopoly that charges the same price to all customers. Total surplus in this market equals the sum of profit (producer surplus) and consumer surplus.
Panel (b) shows a monopoly that can perfectly price discriminate. Because consumer surplus equals zero, total surplus now equals the firm's profit.
Comparing these two panels, you can see that perfect price discrimination raises profit, raises total surplus, and lowers consumer surplus.

Price Discrimination Part 4

- Examples of price discrimination
  - Movie tickets
    - Lower price for children and seniors
  - Airline prices
    - Lower price for round-trip with Saturday night stay

"Would it bother you to hear how little I paid for this flight?"

Price Discrimination Part 5

- Examples of price discrimination
  - Discount coupons
    - Not all customers are willing to spend time to clip coupons
  - Financial aid
    - High tuition and need-based financial aid
    - Willingness to pay
  - Quantity discounts
    - Customer pays a higher price for the first unit bought than for the last unit bought

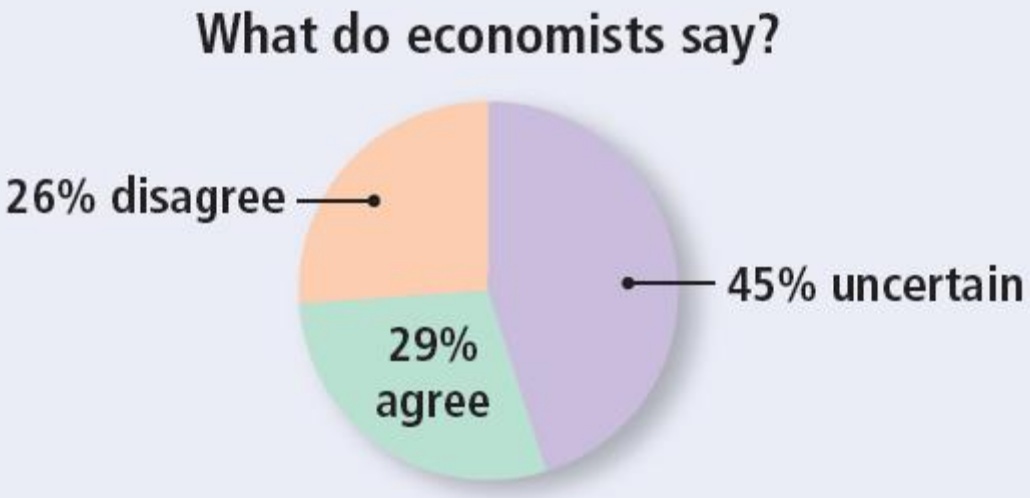
Public Policy Toward Monopolies Part 1

1. Increasing competition with antitrust laws
   - Sherman Antitrust Act, 1890
   - Clayton Antitrust Act, 1914
   - Prevent mergers
   - Break up companies
   - Prevent companies from coordinating their activities to make markets less competitive

"But if we do merge with Amalgamated, we'll have enough resources to fight the anti-trust violation caused by the merger."

Airline Mergers

"If regulators had not approved mergers in the past decade between major networked airlines, travelers would be better off today."

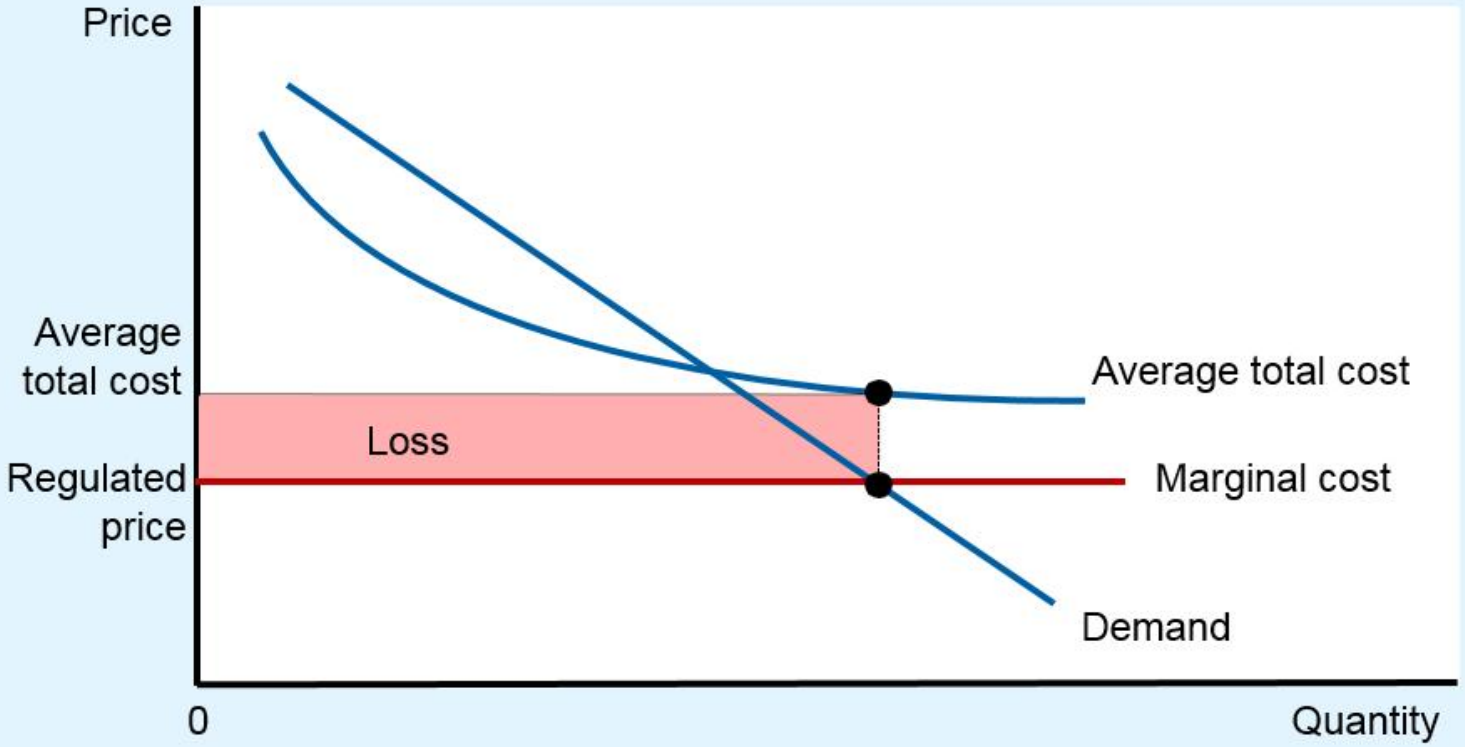


Public Policy Toward Monopolies Part 2

2. Regulation

- Regulate the behavior of monopolists
  - Price
- Common in case of natural monopolies
- Marginal-cost pricing
  - May be less than ATC
  - No incentive to reduce costs

Figure 10 Marginal-Cost Pricing for a Natural Monopoly



Because a natural monopoly has declining average total cost, marginal cost is less than average total cost. Therefore, if regulators require a natural monopoly to charge a price equal to marginal cost, price will be below average total cost, and the monopoly will lose money.

Public Policy Toward Monopolies Part 3

3. Public ownership

- How the ownership of the firm affects the costs of production
- Private owners
  - Incentive to minimize costs
- Public owners (government)
  - If it does a bad job, losers are the customers and taxpayers

Public Policy Toward Monopolies Part 4

4. Do nothing

- Some economists argue that it is often best for the government not to try to remedy the inefficiencies of monopoly pricing
- Determining the proper role of the government in the economy requires judgments about politics as well as economics

Table 2 Competition versus Monopoly: A Summary Comparison

	Competition	Monopoly
Similarities		
Goal of firms	Maximize profits	Maximize profits
Rule for maximizing	$MR = MC$	$MR = MC$
Can earn economic profits in the short run?	Yes	Yes
Differences		
Number of firms	Many	One
Marginal revenue	$MR = P$	$MR < P$
Price	$P = MC$	$P > MC$
Produces welfare-maximizing level of output?	Yes	No
Entry in the long run?	Yes	No
Can earn economic profits in the long run?	No	Yes
Price discrimination possible?	No	Yes