Monopoly

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Competition vs. monopoly

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

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Monopoly

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

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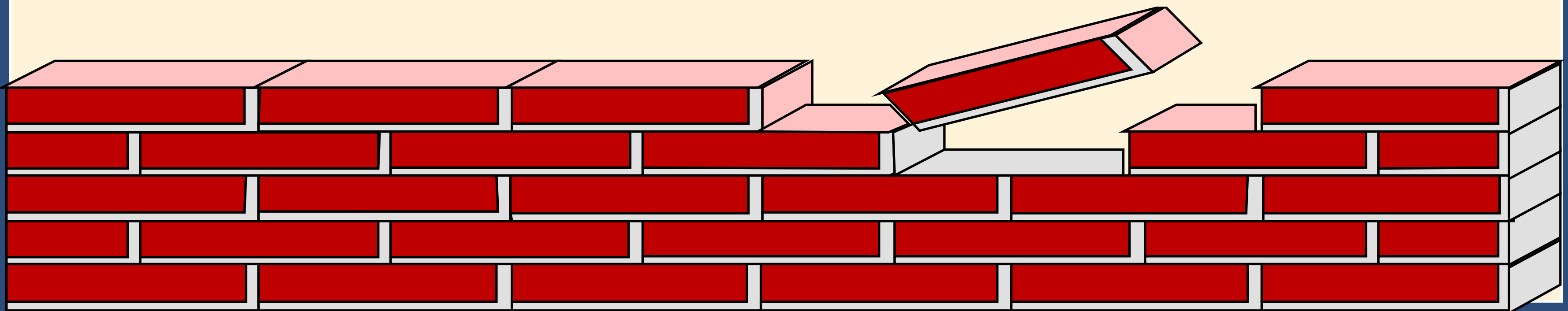
Why monopolies arise

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



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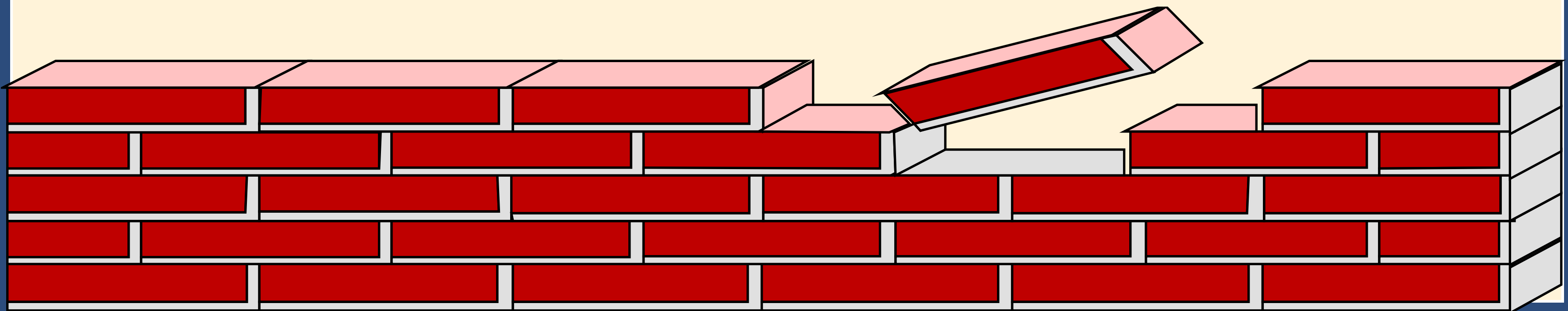
Why monopolies arise

- 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.



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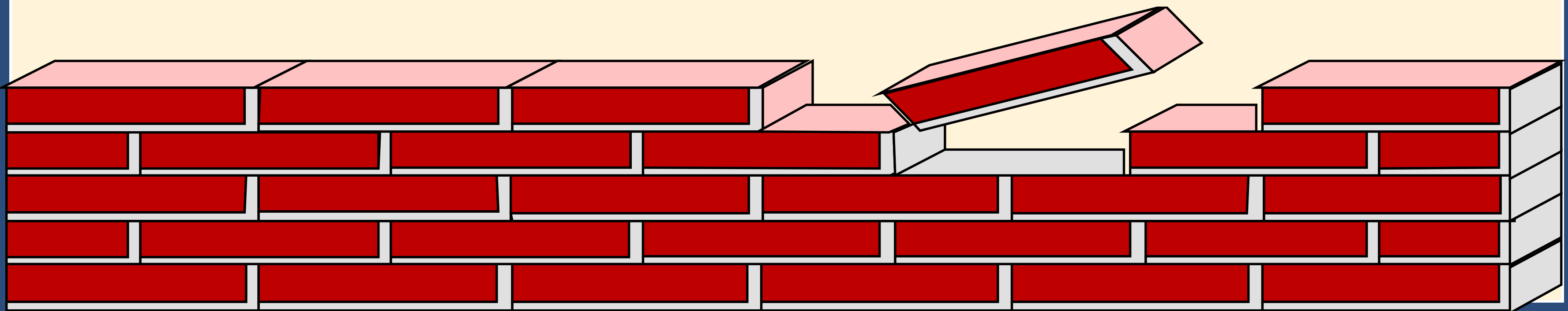
Monopoly resources

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



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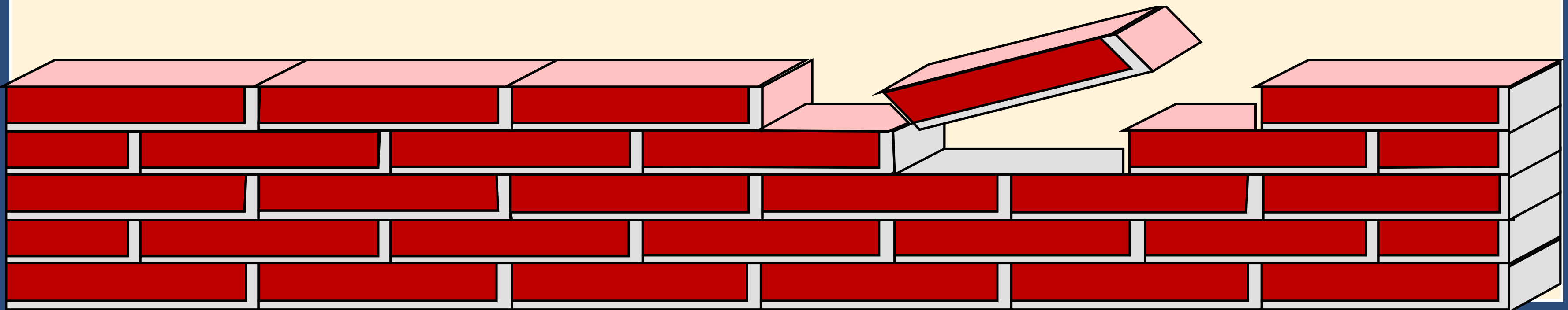
Government-created monopolies

- Governments may restrict entry by giving a single firm the exclusive right to sell a particular good in certain markets.



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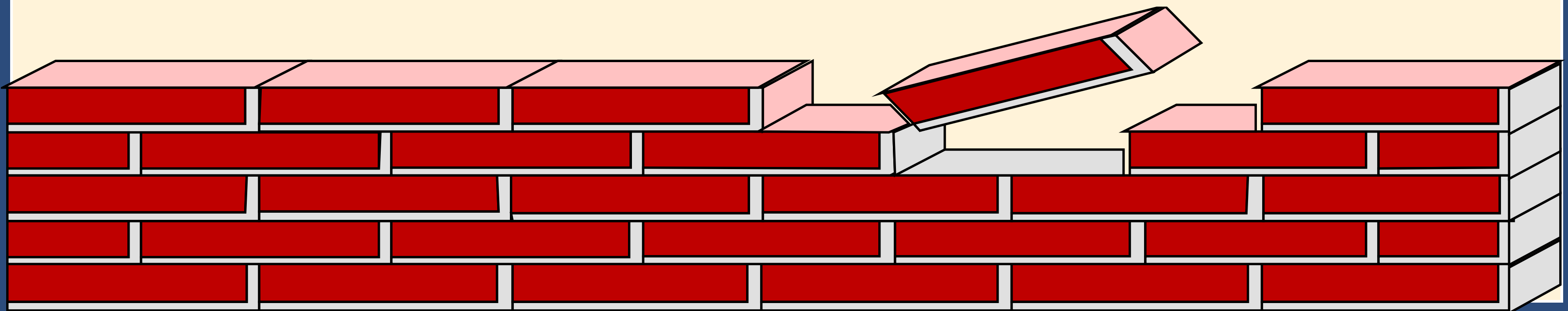
Government-created monopolies

- Patent and copyright laws are two important examples of how government creates a monopoly to serve the public interest.



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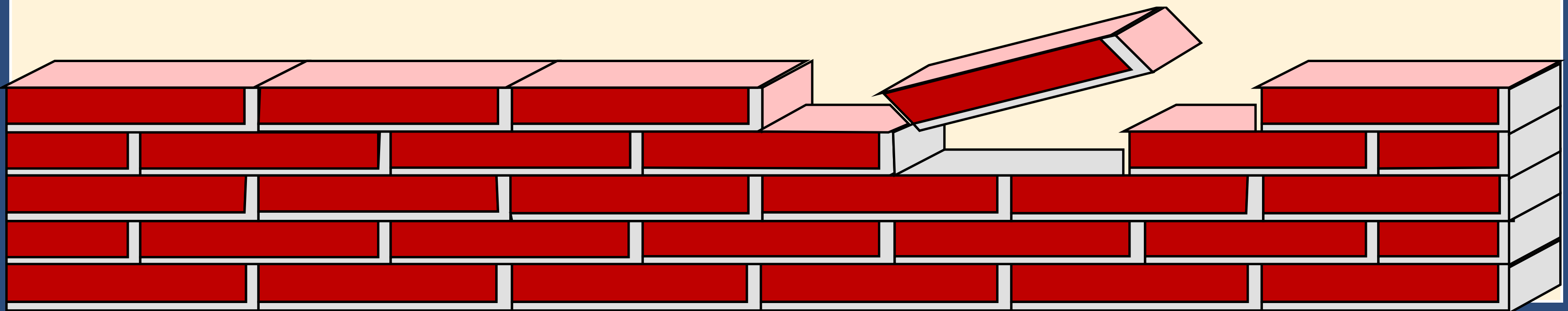
Natural monopolies

- 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.



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Natural monopolies

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

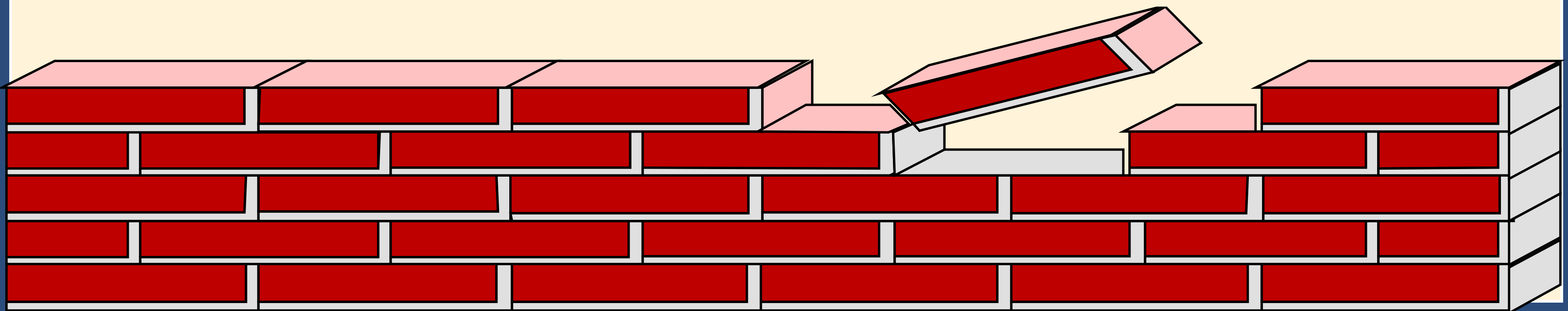

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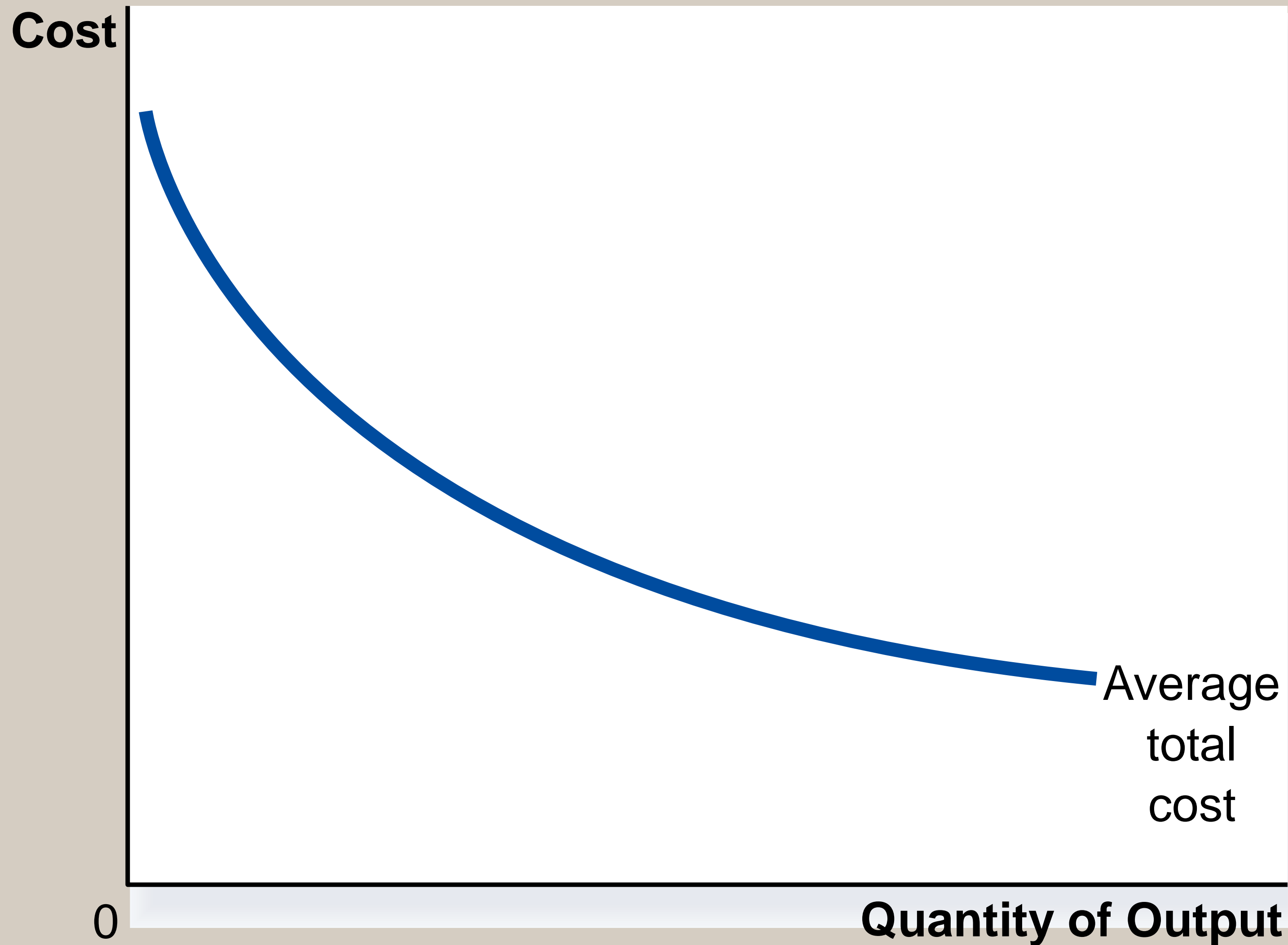
Figure 1 Economies of Scale as a Cause of Monopoly



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How monopolies make production and pricing decisions

- Monopoly vs. 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

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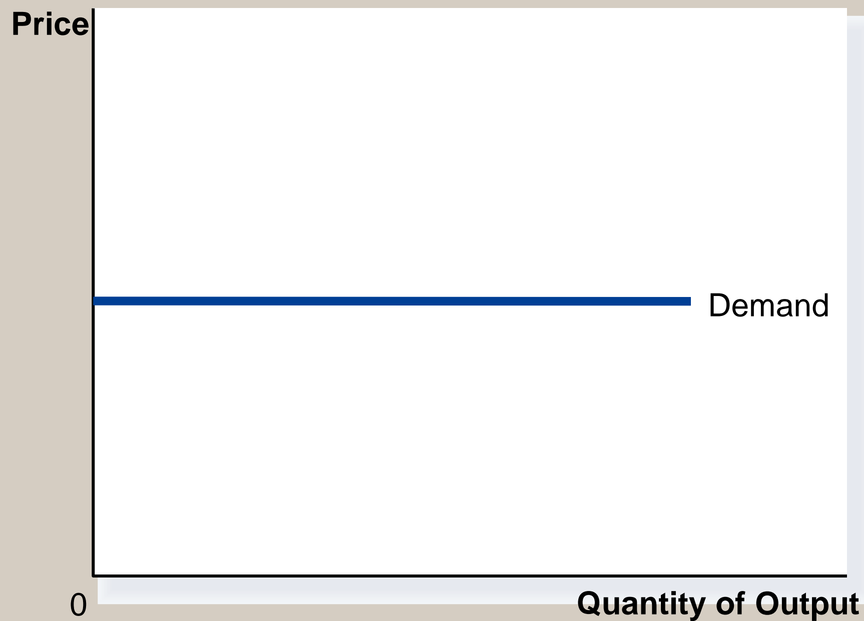
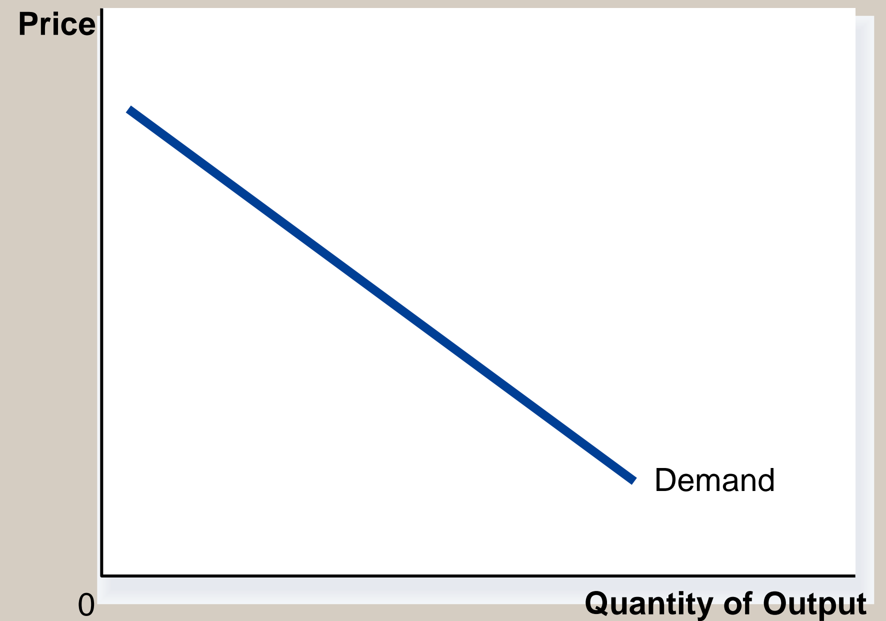
Figure 2 Demand Curves for Competitive and Monopoly Firms





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A monopoly's revenue

- Total Revenue

$$P \times Q = TR$$

- Average Revenue

$$TR/Q = AR = P$$

- Marginal Revenue

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

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Table 1 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	

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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 revenue received from previously sold units also decreases.

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A monopoly's revenue

- A monopoly's marginal revenue
  - 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.

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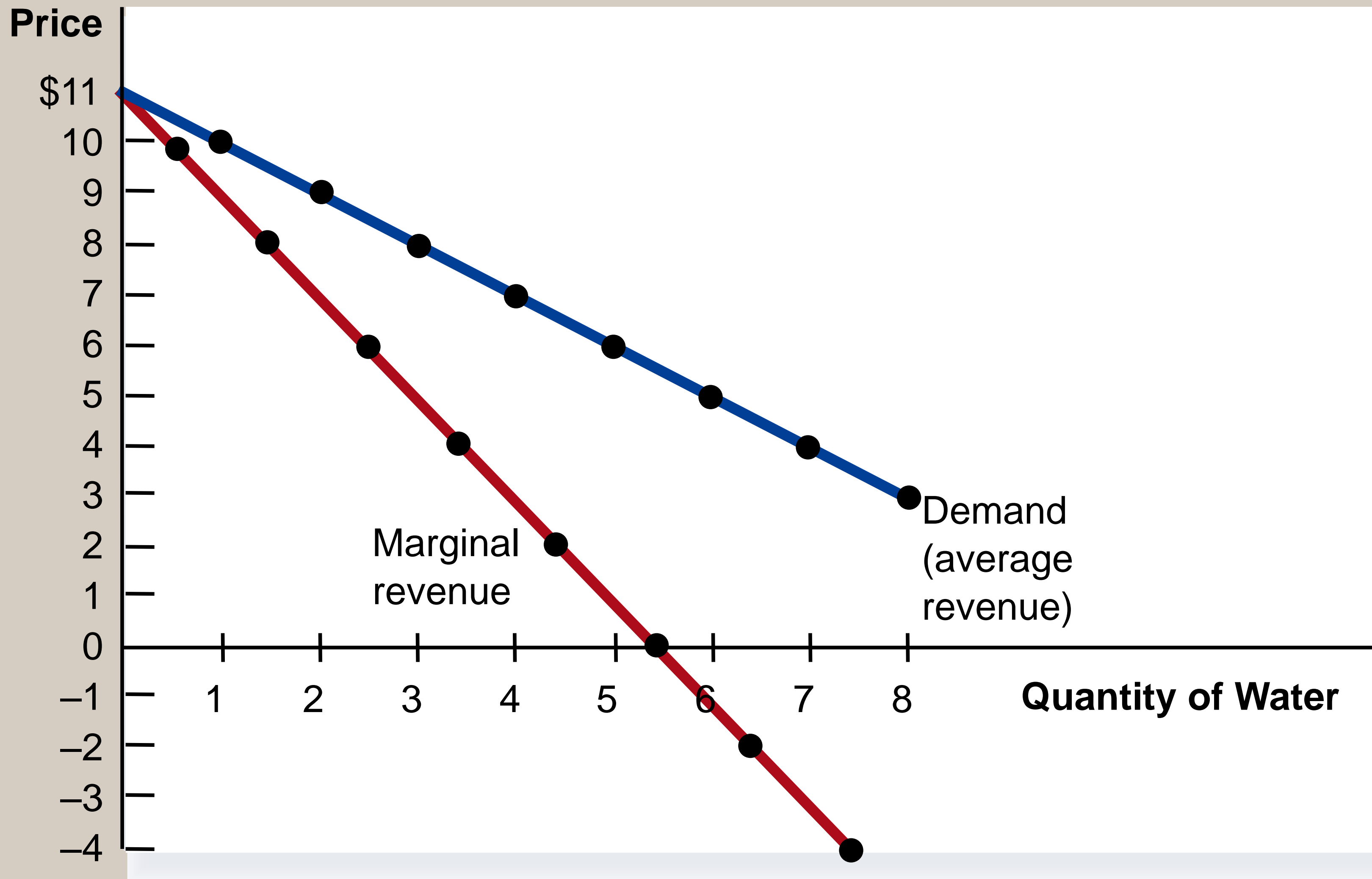
Figure 3 Demand and Marginal-Revenue Curves for a Monopoly



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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.

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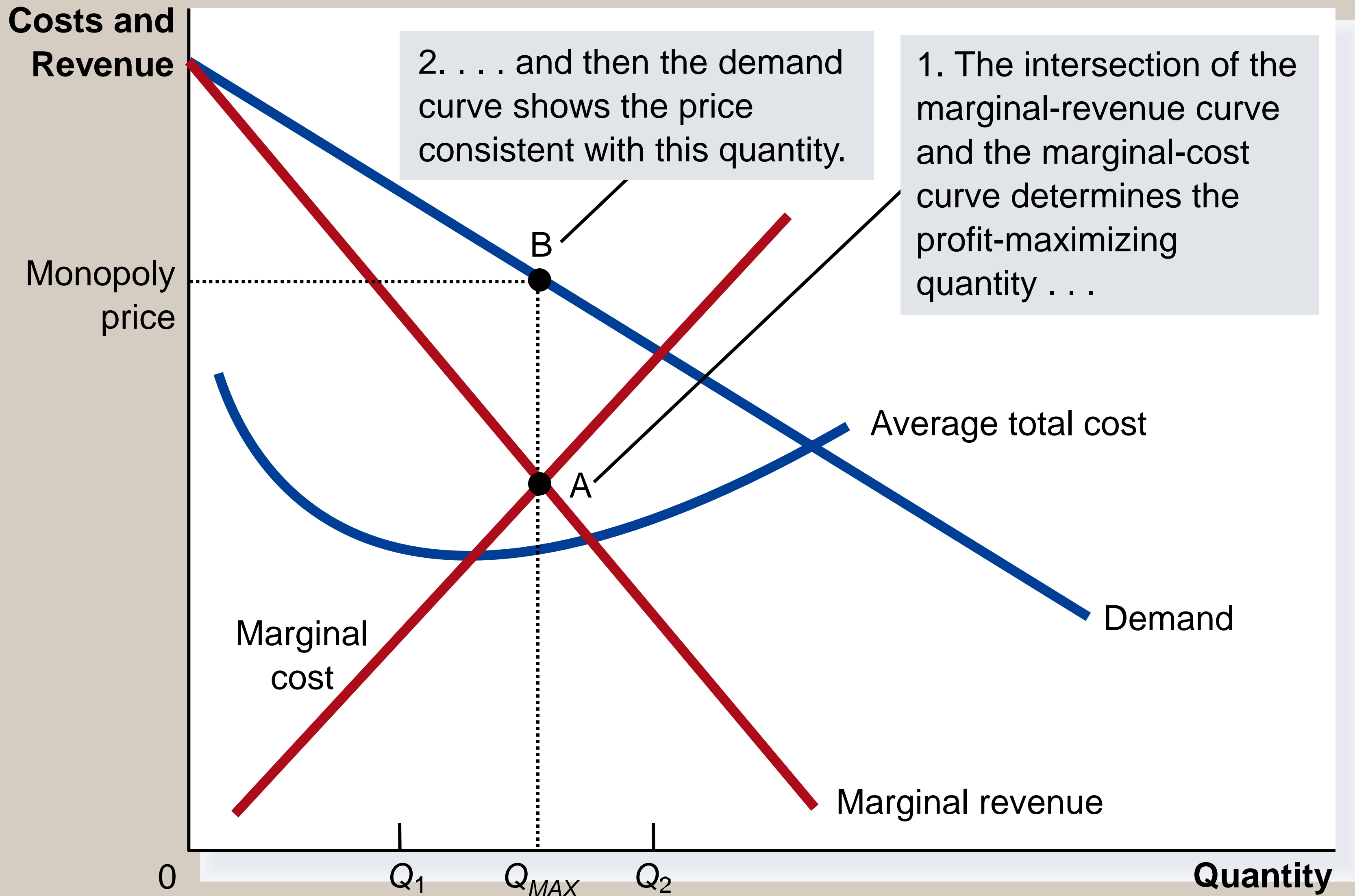
Figure 4 Profit Maximization for a Monopoly



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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 = $(P - ATC) \times Q$

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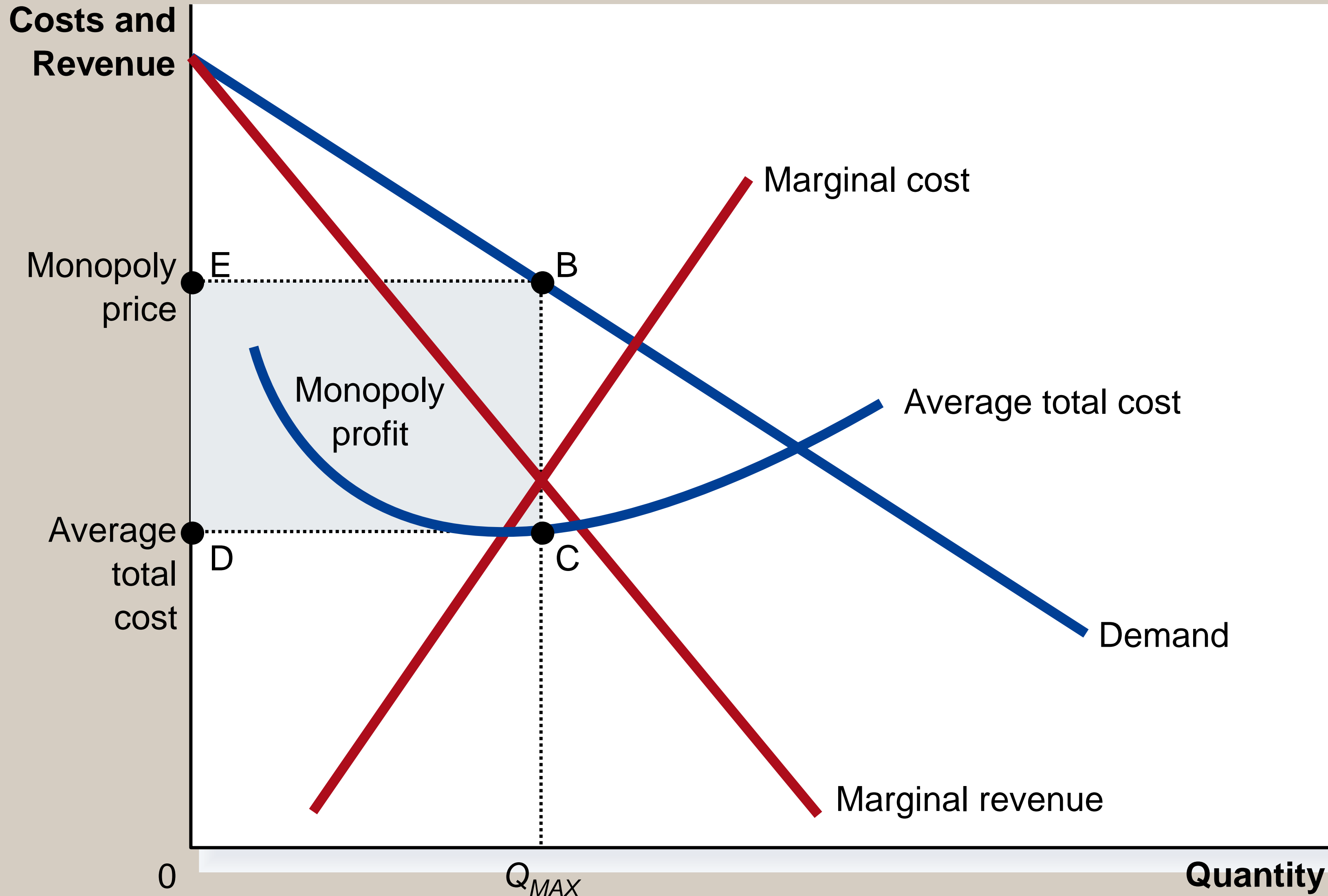
Figure 5 The Monopolist's Profit



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A monopolist’s profit

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

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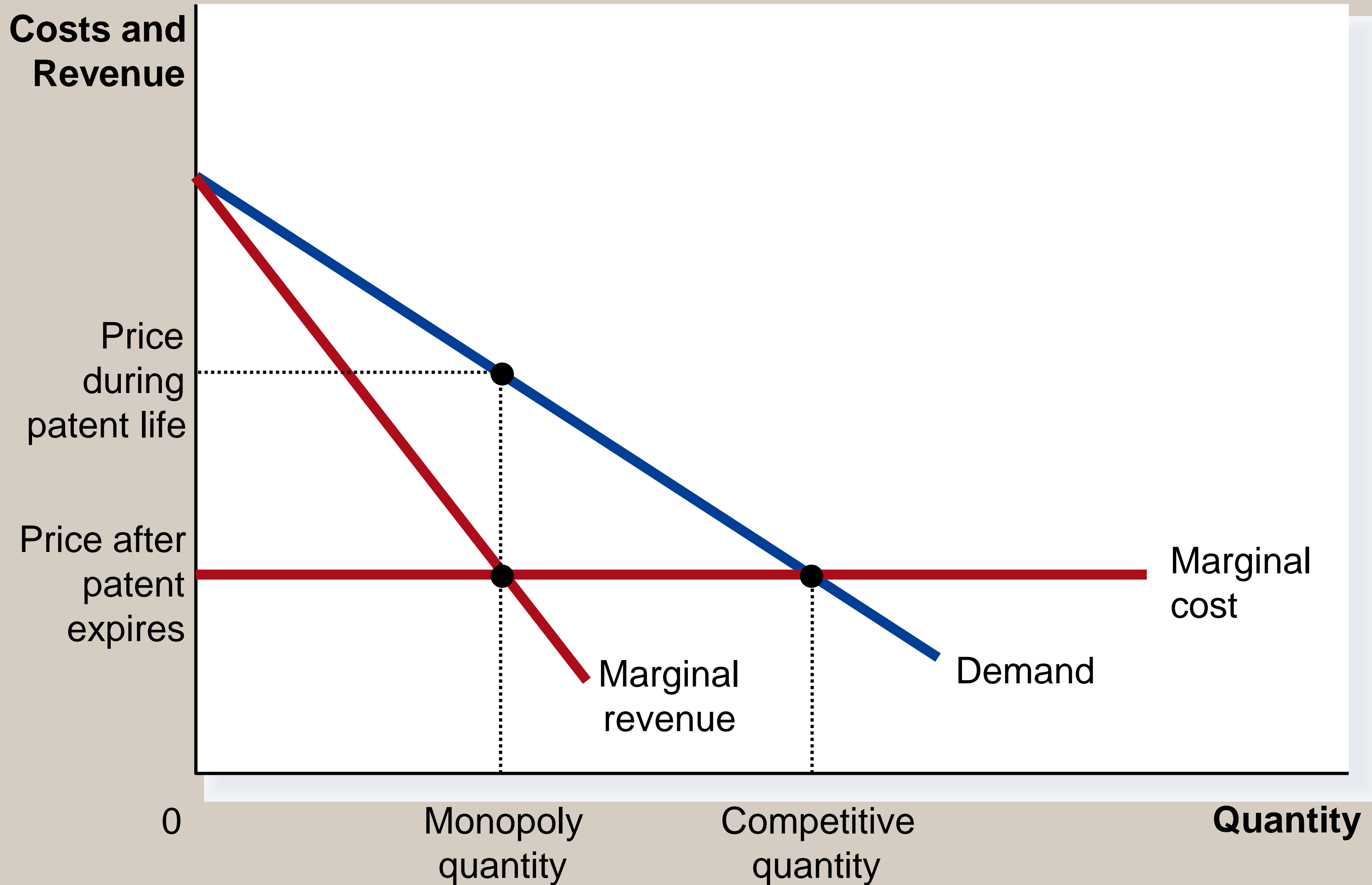
Figure 6 The Market for Drugs



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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.

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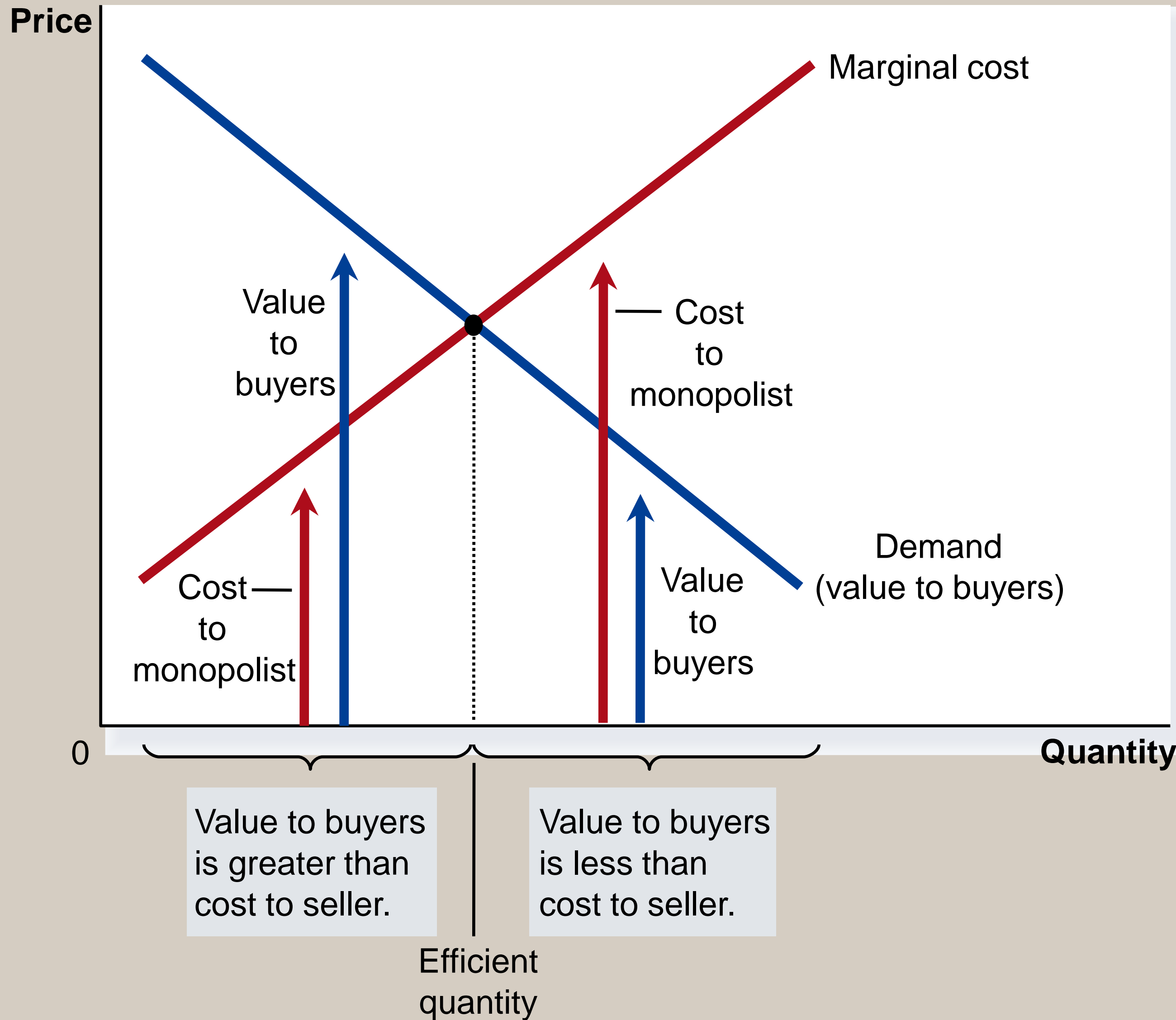
Figure 7 The Efficient Level of Output



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The deadweight loss

- Because a monopoly sets its price above marginal cost, it places a wedge between the consumer's willingness to pay and the producer's cost.
  - This wedge causes the quantity sold to fall short of the social optimum.

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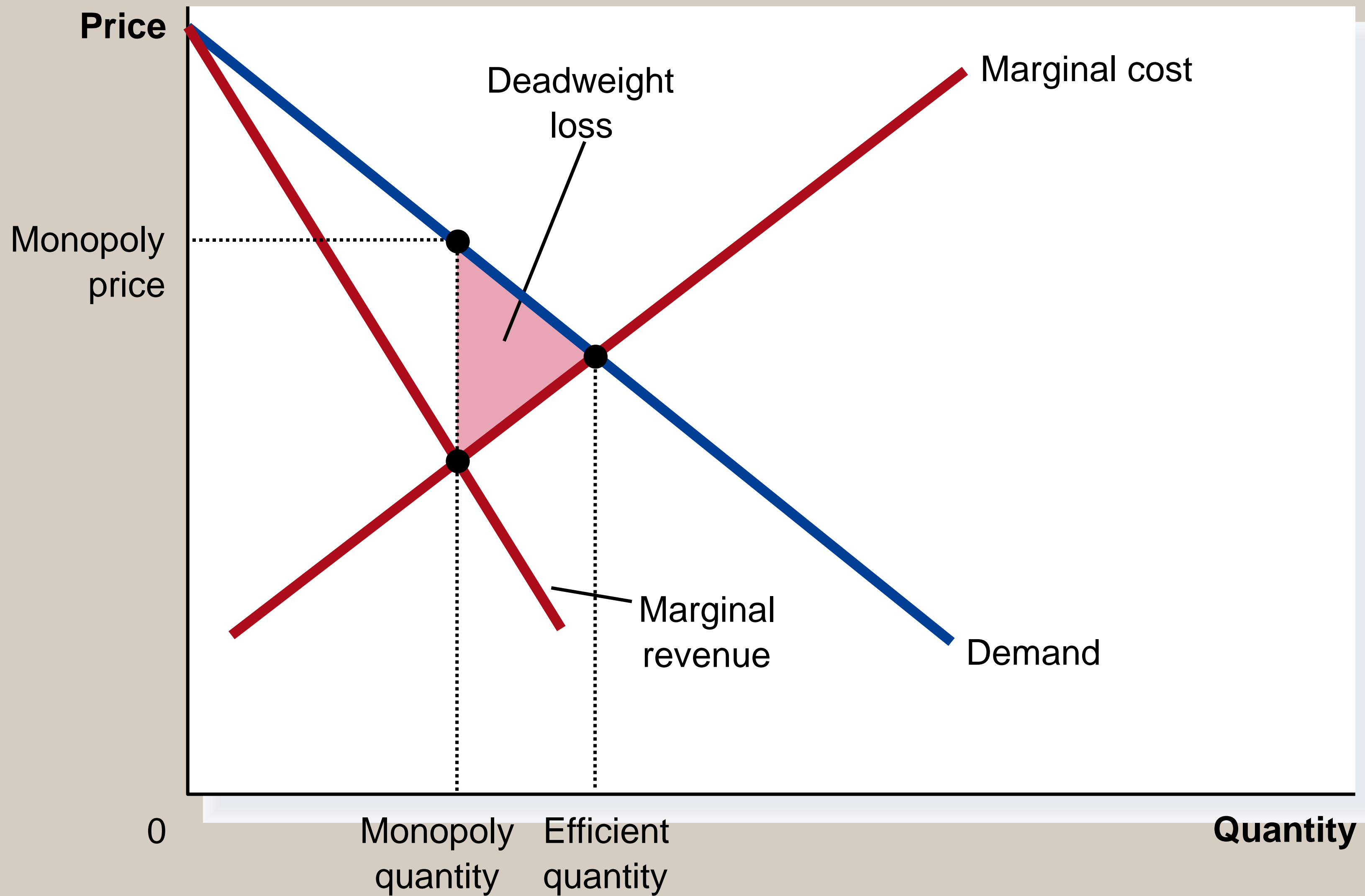
Figure 8 The Inefficiency of Monopoly



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The deadweight loss

- The inefficiency of monopoly
  - The monopolist produces *less than* the socially efficient quantity of output.

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The deadweight loss

- The deadweight loss caused by a monopoly is similar to the deadweight loss caused by a tax.
- The difference between the two cases is that the government gets the revenue from a tax, whereas a private firm gets the monopoly profit.

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Public policy toward monopolies

- Government responds to the problem of monopoly in one of four ways.
  - Making monopolized industries more competitive.
  - Regulating the behavior of monopolies.
  - Turning some private monopolies into public enterprises.
  - Doing nothing at all.

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Increasing competition with antitrust laws

- Antitrust laws are a collection of statutes aimed at curbing monopoly power.
- Antitrust laws give government various ways to promote competition.
  - They allow government to prevent mergers.
  - They allow government to break up companies.
  - They prevent companies from performing activities that make markets less competitive.

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Increasing competition with antitrust laws

- Two important antitrust laws
  - Sherman Antitrust Act (1890)
    - Reduced the market power of the large and powerful “trusts” of that time period.
  - Clayton Act (1914)
    - Strengthened the government’s powers and authorized private lawsuits.

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Regulation

- Government may regulate the prices that the monopoly charges.
  - The allocation of resources will be efficient if price is set to equal marginal cost.

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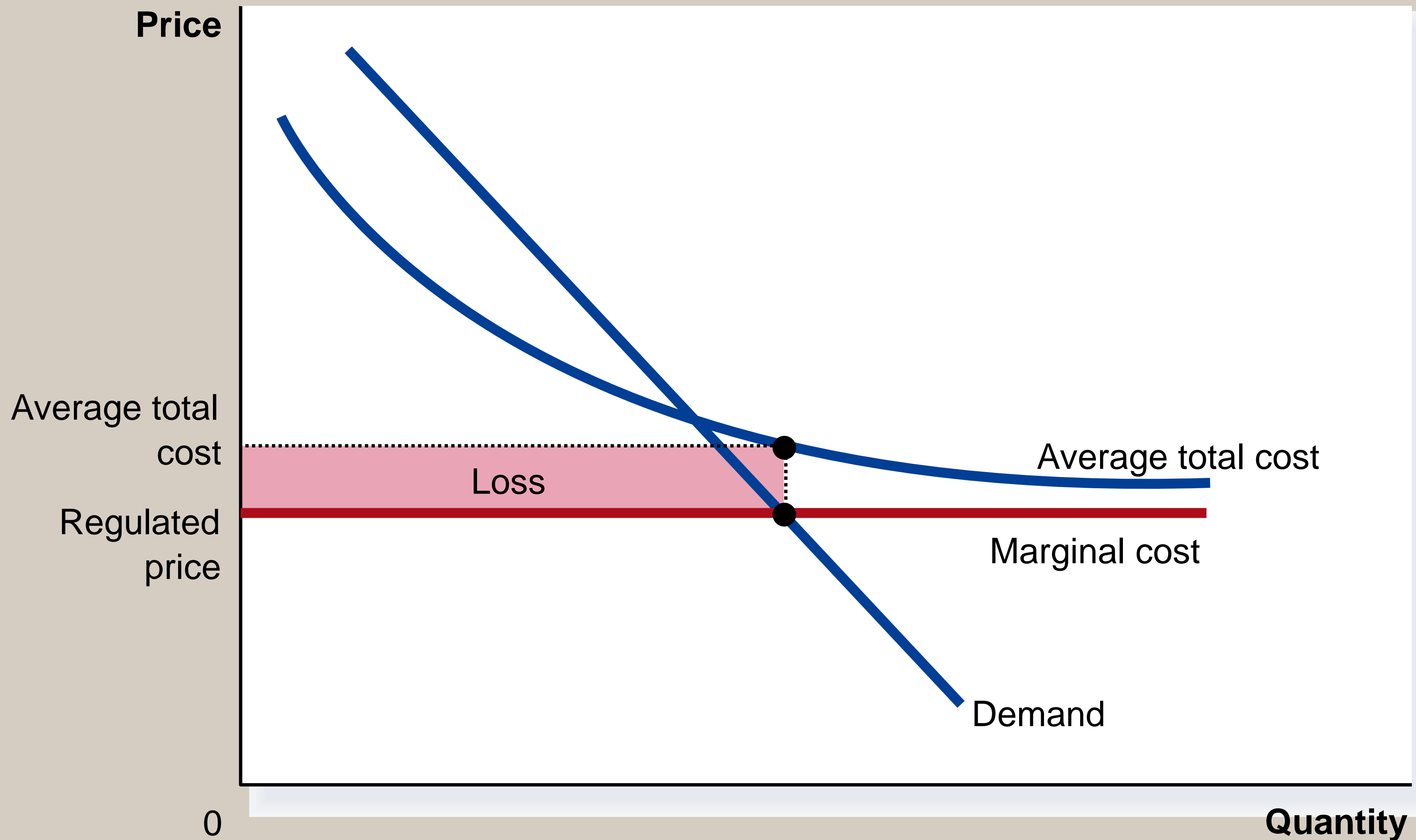
Figure 9 Marginal-Cost Pricing for a Natural Monopoly



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Regulation

- In practice, regulators will allow monopolists to keep some of the benefits from lower costs in the form of higher profit, a practice that requires some departure from marginal-cost pricing.

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Public ownership

- Rather than regulating a *natural monopoly* that is run by a private firm, the government can run the monopoly itself (e.g. in the United States, the government runs the Postal Service).

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Doing nothing

- Government can do nothing at all if the market failure is deemed small compared to the imperfections of public policies.

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Price discrimination

- *Price discrimination* is the business practice of selling the same good at different prices to different customers, even though the costs for producing for the two customers are the same.

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Price discrimination

- Price discrimination is not possible when a good is sold in a competitive market since there are many firms all selling at the market price. In order to price discriminate, the firm must have some *market power*.
- Perfect price discrimination
  - Perfect price discrimination refers to the situation when the monopolist knows exactly the willingness to pay of each customer and can charge each customer a different price.

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Price discrimination

- Two important effects of price discrimination:
  - It can increase the monopolist's profits.
  - It can reduce deadweight loss.

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Figure 10 Welfare with and without Price Discrimination

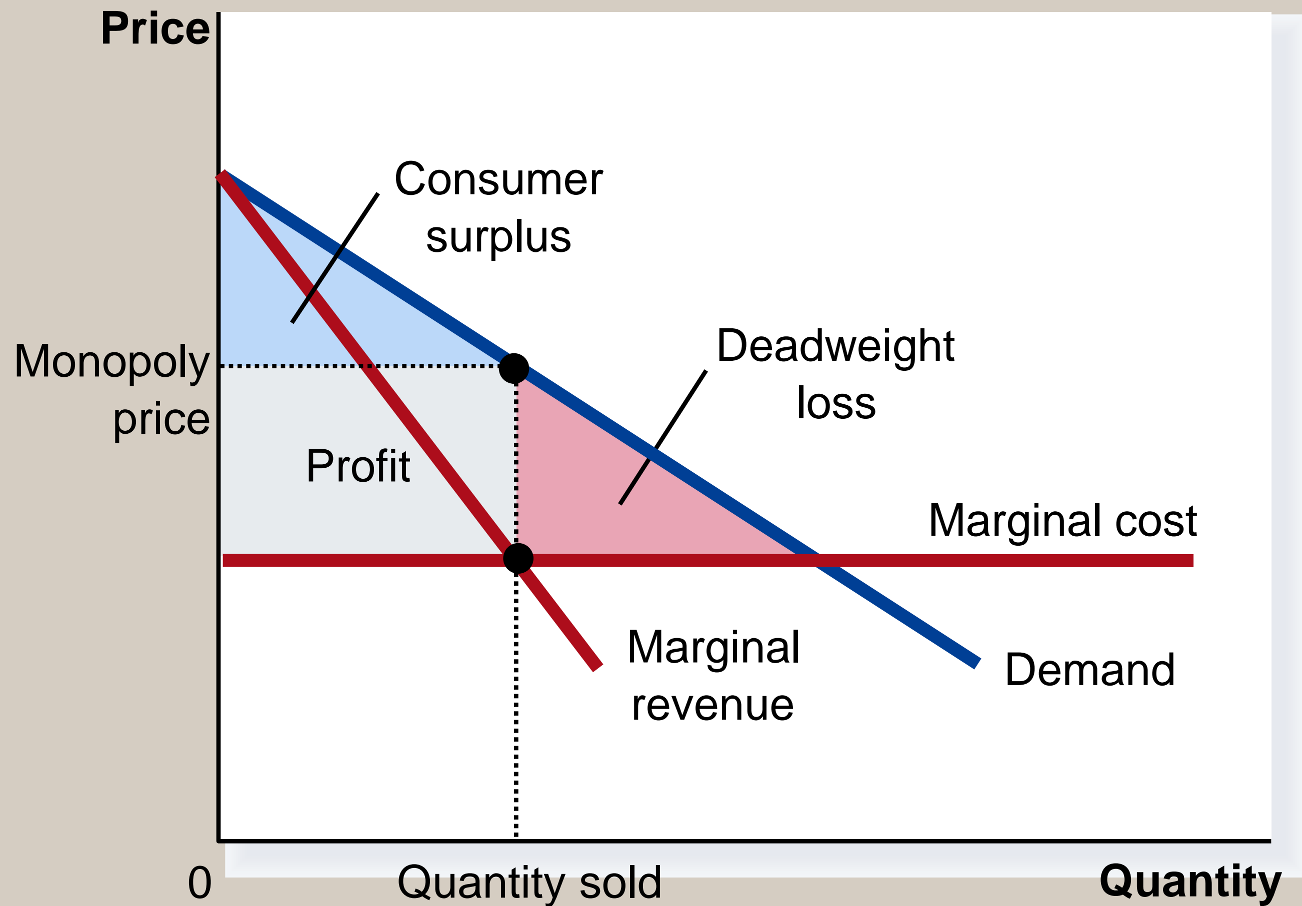

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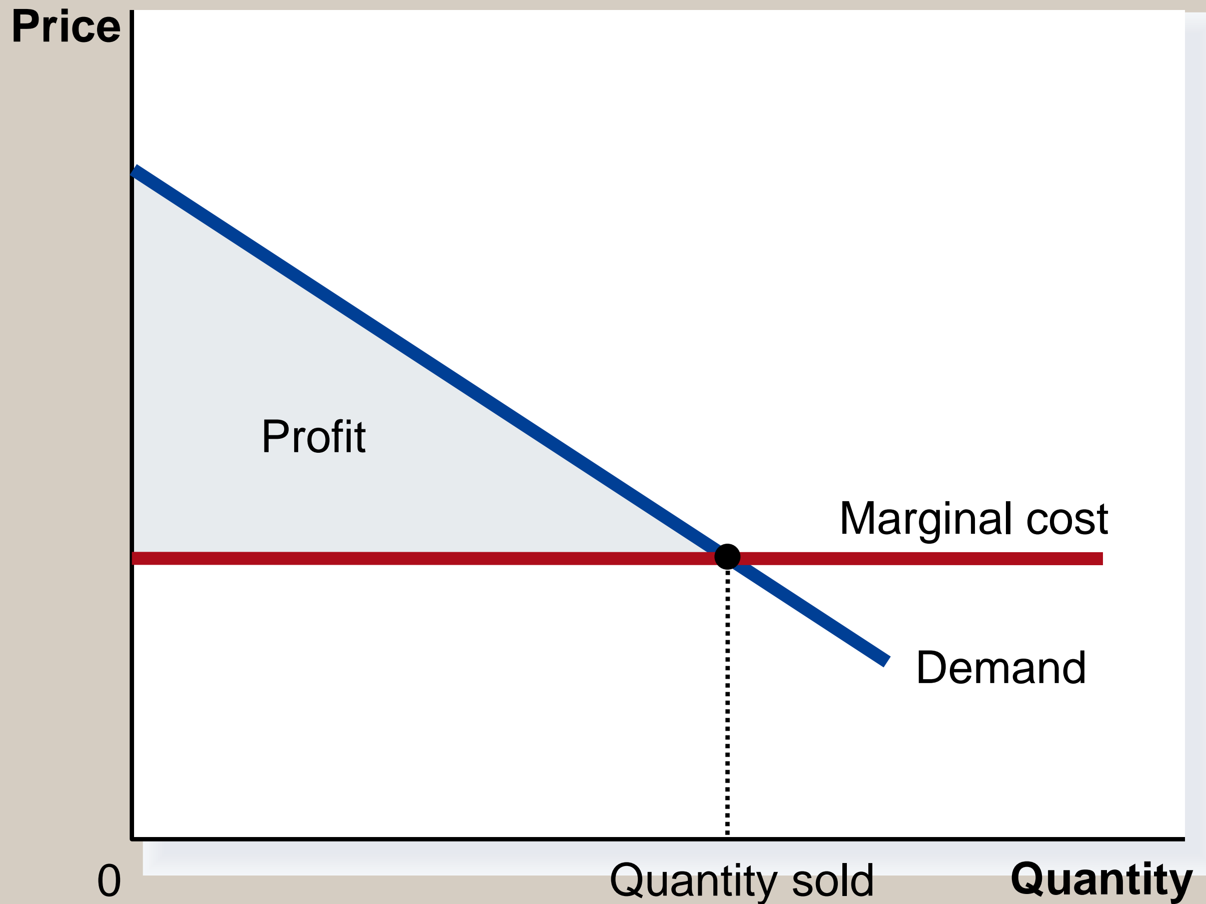
Figure 10 Welfare with and without Price Discrimination



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Price discrimination

- Examples of price discrimination
  - Movie tickets
  - Airline prices
  - Discount coupons
  - Financial aid
  - Quantity discounts

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Conclusion: The prevalance of monopolies

- How prevalent are the problems of monopolies?
  - Monopolies are common.
  - Most firms have some control over their prices because of differentiated products.
  - Firms with substantial monopoly power are rare.
  - Few goods are truly unique.

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Summary

- A monopoly is a firm that is the sole seller in its market.
- It faces a downward-sloping demand curve for its product.
- A monopoly's marginal revenue is always below the price of its good.

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Summary

- Like a competitive firm, a monopoly maximizes profit by producing the quantity at which marginal cost and marginal revenue are equal.
- Unlike a competitive firm, its price exceeds its marginal revenue, so its price exceeds marginal cost.

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Summary

- A monopolist's profit-maximizing level of output is below the level that maximizes the sum of consumer and producer surplus.
- A monopoly causes deadweight losses similar to the deadweight losses caused by taxes.

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Summary

- Policymakers can respond to the inefficiencies of monopoly behavior with antitrust laws, regulation of prices, or by turning the monopoly into a government-run enterprise.
- If the market failure is deemed small, policymakers may decide to do nothing at all.

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Summary

- Monopolists can raise their profits by charging different prices to different buyers based on their willingness to pay.
- Price discrimination can raise economic welfare and lessen deadweight losses.

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