University of Macerata
Economics - A.Y. 2021/2022
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Market demand and supply

REF. Chapters 2 and 3

Key concepts introduced so far:

1. Economics studies the "best use of scarce resources", that is, the organization of the economic system that produces the allocation of resources that best meets social objectives
2. Scarce resources imply the existence of the production possibilities frontier (limits to production), productive efficiency and opportunity costs in meeting the societal objectives.
3. Economic systems answer three fundamental questions: what, how and for whom to produce.
4. Different economic systems answer these three questions differently: market economy, command economy, mixed economy.

General definitions

Market

Mechanism through which buyers and sellers come into contact and interact in order to exchange goods or services, setting the price and quantity to be exchanged

Demand

quantity of a good that consumers want to buy at each price level

Supply

quantity of a good that producers wish to sell for each price level

Equilibrium price

price for which the quantity offered is equal to the quantity demanded

Market economy

In a market economy, private actors are responsible for solving the three economic problems:

what: consumers, "dollar votes" in their daily purchase decisions.

how: competition between firms

for whom: remuneration of production factors (profits, wages, rents)

In summary: the coordination of individuals, activities and companies takes place automatically, through a **price system**.

Everything has a price, which is the **value** of the good in terms of money.

Prices act as signals for producers and consumers, coordinating their decisions: higher prices tend to reduce consumer purchases and encourage production and vice versa. This brings prices to the equilibrium level.

The market mechanism: supply and demand

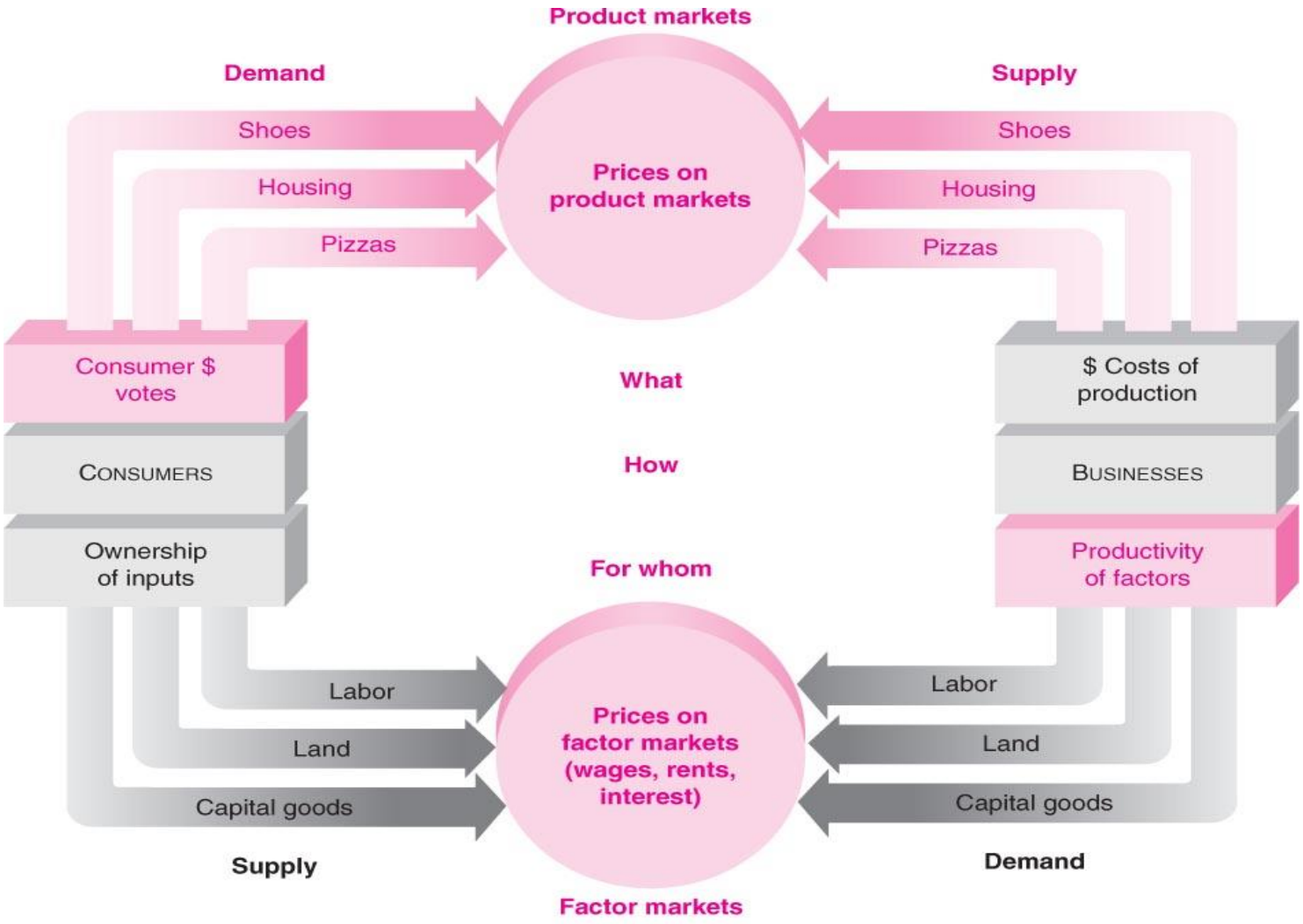
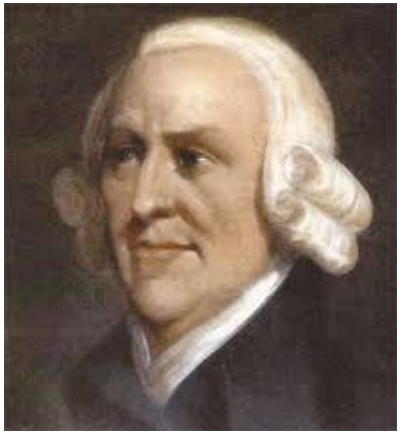


FIGURE 2-1. The Market System Relies on Supply and Demand to Solve the Trio of Economic Problems



The functioning of the **market system** is described by **A. Smith** through the metaphor of the "**Invisible Hand**"

Idea of the invisible hand: there is no central authority that establishes what should be the optimal allocation of social resources but the actions of private actors, guided by their **personal interest** as by an invisible hand, *spontaneously* produce an optimal social result in terms of efficiency.

The self-interest of competing **producers** in making the **highest profit** from the sale of their product and that of **consumers** in buying the **higher-quality products at the lowest prices** pushes producers to continuous improvements in production to better meet consumer preferences (in this way market supply and demand tend to meet).

> It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages.

The "Invisible Hand" is the mechanism that allows the **balance of the markets**: supply and demand on different markets tend to be **equal** trough **price adjustments**, eliminating any excess of demand or supply

Example: gasoline prices, supply and demand

In the United States, gasoline prices have undergone extreme variations over the past fifty years. Supply cuts in the 1970s caused two serious "oil shocks" that led to riots and the call for more regulation. Decreases in demand due to new energy-saving technologies led to a prolonged drop in prices after 1980. When the oil cartel reduced supply in late 1999, crude oil prices increased again. The concepts of supply and demand are essential to understand these trends.

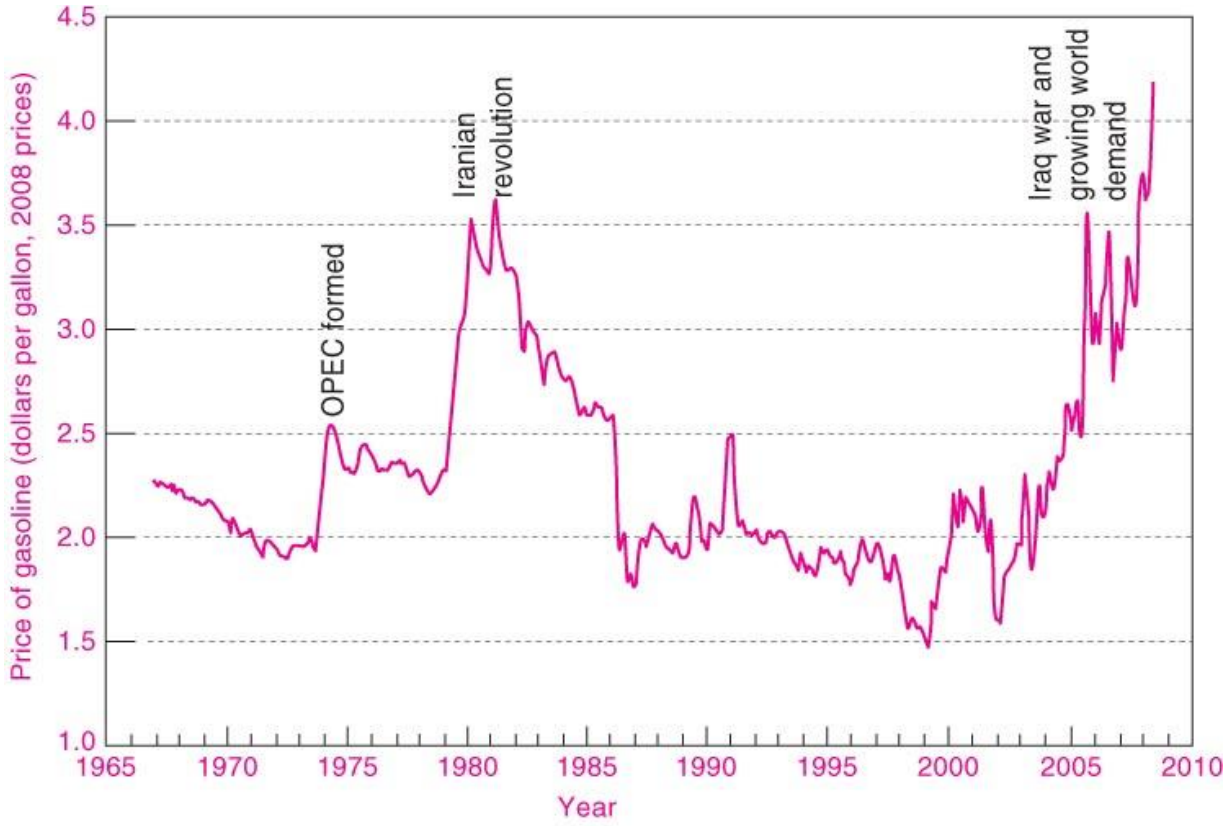
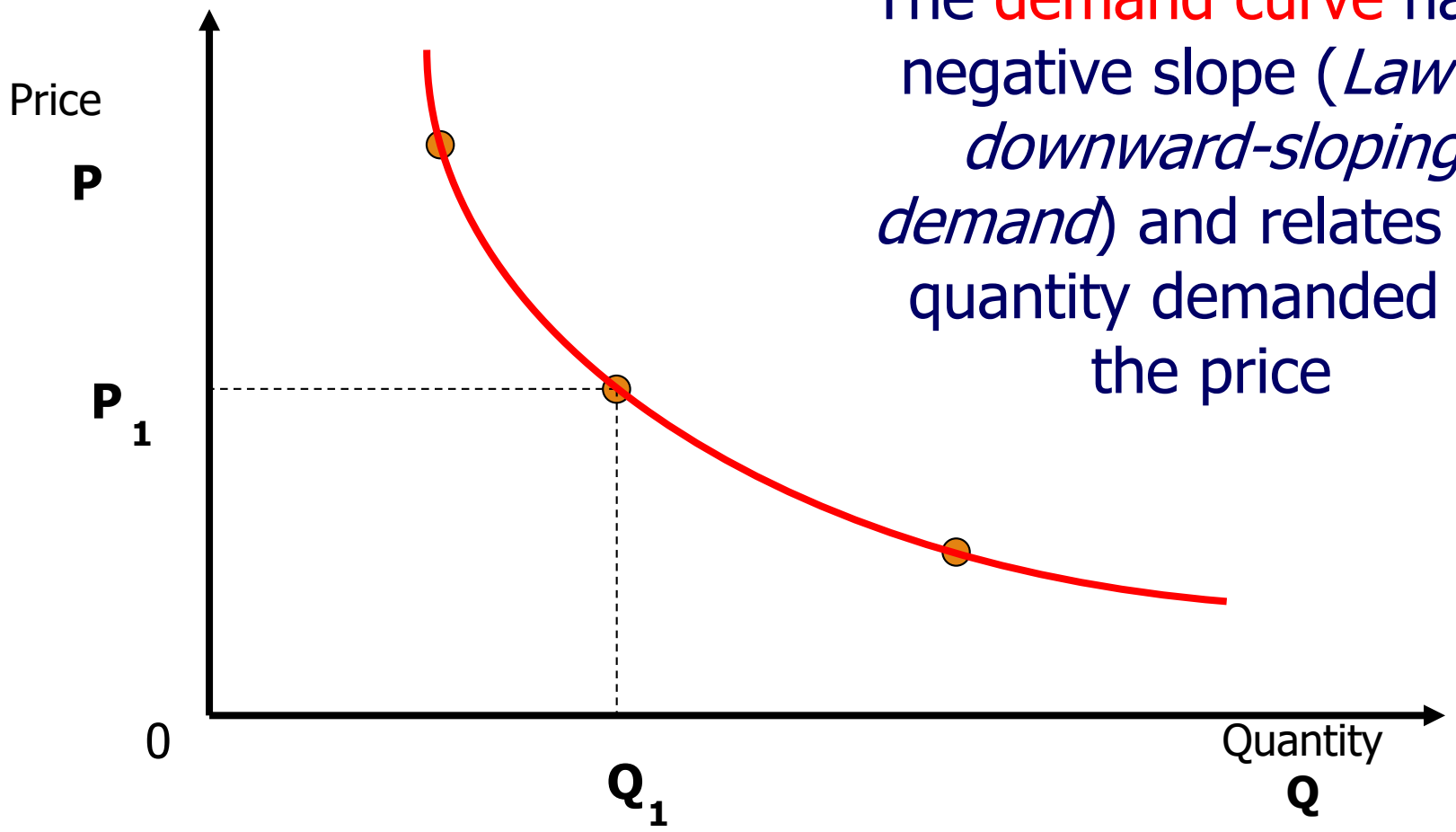


FIGURE 3-1. Gasoline Prices Move with Demand and Supply Changes

Prices, supply and demand

According to the theory of supply and demand, consumer preferences determine the demand for consumption of goods (**Demand curve**), while the costs faced by enterprises are the basis of the supply of goods (**Supply curve**)

Building the demand curve (D)



The demand curve has a negative slope (*Law of downward-sloping demand*) and relates the quantity demanded to the price

As the price increases, the quantity demanded decreases because alternative goods are purchased (***substitution effect***) and because the consumer has to make a greater economic sacrifice for the purchase reducing the real income (***income effect***)

The demand curve

Demand curve refers to the sum of the quantities demanded by all individuals of that market at each price level

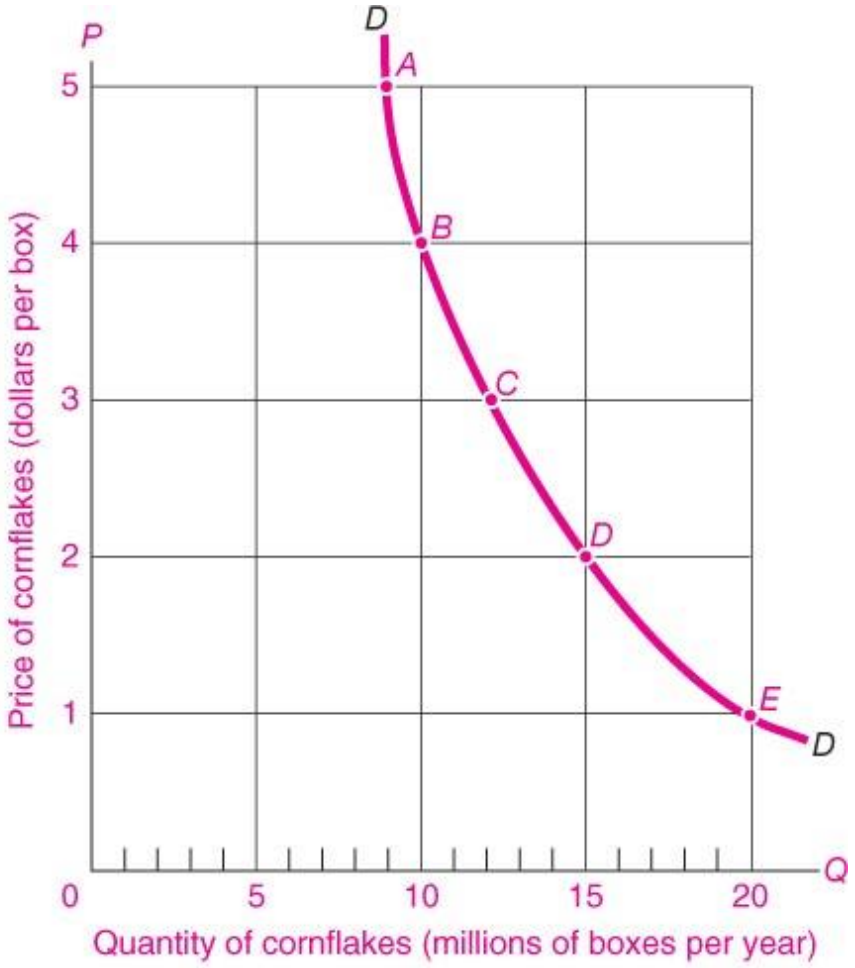


FIGURE 3-2. A Downward-Sloping Demand Curve Relates Quantity Demanded to Price

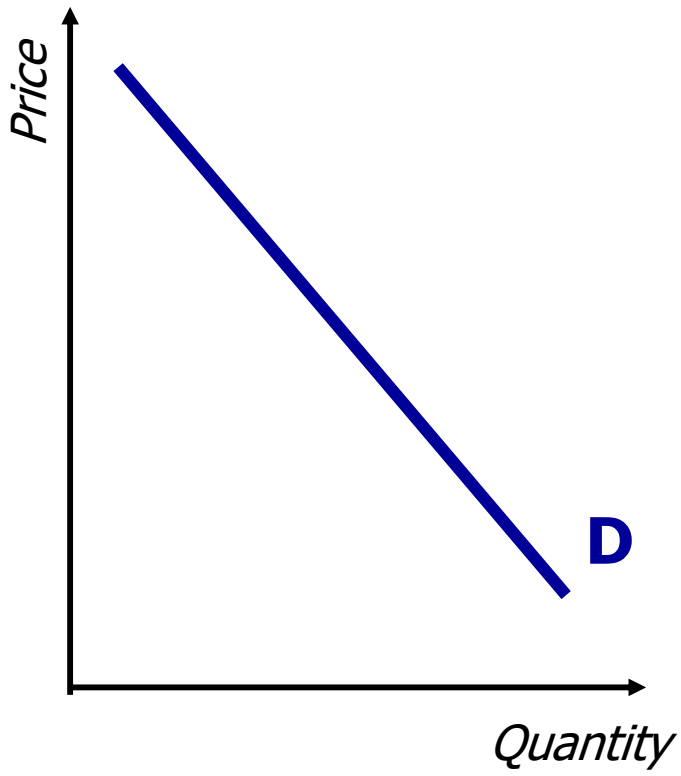
Demand Schedule for Cornflakes

	(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

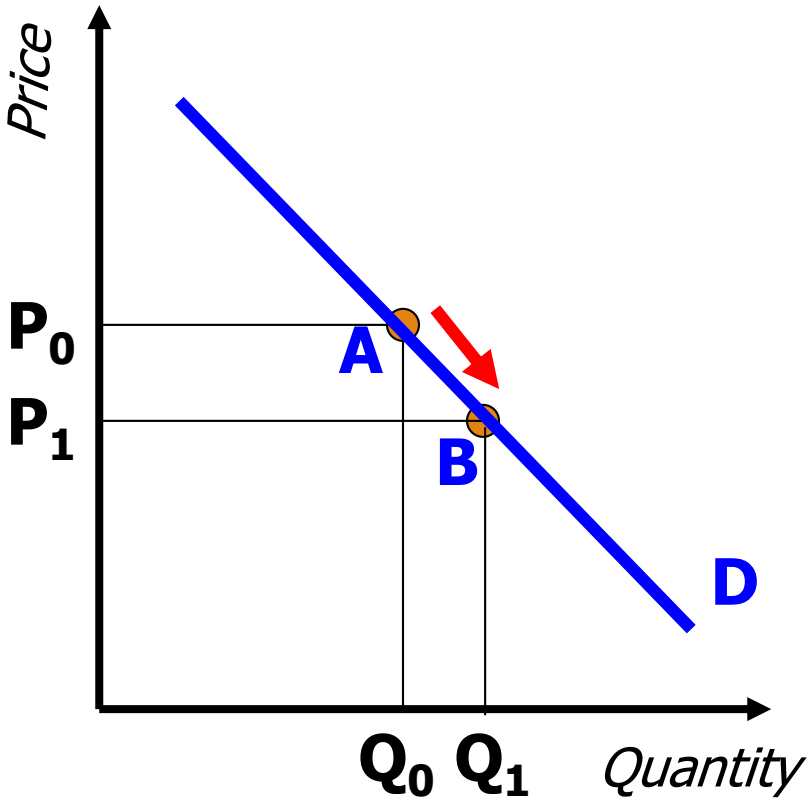
The demand curve

Shows the relationship between P and Q demanded, all other factors being equal

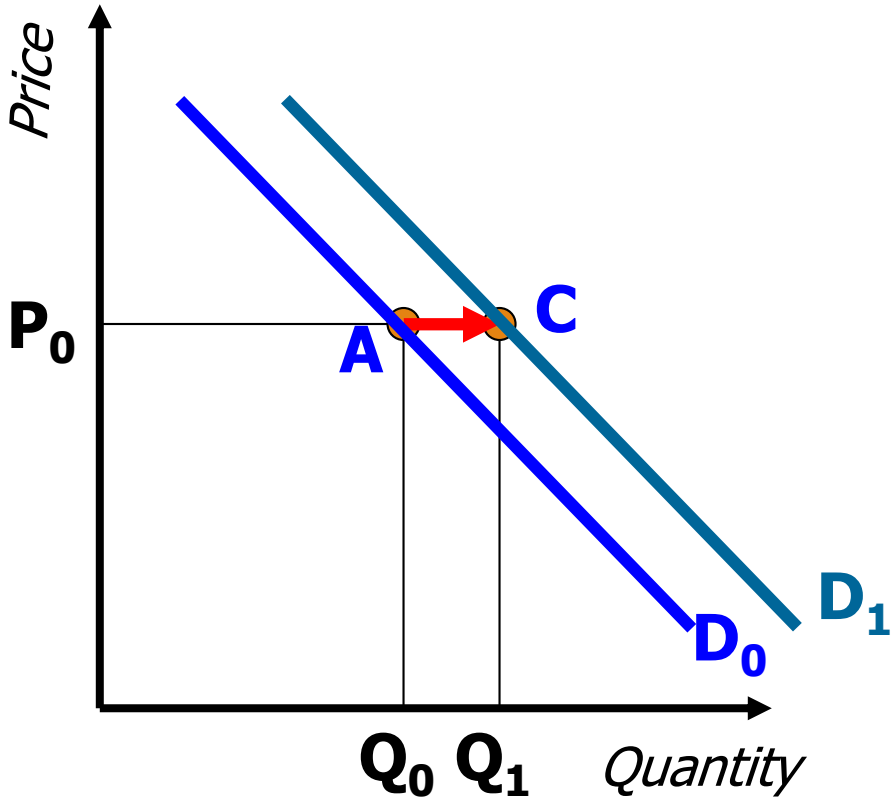


- "Other factors" includes:
  - The average income of consumers: when income rises, people buy more (even if price don't change)
  - Price of related goods (*substitute goods* like white or brown sugar or *complementary goods*, like cars and gasoline)
  - Size of the market (population): when population increases the quantity increases
  - Tastes or preferences of consumers: variation in cultural or psychological inclinations to buy a good.
  - Special influences (e.g. the typical weather of a city influences the demand for umbrellas or air conditioners)
- variations in these "other conditions" affect the **position** of the demand curve

Two ways in which demand can increase/decrease



- (1) A **movement along** the demand curve from A to B
- it is solely due to a consumers reaction to a change in the price of that good



(2) A **shift of** the demand curve from D_0 to D_1 causes an increase in the quantity demanded, for each price level.

For example, for P_0 the quantity demanded increases from Q_0 to Q_1

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

Increased demand for cars could be due to:

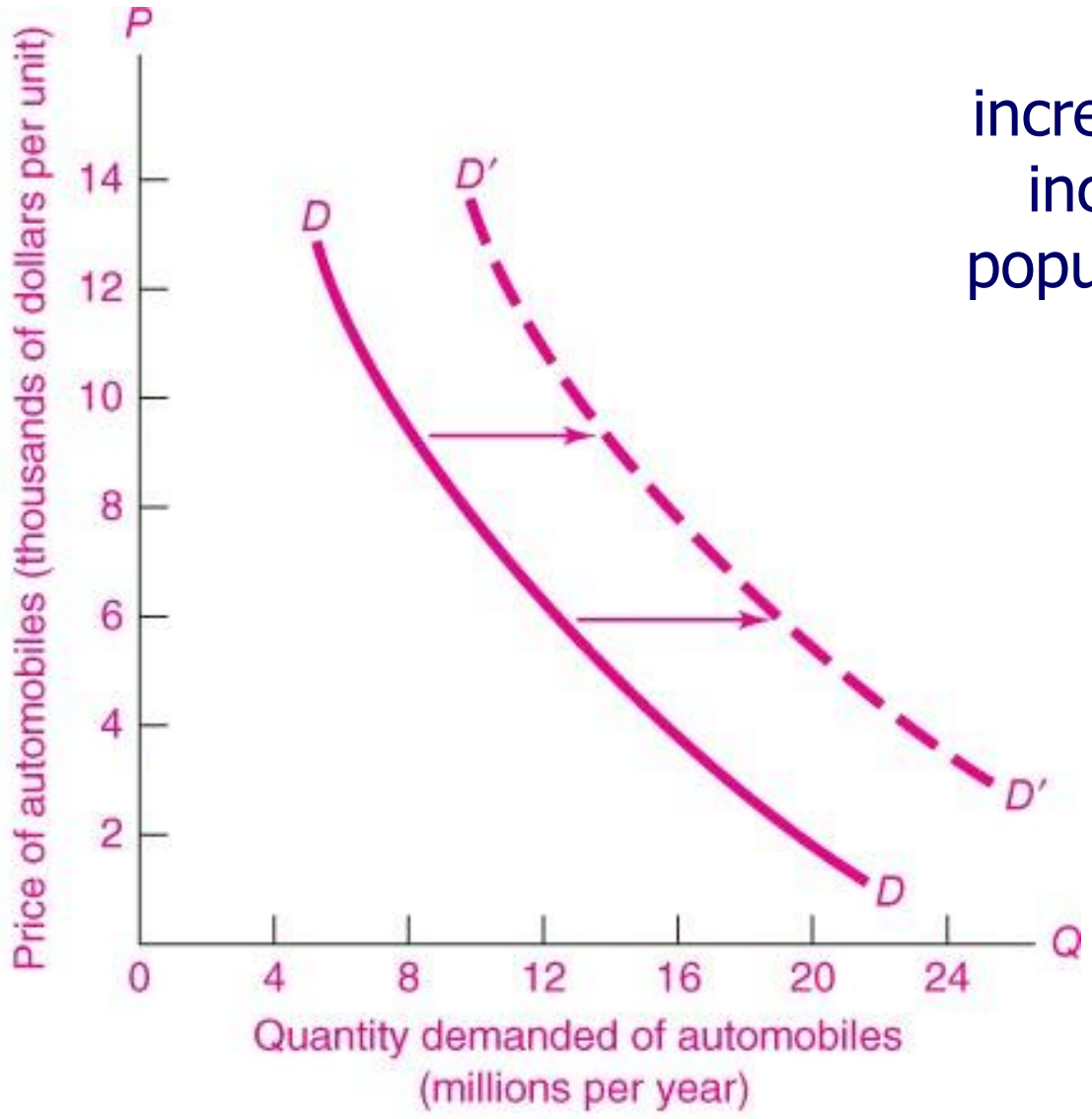
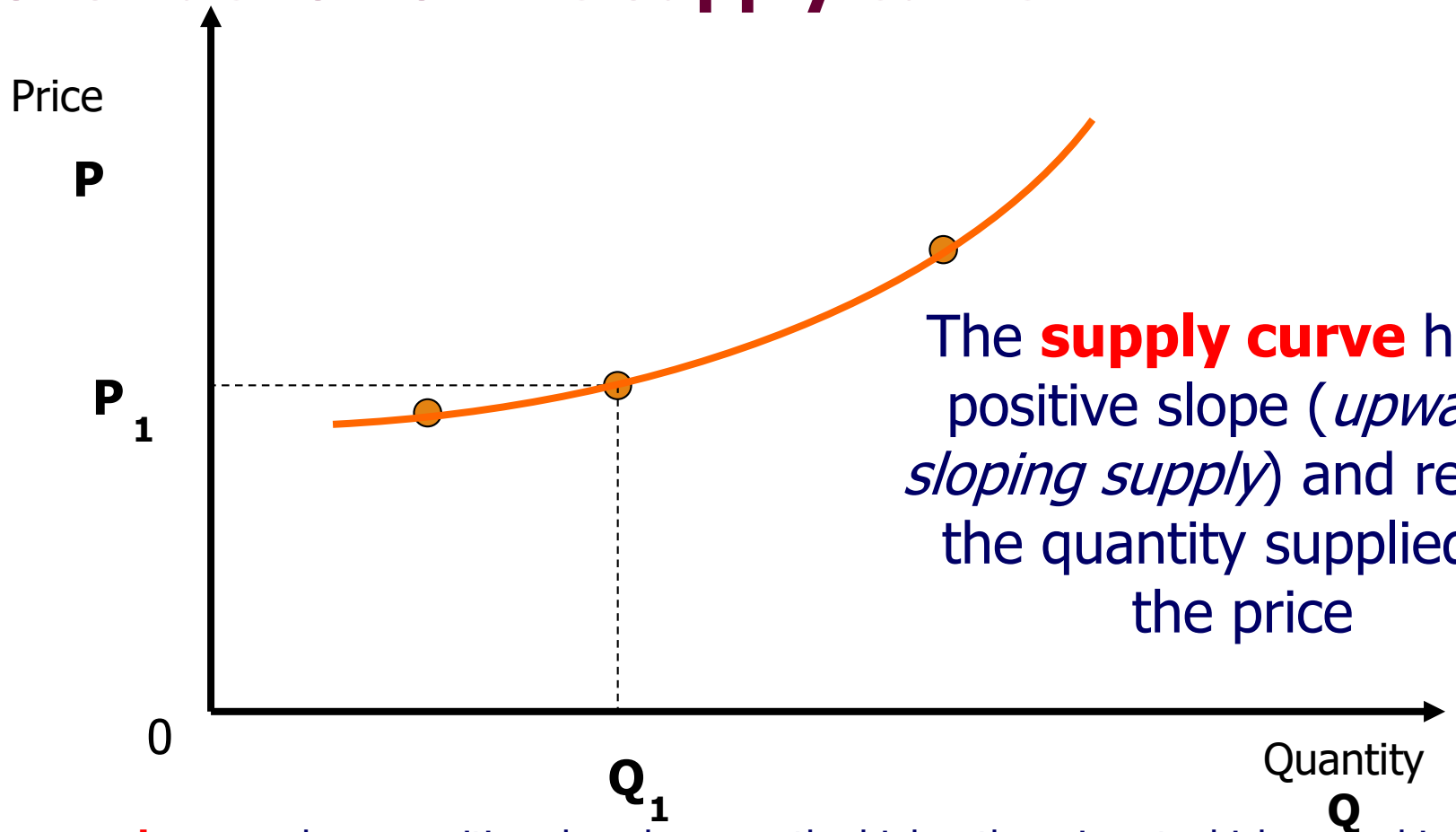


FIGURE 3-4. Increase in Demand for Automobiles

increase in the average income, increase in population, reduction in gasoline prices

Construction of the supply curve



The **supply curve** has a positive slope (*upward-sloping supply*) and relates the quantity supplied to the price

The **supply curve** has a positive slope because the higher the price at which a good is sold on the market (compared to production costs), the greater are the chances of making profits for companies, which will therefore increase their productive investment in that market, instead of devoting their production to other goods or services. If the price is low to the point of not covering production costs, production is zero (no firm has an interest in producing at a loss). We refer to the market supply: the sum of the quantities offered by all companies at each price level

Supply curve (S)

It relates the quantity supplied and the price

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

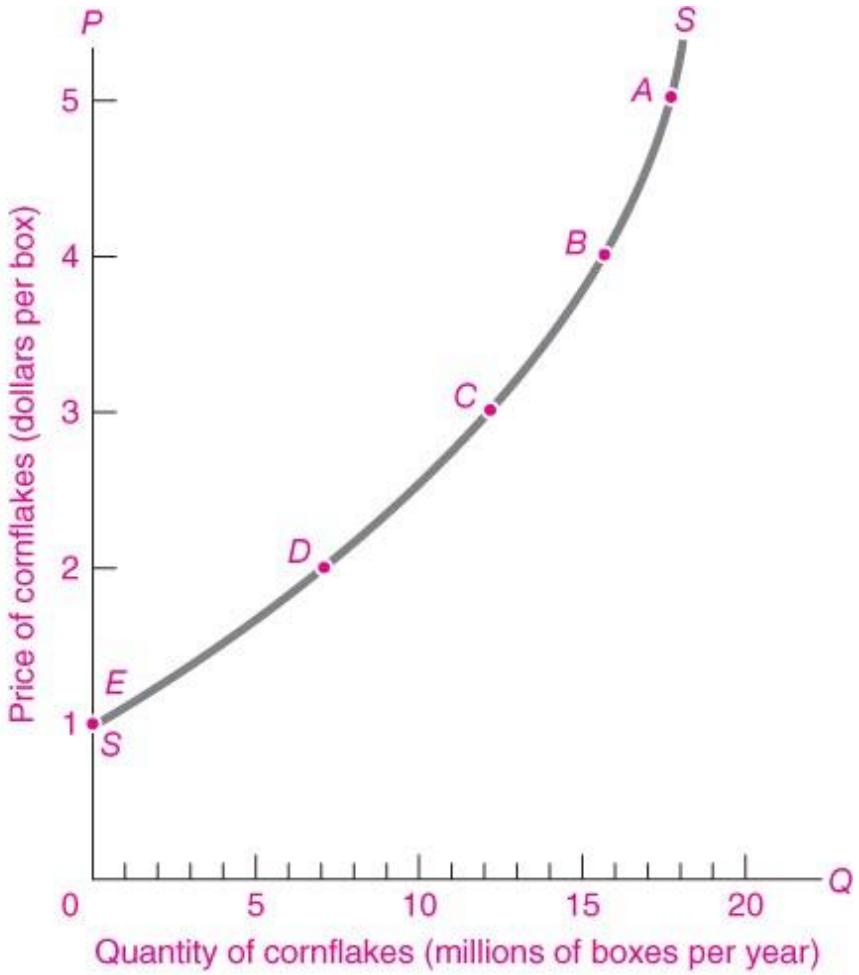
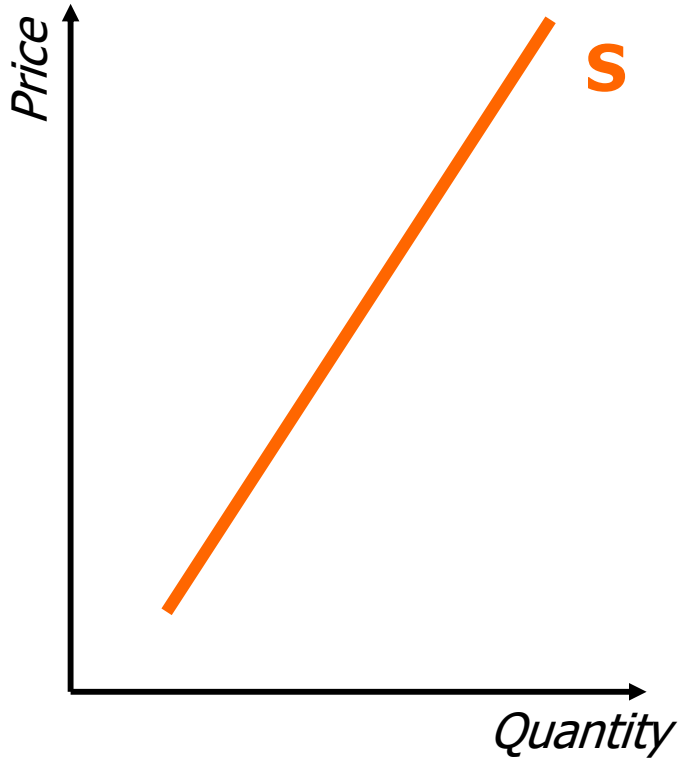


FIGURE 3-5. Supply Curve Relates Quantity Supplied to Price

The supply curve(S)

Shows the relationship between P and Q supplied, all other factors being equal



- "Other factors" includes:
  - –The cost of production: when production costs for a good are low relative to the market price, it is profitable for producers to supply a great deal.
  - – Technological advances: this advances enable to produce more goods at the same cost making profitable increasing the quantity supplied.
  - –Prices of related goods: if the price of one production substitute rises, the supply of another substitute will decrease
  - –Government policies: e.g., product safety regulations that are more stringent increase production costs.
  - –Special influences (e.g. the weather exerts an important influence on farming and on the ski industry)
- variations in these "other conditions" affect the **position** of the supply curve

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

Increase in the supply of cars
(e.g. decrease in costs)

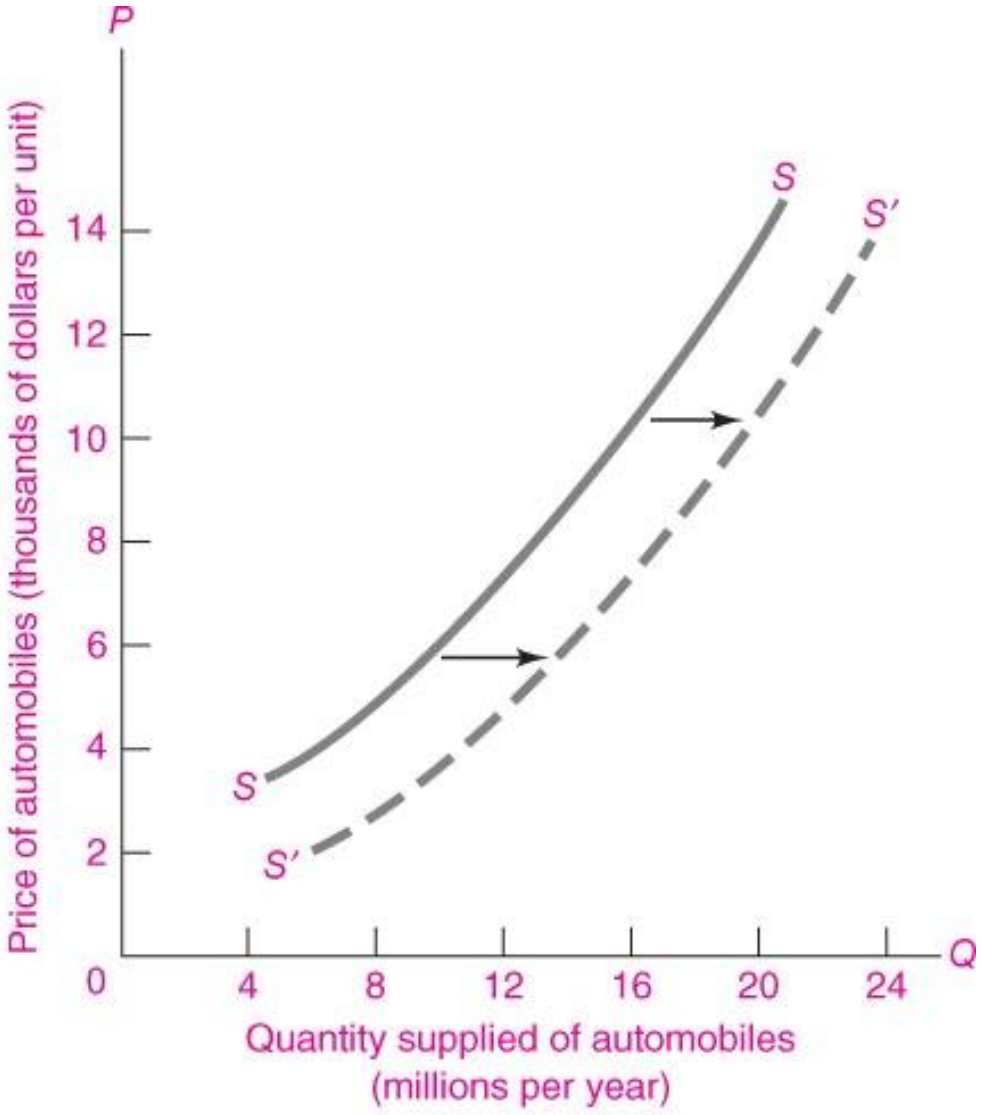


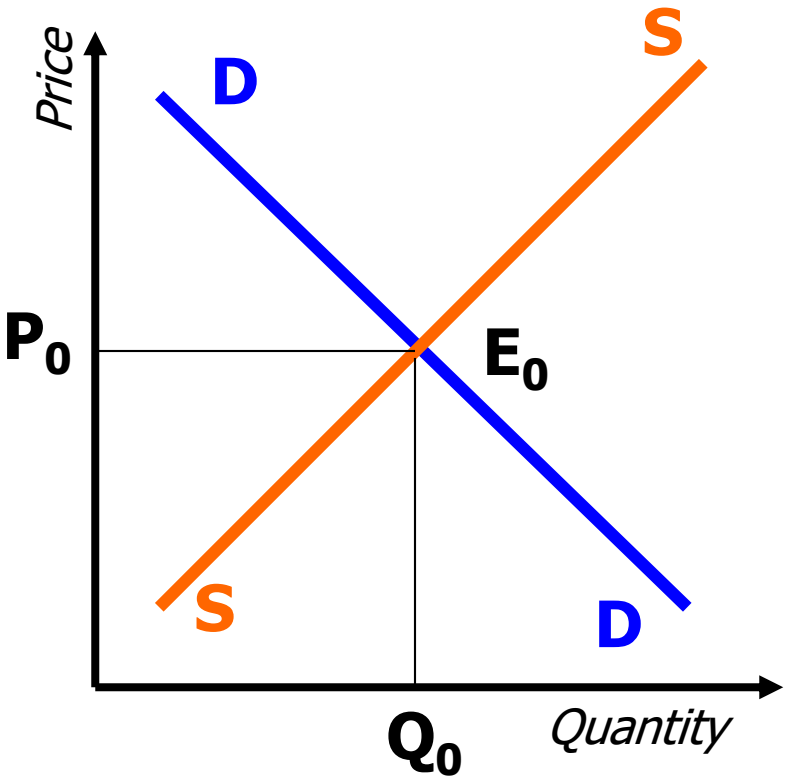
FIGURE 3-6. Increased Supply of Automobiles

IN SUMMARY

Demand: reveals consumers' preference to buy a certain good for each price level; the position is influenced by the conditions that affect preferences (tastes, income, population, price of related goods).

Supply: reveals the incentive of companies to produce a certain good for each price level (based on the possibility of profit given the production costs); the position is influenced by the conditions that affect production costs and profit possibilities (technology, profit possibilities by investing in alternative goods, cost of production factors, public regulation that affects costs).

Equilibrium of supply and demand



- Market equilibrium is obtained at point E_0, the point at which the quantity demanded equals the quantity supplied: for a price P_0 and a quantity Q_0

Equilibrium of supply and demand

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

Equilibrium of supply and demand

Market equilibrium is given by the intersection point of the supply and demand curves

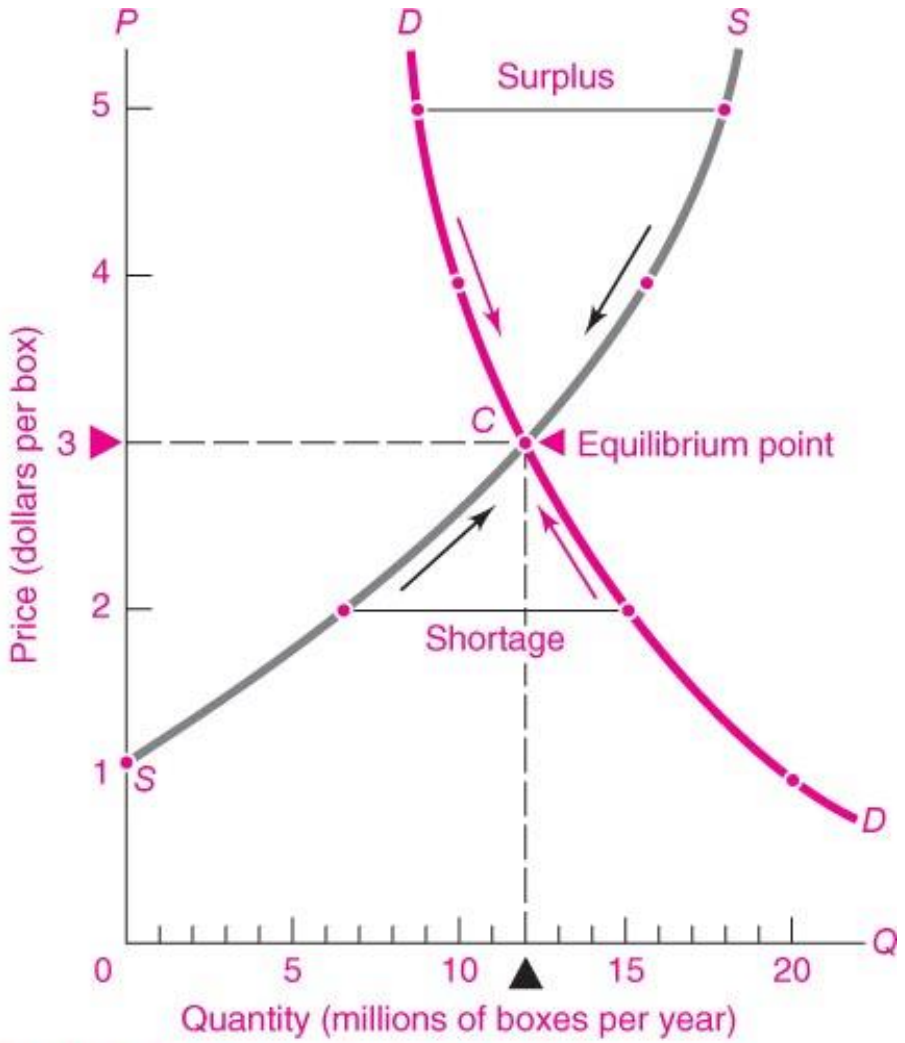
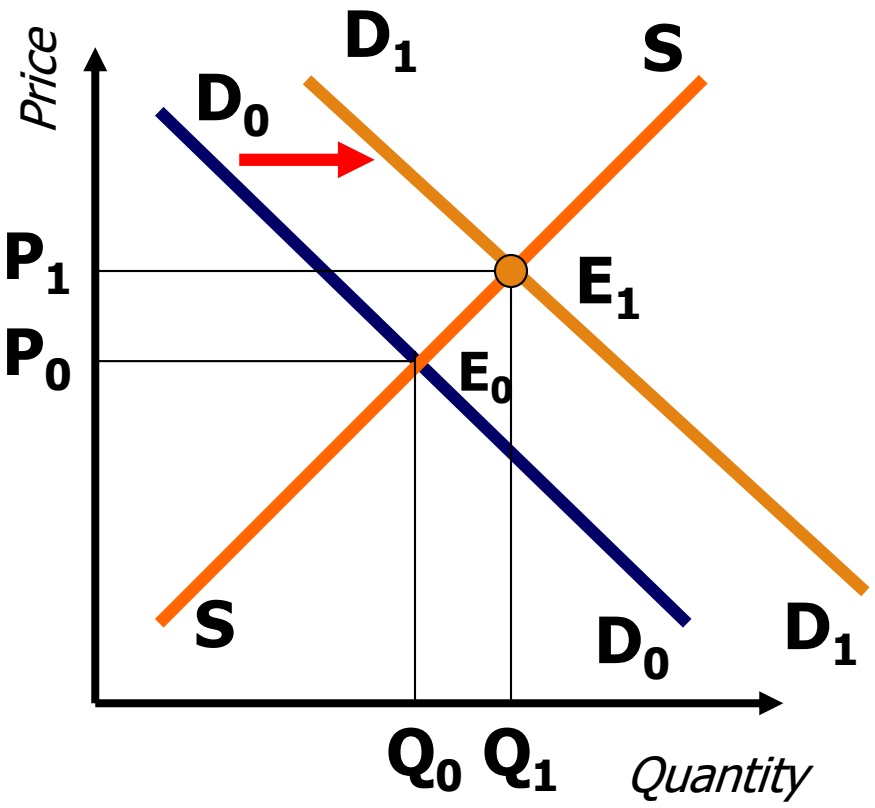


FIGURE 3-7. Market Equilibrium Comes at the Intersection of Supply and Demand Curves

A shift of the demand curve



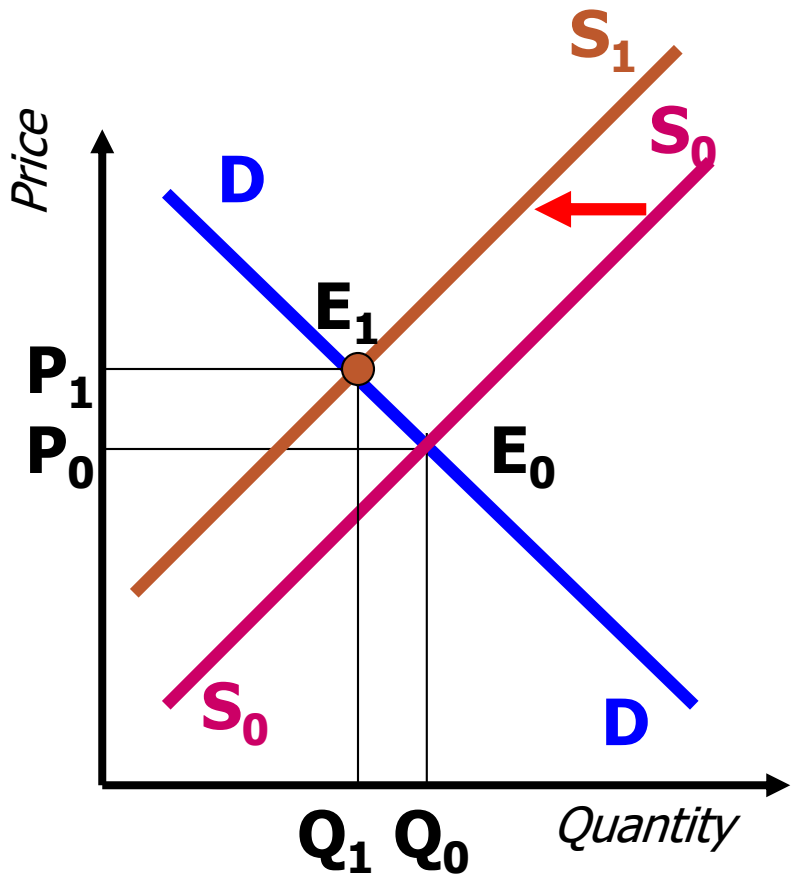
E.g.: if the price of a substitute good goes up

for each price level the quantity demanded will increase.

The demand curve will shift from **D_0** to **D_1**.

The market will reach a new equilibrium at the point **E_1**.

A shift of the supply curve



Product safety regulations that are more stringent increase production costs.

The supply curve shifts up to S_1

If the price were still P_0, there would be an excess of demand

Therefore the market moves towards a new equilibrium in E_1.

Shifts in supply and demand

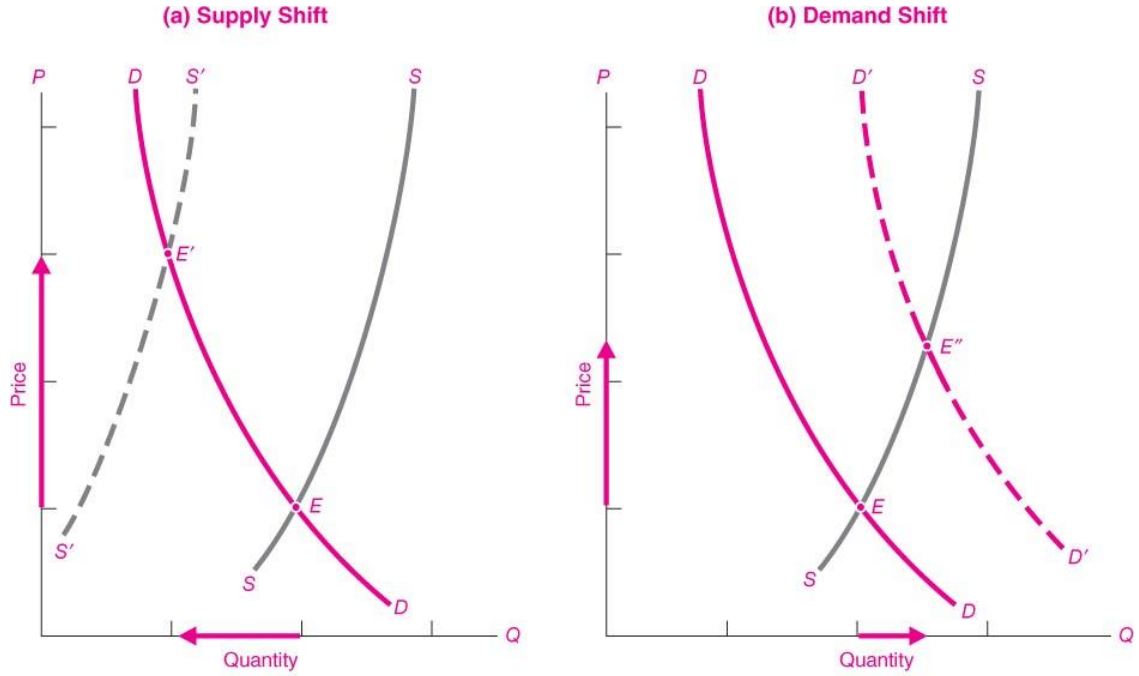


FIGURE 3-8. Shifts in Supply or Demand Change Equilibrium Price and Quantity

	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

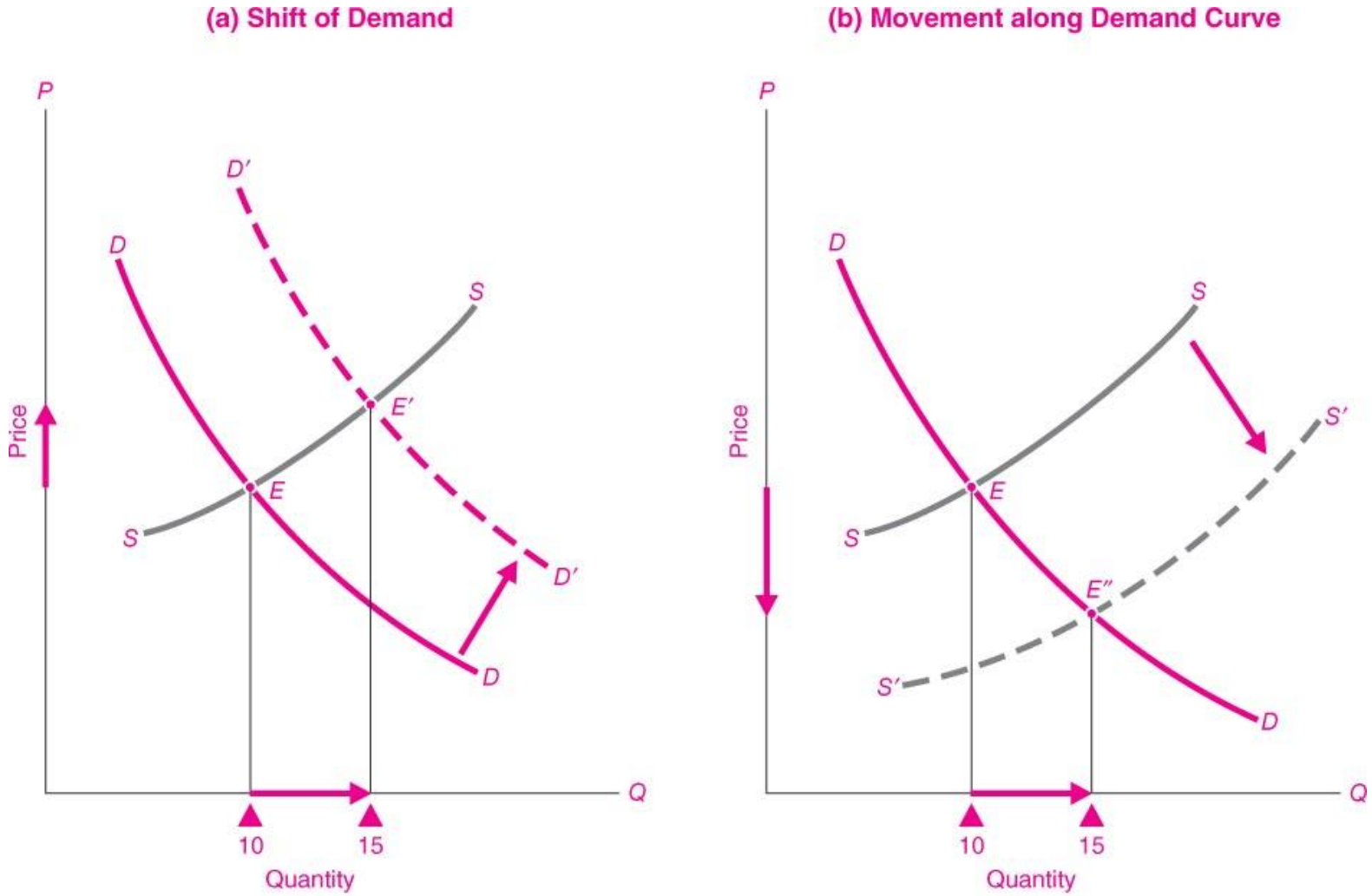


FIGURE 3-9. Shifts of and Movements along Curves

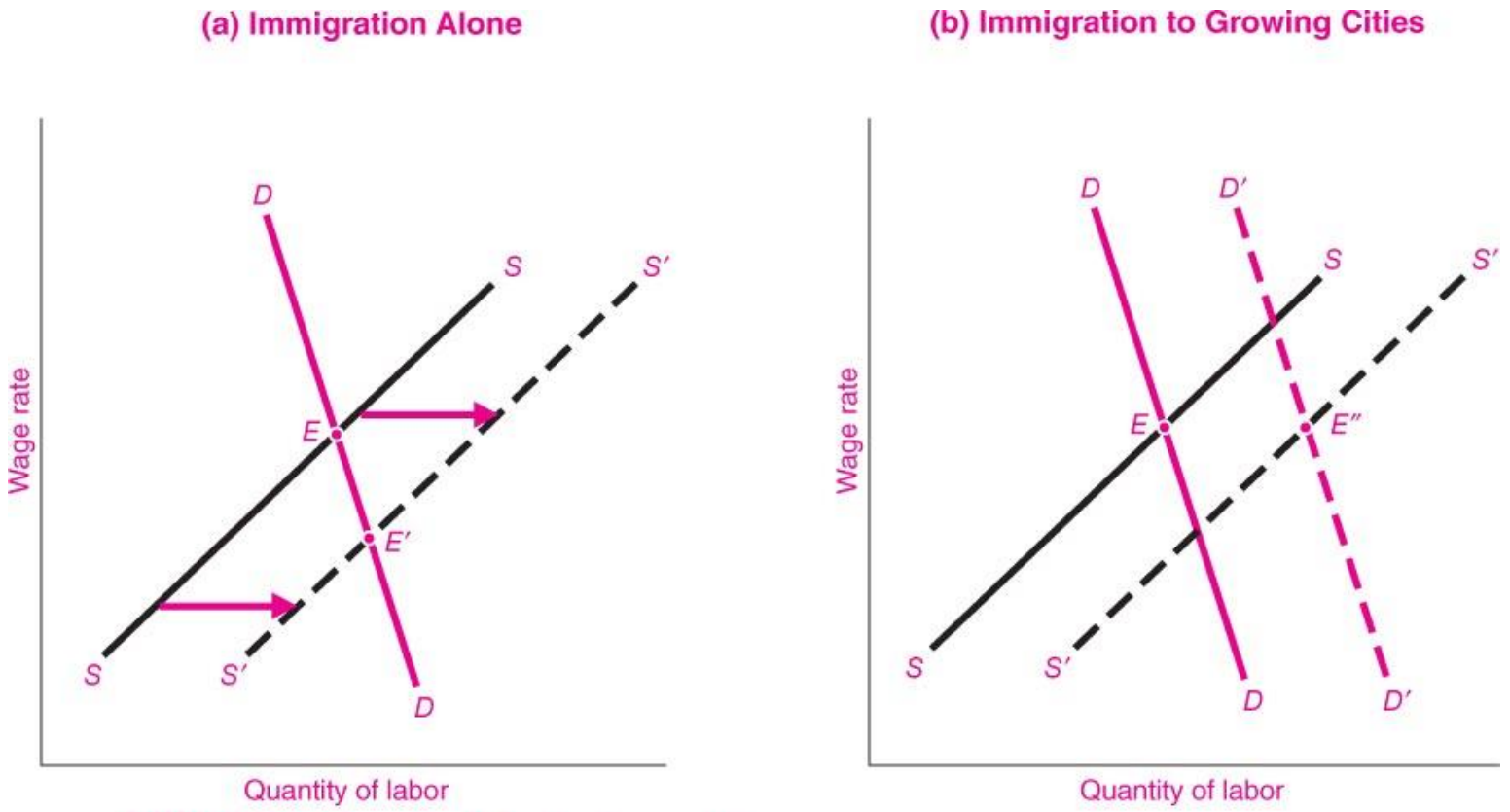


FIGURE 3-10. Impact of Immigration on Wages

Immigration into a region could shift the **supply** curve for labor to the right and pushes down wages (a) but workers tend to move to those cities where the **demand** for labor is already rising because of a strong local economy: where a shift in labor supply is associated with a higher demand curve, the new equilibrium wage is the same as the original wage.

The elasticity of demand (see Chapter 4)

The reactivity of consumers to changes in the P of the good determines the elasticity of demand.

The more consumers are sensitive / react to variations in P, the greater the elasticity.

$$\frac{\Delta Q/Q}{\Delta P/P}$$

If el. > 1, then the demand is very elastic (high sensitivity). Eg. Luxury goods

If el. <1, then the demand is not very elastic (very low reaction). Eg. Necessary consumer goods

The market:

- decides what to produce (there may be goods for which no consumer is willing to pay the price requested by the producers)
- decides how much of each good must be produced… finding, for each market, the price for which the quantity demanded equals that supply
- decides for whom to produce (for those consumers who can and wish to pay the equilibrium price)