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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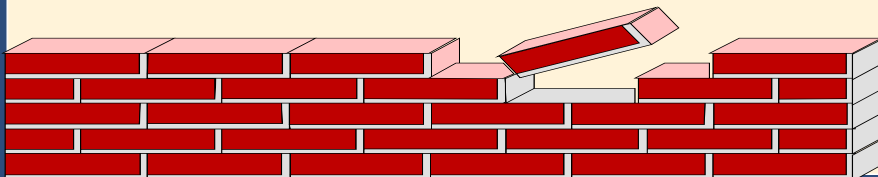
WHY MONOPOLIES ARISE

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



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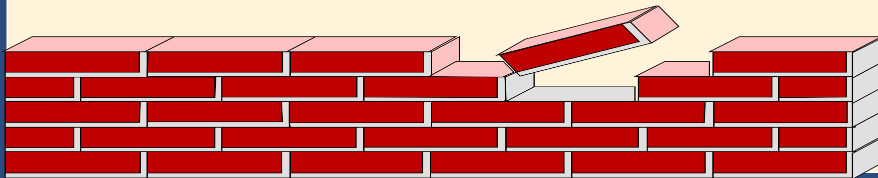
WHY MONOPOLIES ARISE

- 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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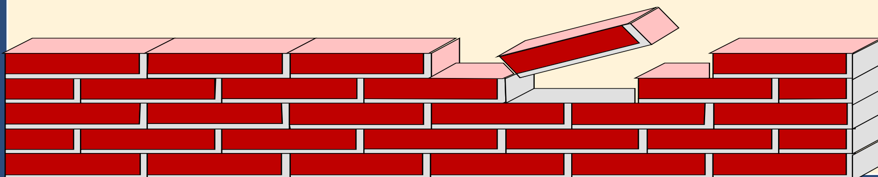
Monopoly Resources

- 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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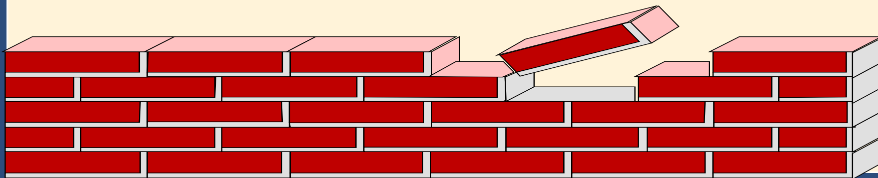
Government-Created Monopolies

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



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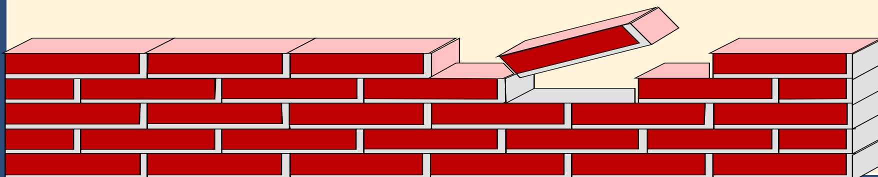
Government-Created Monopolies

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



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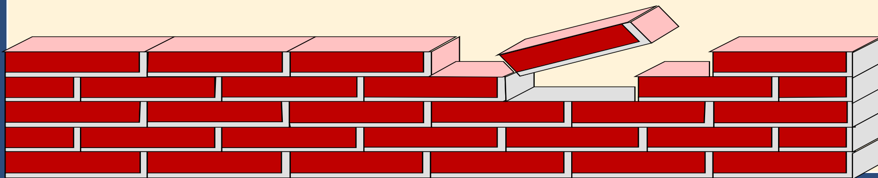
Natural Monopolies

- 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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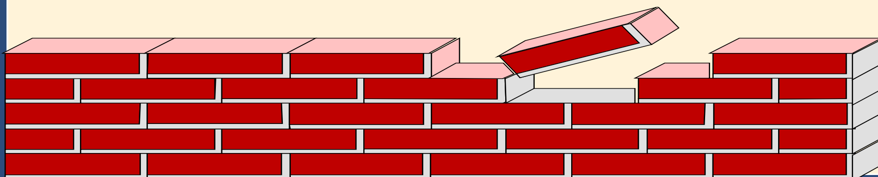
Natural Monopolies

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



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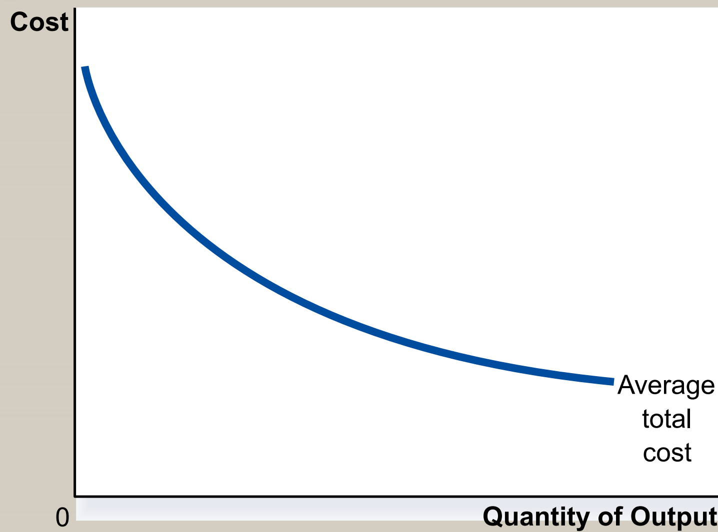

HOW MONOPOLIES MAKE PRODUCTION AND PRICING DECISIONS

- 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

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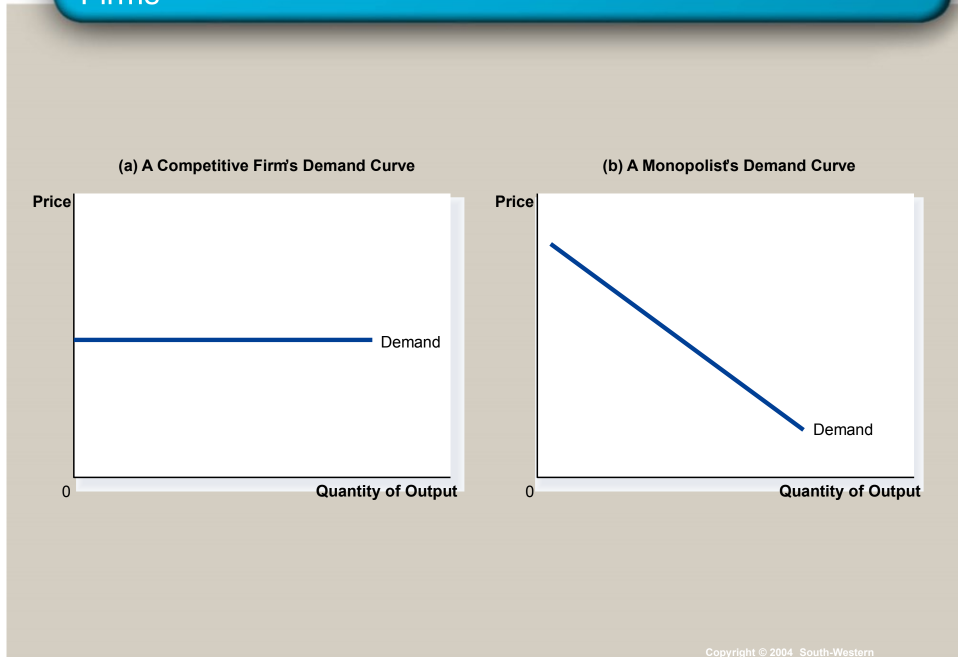

A Monopoly's Revenue

- 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.
  - 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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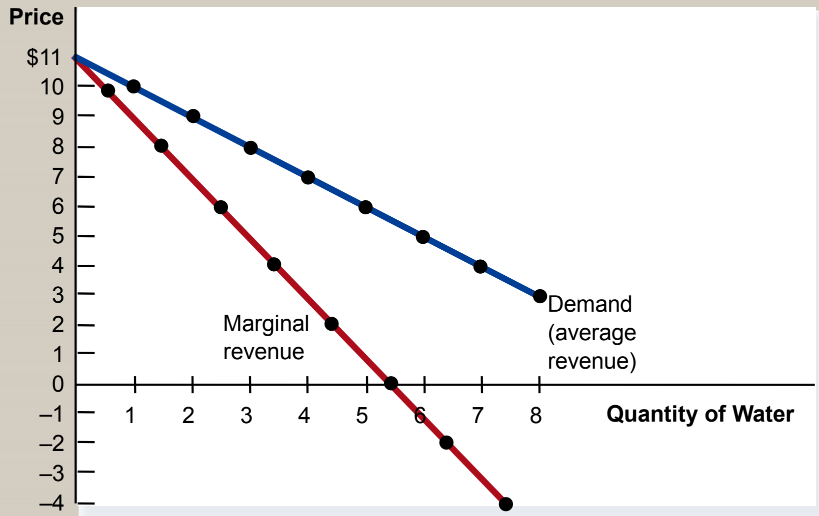

Profit Maximization

- 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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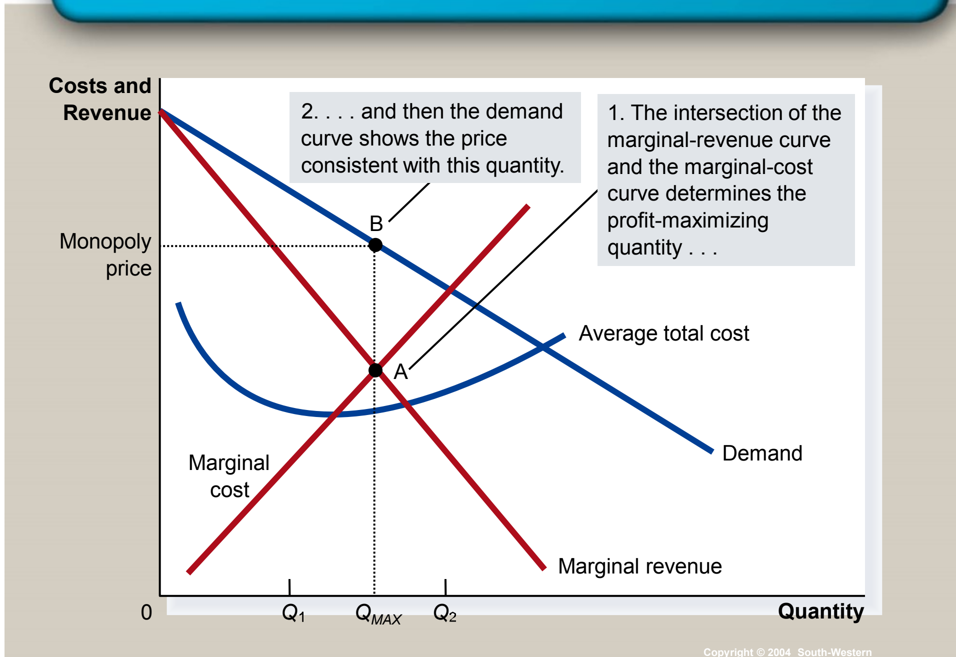

Profit Maximization

- 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) × Q
  - Profit = (P - ATC) × Q

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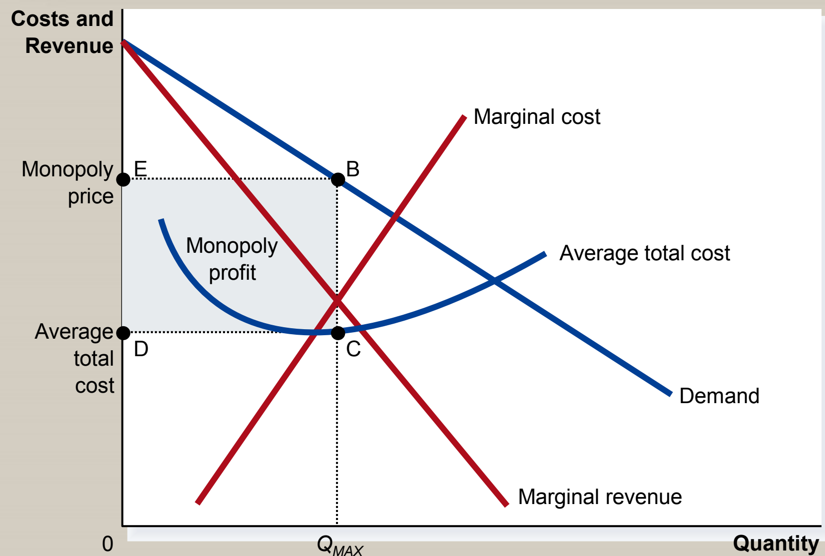
Figure 5 The Monopolist's Profit



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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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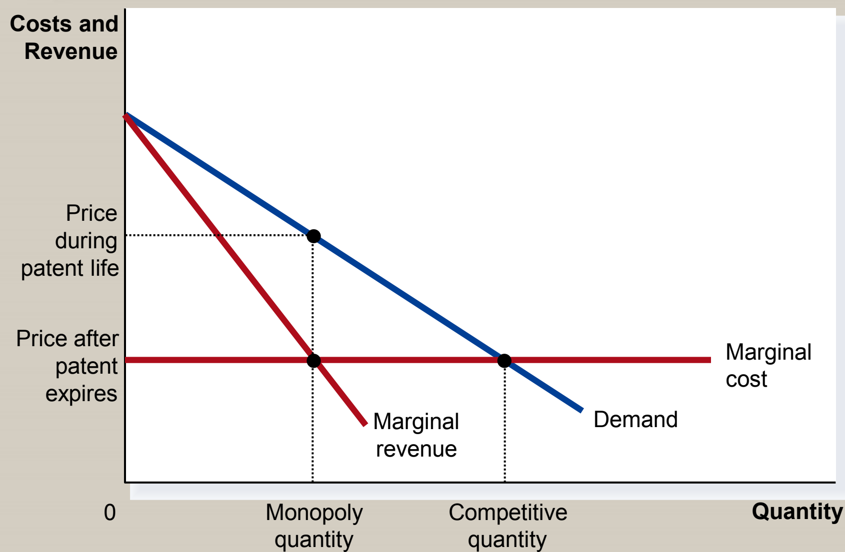
Figure 6 The Market for Drugs



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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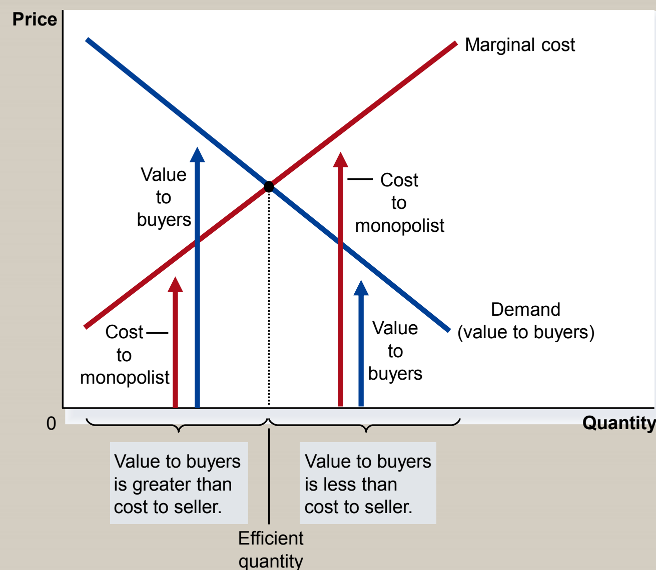
Figure 7 The Efficient Level of Output



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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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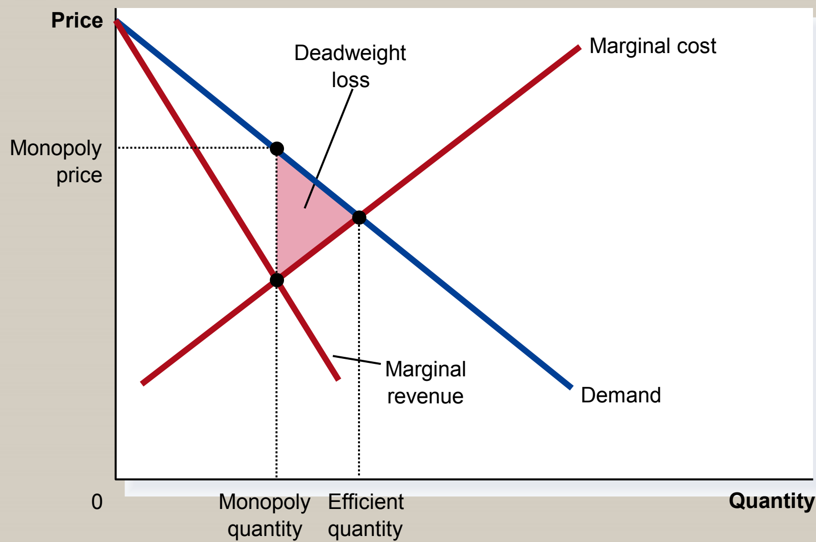
Figure 8 The Inefficiency of Monopoly



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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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