Different Types of Market Structures

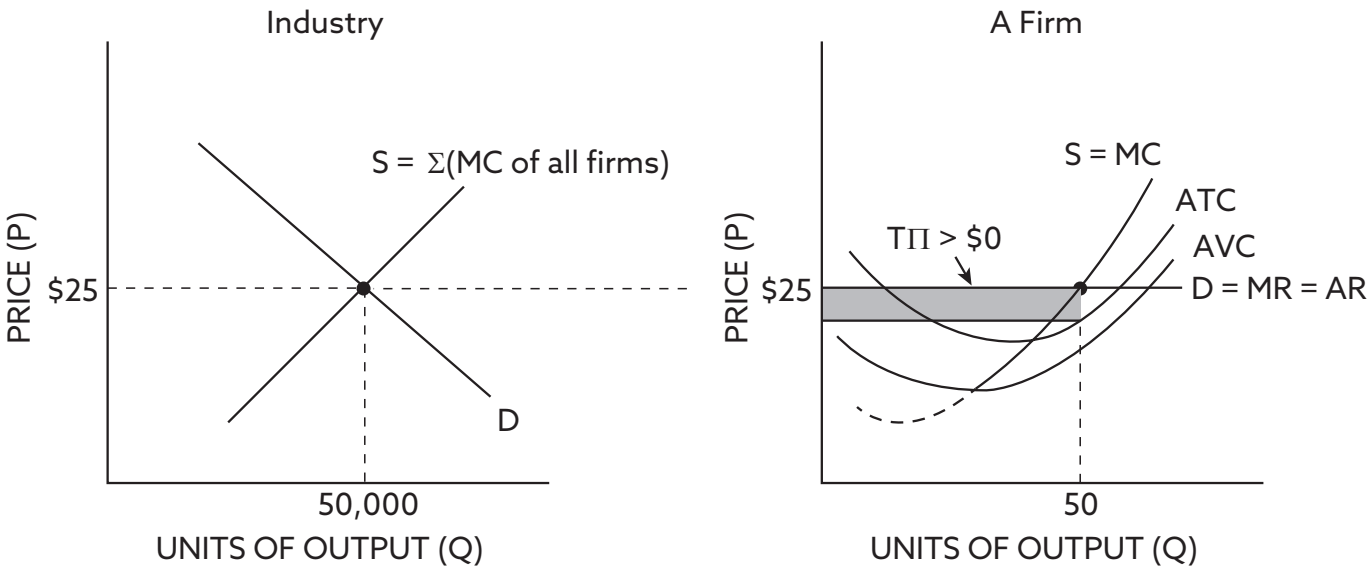
Characteristics			
Market structure	**Number of firms**	**Differentiated or homogeneous product**	**Ease of entry**
Perfect competition			
Monopolistic competition			
Oligopoly			
Monopoly			

Results					
Market structure	**Price-setting power**	**Nonprice competition**	**Allocative and productive efficiency in long run**	**Long-run profits**	**Examples**
Perfect competition					
Monopolistic competition					
Oligopoly					
Monopoly					

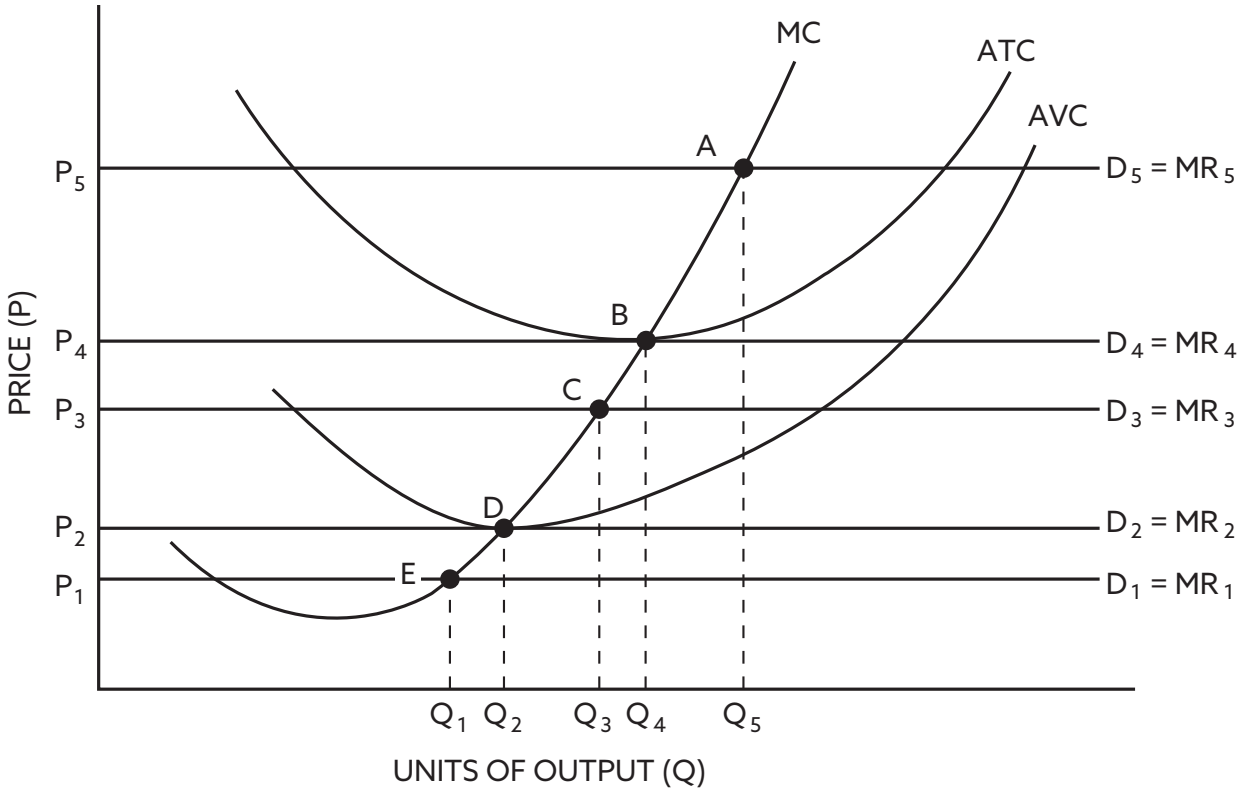
Four Possible Total Profit Positions of a Firm in Short-Run Equilibrium

Total profit (TΠ) at Q* where MR = MC	Total revenue (TR) compared to total cost (TC) and total variable cost (TVC) at Q*	What should the firm do?
1. TΠ > $0	TR > TC	Produce Q*
2. TΠ = $0	TR = TC	Produce Q*
3. TΠ < $0	TVC < TR < TC	Produce Q*
4. TΠ < $0	TR < TVC < TC	Shut down

A Perfectly Competitive Industry and Firm in Short-Run Equilibrium with Positive Total Profit



Different Profit Possibilities for a Perfectly Competitive Firm in Short-Run Equilibrium



MR = MC at	The firm's total profit is
Point A	positive (P > ATC).
Point B	$0 (P = ATC).
Point C	negative (P < ATC) but the firm should not shut down (P > AVC). Loss < TFC.
Point D	negative (P < ATC) and the firm is indifferent about shutting down (P = AVC). Loss = TFC.
Point E	negative (P < ATC) and the firm should shut down (P < AVC). Loss > TFC.

Short Run vs. Long Run

Perfect Competition in the Short Run

- A perfectly competitive firm maximizes its total profit by producing the output level where MR = MC.
- If firms in the short run are earning positive economic profits, other firms will enter the market.
- If firms are incurring a loss in their short-run equilibrium position, some of the firms will exit the market.

Perfect Competition in the Long Run

- Eventually the perfectly competitive market reaches a long-run equilibrium (LRE) where all of the firms in the industry are earning zero economic profits, based on the current market demand.
- Firms in other industries thus have no incentive to enter.
- Firms in this market have no incentive to leave it because they are earning their normal profit (i.e., accounting profit is positive, but economic profit is zero.)

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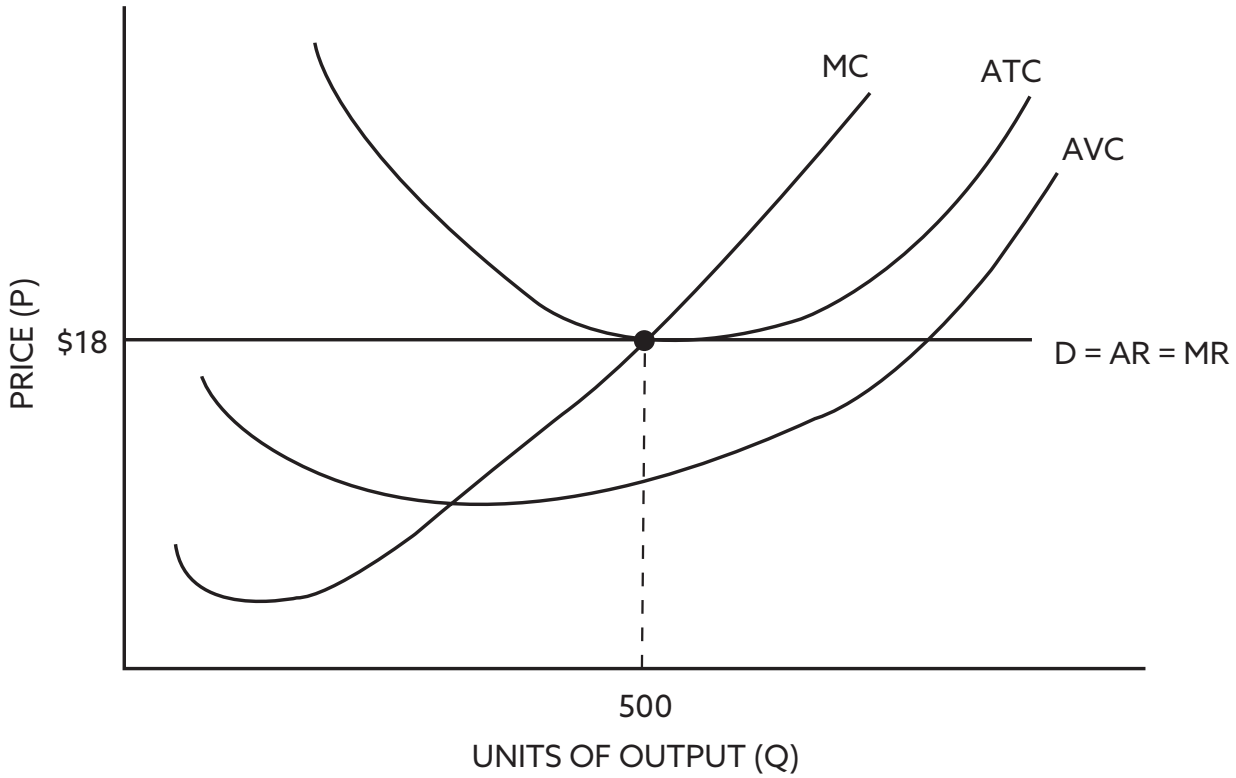
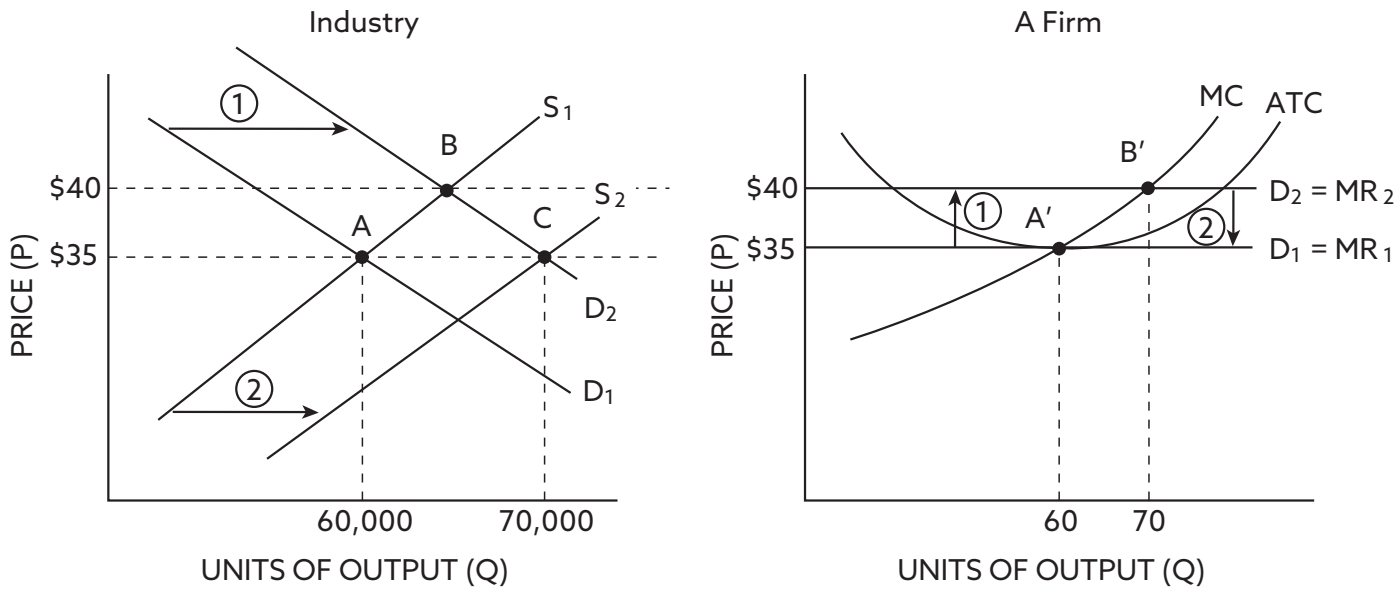
A Perfectly Competitive Firm in Long-Run Equilibrium



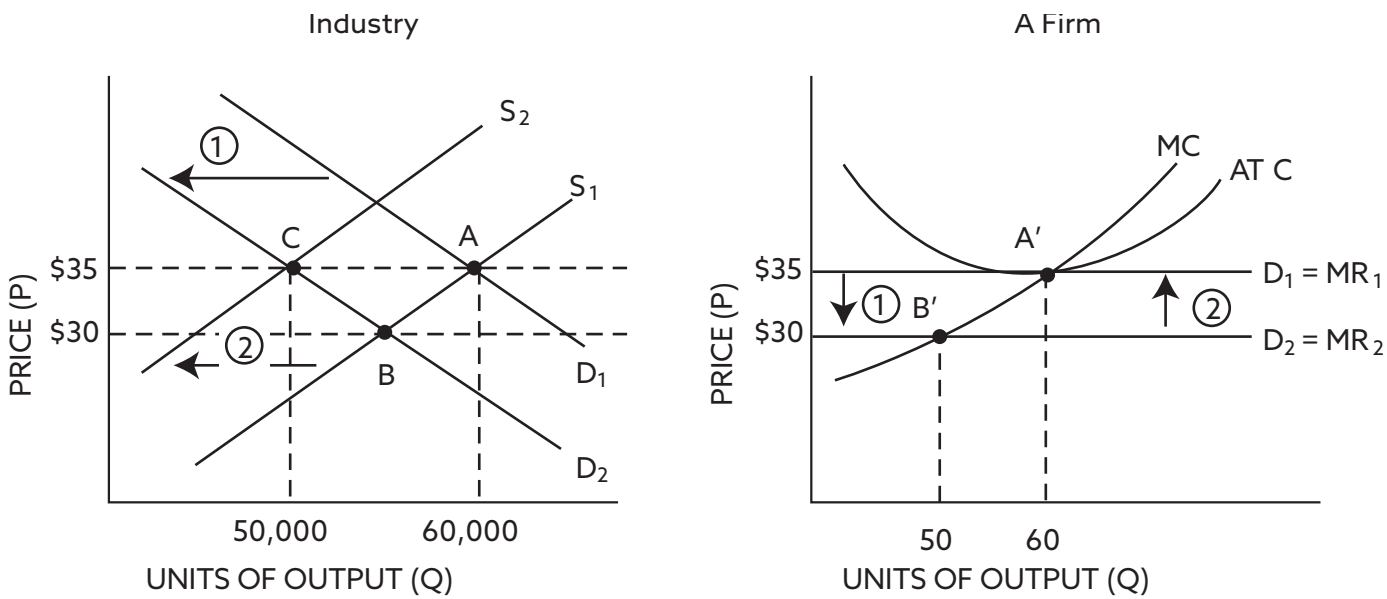
A perfectly competitive firm in long-run equilibrium is both productively and allocatively efficient:

- **Productive efficiency** **P = ATC$_{minimum}$**
- **Allocative efficiency** **P = MC**

How a Perfectly Competitive Industry and Firm Respond to an Increase in Demand

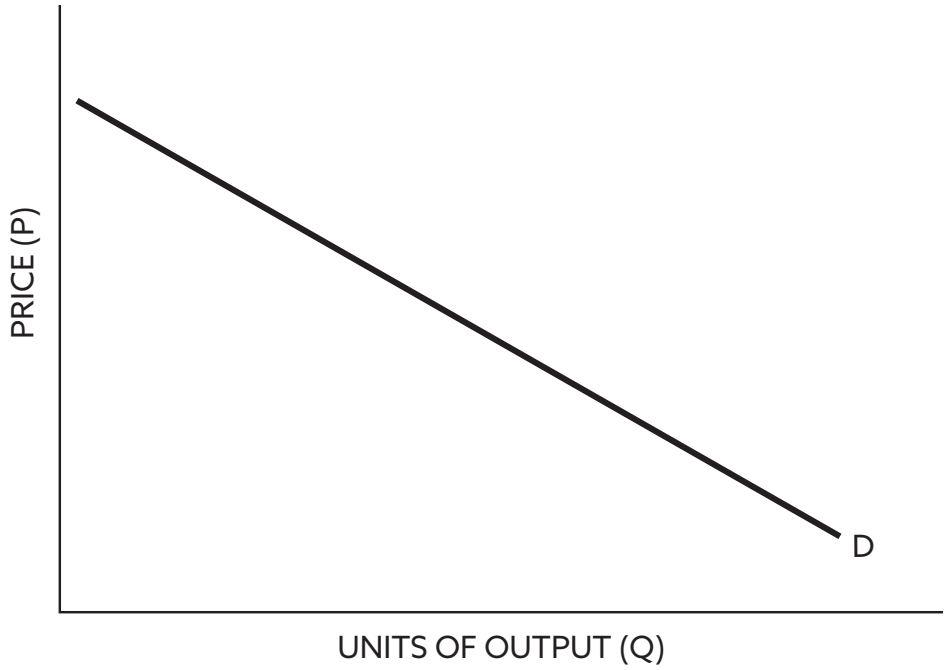


How a Perfectly Competitive Industry and Firm Respond to a Decrease in Demand



Price-Taker

The pure *monopoly* controls the total quantity supplied and therefore has considerable control over price – *a price maker*.



Because it is the sole supplier in the industry, the demand curve is the market demand curve.

- **Raise the price by reducing the amount for sale (Q).**
- **To sell more it lowers the price.**

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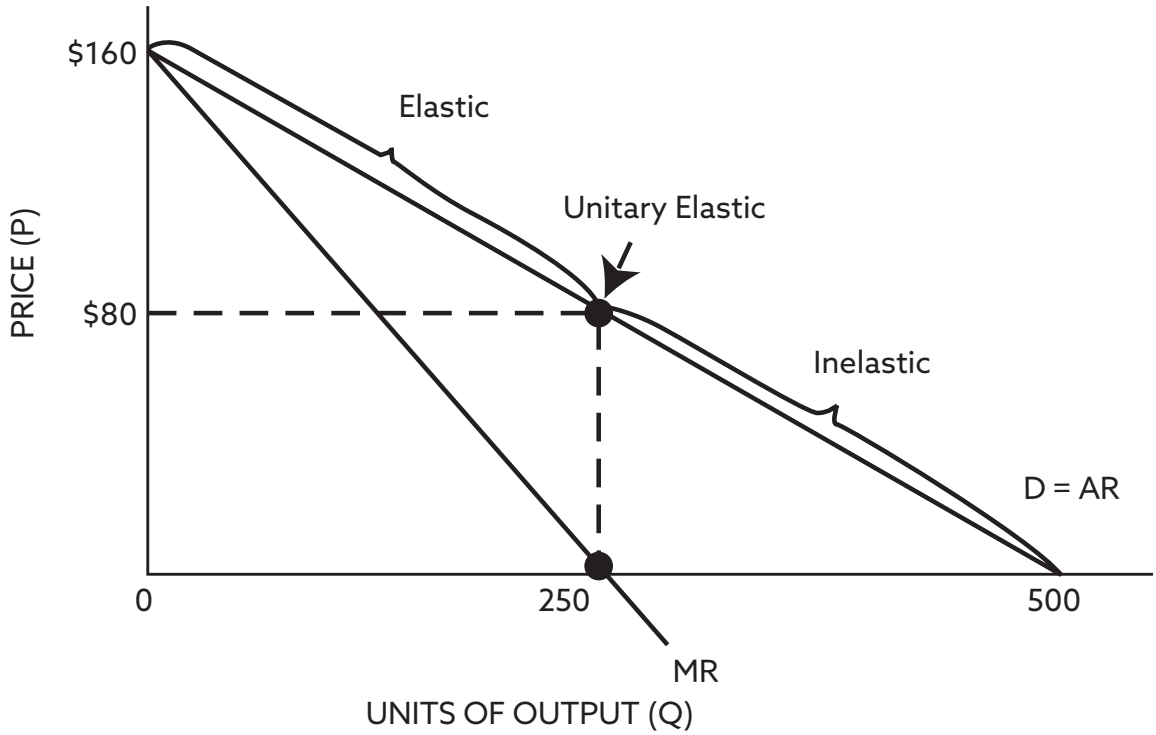
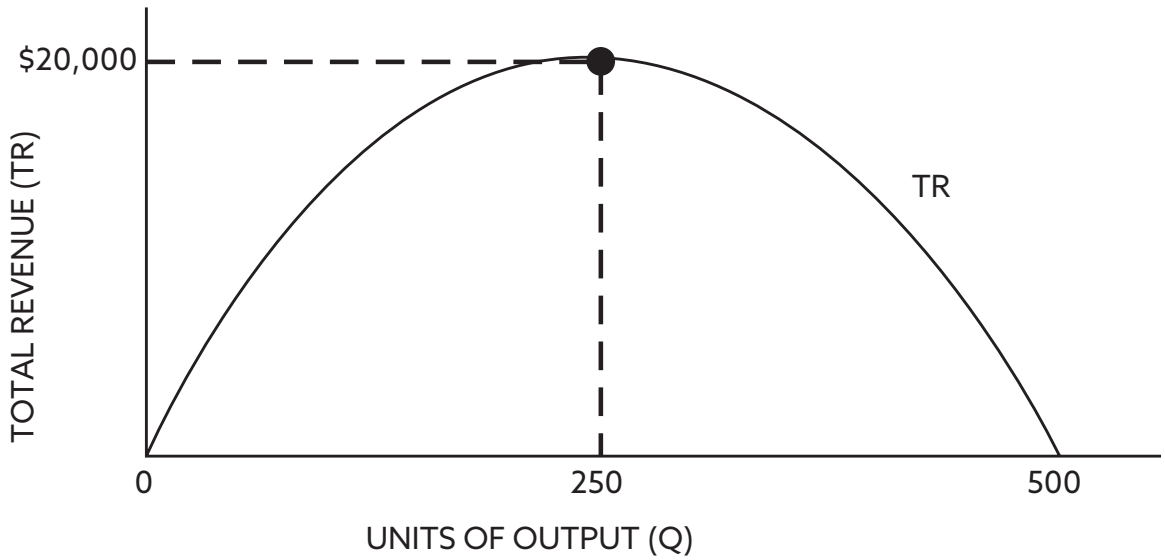
The Revenue Graphs of a Monopoly





Profit Maximizing Rules for a Monopoly

The rules followed by a monopoly trying to maximize total profit are the same as those of a perfectly competitive firm:

- **Produce the output where MR = MC.**
- **The optimal price is found on the demand curve at the optimal output.**
- **Shut down (produce no output) if, at the optimal output, TR < TVC.**

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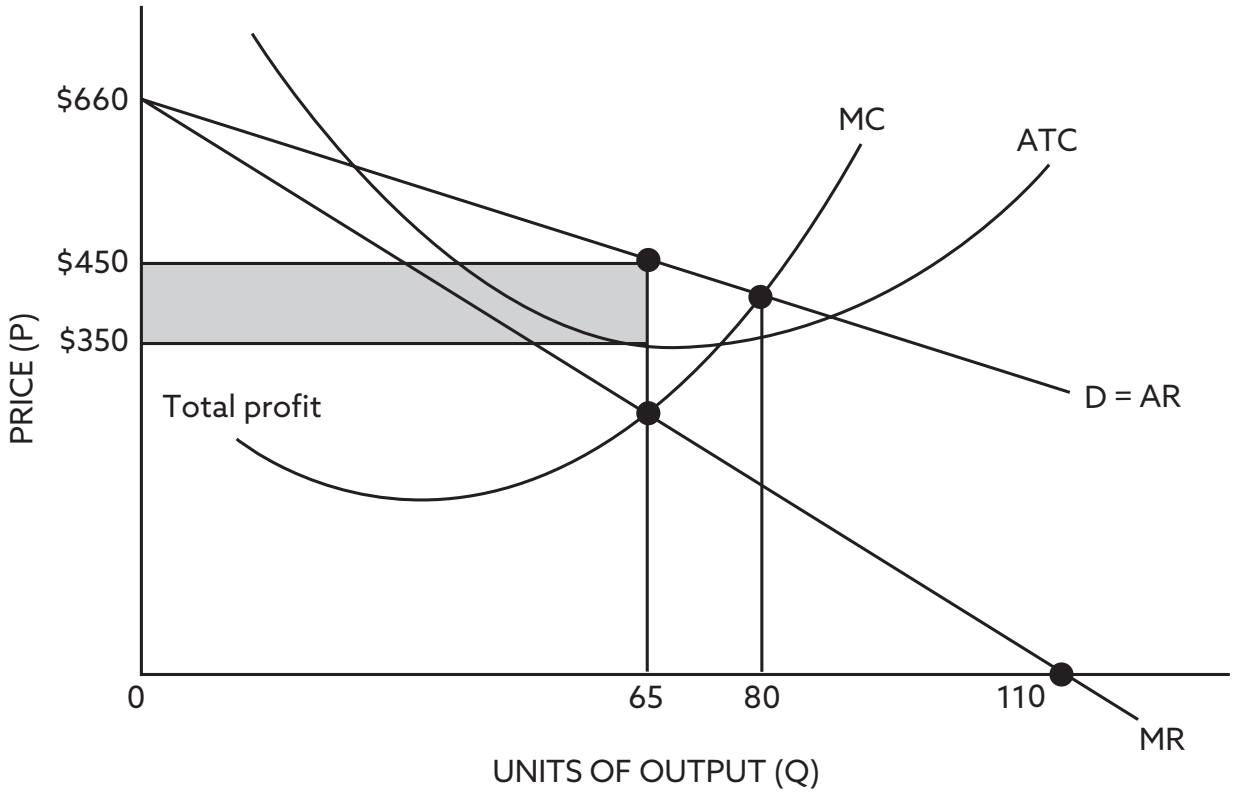
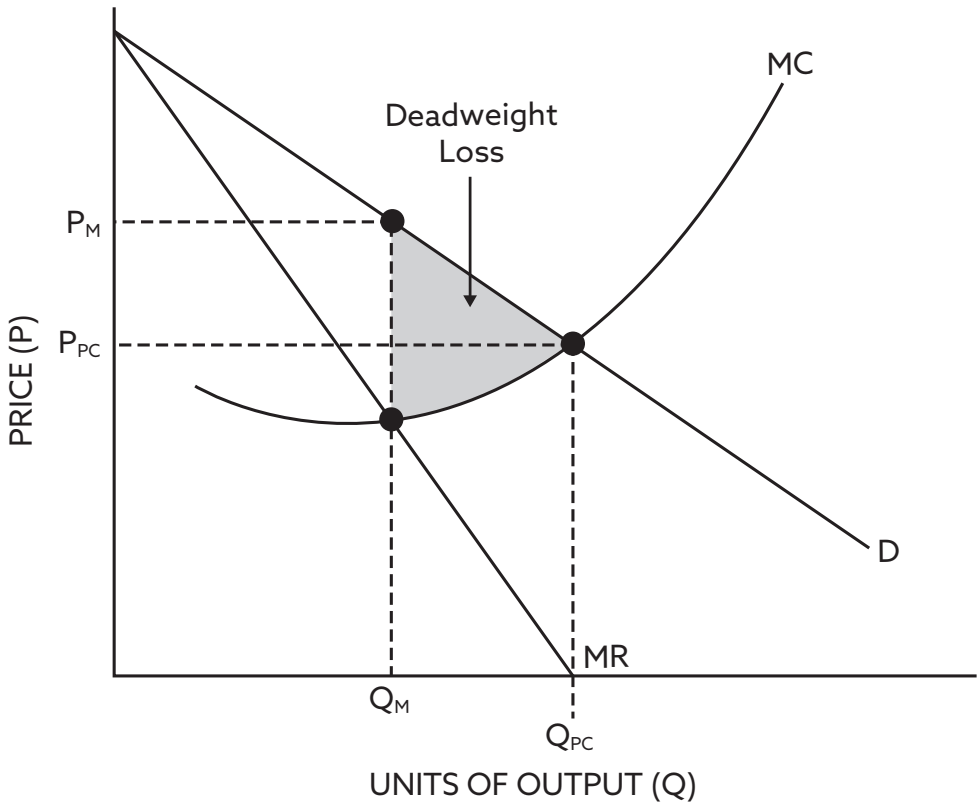
The Graph of a Profit-Maximizing Monopoly



Output	Result	Rule
65 units	Monopoly maximizes total profit.	MR = MC
80 units	Monopoly produces socially optimal output.	P = MC
110 units	Monopoly maximizes total revenue.	MR = $0

Deadweight Loss



Price Discrimination

Price discrimination – when a producer charges different prices to different customers for the same item, for reasons other than differences in cost.

- The seller needs to be able to divide the total market for the good into separate submarkets, each with a different demand for the good.
- There also must be no possibility of resale of the product between the submarkets; otherwise the different submarkets will collapse into a single market.

Perfect Price Discrimination

Perfect price discrimination – This means the monopolist is able to charge each individual consumer the highest price that a particular consumer is willing to pay for a unit of the product.

- A monopolist produces the quantity where price equals marginal cost (just as a competitive market would) but
- Extracts all economic surplus associated with its product and eliminates all deadweight loss.

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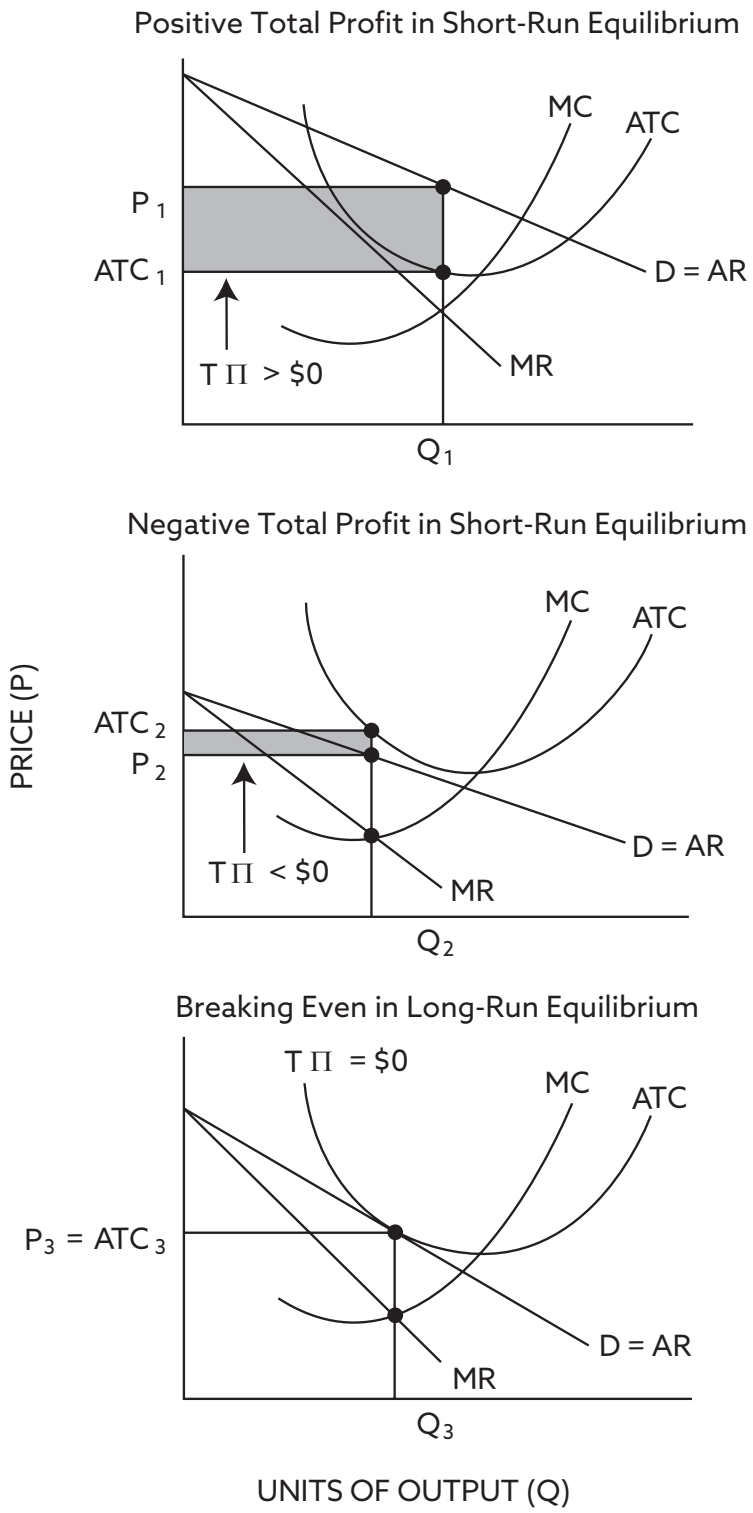
A Monopolistically Competitive Firm in Short-Run and Long-Run Equilibrium



Key Terms and Characteristics of an Oligopolistic Industry

- Oligopoly – a market dominated by a few large firms that act interdependently in output and pricing decisions
- Duopoly – only 2 firms in the industry
- High barriers to entry – obstacles such as high start-up costs make it difficult for new firms to enter the market
- Oligopoly pricing and inefficiency –
  - Not allocatively efficient (don't produce where P = MC)
  - Not productively efficient (don't produce where P = minimum ATC)
  - Restrict output to maximize profits, resulting in a lower quantity of goods or services available to consumers
- Consequences of oligopoly on consumers – higher prices, lower quantity and quality of products or services, and less choice

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Collusive vs. Competitive Oligopolies

- Collusion – when firms work together to limit competition and drive up prices
- A cartel is the strongest form of collusion and is illegal in the U.S.
- Interdependence – the concept that firms in an oligopolistic market structure must consider the actions of their competitors before making decisions
- Price leadership – when one dominant firm sets the prices and the other firms follow suit

The Basic Elements of Game Theory

PAYOFF MATRIX

		Coke	
		Advertise	Don't Advertise
Pepsi	Advertise	P 80 C 80	P 120 C 45
	Don't Advertise	P 45 C 120	P 100 C 100

The three basic elements are summarized in a "payoff matrix."

- The players – Coke and Pepsi
- The strategies available to each player - Advertise, Don't Advertise
- The payoffs each player receives - the additional amount each company will earn in millions of dollars.

The first number in each square refers to the payoff for the row (horizontal) player, here Pepsi (P).

The second number in each square refers to the payoff for the column (vertical) player, here Coke (C).

The payoffs each player receives:

- If Pepsi chooses Advertise and Coke chooses Advertise, Pepsi earns 80 and Coke earns 80.
- If Pepsi chooses Advertise and Coke chooses Don't Advertise, Pepsi earns 120 and Coke earns 45.
- If Pepsi chooses Don't Advertise and Coke chooses Advertise, Pepsi earns 45 and Coke earns 120.
- If Pepsi chooses Don't Advertise and Coke chooses Don't Advertise, Pepsi earns 100 and Coke earns 100.

Game Theory Vocabulary

Strategic thinking is the art of outdoing an adversary, knowing that the adversary is trying to do the same to you. *Dixit and Nalebuff**

- **Game theory** – the strategic behavior of oligopolistic firms. It is a way of explaining the effects of oligopolistic firms being highly interdependent.
- A player's **strategy** depends on the actions of the other players.
- A **dominant strategy** is one that is best for one player regardless of any strategy chosen by the other player.
- A **dominated strategy** is one whose outcome depends on the strategy chosen by the other player. It can be a good strategy if the player can predict the other player's move.
- A **Nash Equilibrium** is a combination of strategies that is the best response for a player given the other player's best response. It does not always provide the best result for society.

**Avinash K. Dixit and Barry J. Nalebuff, Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life (New York: W.W. Norton, 1991), p. 409.*