Demand and Supply

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SOMS
Adapted from Nordhaus and Samuelson – “Economics’

Demand Schedule for Cornflakes

	(1) Price ($ per box) *P*	(2) Quantity demanded (millions of boxes per year) *Q*
A	5	9
B	4	10
C	3	12
D	2	15
E	1	20

TABLE 3-1. The Demand Schedule Relates Quantity Demanded to Price

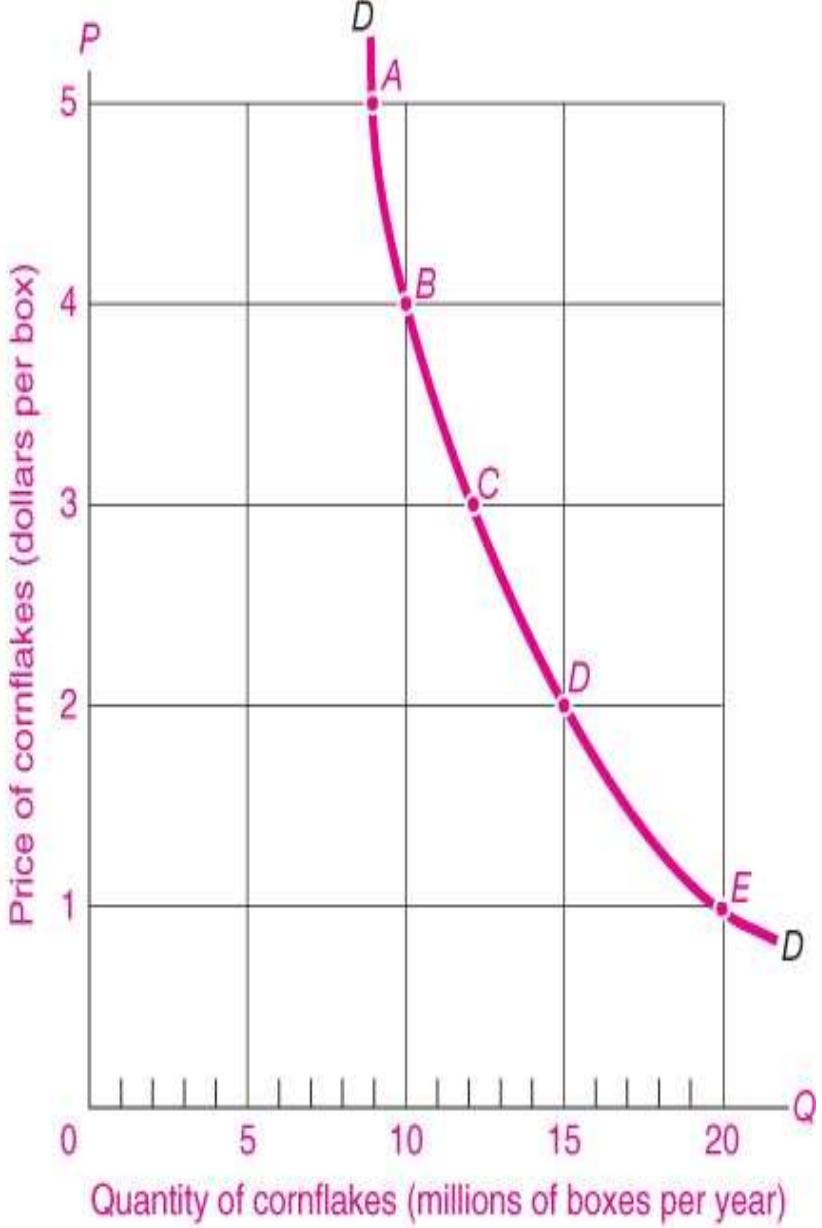

FIGURE 3-2. A Downward-Sloping Demand Curve Relates Quantity Demanded to Price

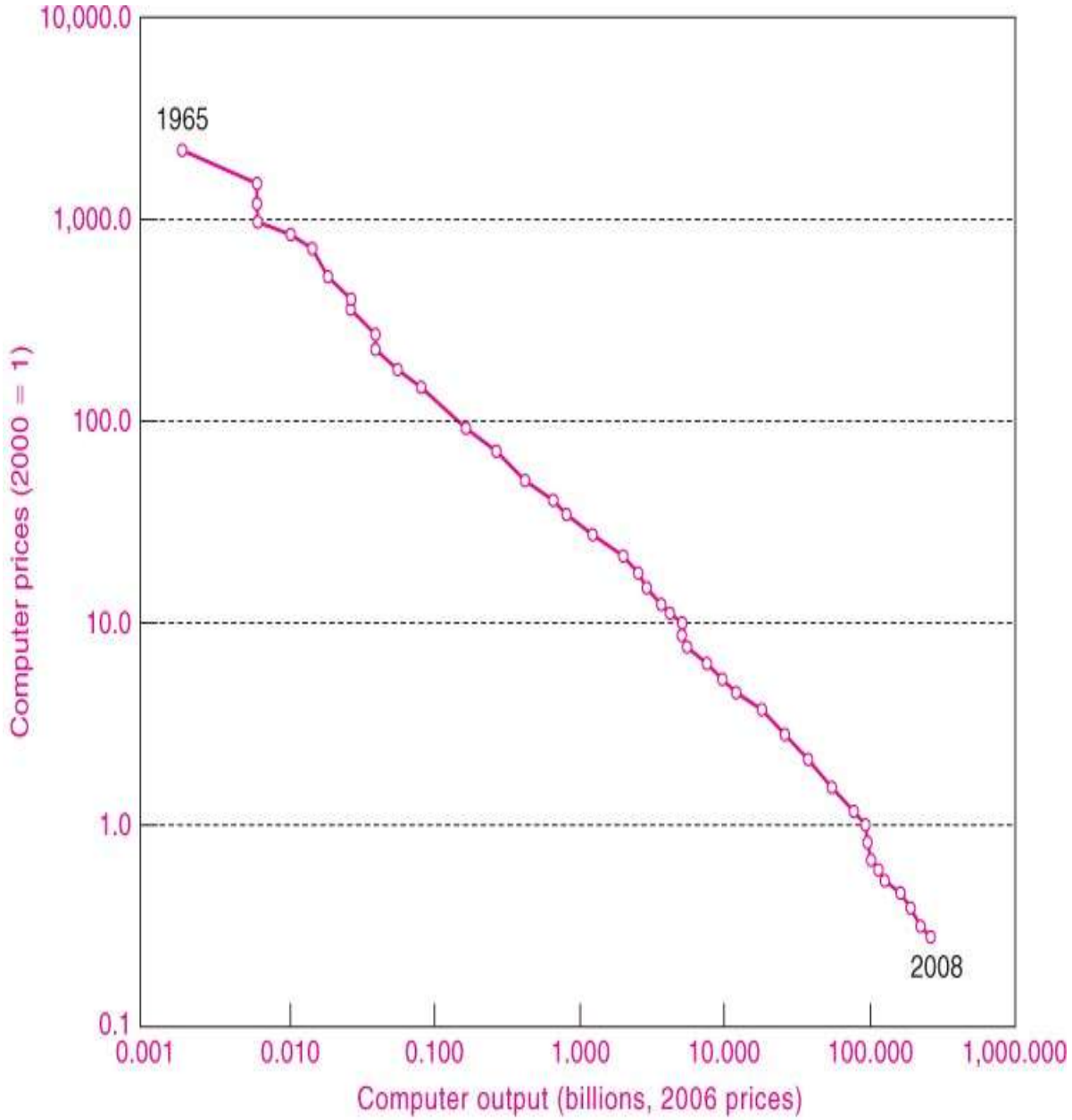

FIGURE 3-3. Declining Computer Prices Have Fueled an Explosive Growth in Computer Power

Factors affecting the demand curve	Example for automobiles
1. **Average income**	As incomes rise, people increase car purchases.
2. **Population**	A growth in population increases car purchases.
3. **Prices of related goods**	Lower gasoline prices raise the demand for cars.
4. **Tastes**	Having a new car becomes a status symbol.
5. **Special influences**	Special influences include availability of alternative forms of transportation, safety of automobiles, expectations of future price increases, etc.

TABLE 3-2. Many Factors Affect the Demand Curve

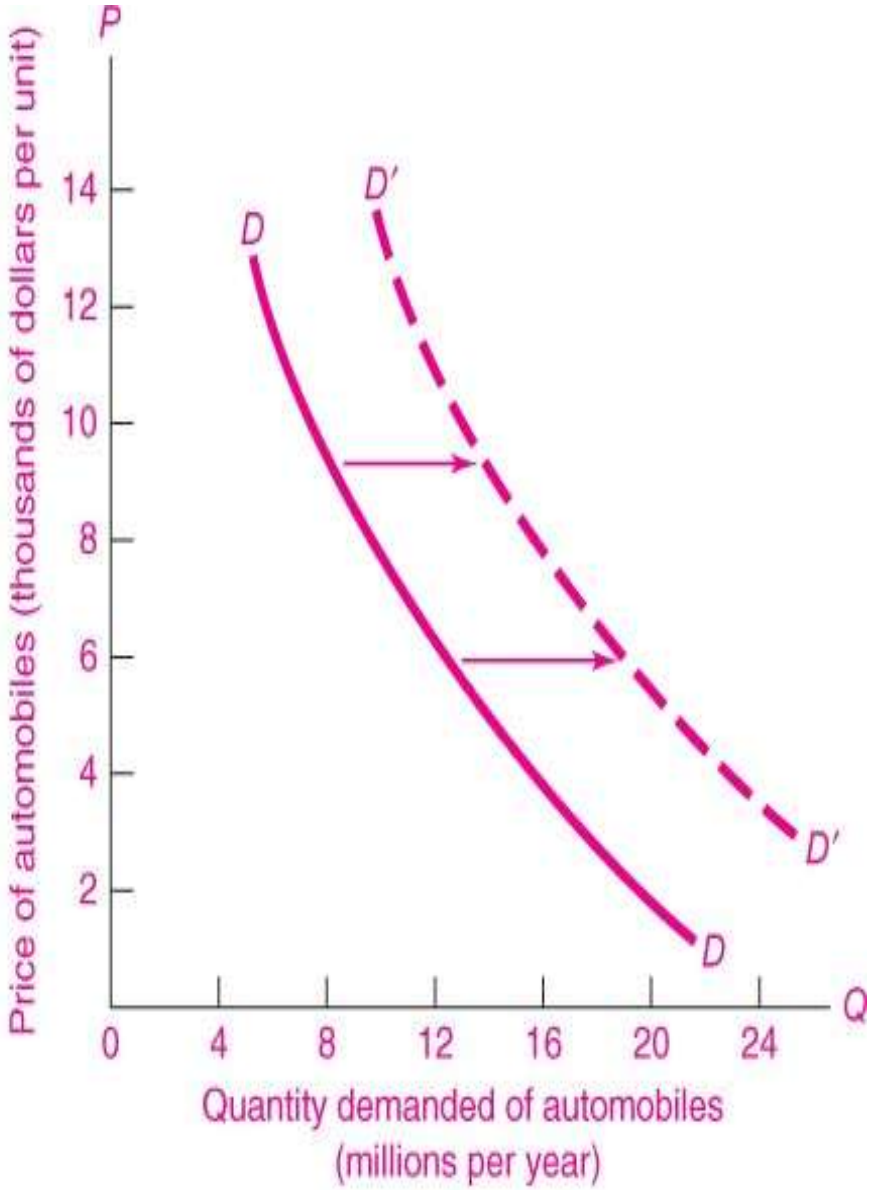

FIGURE 3-4. Increase in Demand for Automobiles

Supply Schedule for Cornflakes

	(1) Price ($ per box) *P*	(2) Quantity supplied (millions of boxes per year) *Q*
A	5	18
B	4	16
C	3	12
D	2	7
E	1	0

TABLE 3-3. Supply Schedule Relates Quantity Supplied to Price

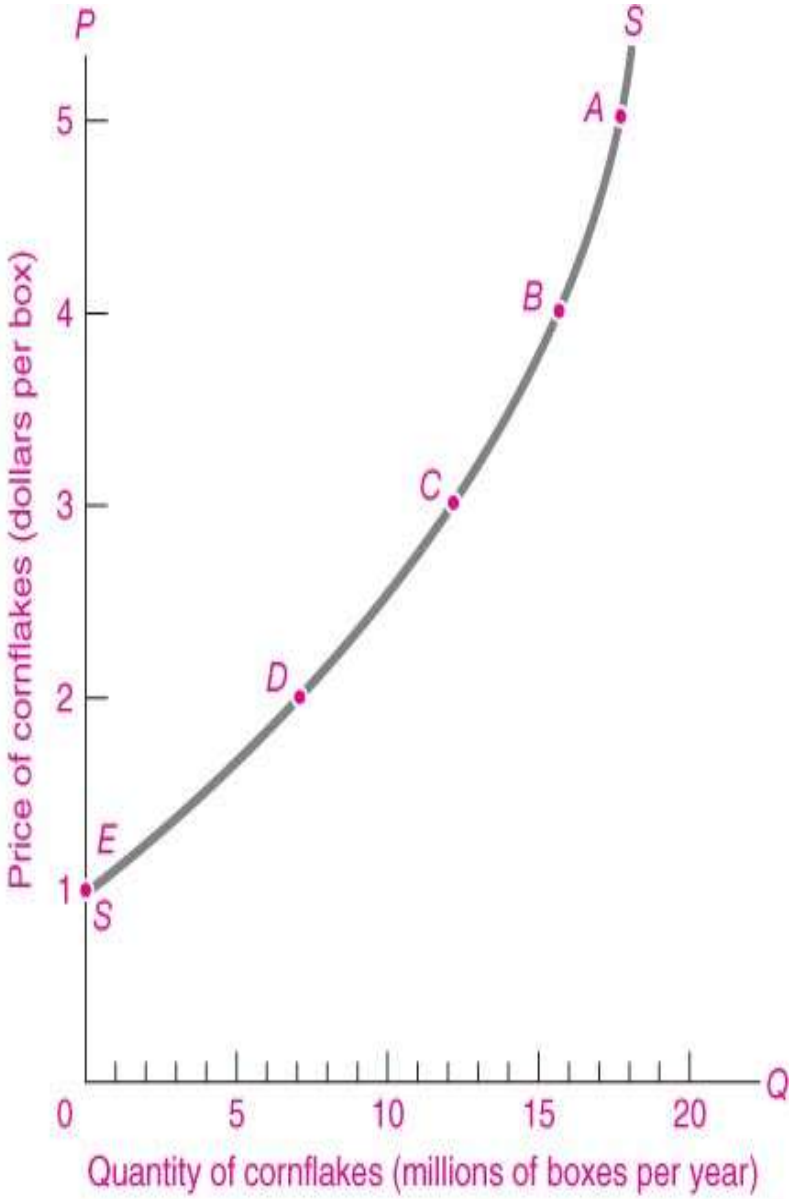

FIGURE 3-5. Supply Curve Relates Quantity Supplied to Price

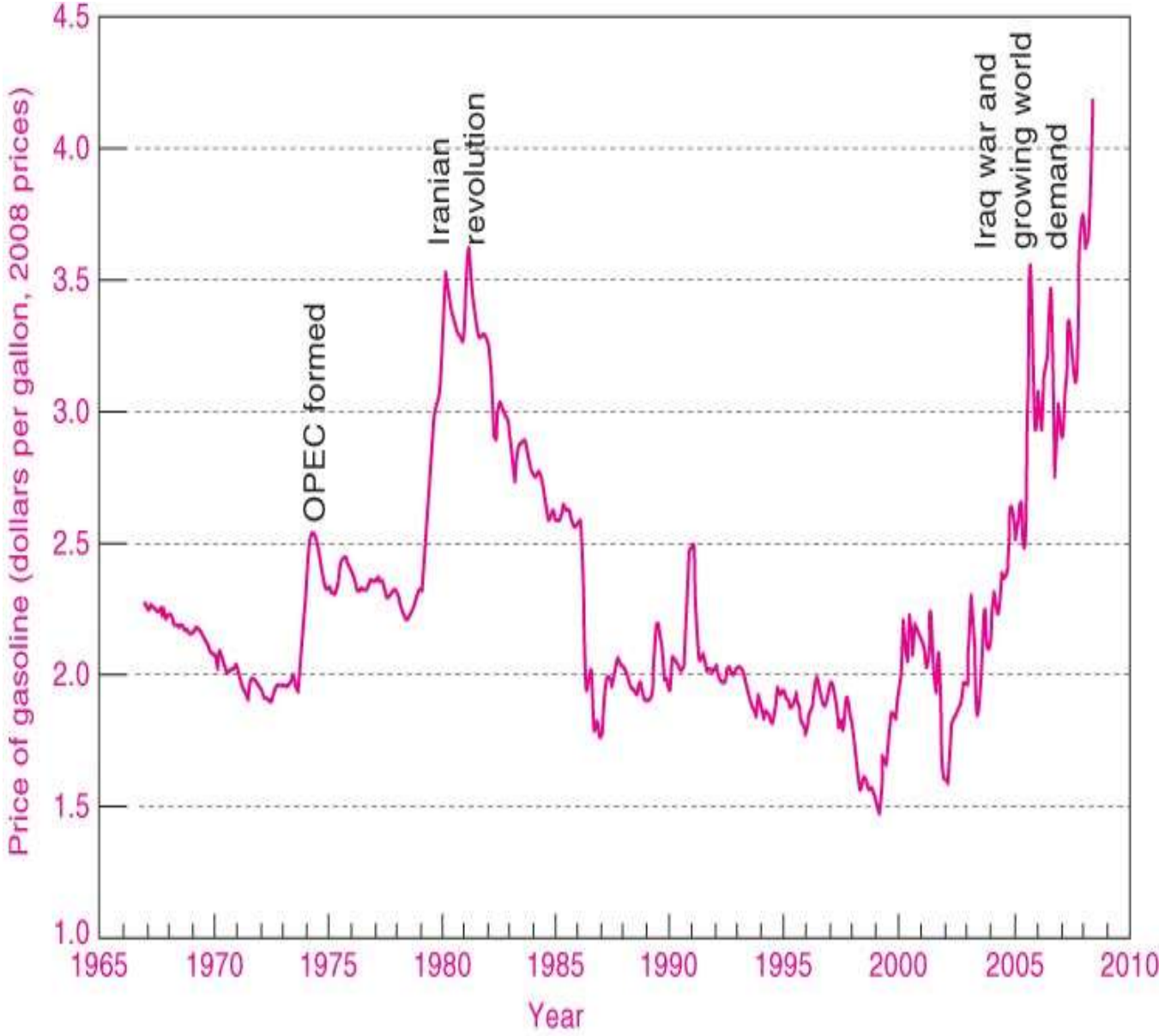

FIGURE 3-1. Gasoline Prices Move with Demand and Supply Changes

Factors affecting the supply curve	Example for automobiles
1. **Technology**	Computerized manufacturing lowers production costs and increases supply.
2. **Input prices**	A reduction in the wage paid to autoworkers lowers production costs and increases supply.
3. **Prices of related goods**	If truck prices fall, the supply of cars rises.
4. **Government policy**	Removing quotas and tariffs on imported automobiles increases total automobile supply.
5. **Special influences**	Internet shopping and auctions allow consumers to compare the prices of different dealers more easily and drives high-cost sellers out of business.

TABLE 3-4. Supply Is Affected by Production Costs and Other Factors

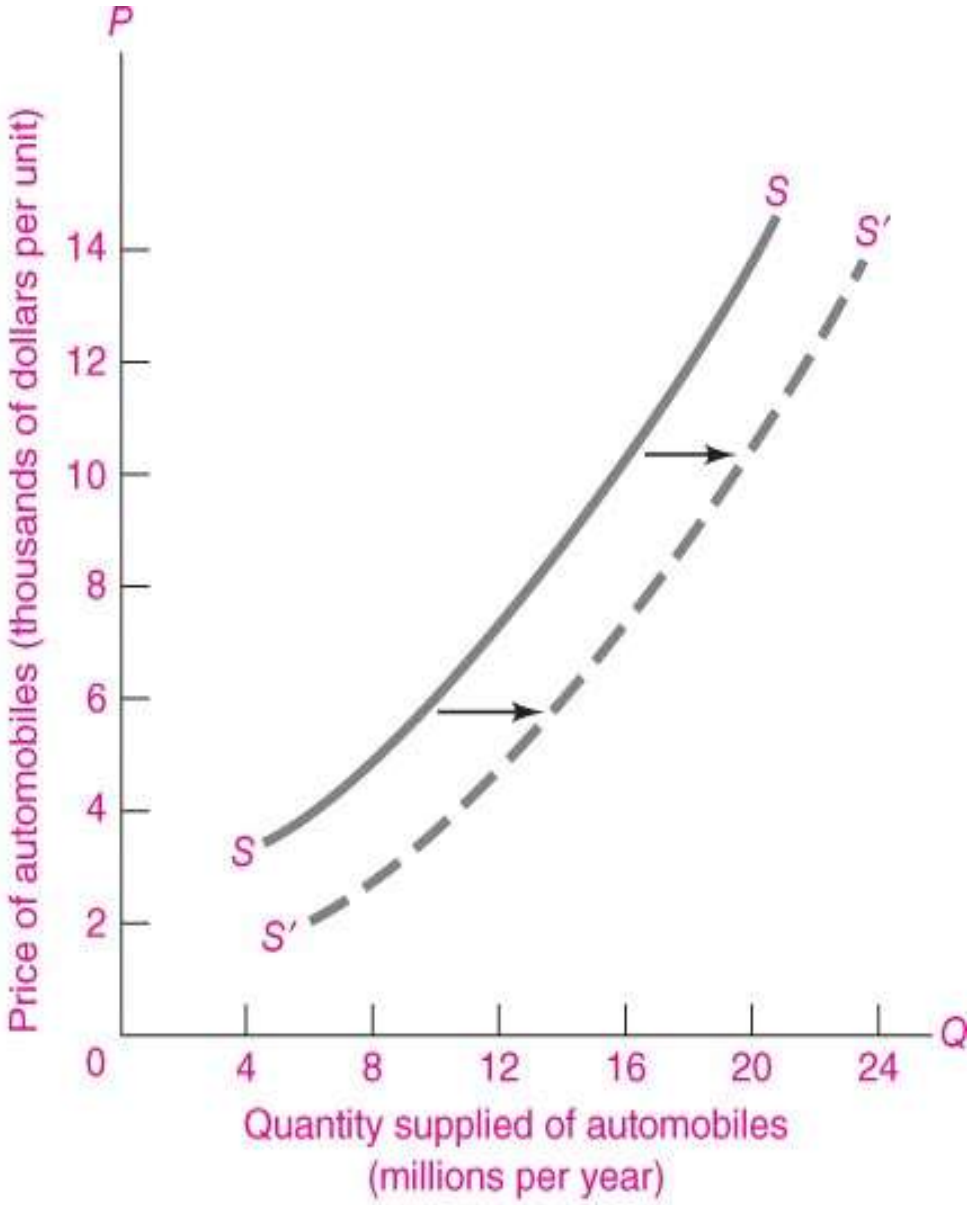

FIGURE 3-6. Increased Supply of Automobiles

Combining Demand and Supply for Cornflakes

	(1) Possible price ($ per box)	(2) Quantity demanded (millions of boxes per year)	(3) Quantity supplied (millions of boxes per year)	(4) State of market	(5) Pressure on price
A	5	9	18	Surplus	↓ Downward
B	4	10	16	Surplus	↓ Downward
C	3	12	12	Equilibrium	Neutral
D	2	15	7	Shortage	↑ Upward
E	1	20	0	Shortage	↑ Upward

TABLE 3-5. Equilibrium Price Comes Where Quantity Demanded Equals Quantity Supplied

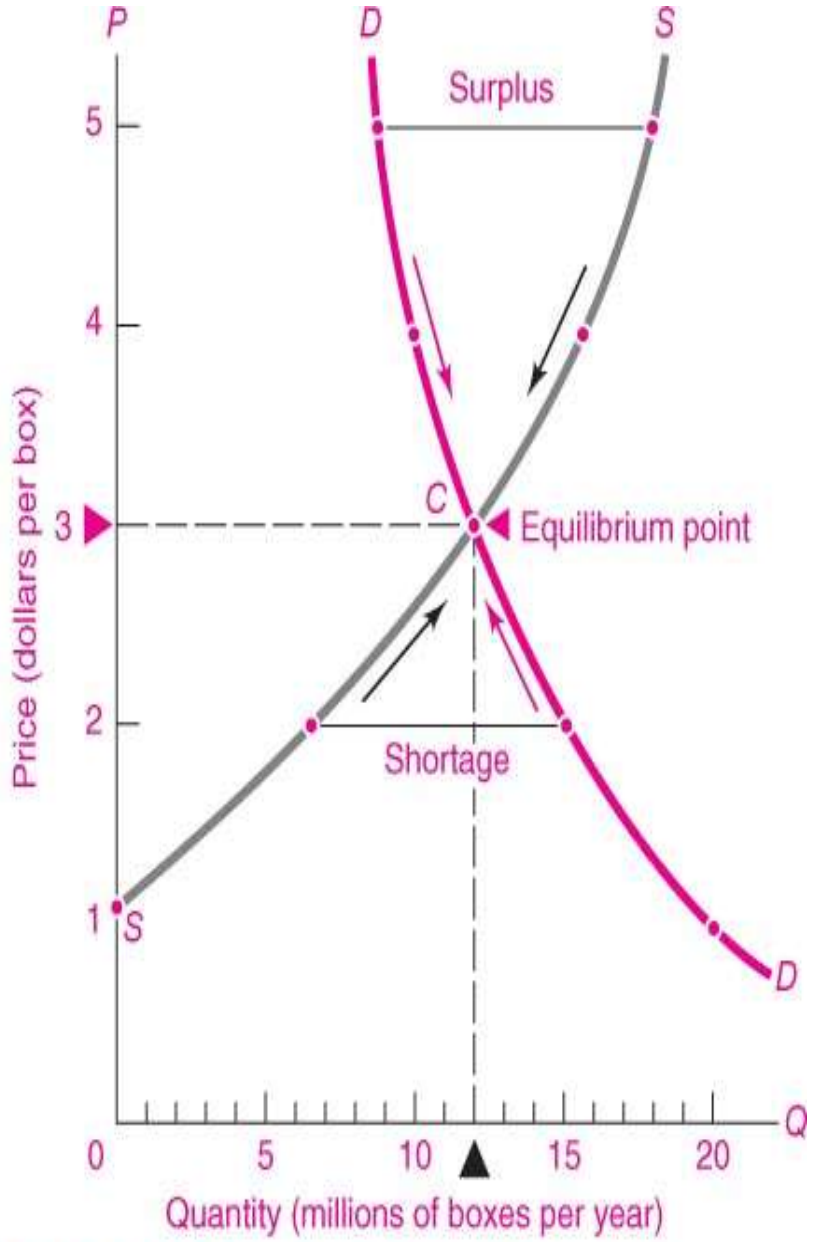

FIGURE 3-7. Market Equilibrium Comes at the Intersection of Supply and Demand Curves

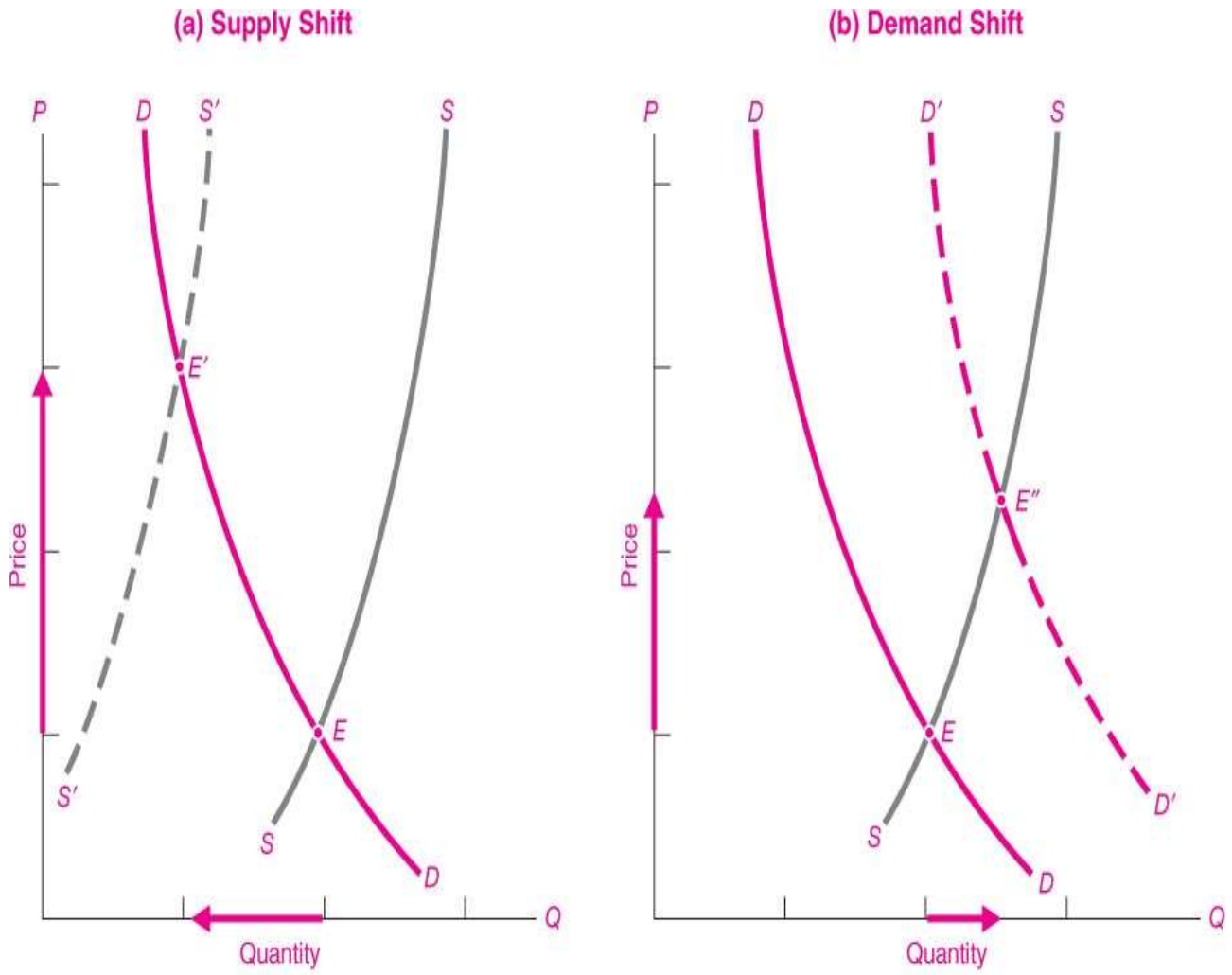

FIGURE 3-8. Shifts in Supply or Demand Change Equilibrium Price and Quantity

	Demand and supply shifts	Effect on price and quantity
If demand rises . . .	The demand curve shifts to the right, and . . .	Price ↑ Quantity ↑
If demand falls . . .	The demand curve shifts to the left, and . . .	Price ↓ Quantity ↓
If supply rises . . .	The supply curve shifts to the right, and . . .	Price ↓ Quantity ↑
If supply falls . . .	The supply curve shifts to the left, and . . .	Price ↑ Quantity ↓

TABLE 3-6. The Effect on Price and Quantity of Different Demand and Supply Shifts

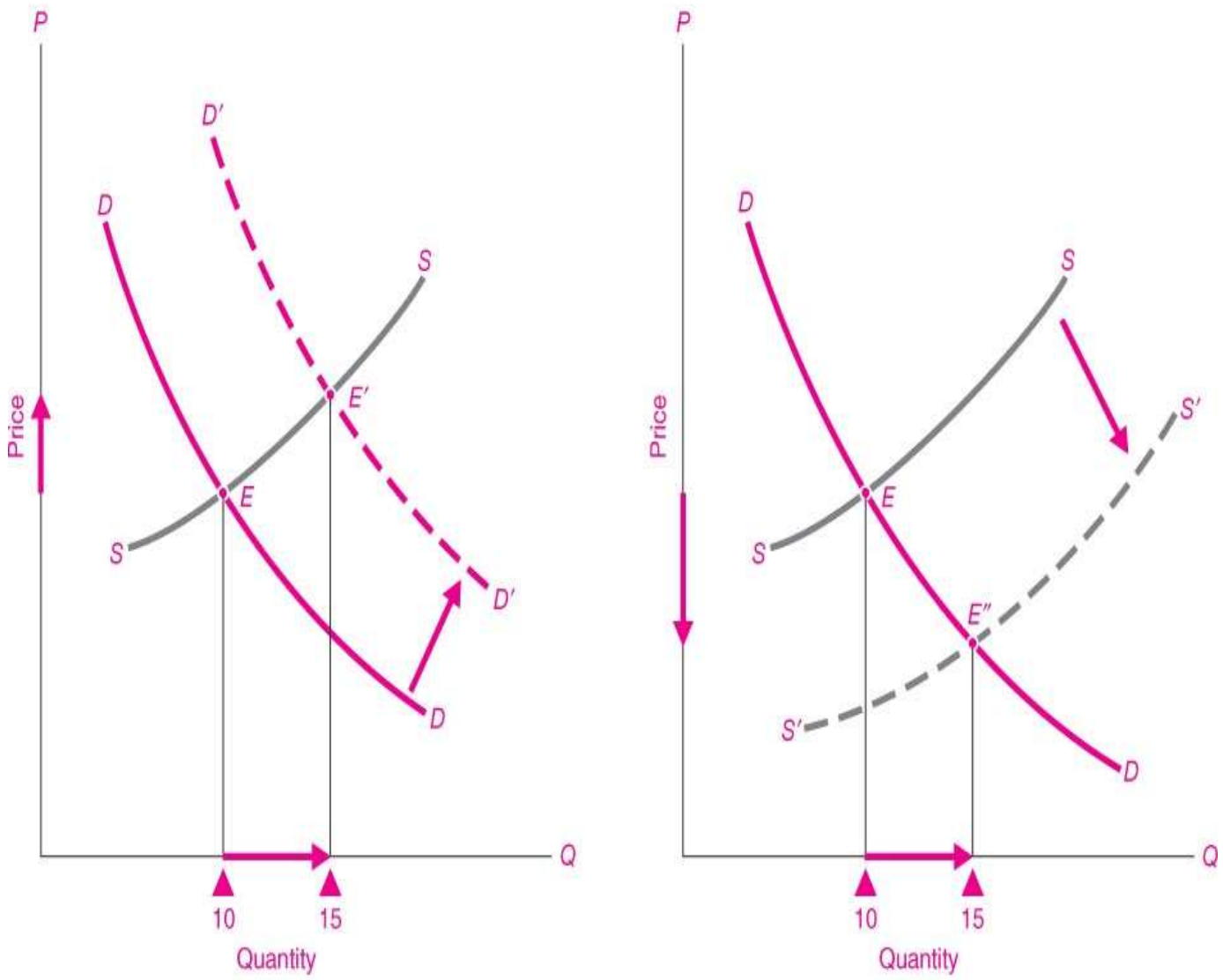

FIGURE 3-9. Shifts of and Movements along Curves

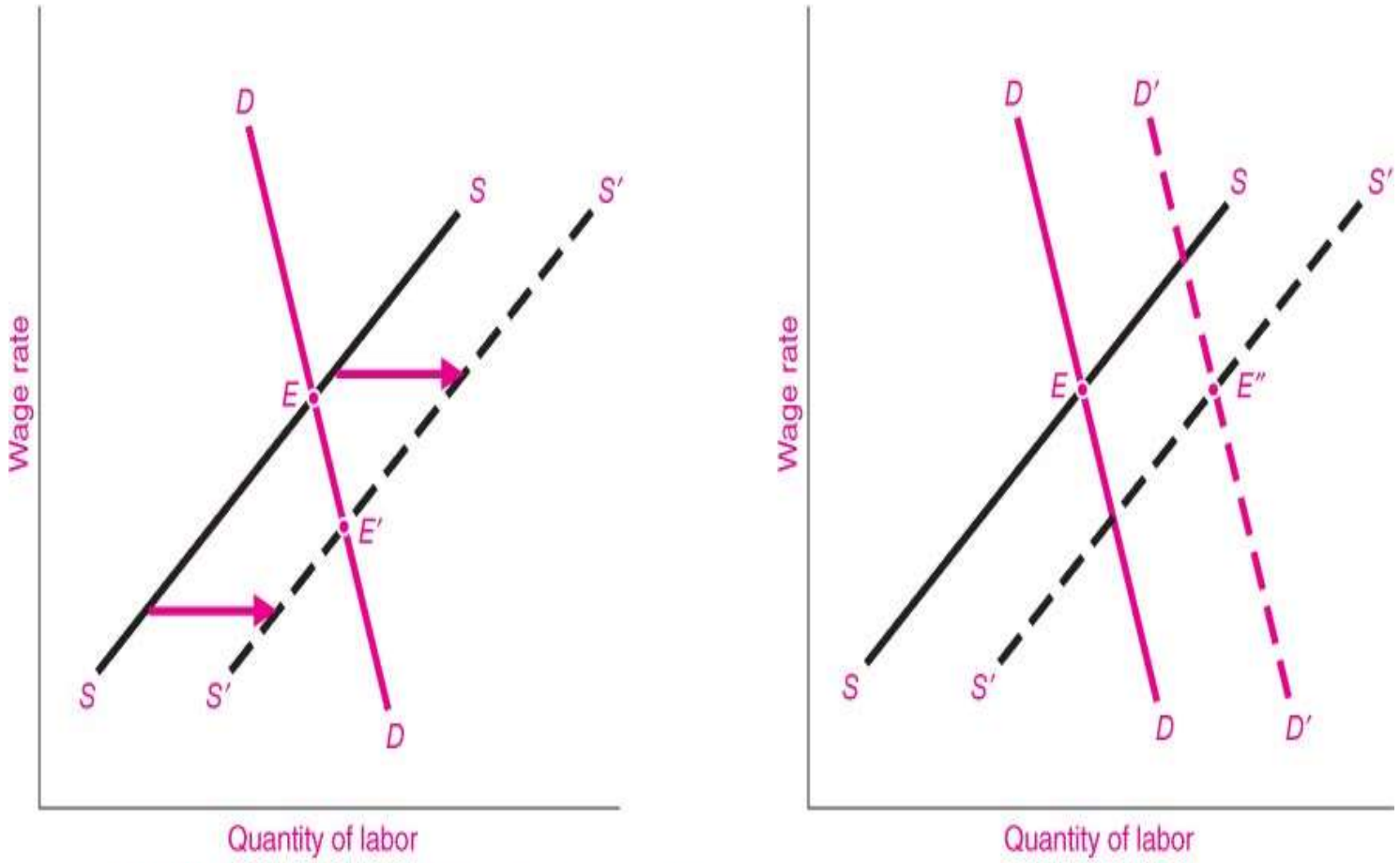

FIGURE 3-10. Impact of Immigration on Wages

More on Demand and Elasticity of Demand

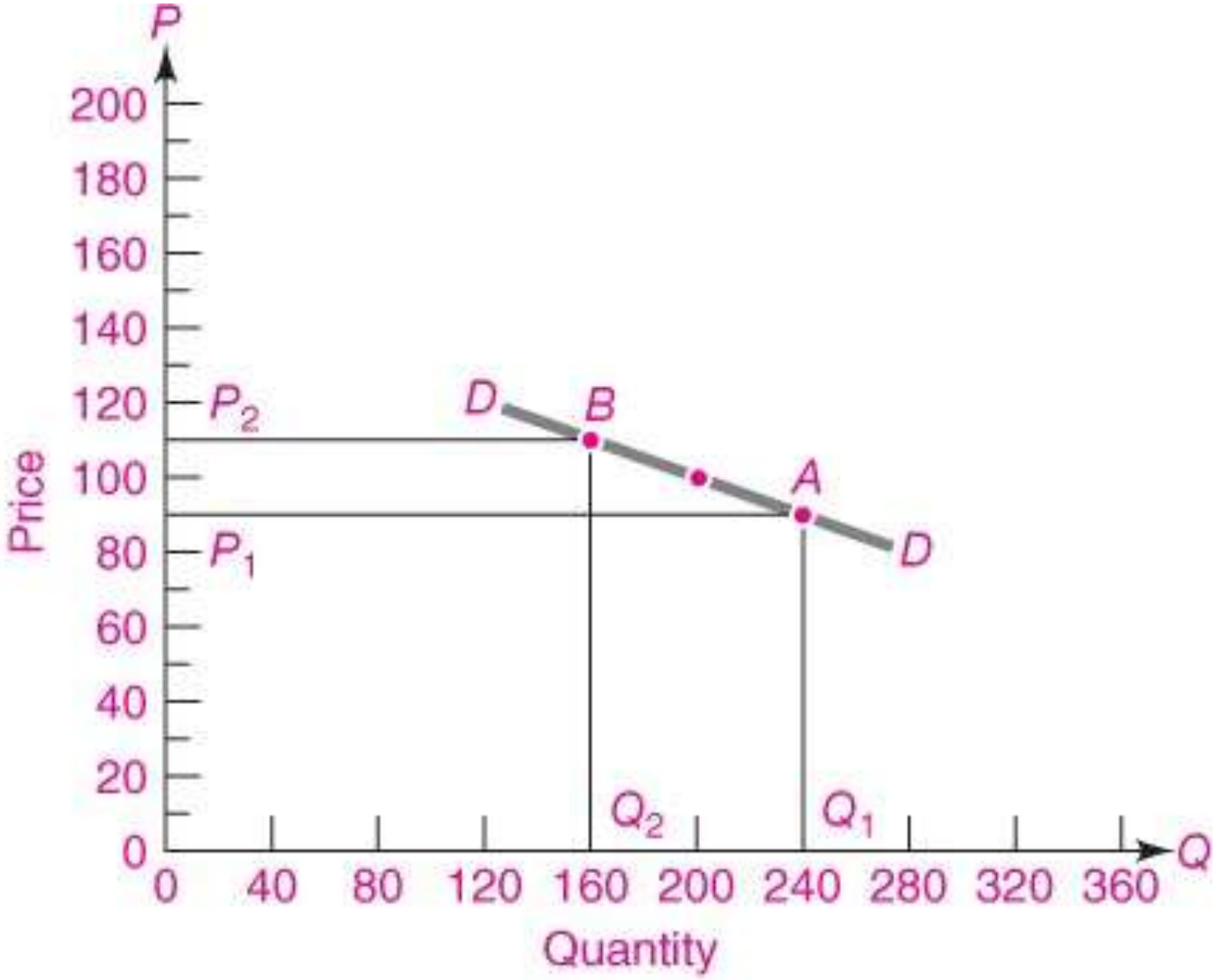

FIGURE 4-1. Elastic Demand Shows Large Quantity Response to Price Change

Case A: Price = 90 and quantity = 240

Case B: Price = 110 and quantity = 160

Percentage price change = $\Delta P/P = 20/100 = 20\%$

Percentage quantity change = $\Delta Q/Q = -80/200$
$= -40\%$

Price elasticity = $E_D = 40/20 = 2$

TABLE 4-1. Example of Good with Elastic Demand

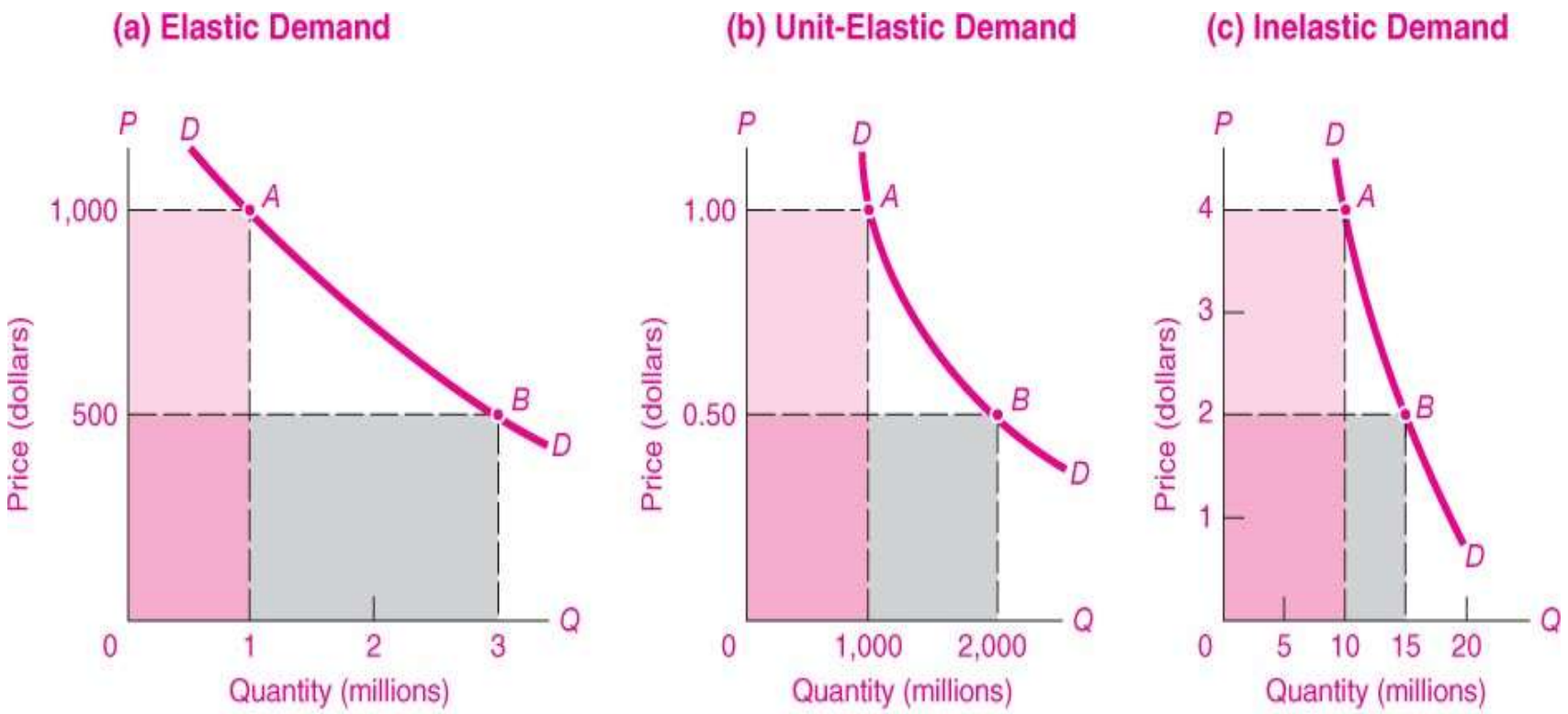

FIGURE 4-2. Price Elasticity of Demand Falls into Three Categories

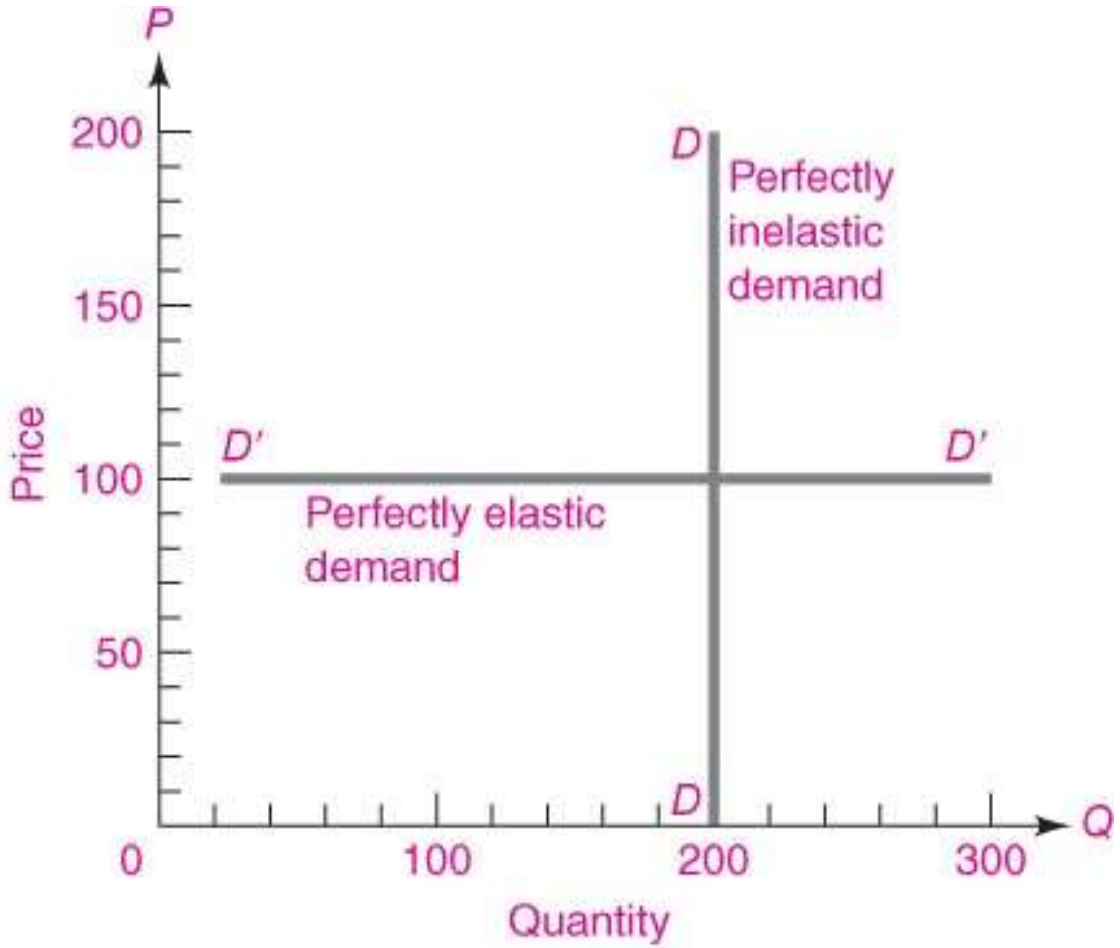

FIGURE 4-3. Perfectly Elastic and Inelastic Demands

Elasticity of Straight Line

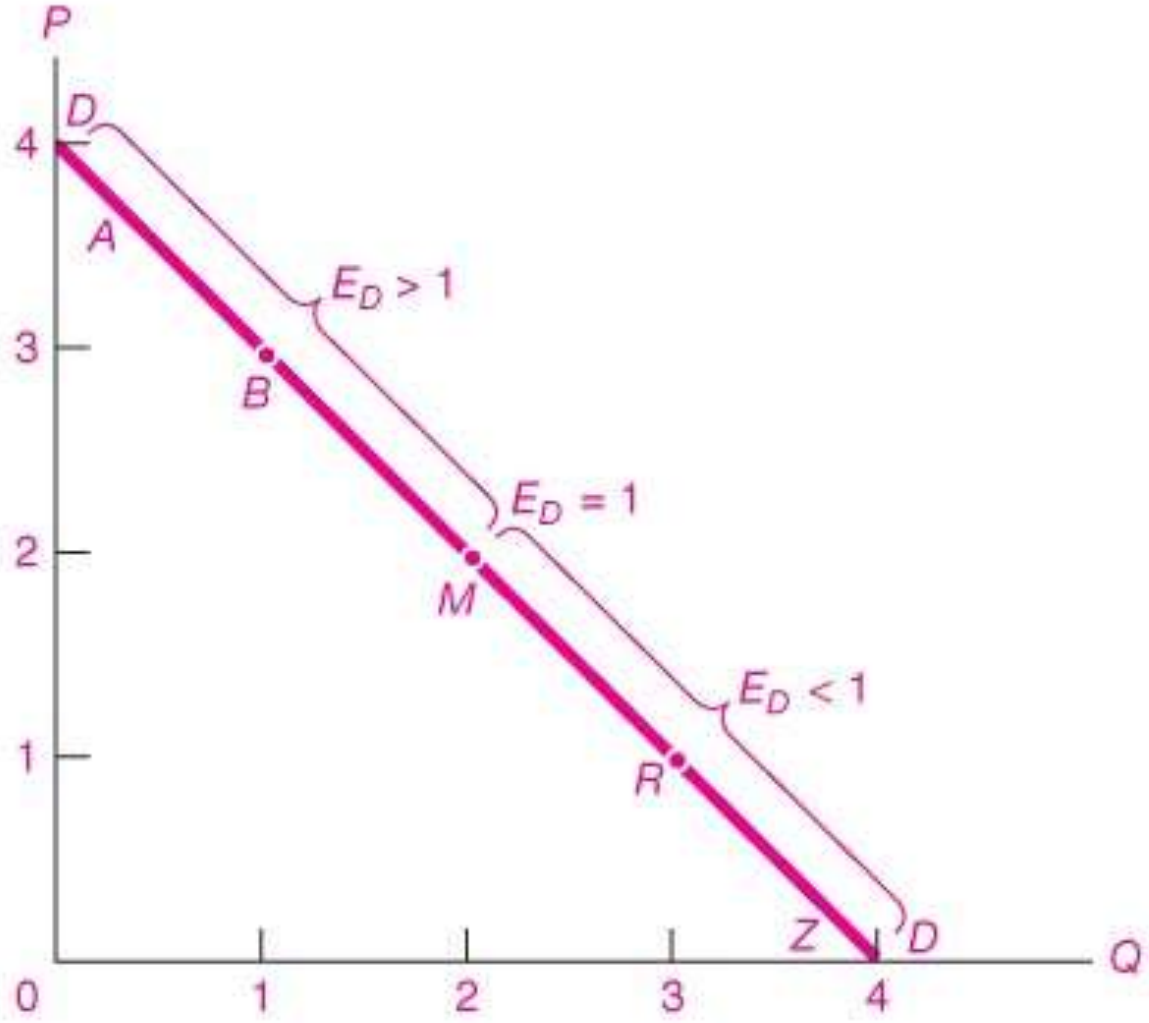

FIGURE 4-4. A Simple Rule for Calculating the Demand Elasticity

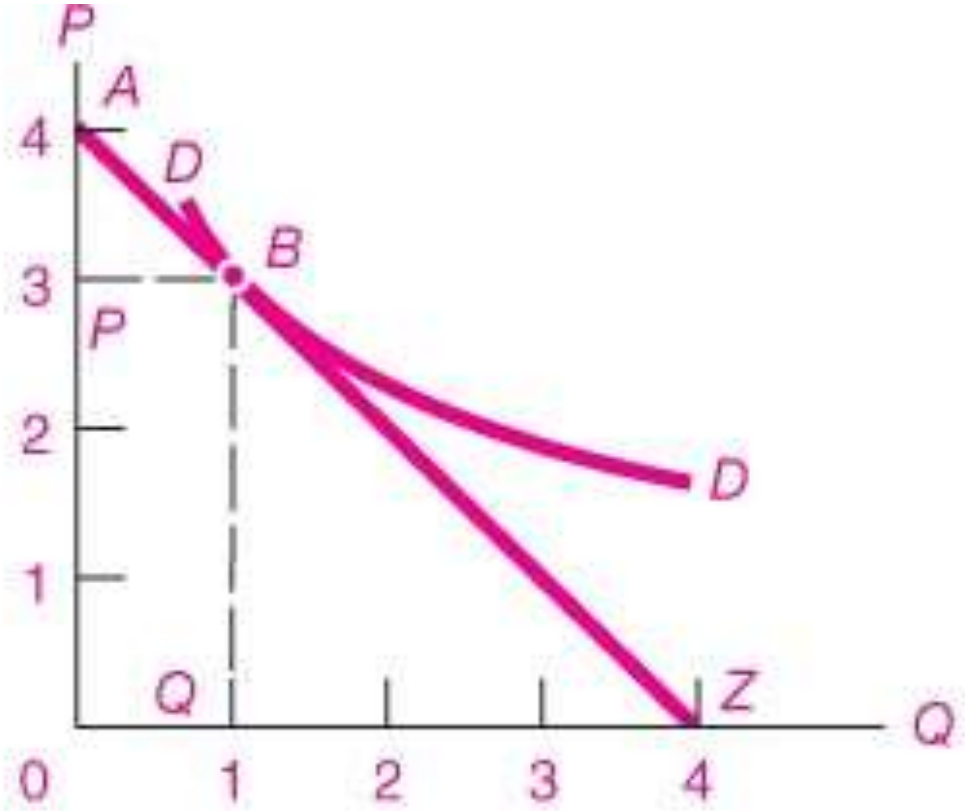

FIGURE 4-5. Calculating the Demand Elasticity for Curved Demand

Numerical Calculation of Elasticity Coefficient

Q	ΔQ	P	ΔP	$\frac{Q_1 + Q_2}{2}$	$\frac{P_1 + P_2}{2}$	$E_D = \frac{\Delta Q}{(Q_1 + Q_2)/2} \div \frac{\Delta P}{(P_1 + P_2)/2}$	
0		6					
	10		2	5	5	$\frac{10}{5} \div \frac{2}{5} = 5$	(elastic)
10		4					
	10		2	15	3	$\frac{10}{15} \div \frac{2}{3} = 1$	(unit-elastic)
20		2					
	10		2	25	1	$\frac{10}{25} \div \frac{2}{1} = 0.2$	(inelastic)
30		0					

TABLE 4-2. Calculation of Price Elasticity along a Linear Demand Curve

Value of demand elasticity	Description	Definition	Impact on revenues
Greater than one ($E_D > 1$)	Elastic demand	Percentage change in quantity demanded *greater* than percentage change in price	Revenues *increase* when price decreases
Equal to one ($E_D = 1$)	Unit-elastic demand	Percentage change in quantity demanded *equal* to percentage change in price	Revenues *unchanged* when price decreases
Less than one ($E_D < 1$)	Inelastic demand	Percentage change in quantity demanded *less* than percentage change in price	Revenues *decrease* when price decreases

TABLE 4-3. Elasticities: Summary of Crucial Concepts

Supply Elasticities

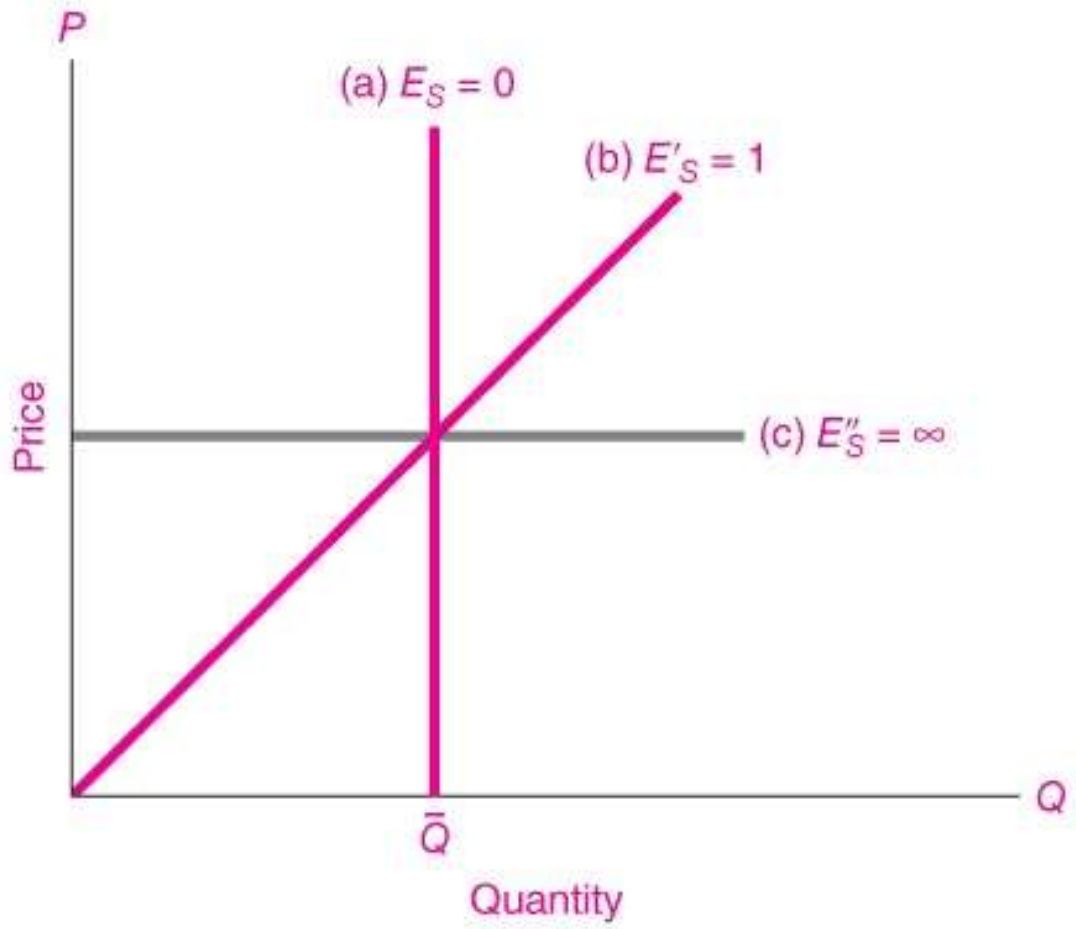

FIGURE 4-6. Supply Elasticity Depends upon Producer Response to Price

FIGURE 4-7. Prices of Basic Farm Products Have Declined Sharply

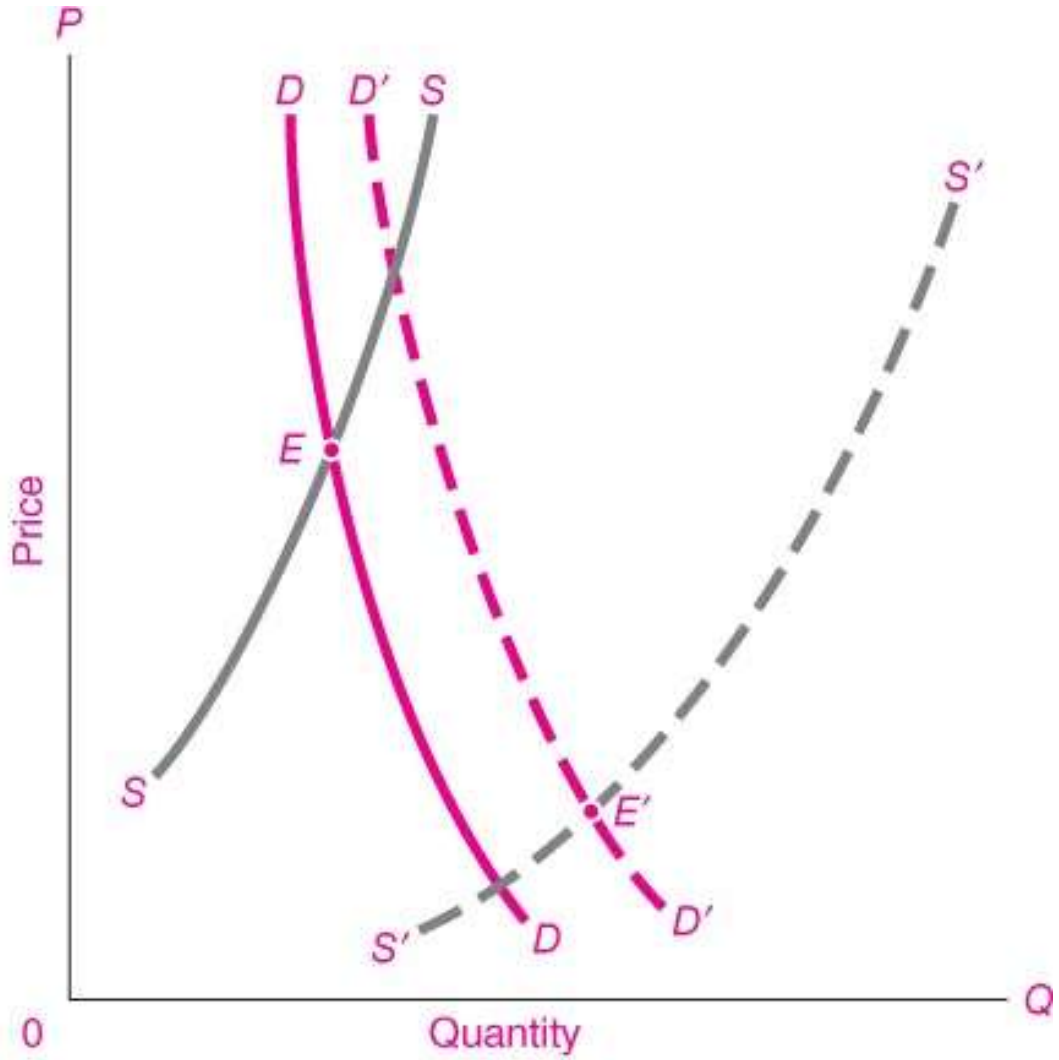

FIGURE 4-8. Agricultural Distress Results from Expanding Supply and Price-Inelastic Demand

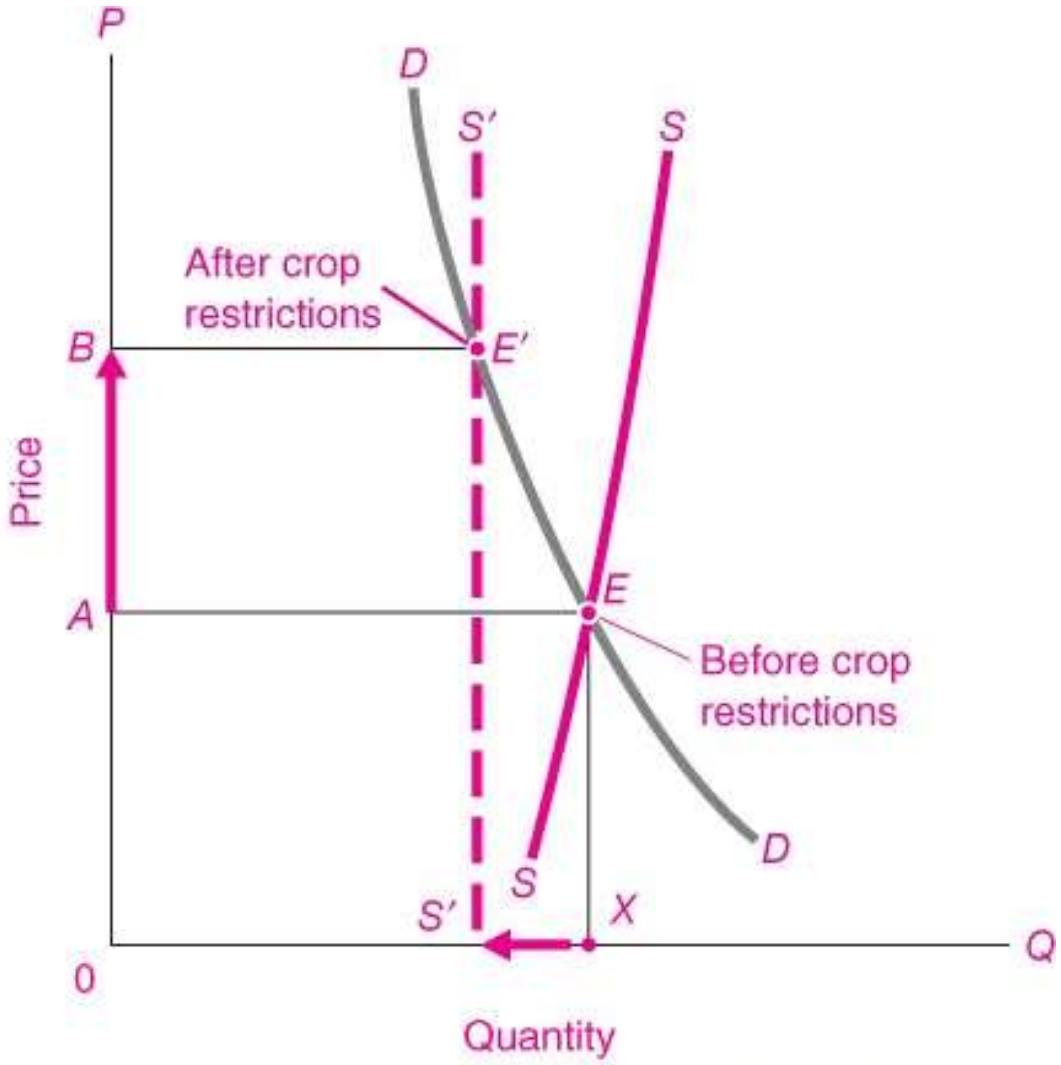

FIGURE 4-9. Crop-Restriction Programs Raise Both Price and Farm Income

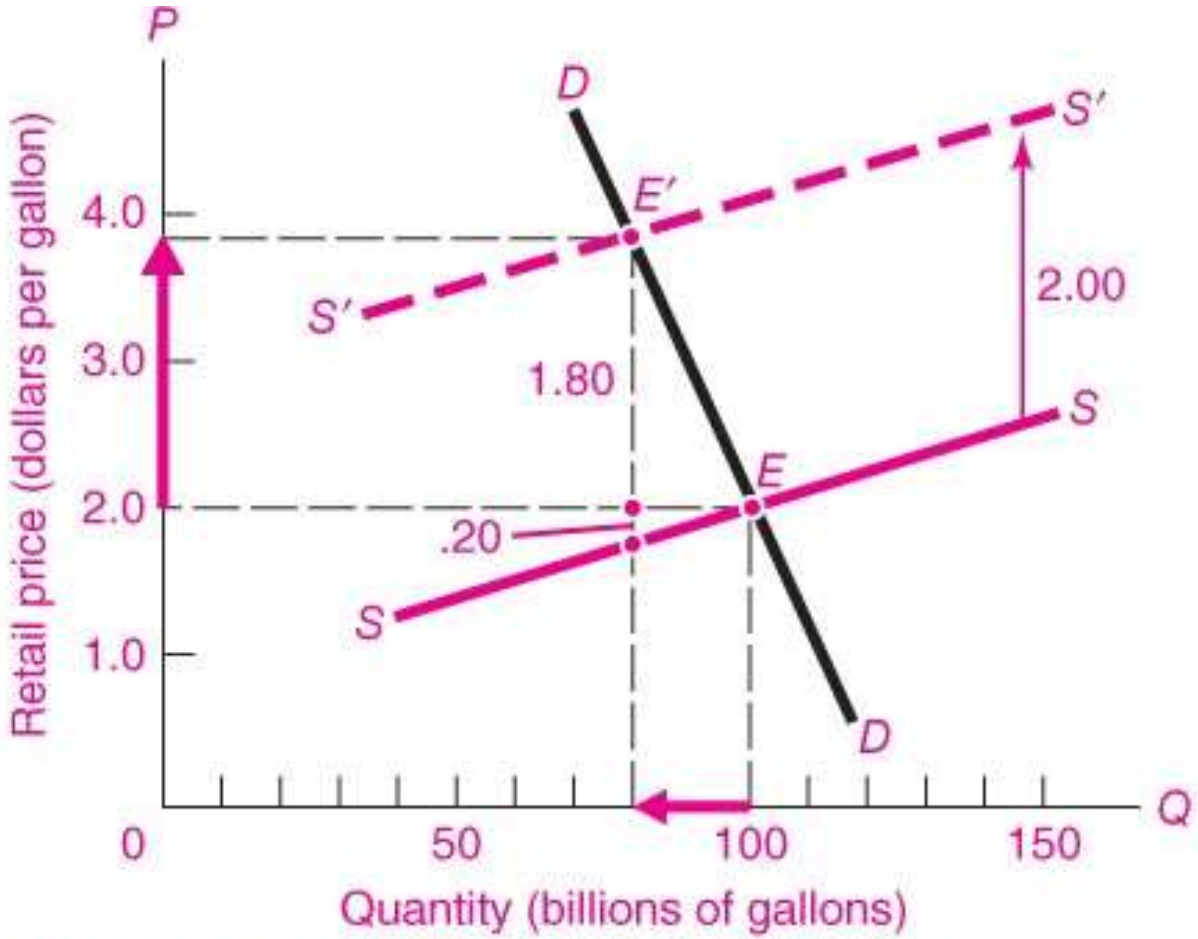

FIGURE 4-10. Gasoline Tax Falls on Both Consumer and Producer

FIGURE 4-11. The Minimum Wage and Teenage Unemployment, 1947–2009

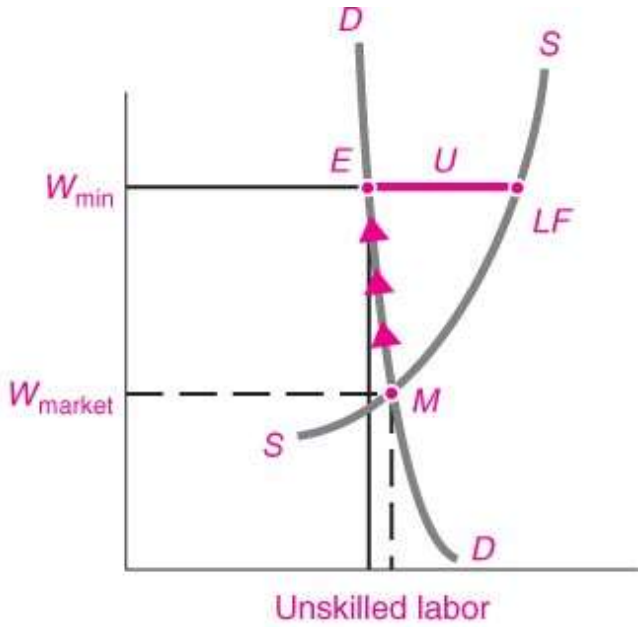

FIGURE 4-12. Effects of a Minimum Wage

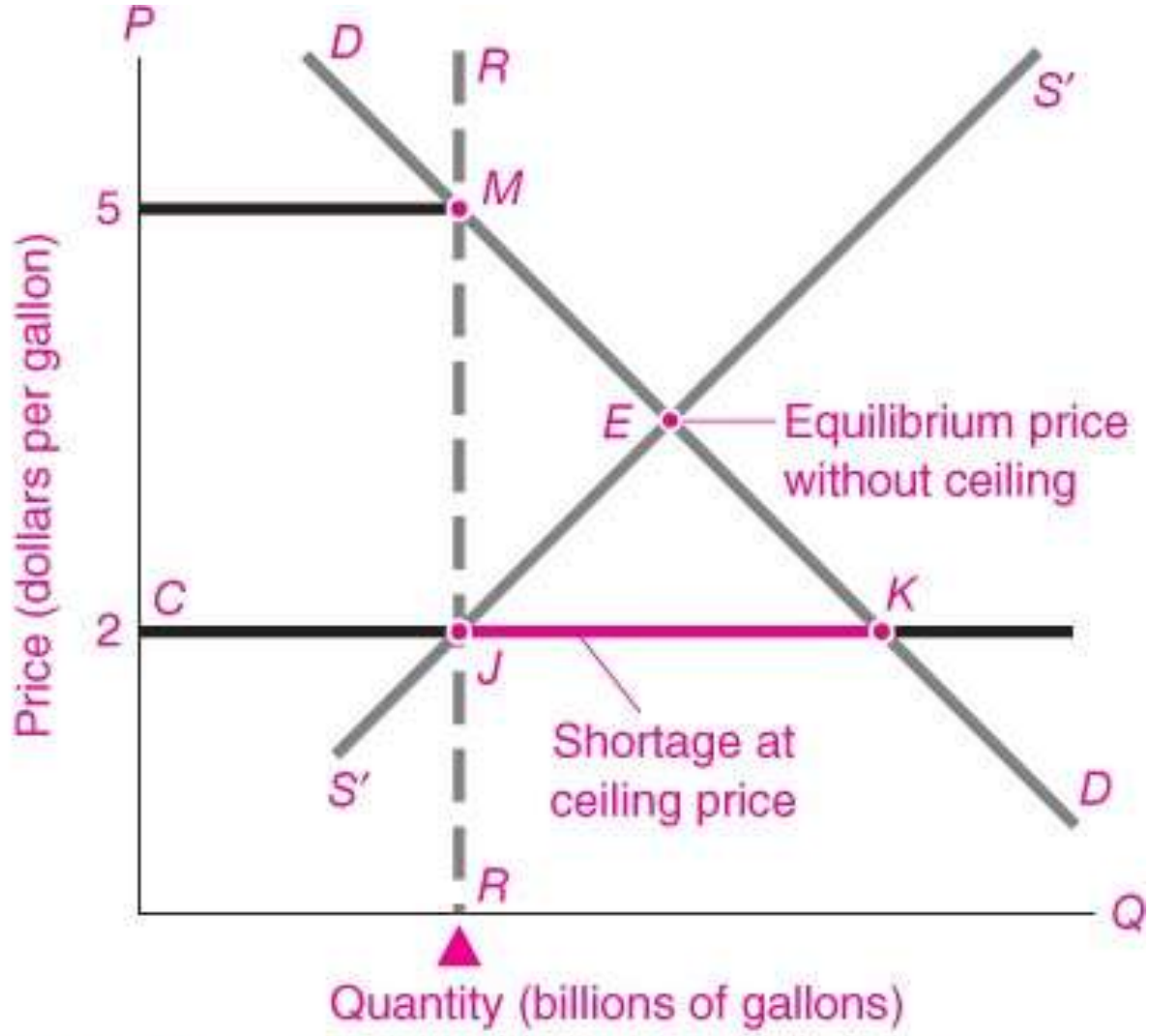

FIGURE 4-13. Price Controls Produce Shortages

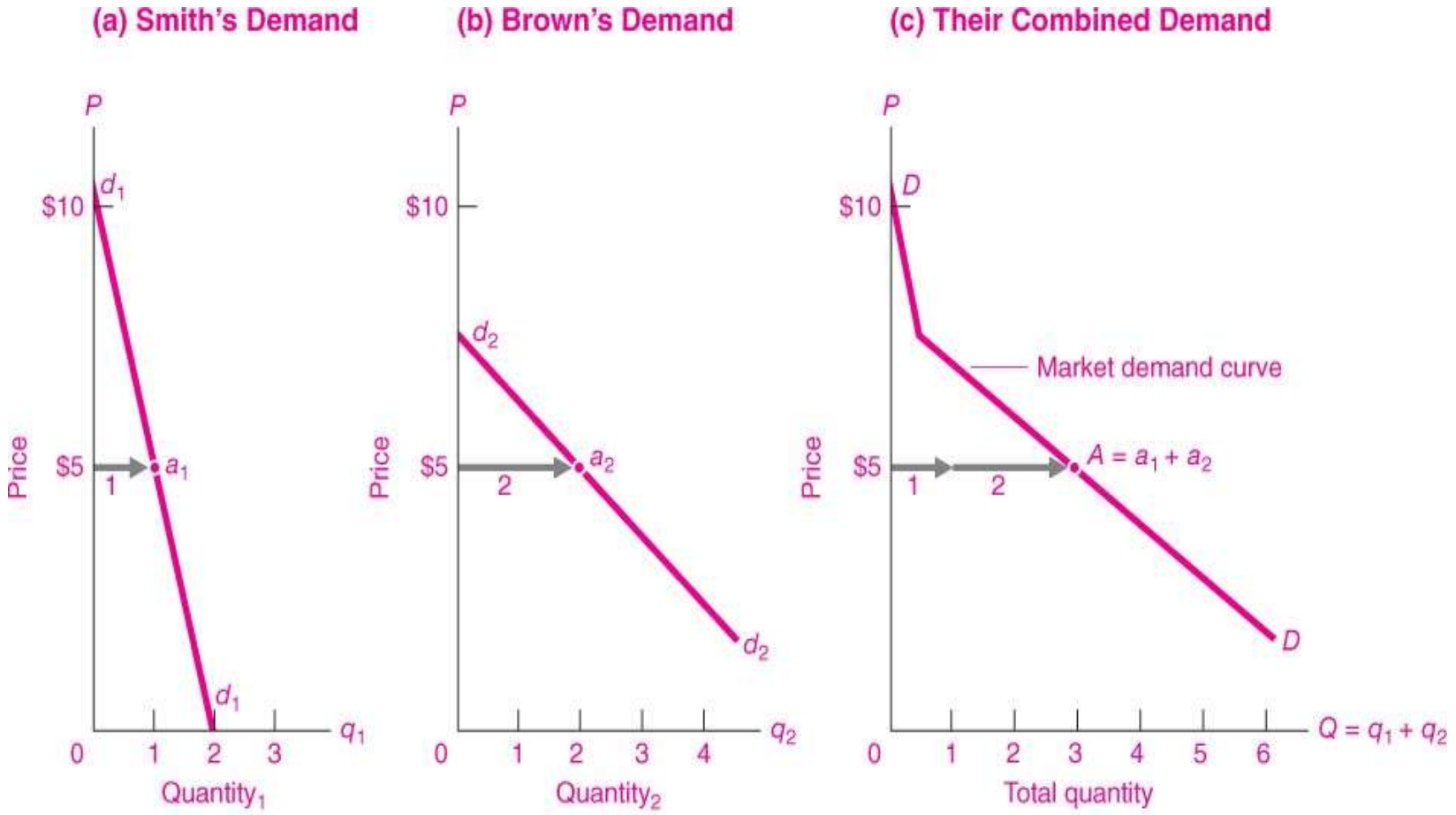

FIGURE 5-2. Market Demand Derived from Individual Demands

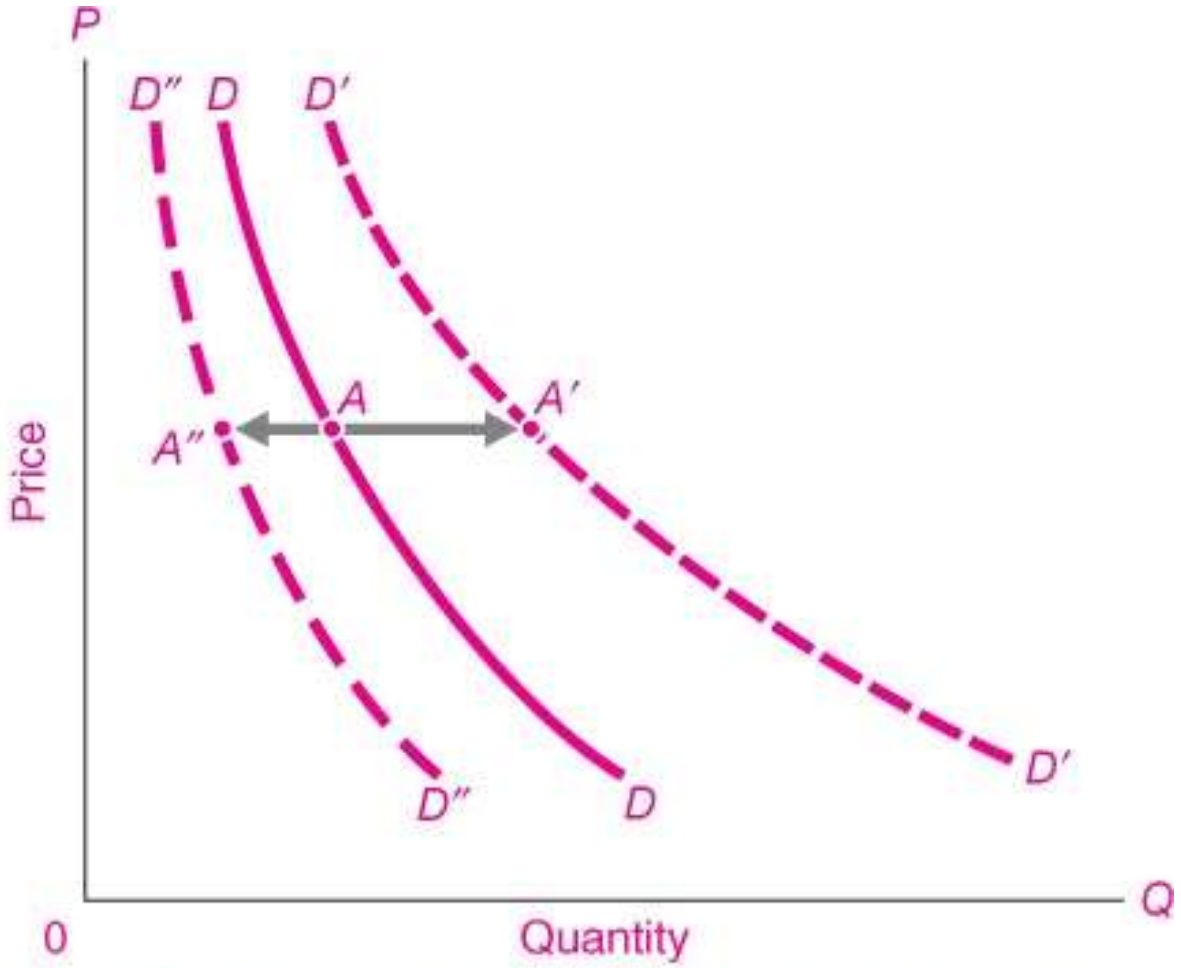

FIGURE 5-3. Demand Curve Shifts with Changes in Income or in Other Goods' Prices

Commodity	Price elasticity
Tomatoes	4.60
Green peas	2.80
Legal gambling	1.90
Taxi service	1.24
Furniture	1.00
Movies	0.87
Shoes	0.70
Legal services	0.61
Medical insurance	0.31
Bus travel	0.20
Residential electricity	0.13

TABLE 5-2. Selected Estimates of Price Elasticities of Demand

Commodity	Income elasticity
Automobiles	2.46
Owner-occupied housing	1.49
Furniture	1.48
Books	1.44
Restaurant meals	1.40
Clothing	1.02
Physicians' services	0.75
Tobacco	0.64
Eggs	0.37
Margarine	−0.20
Pig products	−0.20
Flour	−0.36

TABLE 5-3. Income Elasticities for Selected Products

TYPOLOGY OF GOODS

Substitutes and Complements

- Two goods are substitutes if one good may replace the other in use – examples: tea & coffee, butter & margarine

- Two goods are complements if they are used together – examples: coffee & cream, fish & chips

Veblen Goods

Giffen Goods

Necessities

EXCEPTIONS TO LAW OF DEMAND

Veblen Goods

- Thorstein Veblen, "*theory of conspicuous consumption*".
- According to Veblen, there are certain goods that become more valuable as their price increases.
- If a product is expensive, then its value and utility are perceived to be more, and hence the demand for that product increases.
- Precious metals and stones such as gold and diamonds and luxury cars such as Rolls-Royce. As the price of these goods increases, their demand also increases because these products then become a status symbol

Giffen Goods

- Sir Robert Giffen.
- Goods that are inferior in comparison to luxury goods.
- As its price increases, the demand also increases i.e. an exception to the law of demand.
- *The Irish Potato Famine is a classic example of the Giffen goods concept.*
- *Potato is a staple in the Irish diet. During the potato famine, when the price of potatoes increased, people spent less on luxury foods such as meat and bought more potatoes to stick to their diet.*
- *So as the price of potatoes increased, so did the demand, which is a complete reversal of the law of demand.*

Necessities

- Necessary or basic goods.
- People will continue to buy necessities such as medicines or basic staples such as salt even if the price increases.
- The prices of these products do not affect their associated demand.
- The case of ‘salt tax’

Normal and Inferior Goods

- An inferior good is a good that decreases in demand when consumer income rises (or rises in demand when consumer income decreases), unlike normal goods, for which the opposite is observed.
- Normal goods are those for which consumers' demand increases when their income increases.
- With Inferior goods, as your income falls (rises), you tend to buy more (less)