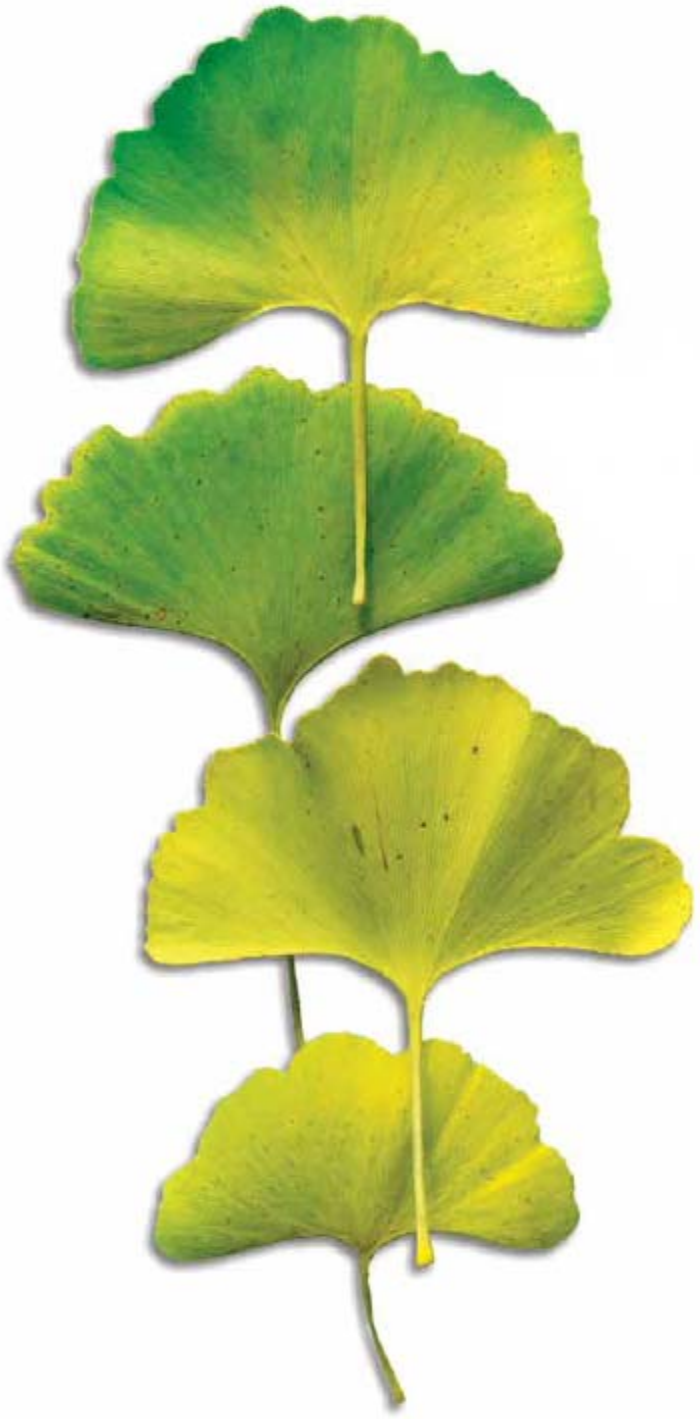
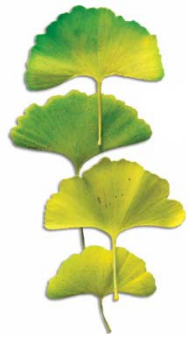


# Chapter 13

## Oligopoly and Monopolistic Competition

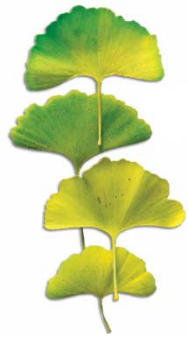
# Chapter Outline

- Some Specific Oligopoly Models
- Competition When There are Increasing Returns to Scale
- Monopolistic Competition
- A Spatial Interpretation of Monopolistic Competition
- Historical Note: Hotelling's Hot Dog Vendors
- Consumer Preferences and Advertising

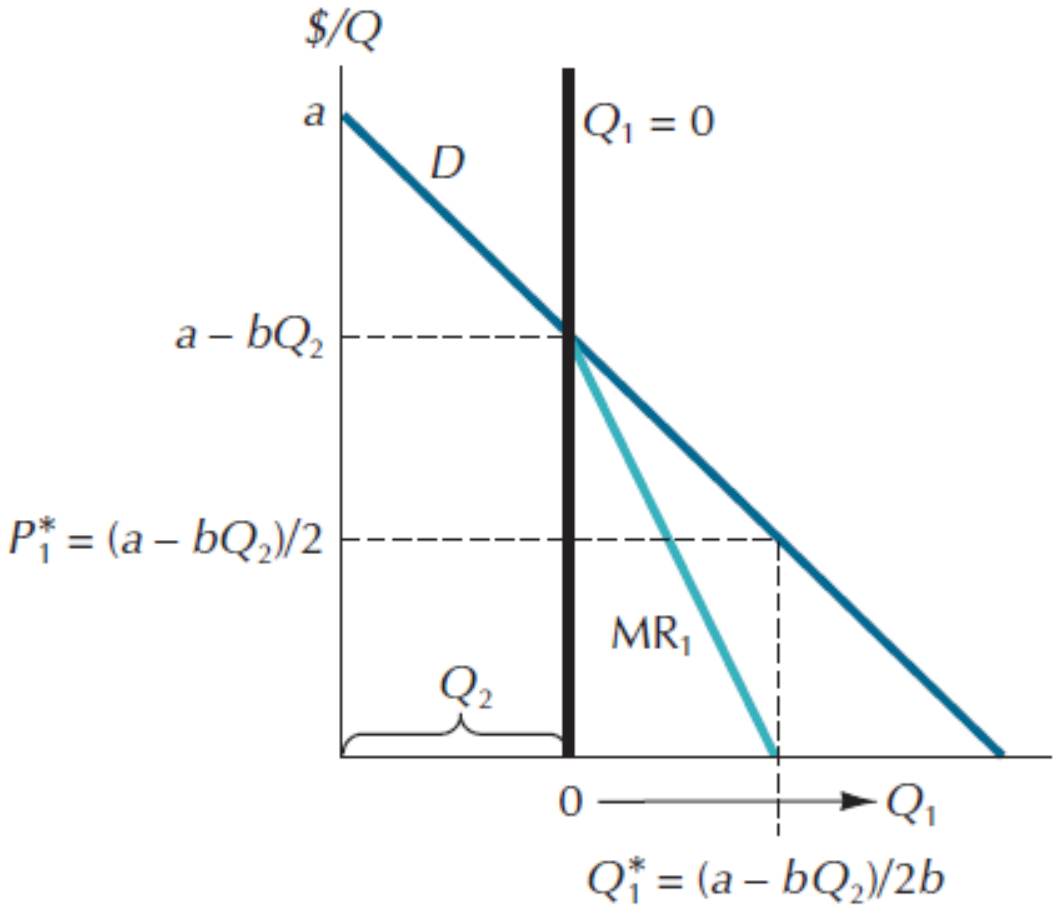


# The Cournot Model

- ***Cournot model:*** oligopoly model in which each firm assumes that rivals will continue producing their current output levels.
  - Main assumption - each duopolist treats the other's quantity as a fixed number, one that will not respond to its own production decisions.

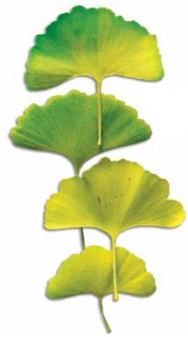


# Figure 13.1: The Profit-Maximizing Cournot Duopolist

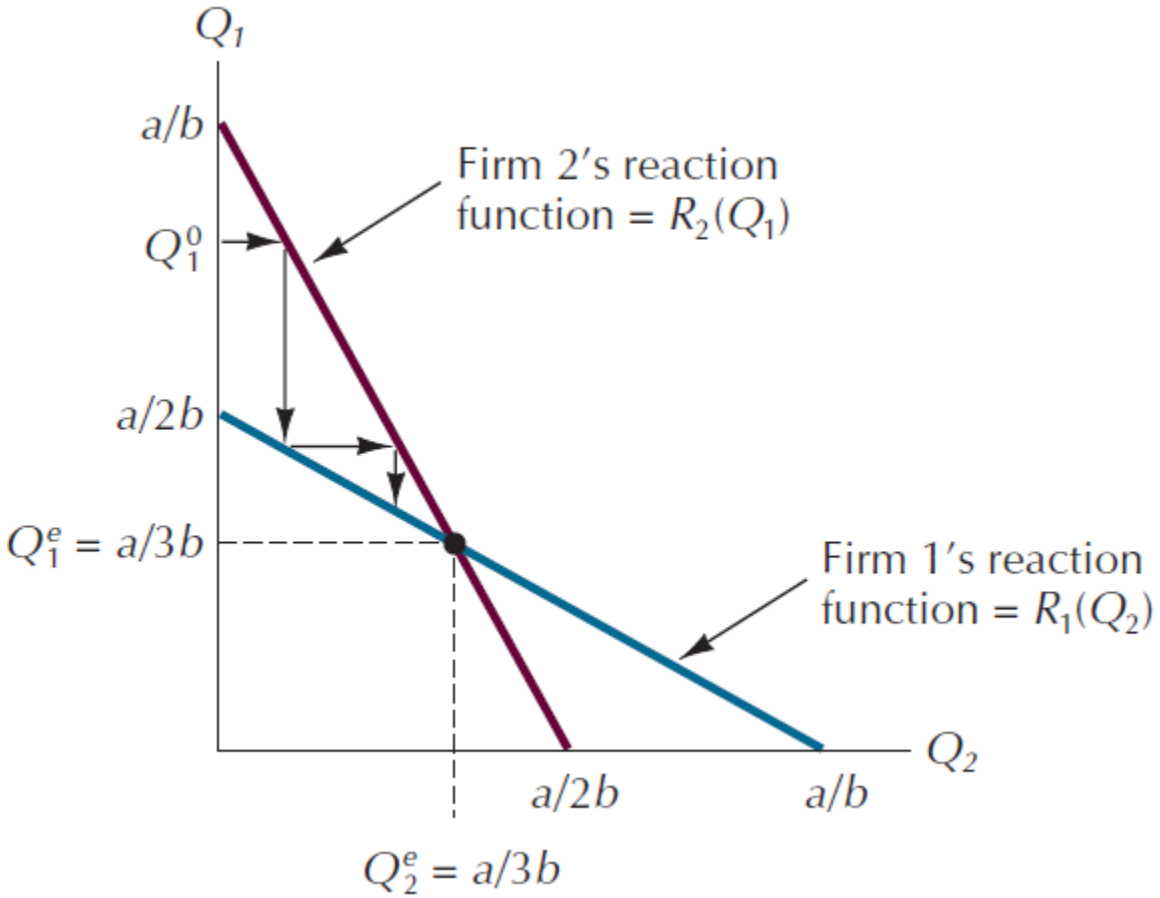


# The Cournot Model

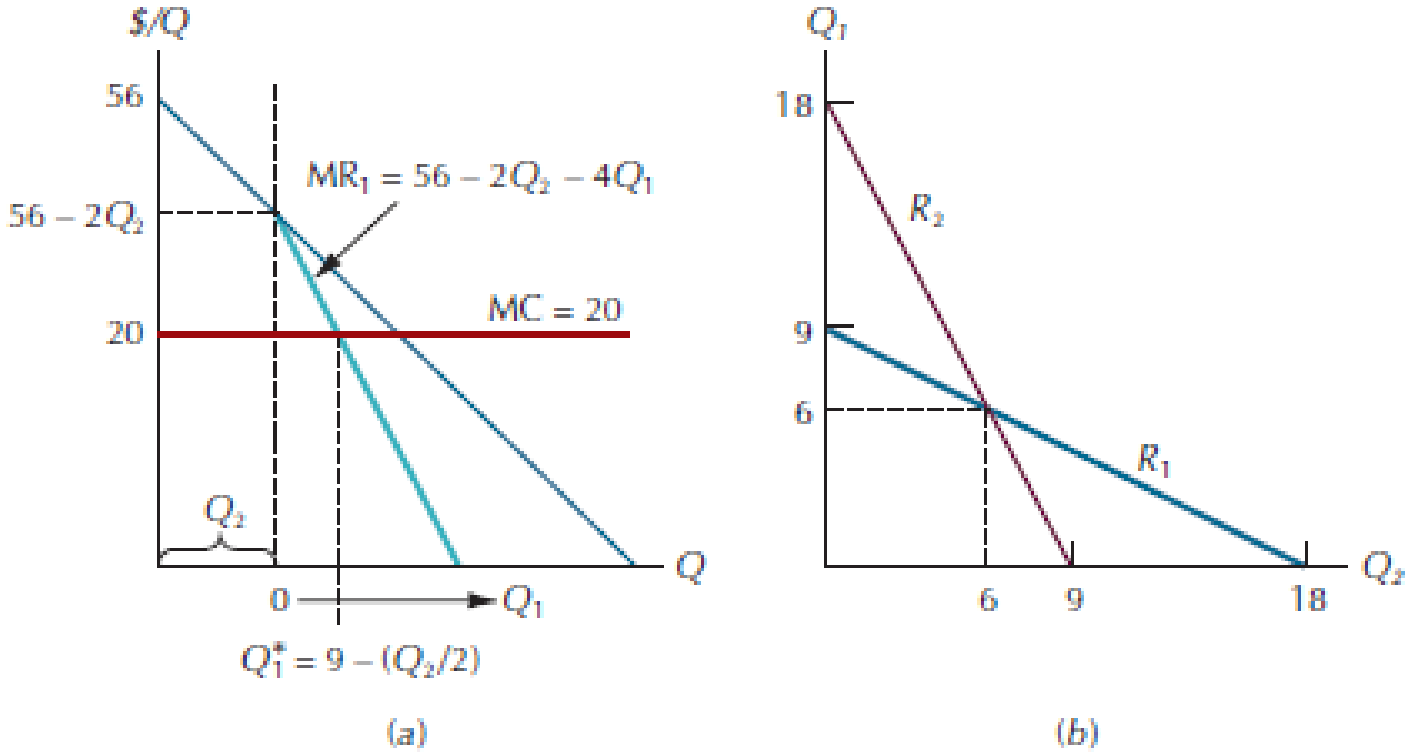
- ***Reaction function:*** a curve that tells the profit-maximizing level of output for one oligopolist for each amount supplied by another.



# Figure 13.2: Reaction Functions for the Cournot Duopolists

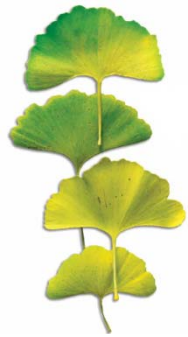


# Figure 13.3: Deriving the Reaction Functions for Specific Duopolists

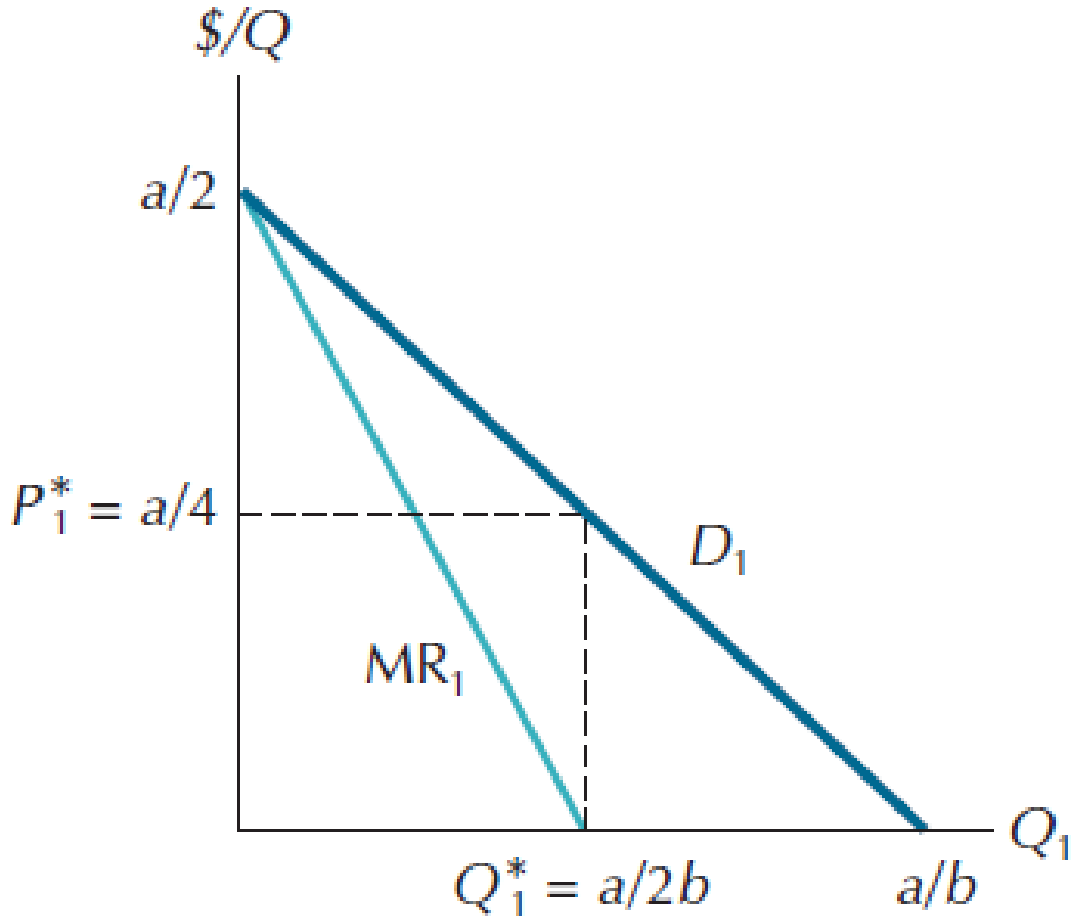


# The Bertrand Model

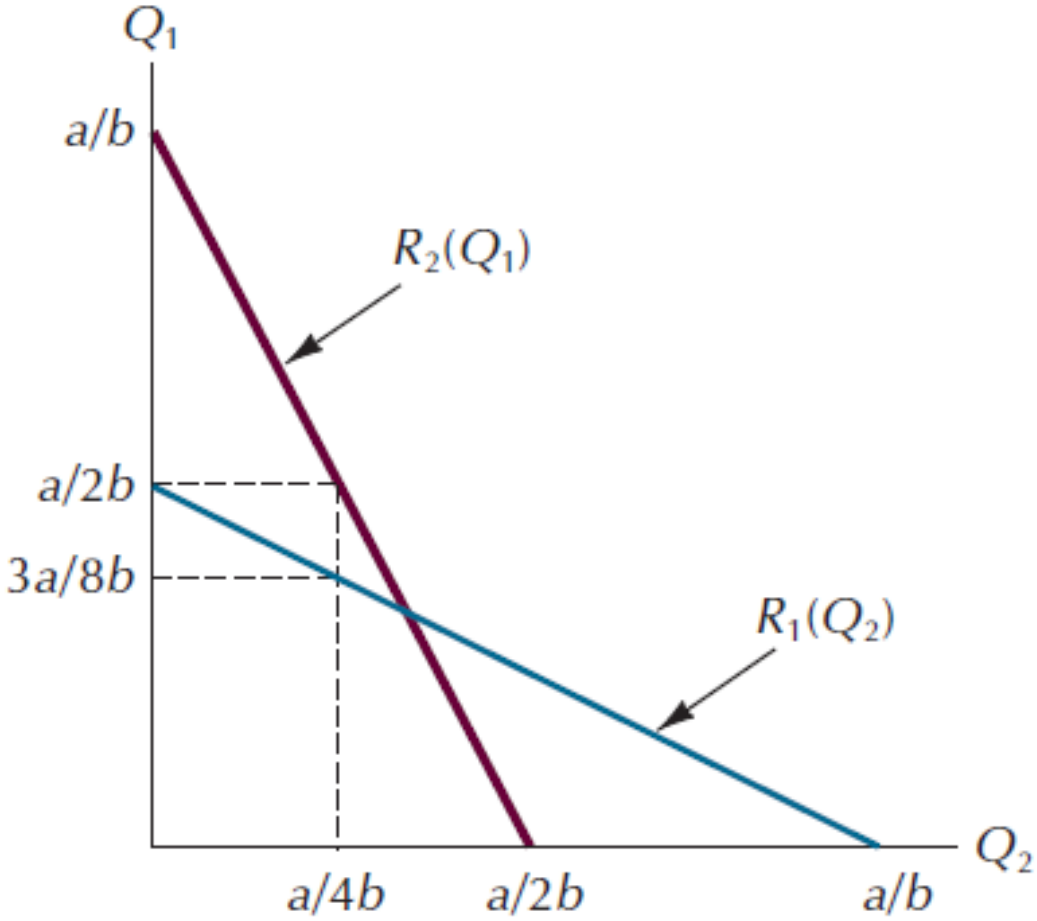
- ***Bertrand model:*** oligopoly model in which each firm assumes that rivals will continue charging their current prices.



# Figure 13.4: The Stackelberg Leader's Demand and Marginal Revenue Curves



# Figure 13.5: The Stackelberg Equilibrium

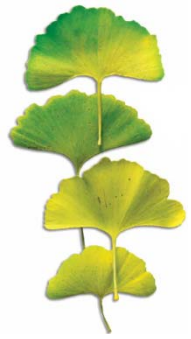


# Table 13.1: Comparison Of Outcomes

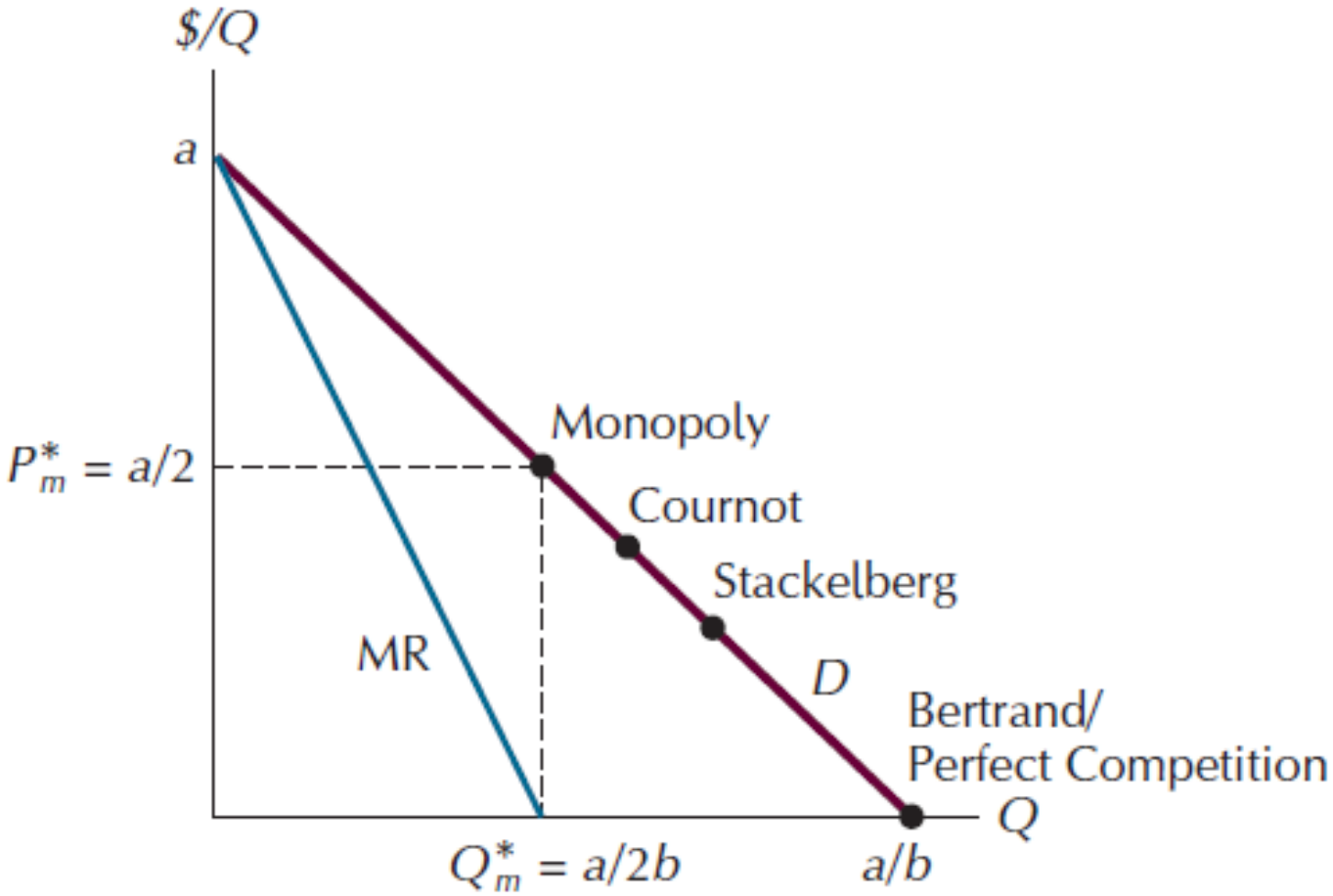
**TABLE 13.1**
**Comparison of Oligopoly Models**

| Model | Industry output Q | Market price P | Industry profit Π |
|---|---|---|---|
| Shared monopoly | $Q_m = a/(2b)$ | $P_m = a/(2)$ | $\Pi_m = a^2/(4b)$ |
| Cournot | $(4/3)Q_m$ | $(2/3)P_m$ | $(8/9)\Pi_m$ |
| Stackelberg | $(3/2)Q_m$ | $(1/2)P_m$ | $(3/4)\Pi_m$ |
| Bertrand | $2Q_m$ | 0 | 0 |
| Perfect competition | $2Q_m$ | 0 | 0 |

All four models assume a market demand curve of $P = a - bQ$ and marginal cost equal to zero. (Of course, if marginal cost is not zero, the entries will be all different from the ones shown.)

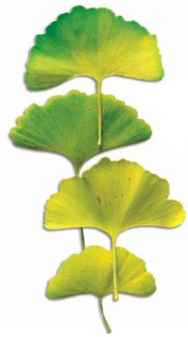


# Figure 13.6: Comparing Equilibrium Price and Quantity

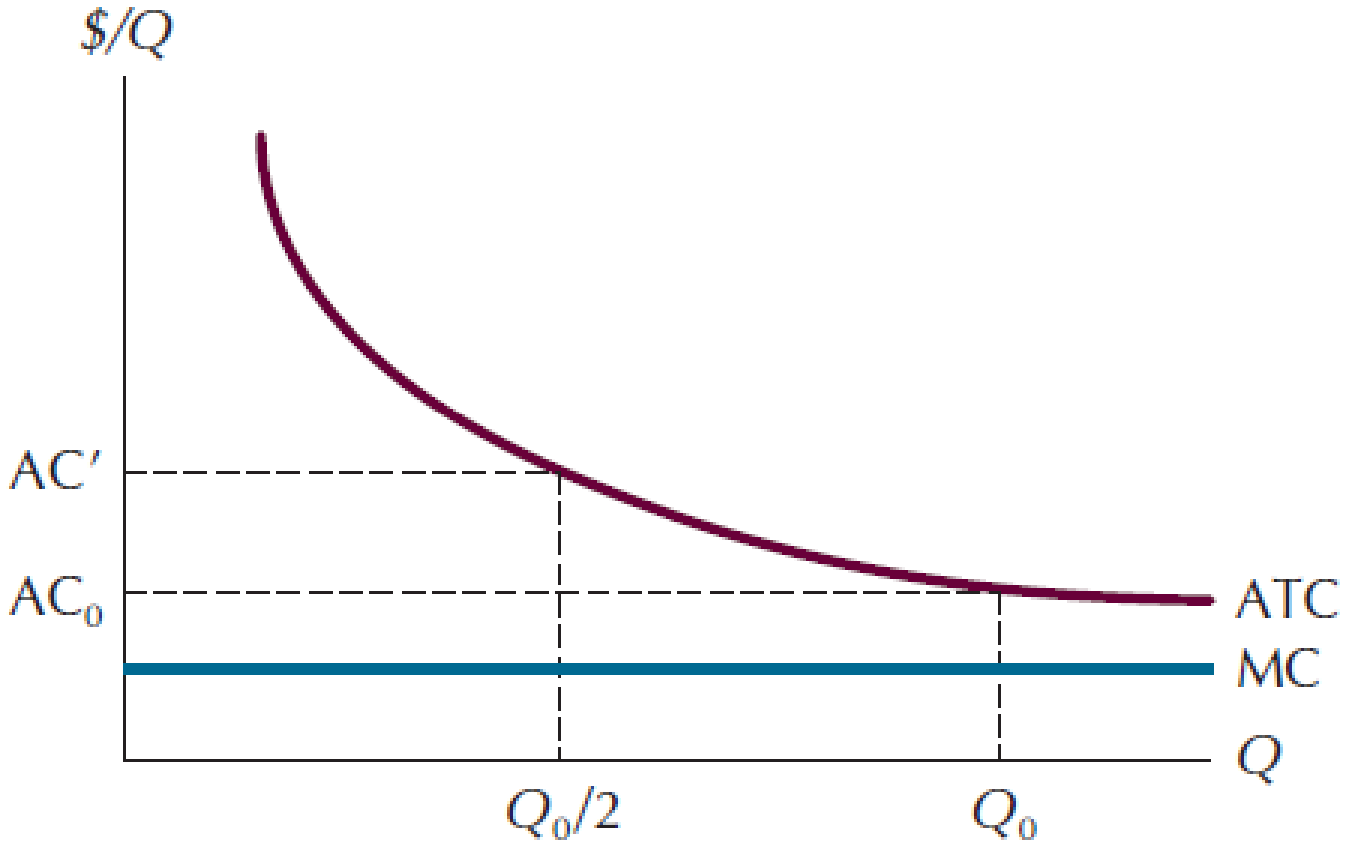


# Competition When There Are Increasing Returns To Scale

- In markets for privately sold goods, buyers are often too numerous to organize themselves to act collectively.
  - Where it is impractical for buyers to organize direct collective action, it may nonetheless be possible for private agents to accomplish much the same objective on their behalf.

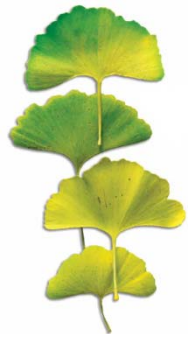


# Figure 13.7: Sharing a Market with Increasing Returns to Scale

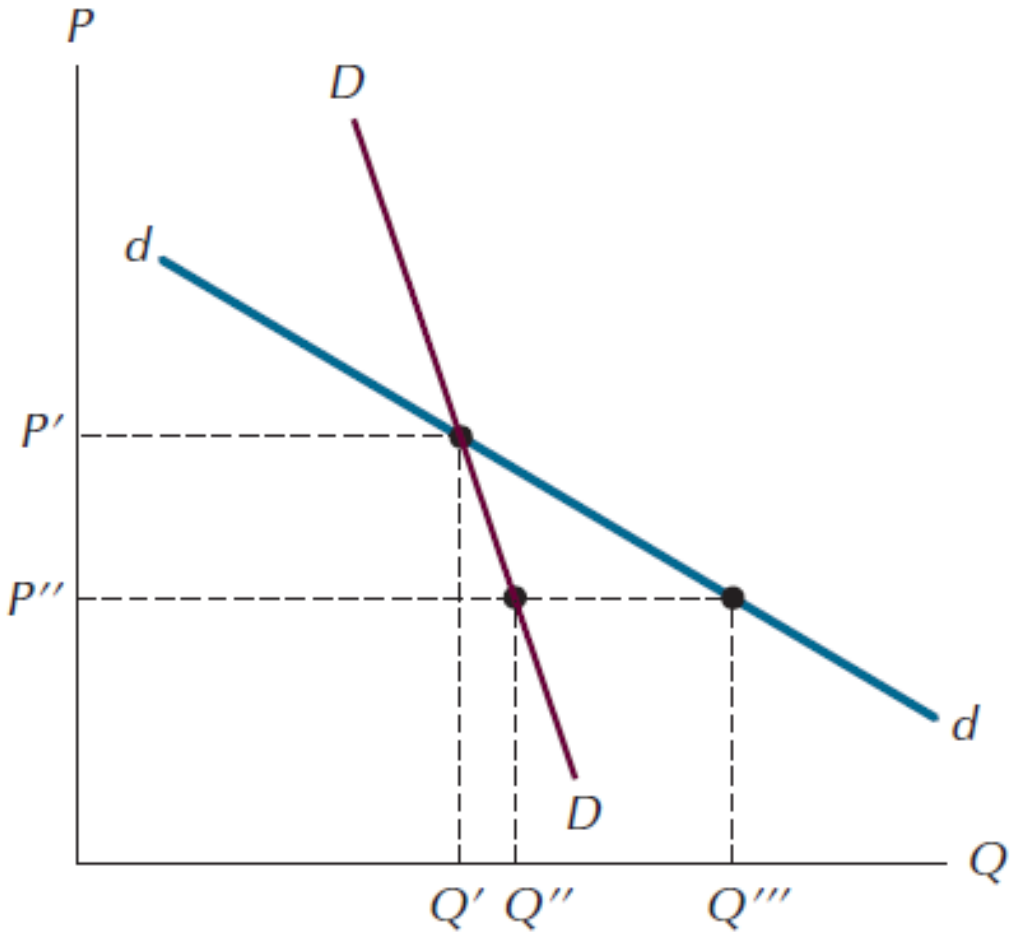


# The Chamberlin Model

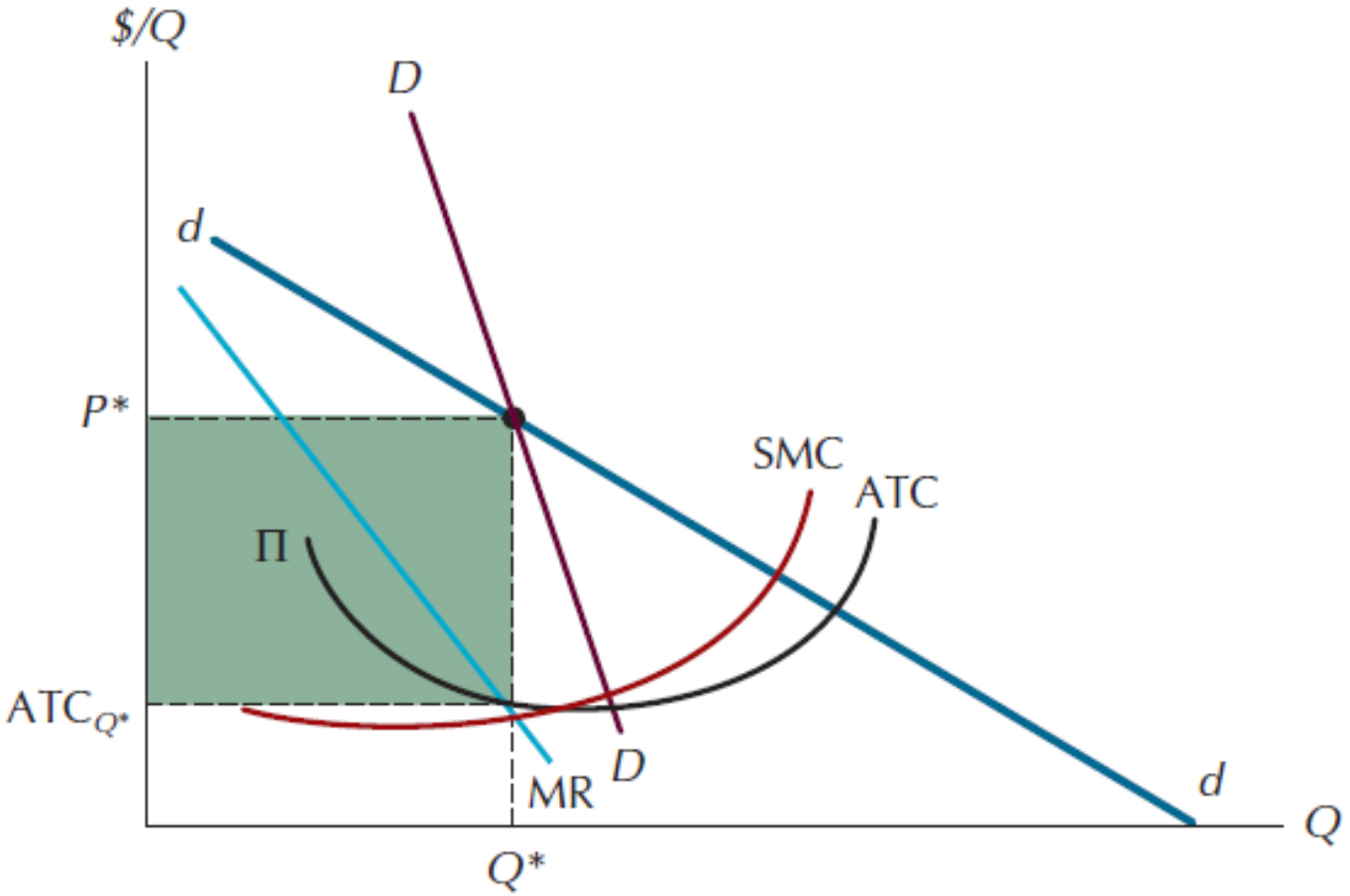
- Assumption: a clearly defined "industry group," which consists of a large number of producers of products that are close, but imperfect, substitutes for one another.
- Two implications:
  1. Because the products are viewed as close substitutes, each firm will confront a downward-sloping demand schedule.
  2. Each firm will act as if its own price and quantity decisions have no effect on the behavior of other firms in the industry.



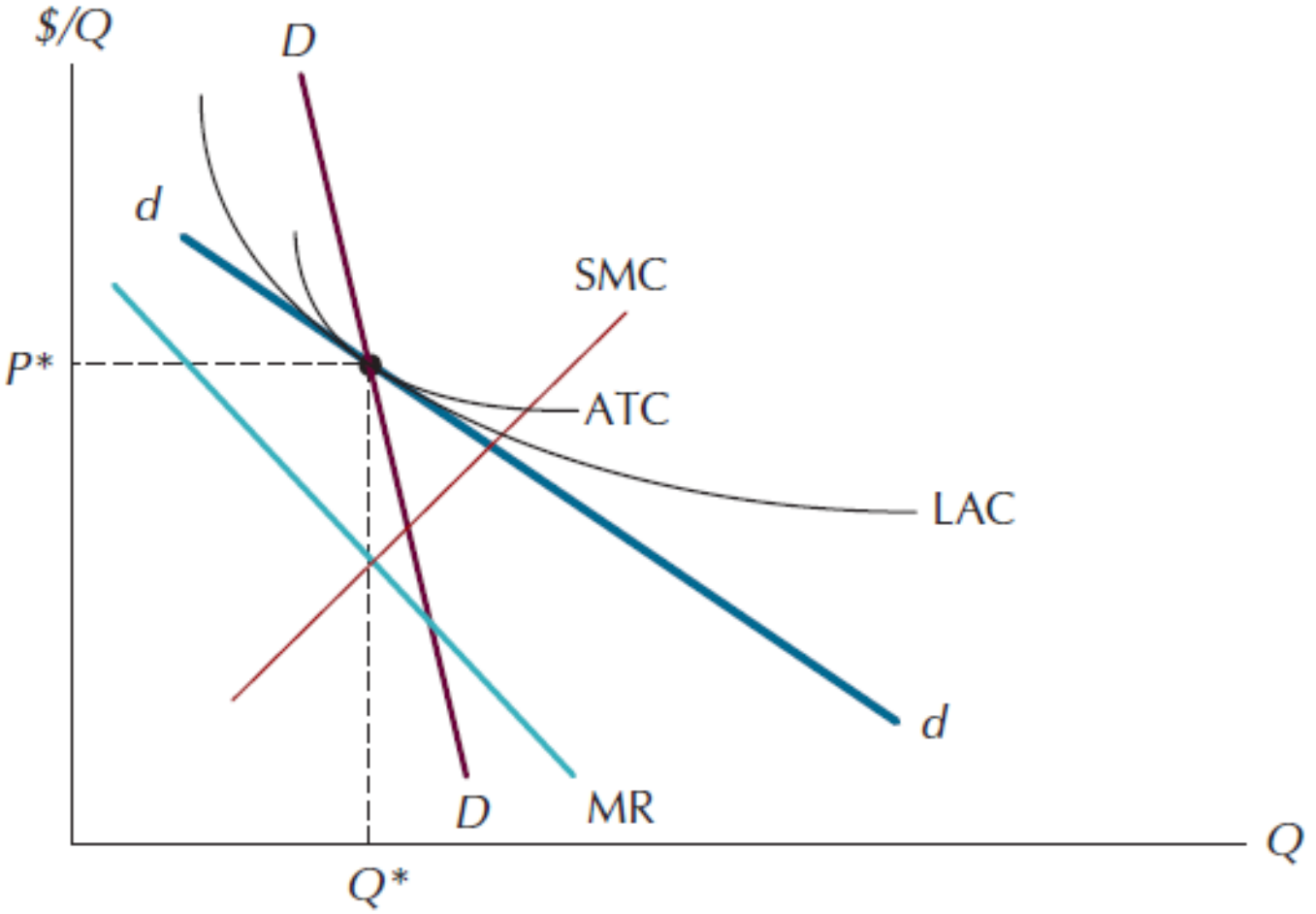
# Figure 13.8: The Monopolistic Competitor's Two Demand Curves



# Figure 13.9: Short-Run Equilibrium for the Chamberlinian Firm



# Figure 13.10: Long-Run Equilibrium in the Chamberlin Model

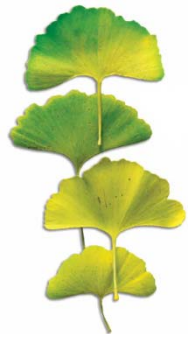


# Perfect Competition Versus Chamberlinian Monopolistic Competition

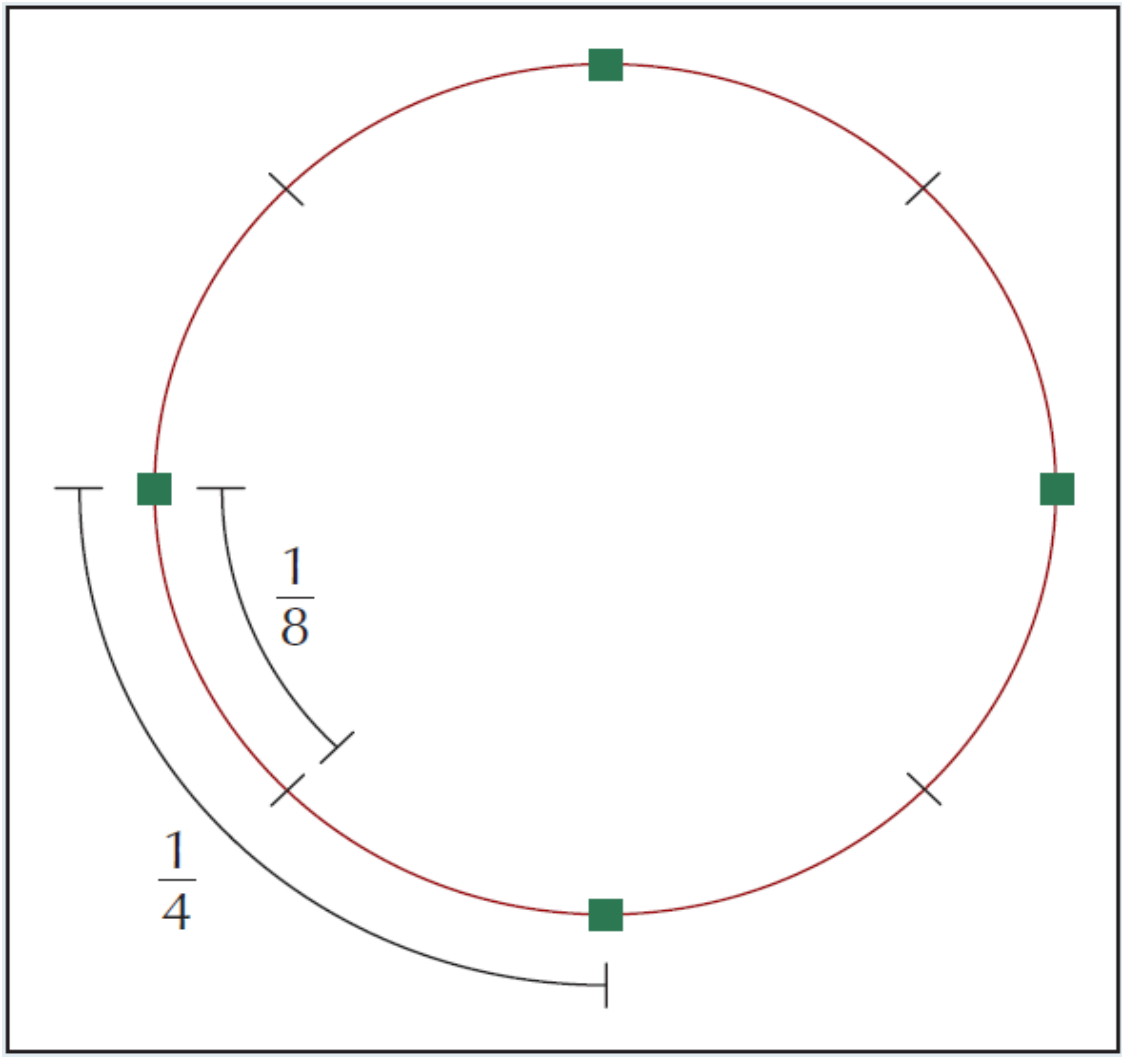
- Competition meets the test of allocative efficiency, while monopolistic competition does not.

- Monopolistic competition is less efficient than perfect competition because in the former case firms do not produce at the minimum points of their long-run average cost (LAC) curves.

- In terms of long-run profitability the equilibrium positions of both the perfect competitor and the Chamberlinian monopolistic competitor are precisely the same.

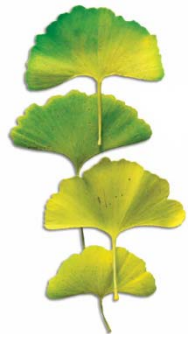


# Figure 13.11: An Industry in Which Location is the Important Differentiating Feature

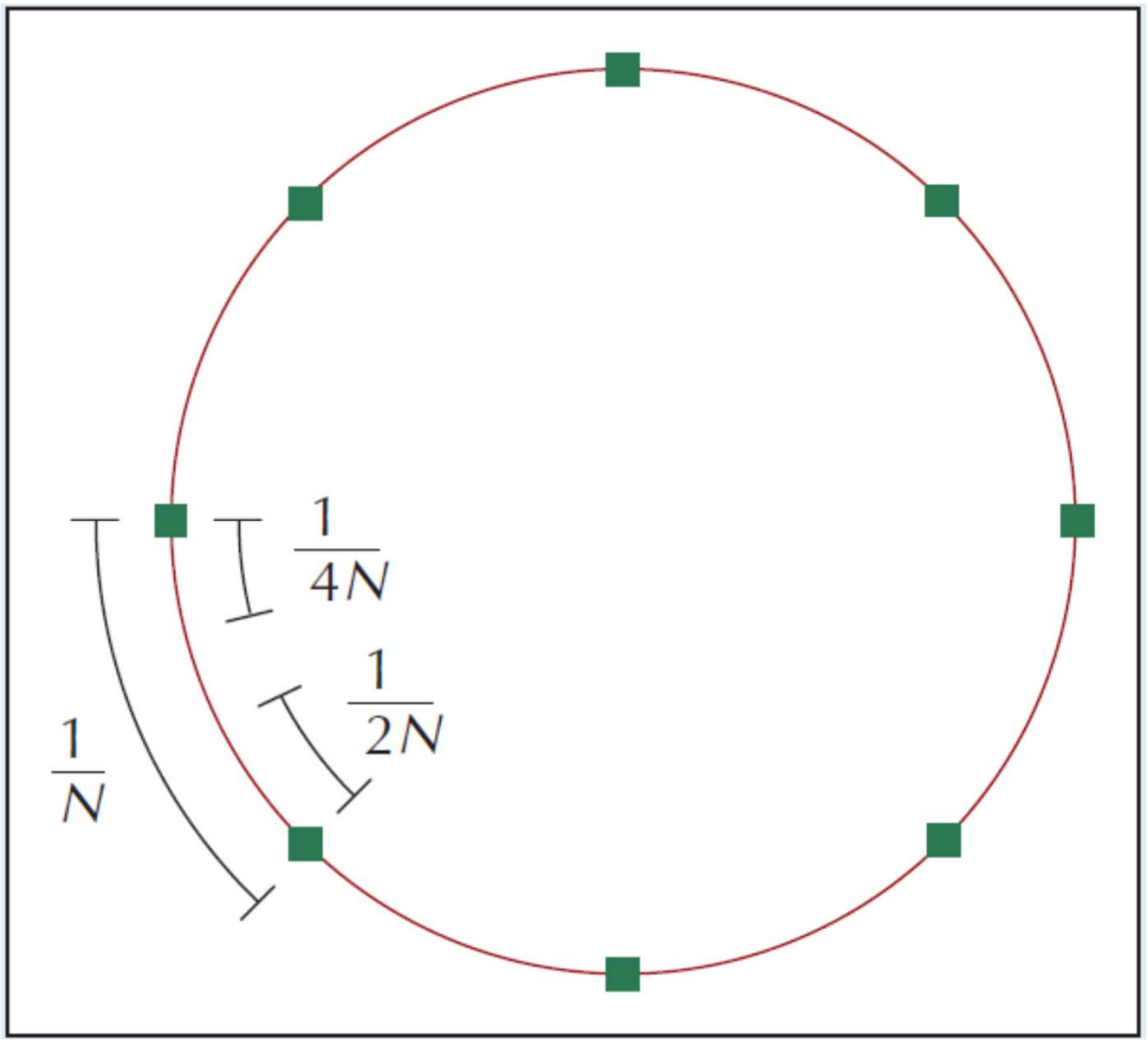


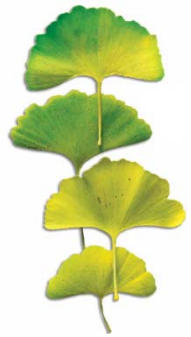
# The Optimal Number of Locations

- The number of outlets that emerges from the independent actions of profit-seeking firms will in general be related to the optimal number of outlets in the following simple way:
  - Any environmental change that leads to a change in the optimal number of outlets (here, any change in population density, transportation cost, or fixed cost) will lead to a change in the same direction in the equilibrium number of outlets.

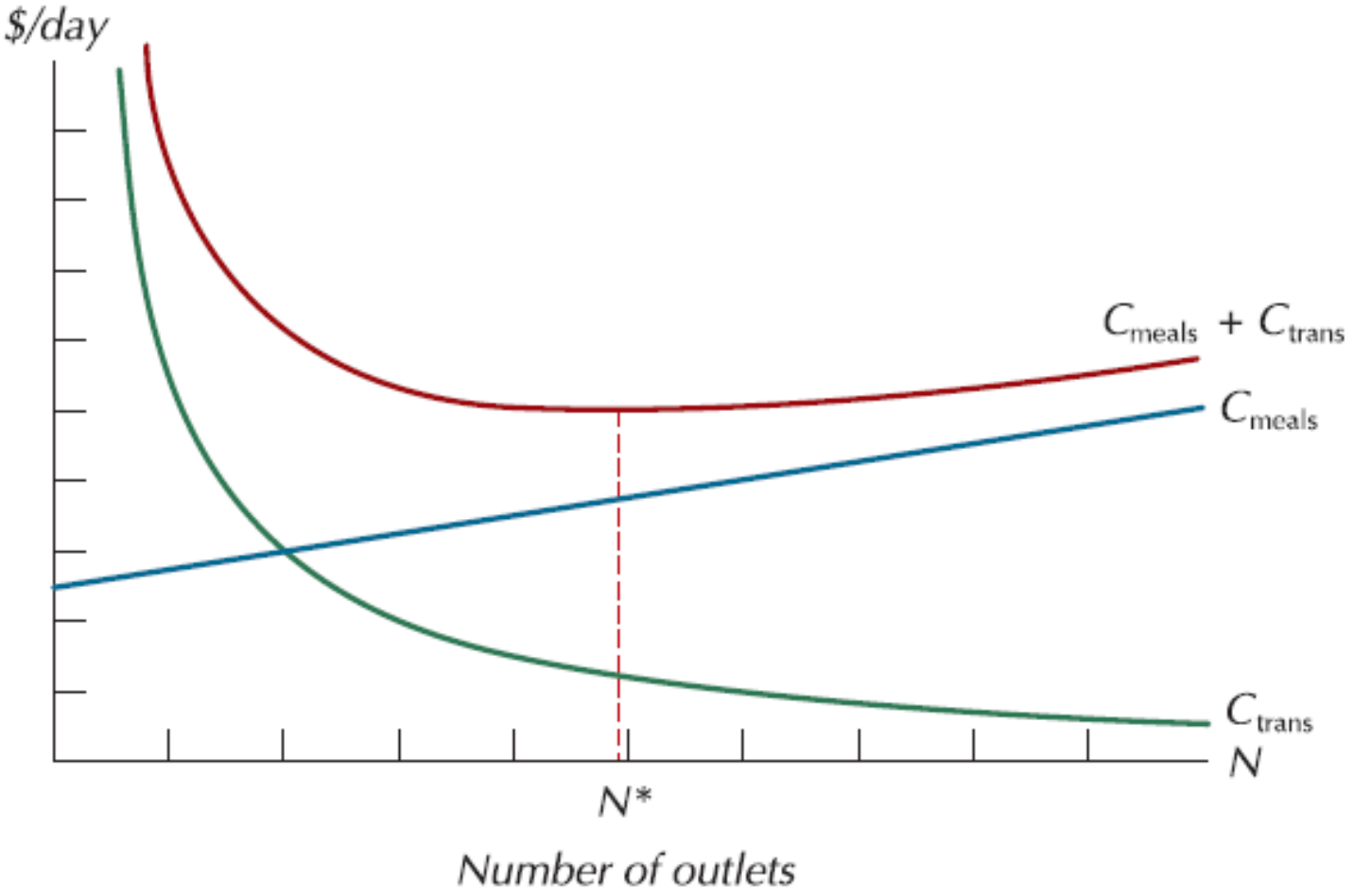


# Figure 13.12: Distances with *N* Outlets



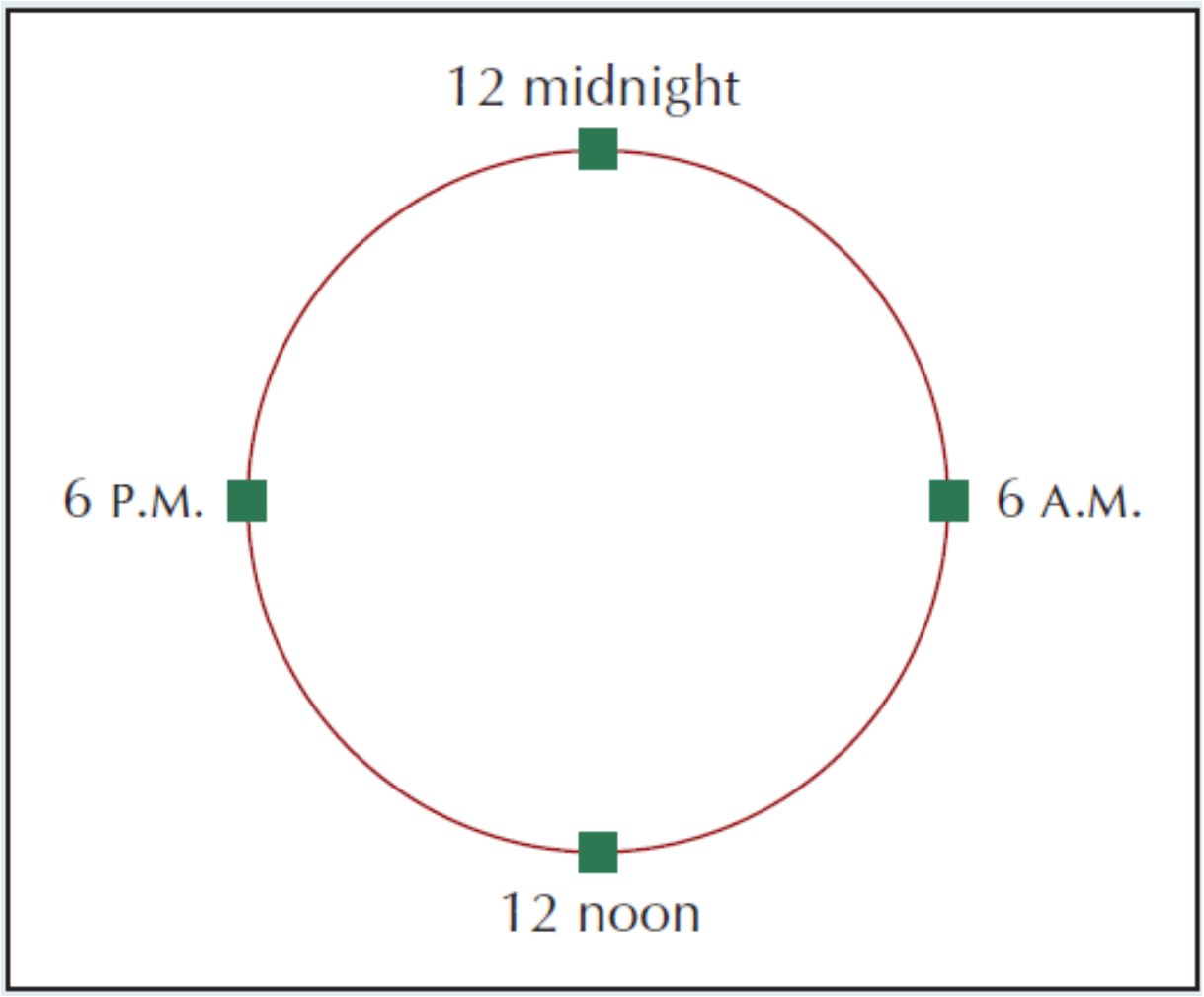



# Figure 13.13: The Optimal Number of Outlets

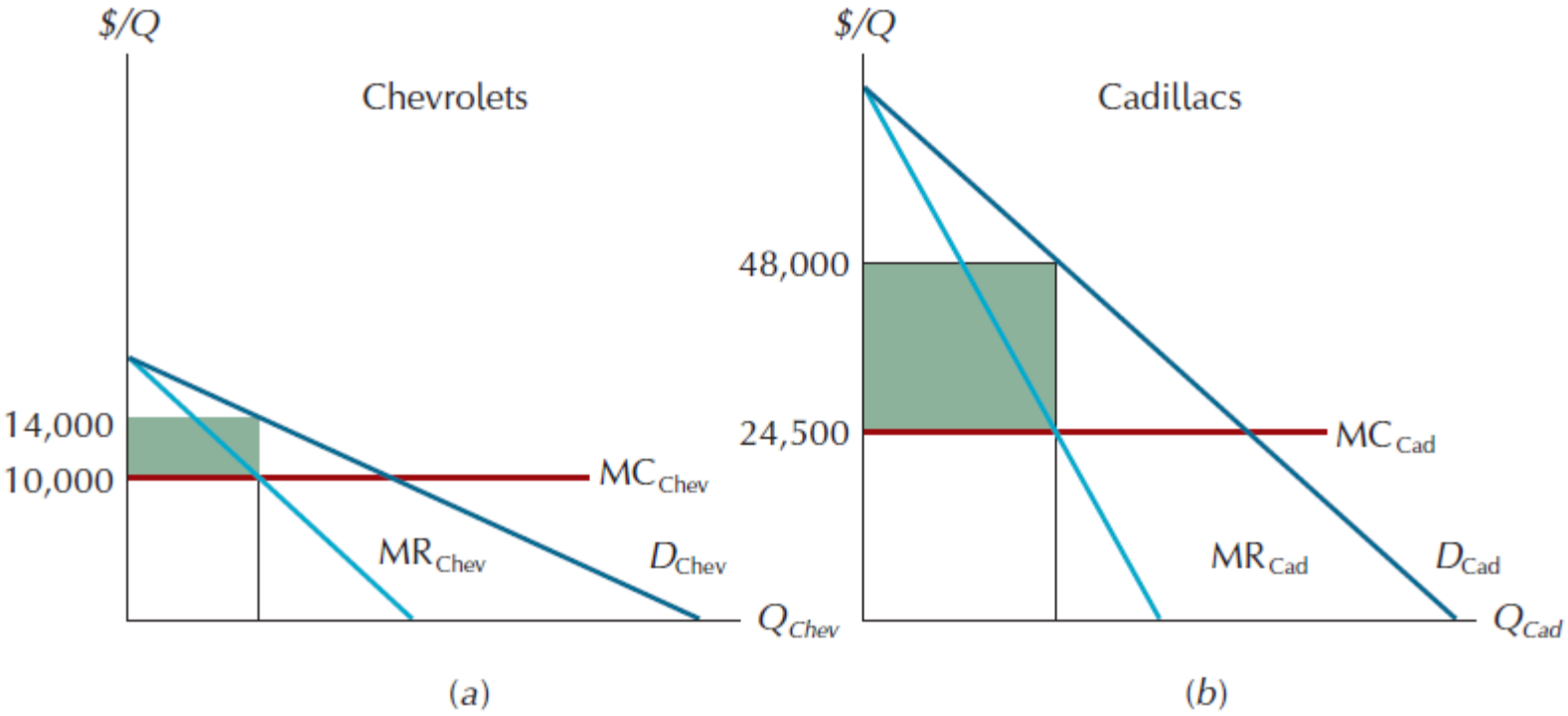


# Figure 13.14: A Spatial Interpretation of Airline Scheduling

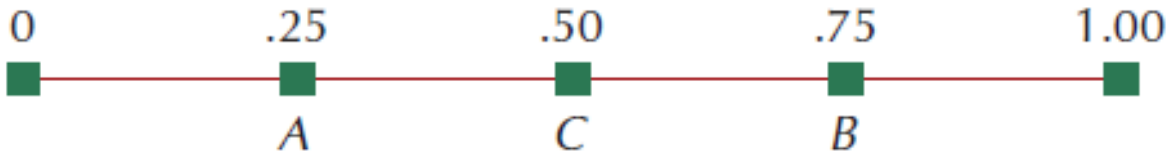
- Why not have a flight leaving every 5 minutes, so that no one would be forced to travel at an inconvenient time?
- The larger an aircraft is, the lower its average cost per seat is.
- If people want frequent flights, airlines are forced to use smaller planes and charge higher fares.



# Figure 13.15: Distributing the Cost of Variety



# Figure 13.16: The Hot Dog Vendor Location Problem



# Consumer Preferences And Advertising

- Because products are differentiated, producers can often shift their demand curves outward significantly by advertising.
- *The revised sequence:* the corporation decides which products are cheapest and most convenient to produce, and then uses advertising and other promotional devices to create demand for them.