

Crash Course in Economics

(Alma Mater Studiorum – Università di Bologna – Rimini Campus)

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- Materials and link to the recorded lessons:

Microsoft Teams platform:

[***https://teams.microsoft.com/meet/338216212406989?p=DV9LIwHsm4RQqWuy7N***](https://teams.microsoft.com/meet/338216212406989?p=DV9LIwHsm4RQqWuy7N)

Lessons 3-4

Demand and Supply Model

The Market

The market is the set of buyers and sellers of a given good or service.

- *Neoclassical* view of *resource allocation*.
- **Buyers** (or **consumers**) define **demand** within the market.
- **Sellers** (or **firms**) define the **supply** within the market.
- If the market model assumptions are confirmed, *resource allocation is efficient*.



Market Structure

- *Different market structures* depending on the *market power* of the players.
 1. ***Perfect competition***: buyers and sellers of *small size*, are *price takers* (they have to accept the market price as a given).
 2. Markets with *price maker firms* (which can affect price):
 - ***Monopoly***: only one firm in the market.
 - ***Oligopoly***: few large firms in the market.
 - ***Imperfect competition***: many firms with *product differentiation*.

Perfect Competition Market

- Features:
 - There are *many buyers and sellers*.
 - Each buyer and seller is *perfectly informed*.
 - No buyer or seller has *sufficient size or power to influence the price*.
 - In the market there is *freedom of entry and exit*.
 - The *goods* produced are *homogeneous* (identical to each other).
 - Buyers and sellers *act independently* and consider only their *own interest*.



Competitive Markets

- *A competitive market has many buyers and sellers of the same good or service, none of whom can influence the price.*
- *The **supply and demand model** show how a competitive market behaves.*



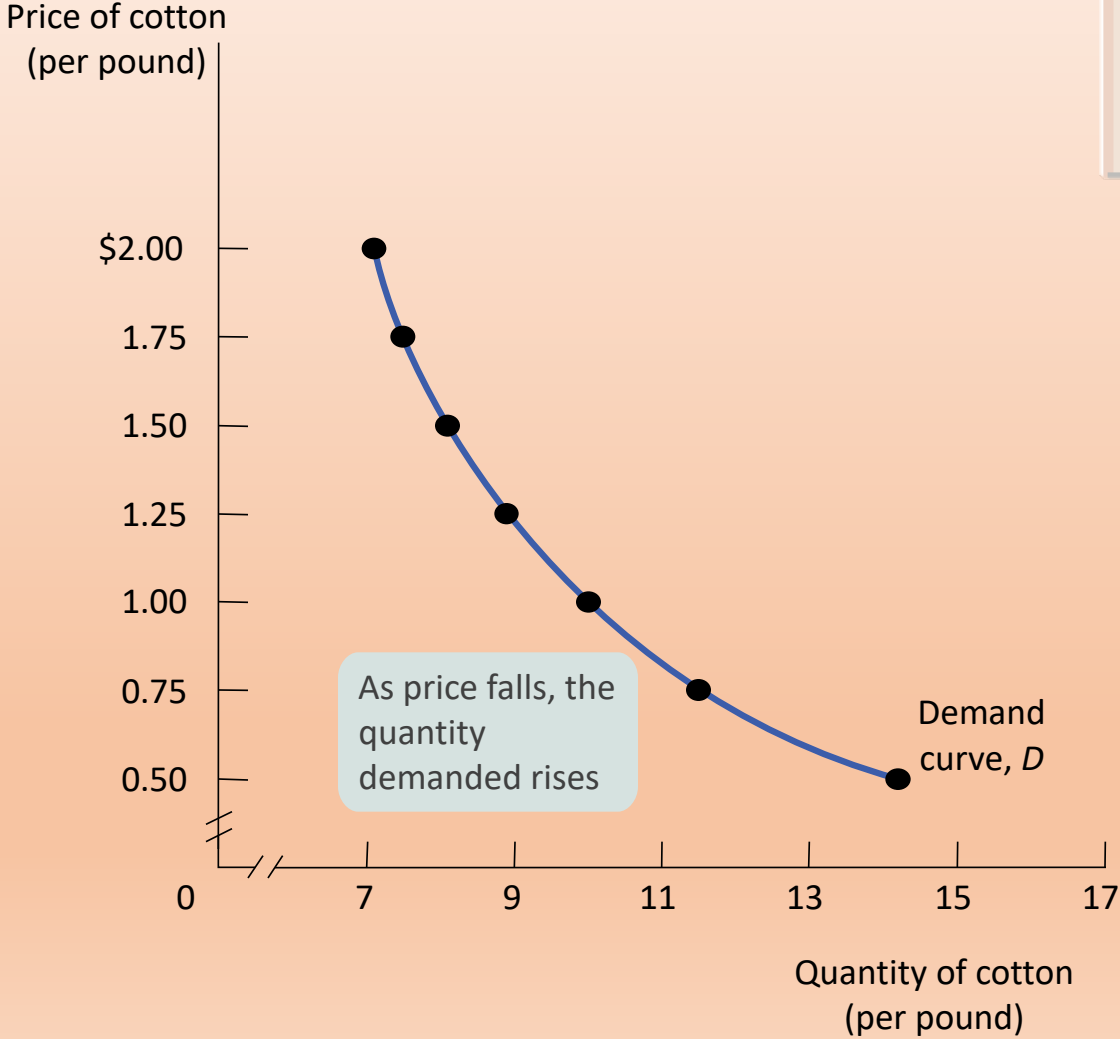


The Demand

Demand is the quantity that consumers want to buy at every certain price.

- ***Law of the demand:*** the principle that demand varies inversely as the price changes.
- ***Demand schedule:*** A table that *numerically* describes the *relationship between price and demand*.
- ***Demand curve:*** the line (with negative slope) that illustrates the law of demand.
- ***Market demand:*** sum of all individual demand for goods and services.

Demand Curve



Demand Schedule for Cotton	
Price of cotton (per pound)	Quantity of cotton demanded (billions of pounds)
\$2.00	7.1
1.75	7.5
1.50	8.1
1.25	8.9
1.00	10.0
0.75	11.5
0.50	14.2

Law of Demand

The Law of Demand: a higher price for a good or service leads people to demand a smaller quantity.

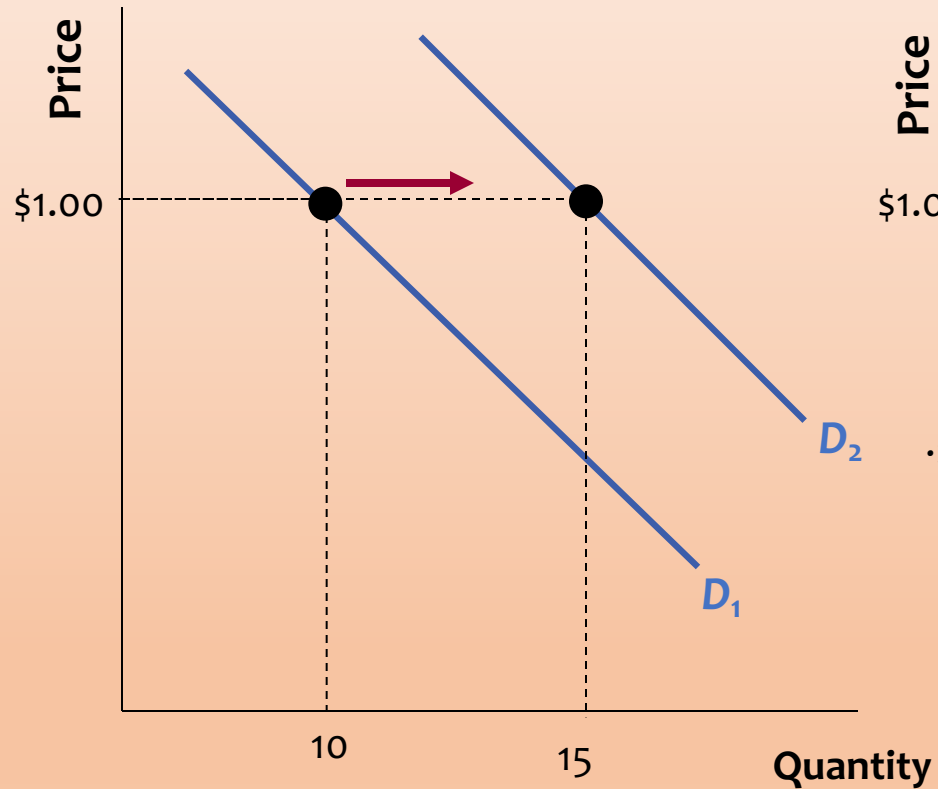
- *Changes in the demanded quantity cause movements along the demand curve* due to:
 1. *Income effect* (the lowest price entices the poorest consumers)
 2. *Substitution effect* (a higher price makes a substitute good more attractive)



Pay attention: **CHANGE IN DEMAND QUANTITY $\neq$ CHANGE IN DEMAND**

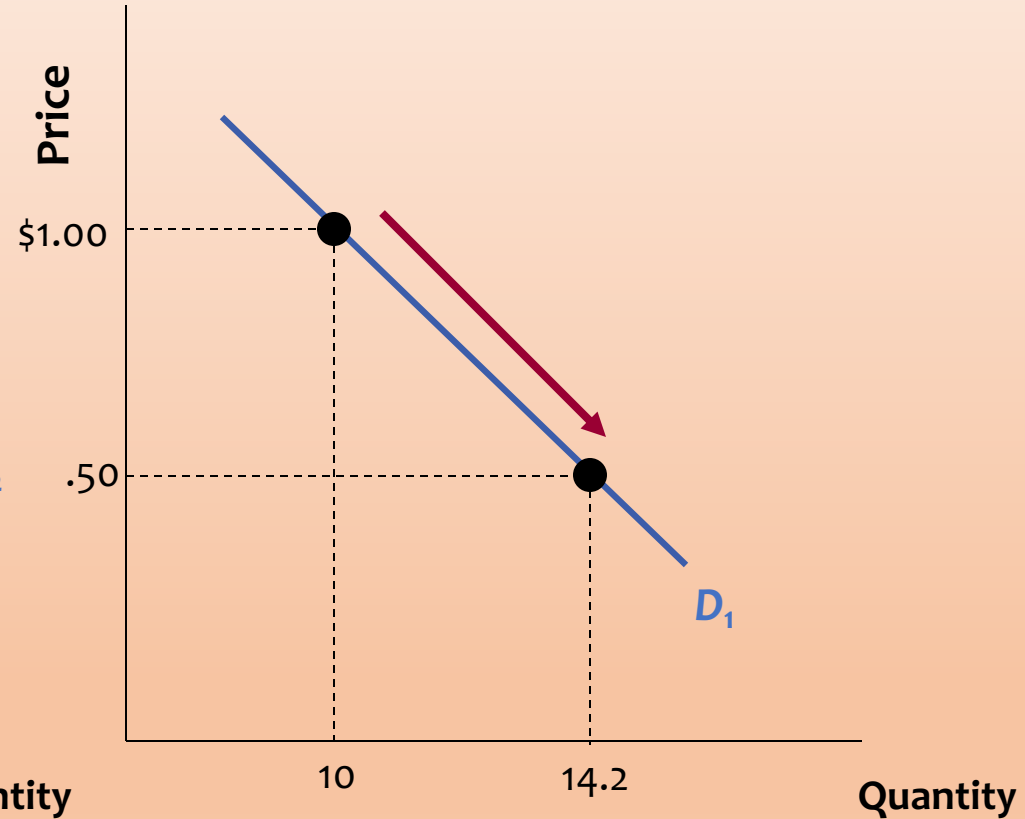
Changes in Demand vs. Changes in Quantity Demanded

- *Change in demand*



Curve Shifting (right or left)

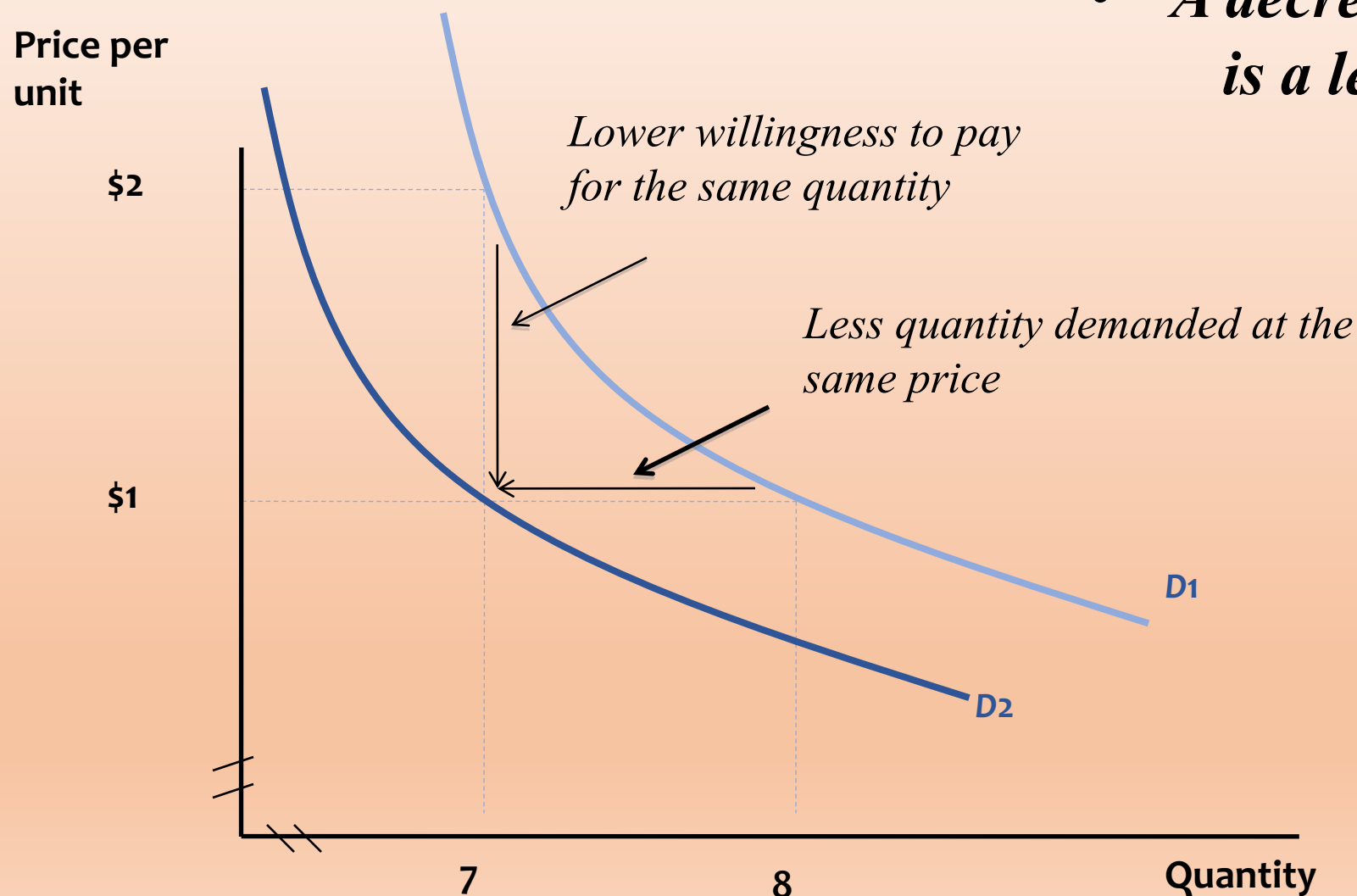
- *Change in quantity demanded*



Shift along the curve (up or down)

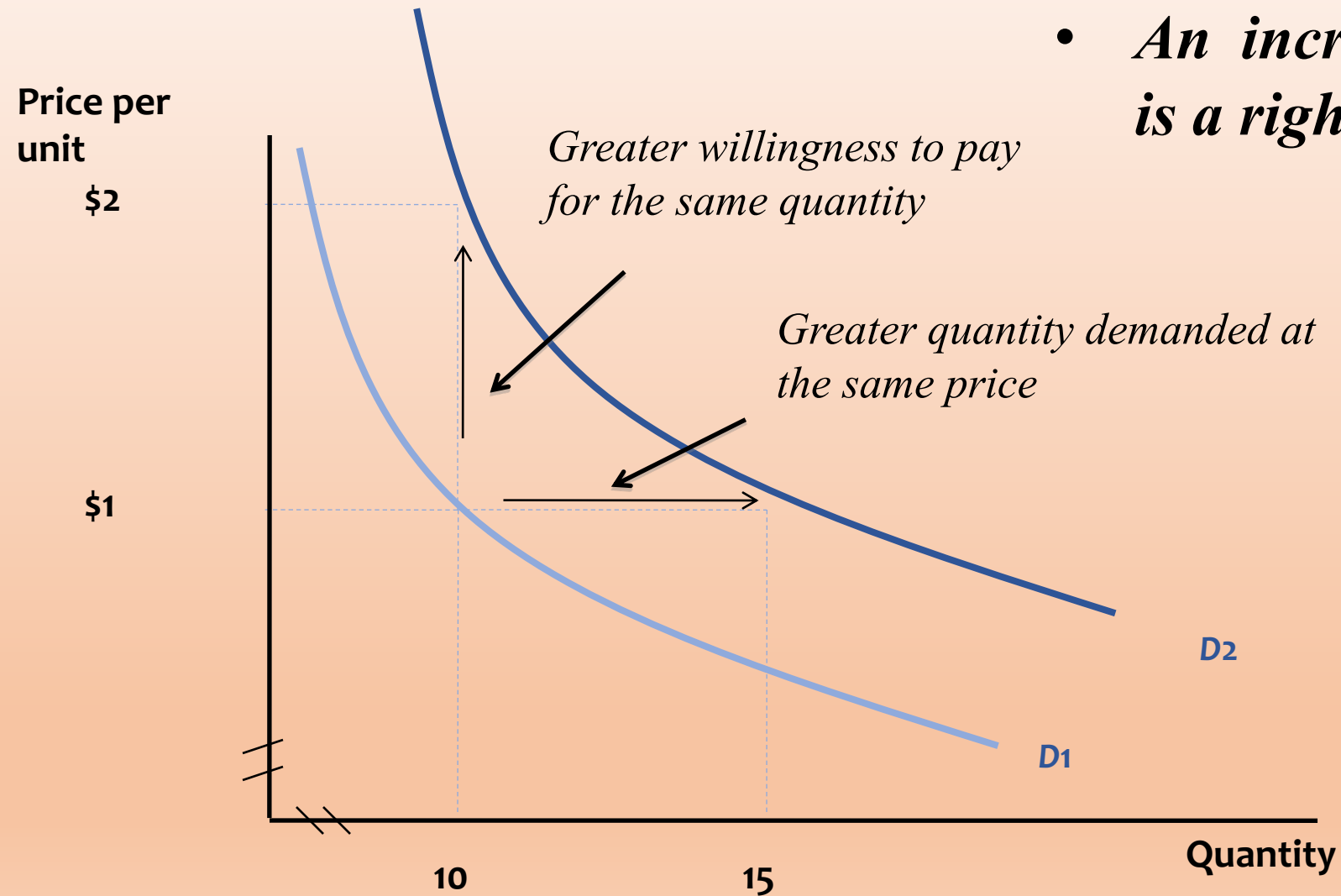
Shifts of the Demand Curve

- *A decrease in demand is a leftward shift.*



Shifts of the Demand Curve

- *An increase in demand is a rightward shift.*



Shifts of the Demand Curve

- *Causes:*
 1. Changes in the *prices of related goods or services*
 2. Changes in *income*
 3. Changes in *tastes*
 4. Changes in *expectations*
 5. Changes in the *number of consumers*



Substitutes Goods

Two goods are substitutes if a decrease in the price of one leads to a decrease in demand for the other (or vice versa).

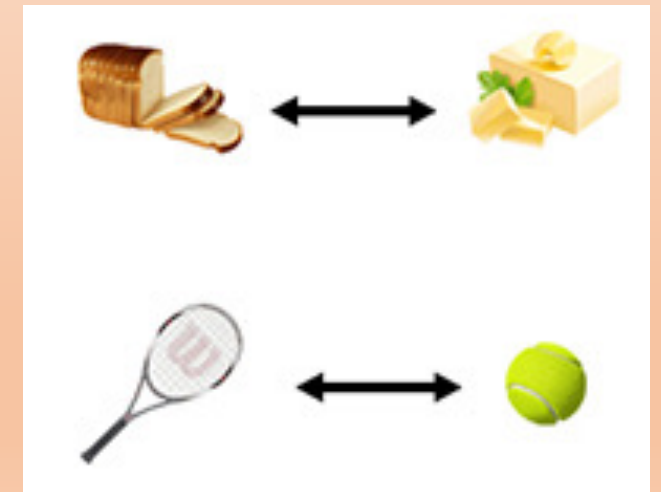
- *What happens to the demand for butter if the cost of margarine increases?*
- *It will increase, the curve will shift to the right.*



Complements Goods

Two goods are complements if a decrease in the price of one good leads to an increase in the demand for the other (or vice versa).

- Consumers often have to *buy goods together*.
 - An increase in price of gasoline will decrease the demand for cars.
 - A decrease in price of coffee will increase demand for sugar.



Changes in Income

- The effect of changes in income on demand *depends on the nature of the good in question.*
 - A **normal good**: demand increases when income increases (and viceversa, e.g. bread, clothes, pens,...etc).
 - An **inferior (Giffen) good**: demand decreases when income increases (and viceversa, e.g as incomes grow, households reduce their consumption of cheap food products like potatoes, in favour of the consumption of other higher quality and more expensive food products such as meat).



Changes in Tastes

- *Tastes and preferences are subjective and vary among consumers.*
- *Seasonal changes or fads have a predictable effects on demand.*

○ What happens to demand for boots in October?



○ And to the demand of swimwear in summer?



Changes in Expectations

- If consumers have a choice about the *timing of a purchase*, they buy according to *expectations*.
- Buyers *adjust current spending in anticipation of the direction of future prices* in order to obtain the *lowest possible price*.
 - If prices for game consoles are expected to drop right before Christmas, what will happen to their sales during November?



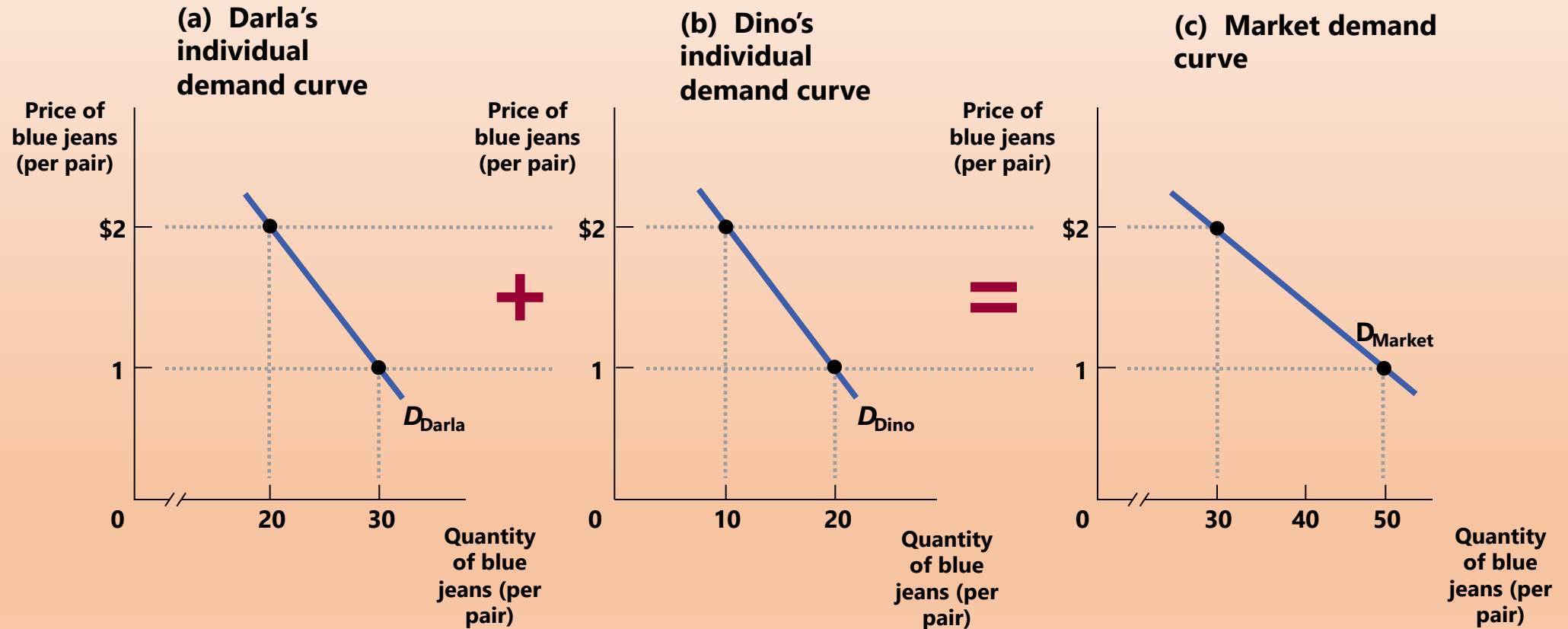
Changes in the Number of Consumers

- As the *population* of an economy changes, the *number of buyers* of a particular good also *changes* (thereby *changing its demand*).
 - What happens to the demand for kids clothes as child birth rate decrease?



Market Demand Curve

- The *quantity demanded in a market* is the *sum of the quantities requested by all buyers for each price level*.



- The market demand curve is found by *adding up individual demand curves horizontally*.

Practice Learning

When the price of petroleum goes up, the demand for natural gas _____, the demand for coal _____, and the demand for solar power _____. (Assume these goods are substitutes for petroleum).

- a) increases; increases; increases
- b) increases; increases; decreases
- c) decreases; decreases; increases
- d) decreases; decreases; decreases

Practice Learning

- *Which of the following will cause an increase in the demand for autos?*
 - a. Price of car tires increases because of a Malaysian rubber shortage.
 - b. Concrete steel reinforcing rods are replaced by aluminum along the Atlantic coast to prevent rusting.
 - c. Gasoline prices drop by 50% when OPEC nations increase production.
 - d. McDonald's increases its hamburger production in response to consumer trends.

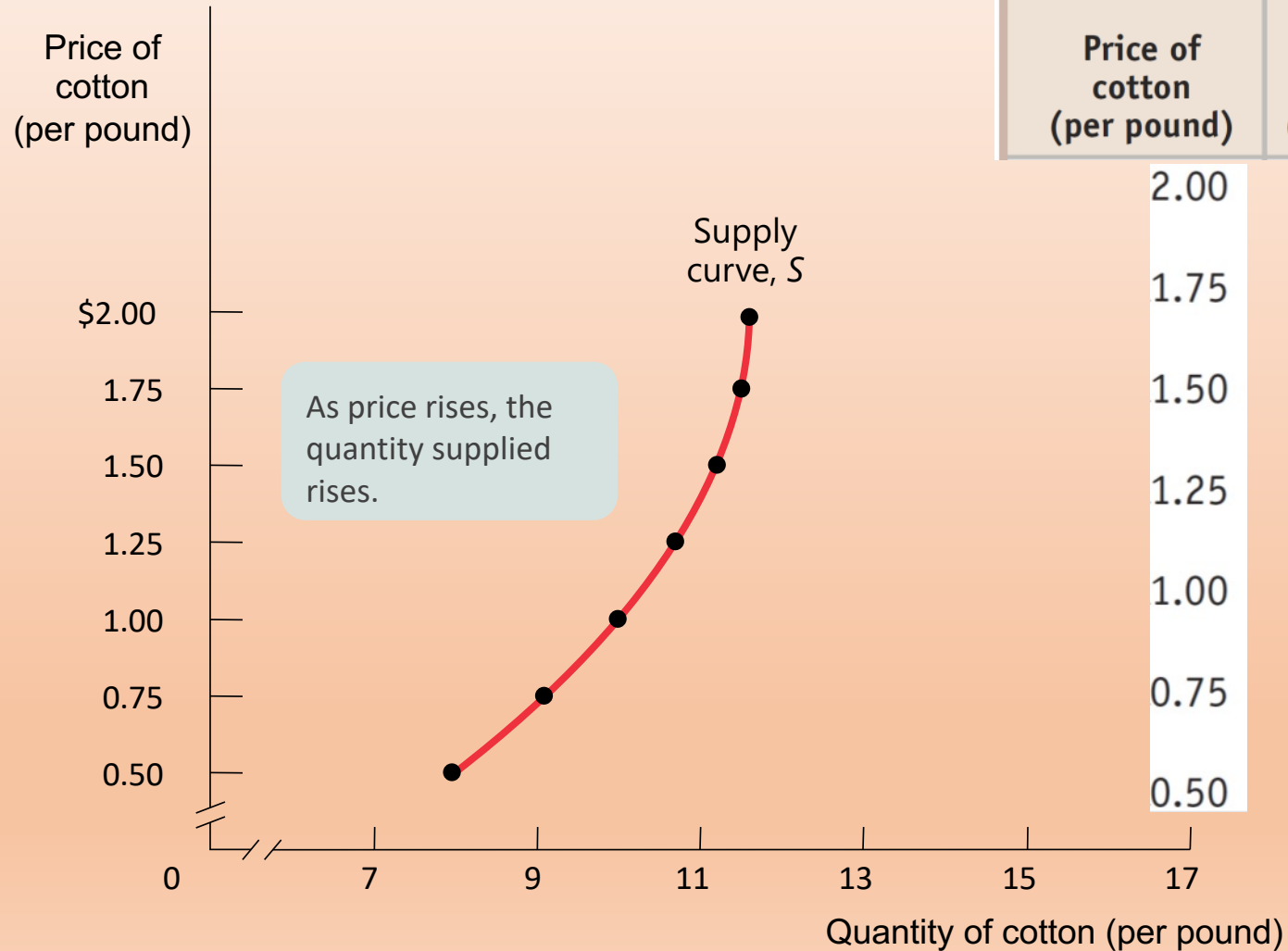
The Supply

The supply is the quantity that companies want to sell at every certain price.

- ***Law of Supply***: principle that the *supply varies in the same direction as price*.
- ***Supply Schedule***: a table that *numerically describes the relationship between price and supply*.
- ***Supply Curve***: the line (with *positive slope*) that illustrates the law of the supply from the supply schedule.
- ***Market Supply***: *sum of all individual supply for a good/service*.



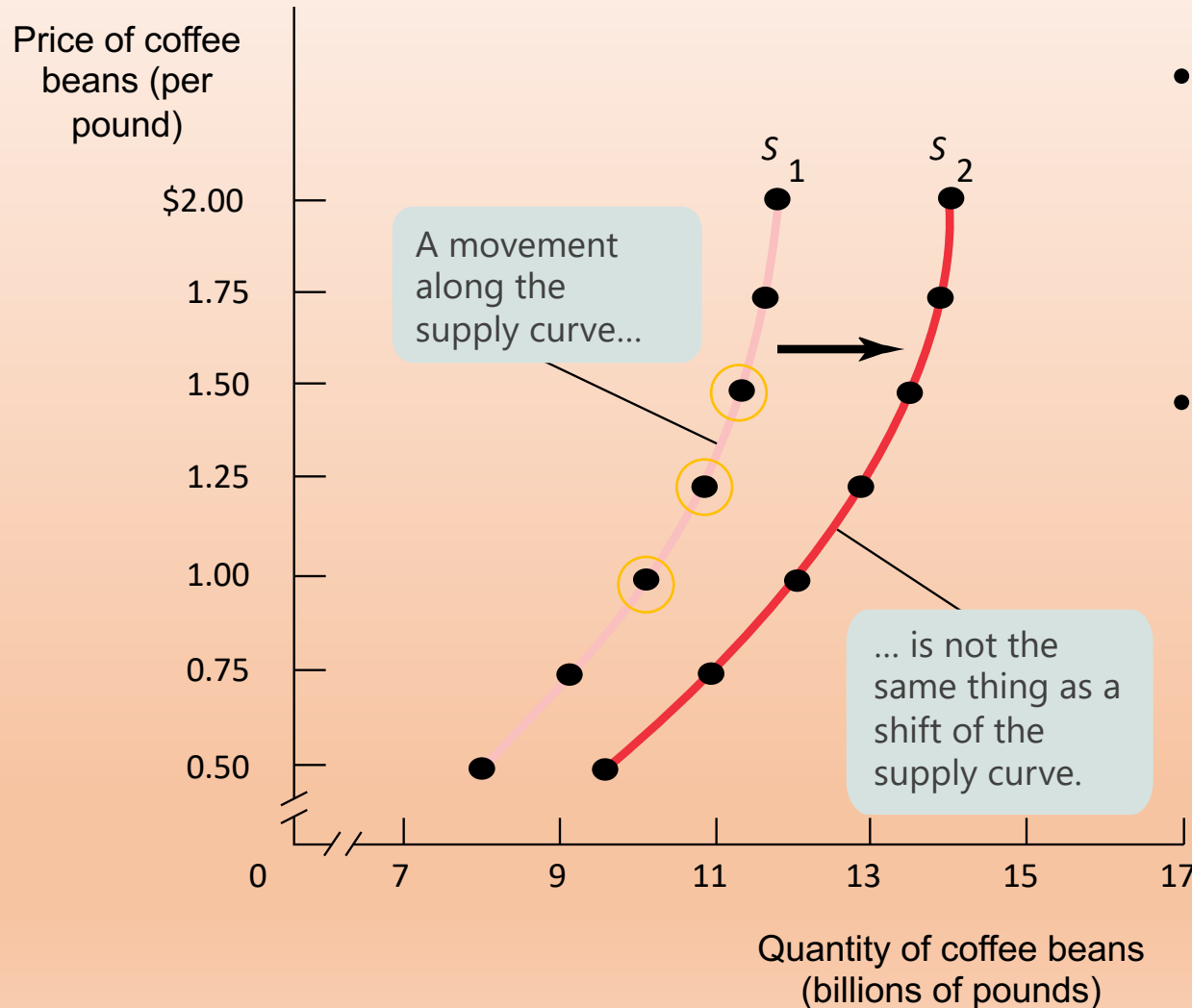
Supply Curve



Supply Schedule for Cotton	
Price of cotton (per pound)	Quantity of cotton supplied (billions of pounds)
2.00	11.6
1.75	11.5
1.50	11.2
1.25	10.7
1.00	10.0
0.75	9.1
0.50	8.0

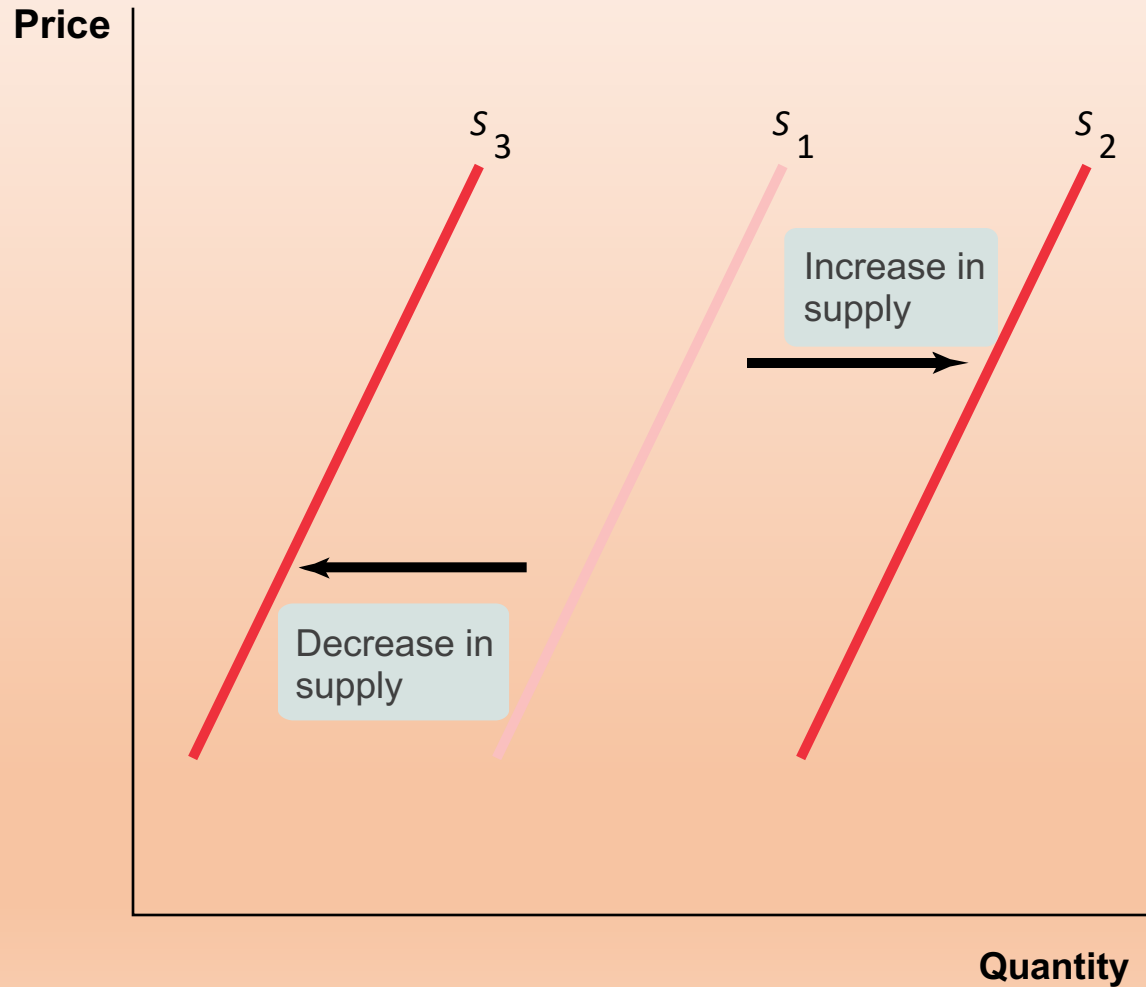
- Variations in the quantity supplied → movements along the supply curve (up or down) due to the cost structure.*

An Increase in Supply



- Pay attention: **CHANGE IN SUPPLY QUANTITY** $\neq$ **CHANGE IN SUPPLY**
- *Change in supply* $\rightarrow$ *shift of the curve* (to the right or to the left)

Shifts of the Supply Curve



- An *increase in supply* means a *rightward shift of the supply curve*.
- A *decrease in supply* means a *leftward shift of the supply curve*.

Shifts of the Supply Curve

- Causes:
 1. *input prices.*
 2. *the prices of related goods or services.*
 3. *technology.*
 4. *expectations.*
 5. *the number of producers.*

Changes in Input Prices

- *A decrease in the price of an input* (all else equal) *increases profits* and *encourages more supply* (and vice versa).
 - When the price of cotton drops, the supply of blue jeans increases.



Changes in the Price of Related Goods or Services

- Inputs used in production have *opportunity costs*.
- Sellers will choose to *use inputs whose profit is the highest*.
- Sellers will *supply less of a good if its profitability falls* (and vice versa).
- There are *substitutes* and *complements* in production processes.

- Aluminum is a complements in rails production.
- Glass is a substitute of plastic in bottle production.



Changes in Technology

- *New, better technology makes sellers willing to offer more at a given price or sell their quantity at a lower price.*
 - *A technological innovation lowers costs and increases supply.*



Changes in Expectations

- The expectation of a *higher price* for a good in the future *decreases current supply of the good*
- Sellers will *adjust* their current supply in anticipation of the *direction of future prices* in order to obtain the highest possible price.
- A change in *producers' expectations* about *profitability* will affect supply curves.



Changes in Number of Producers

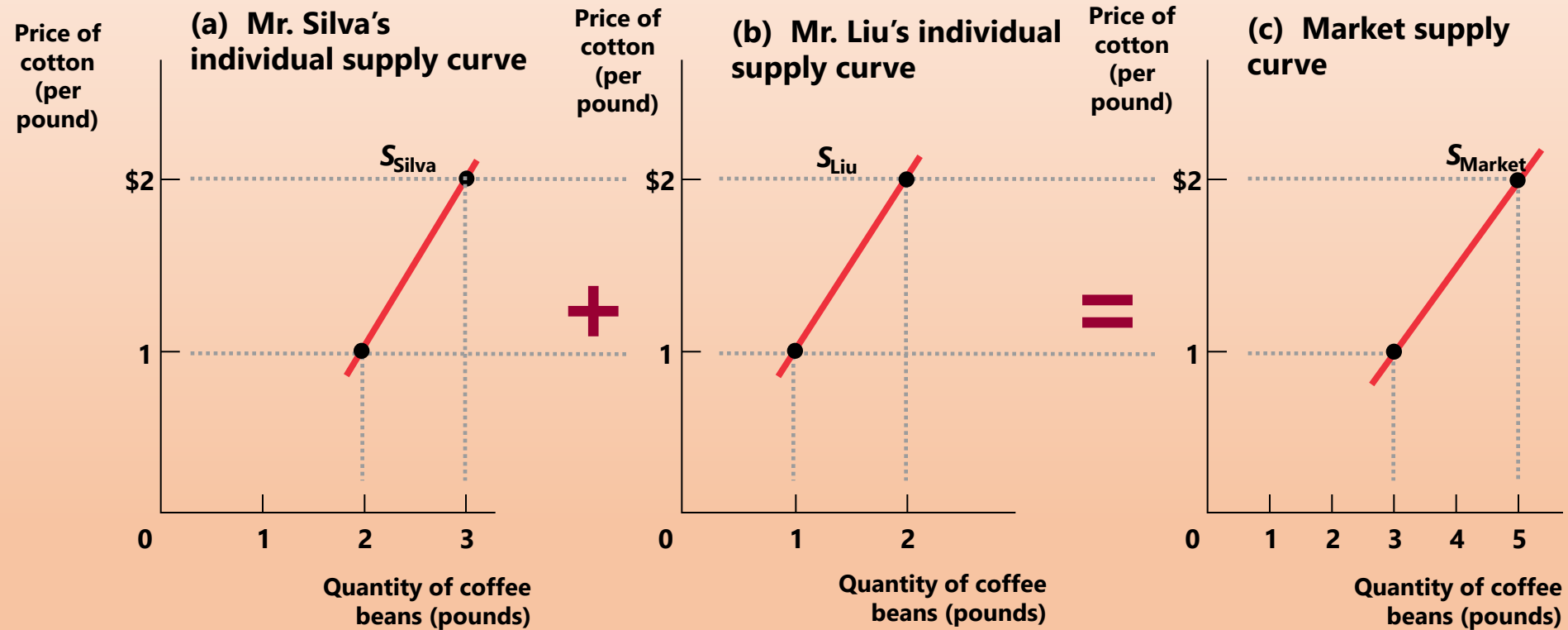
- As *producers enter and exit the market, the overall supply changes.*
 - *Entry implies more sellers in the market, increasing supply.*
 - *Exit implies fewer sellers in the market, decreasing supply.*



As more firms enter the solar installation market, the number of solar installations available for sale increases.

Market Supply Curve

- The *quantity supplied in a market* is the *sum of the quantities offered by all sellers for each price level*.



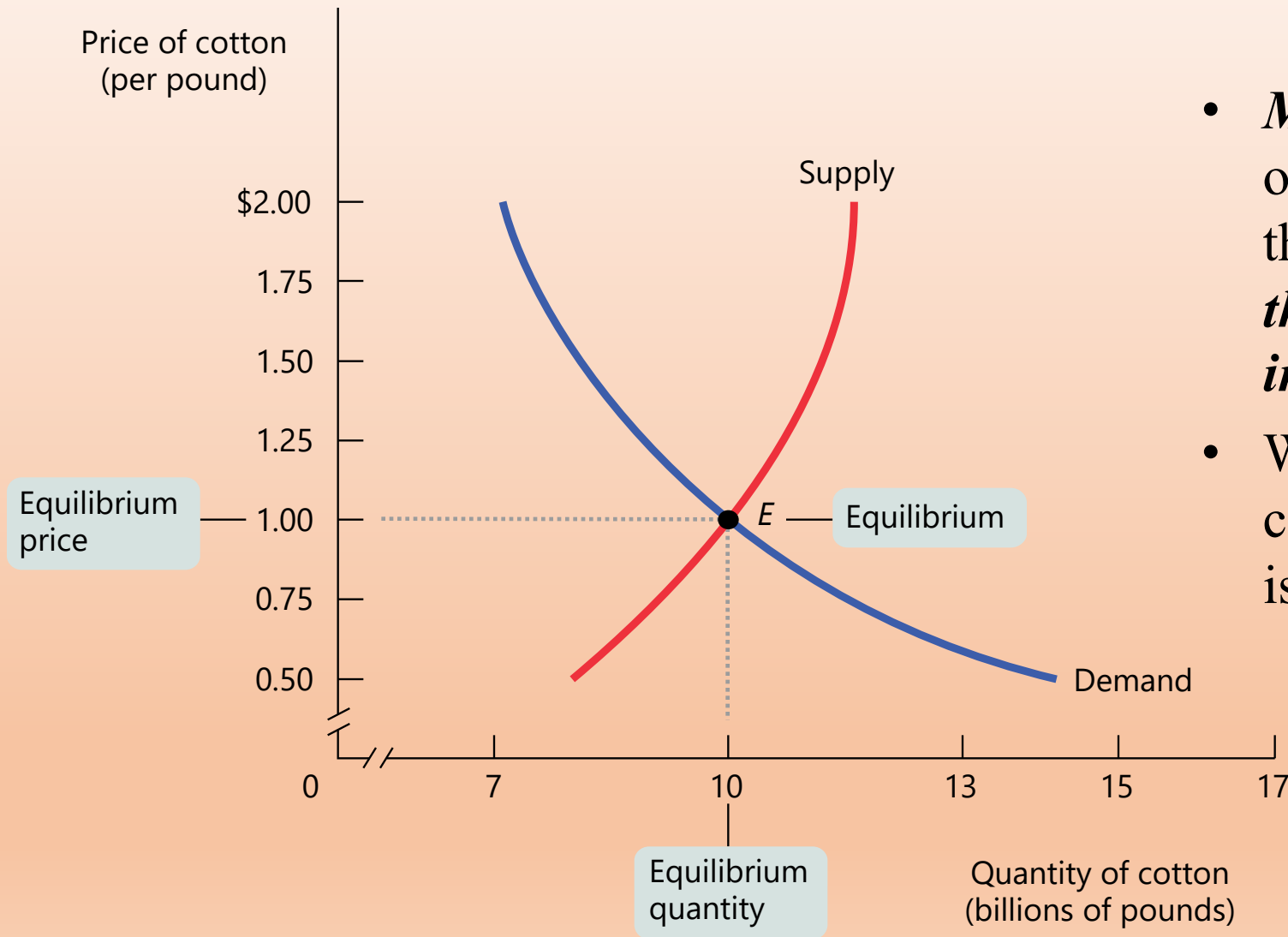
- The market supply curve is found by *adding up individual supply curves horizontally*.

Demand and Supply Interaction

Law of demand and supply: the price of each good naturally tends to adjust and bring the market into equilibrium.

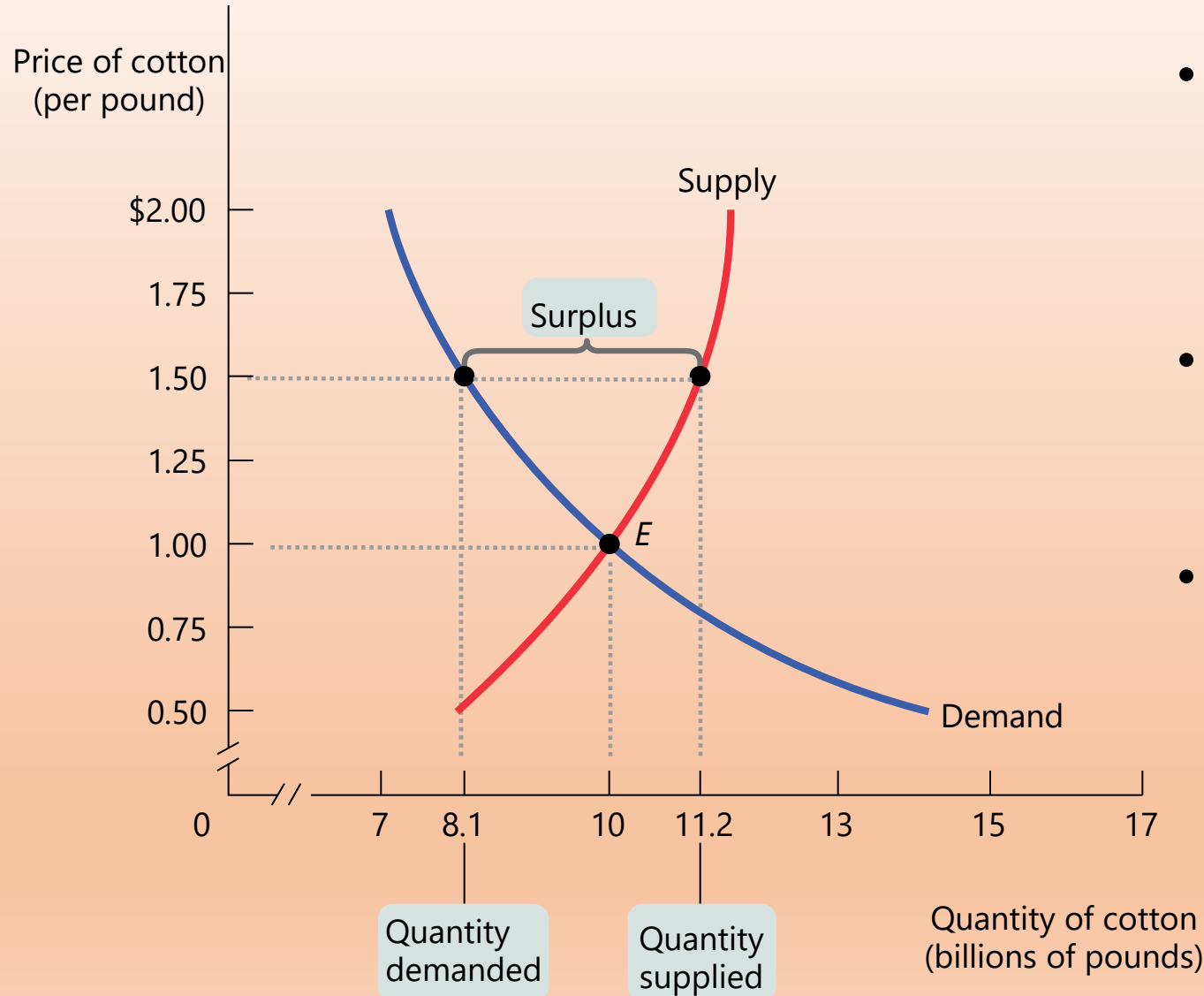
- Equilibrium is the result of an *adjustment process*.
- With *too much supply* → competition leads companies to *lower the price* and *reduce supply*.
- With *too much demand* → competition among consumers allows companies to *raise the price* and *expand supply*.
- *Prices act as signs* and *drivers* for level of demand and supply.

The Supply



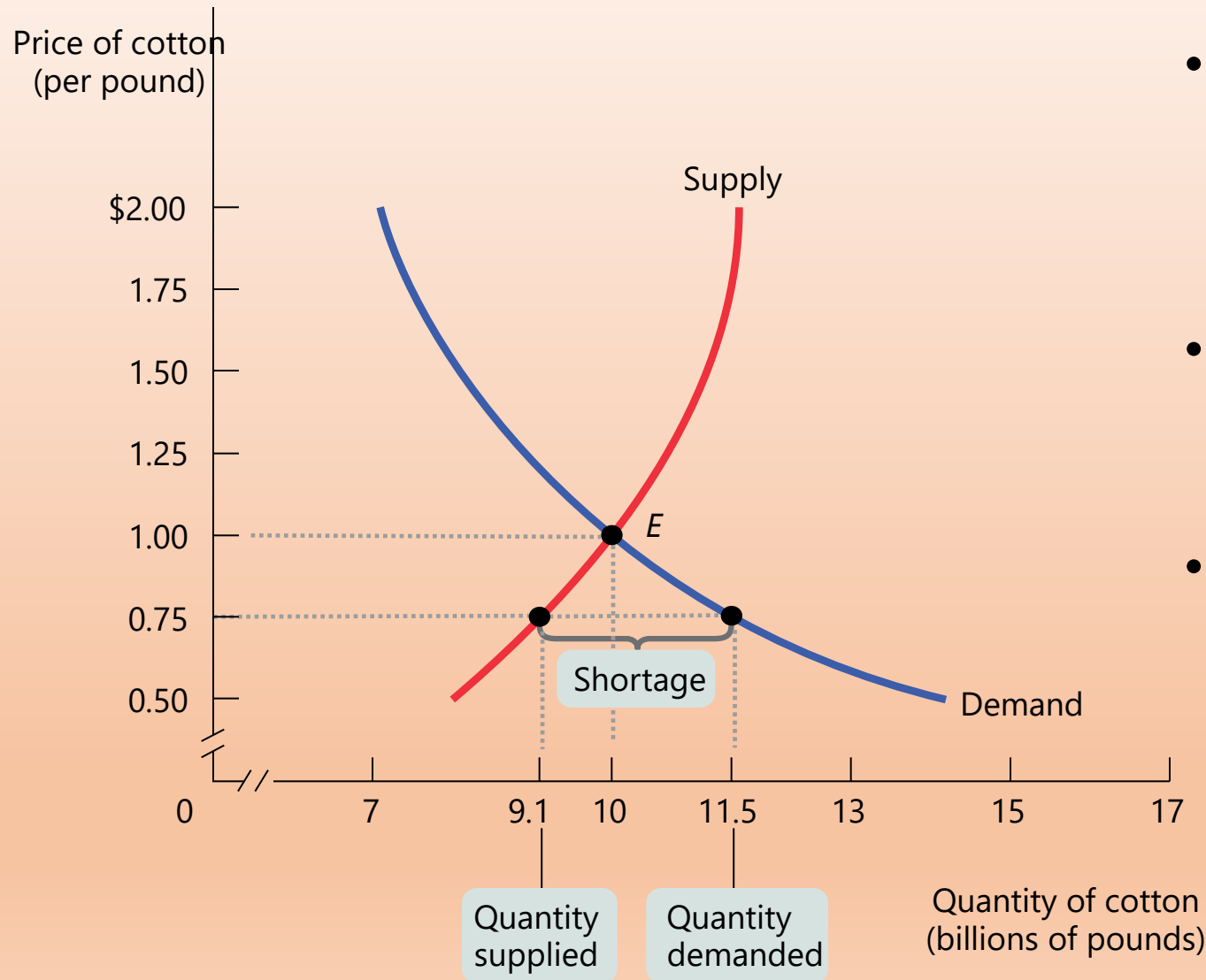
- **Market equilibrium** occurs at point E, where the *supply curve and the demand curve intersect*.
- When $Q_s = Q_d$ at a certain price, the market is in *equilibrium*.

Surplus and Excess of Supply



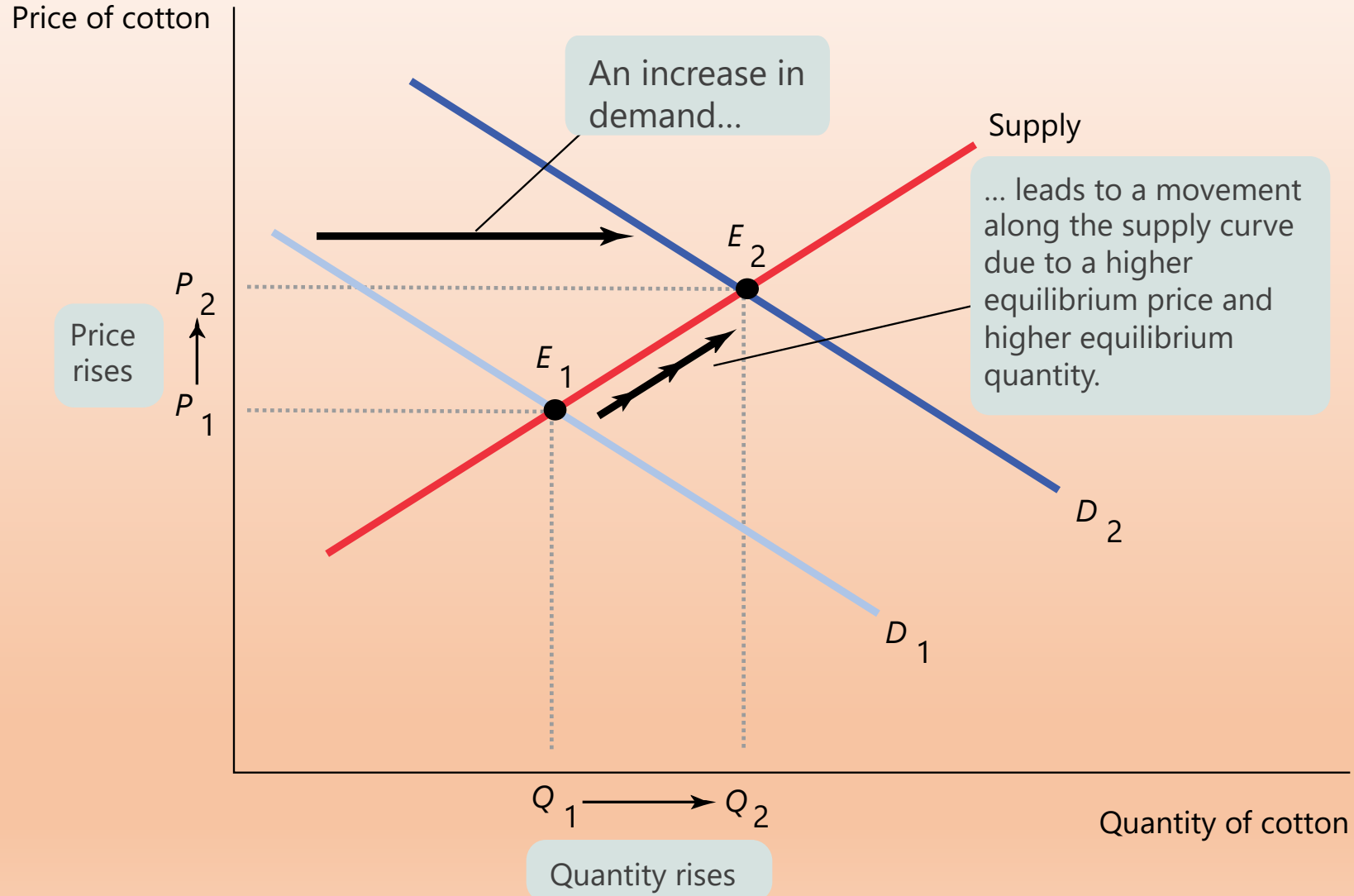
- There is a *surplus* of a good when the *quantity supplied exceeds the quantity demanded*.
- Surpluses occur when the *price is above its equilibrium level*.
- Surpluses do not last: *sellers will reduce price* so they can move goods off the shelves.

Shortage and Excess of Demand

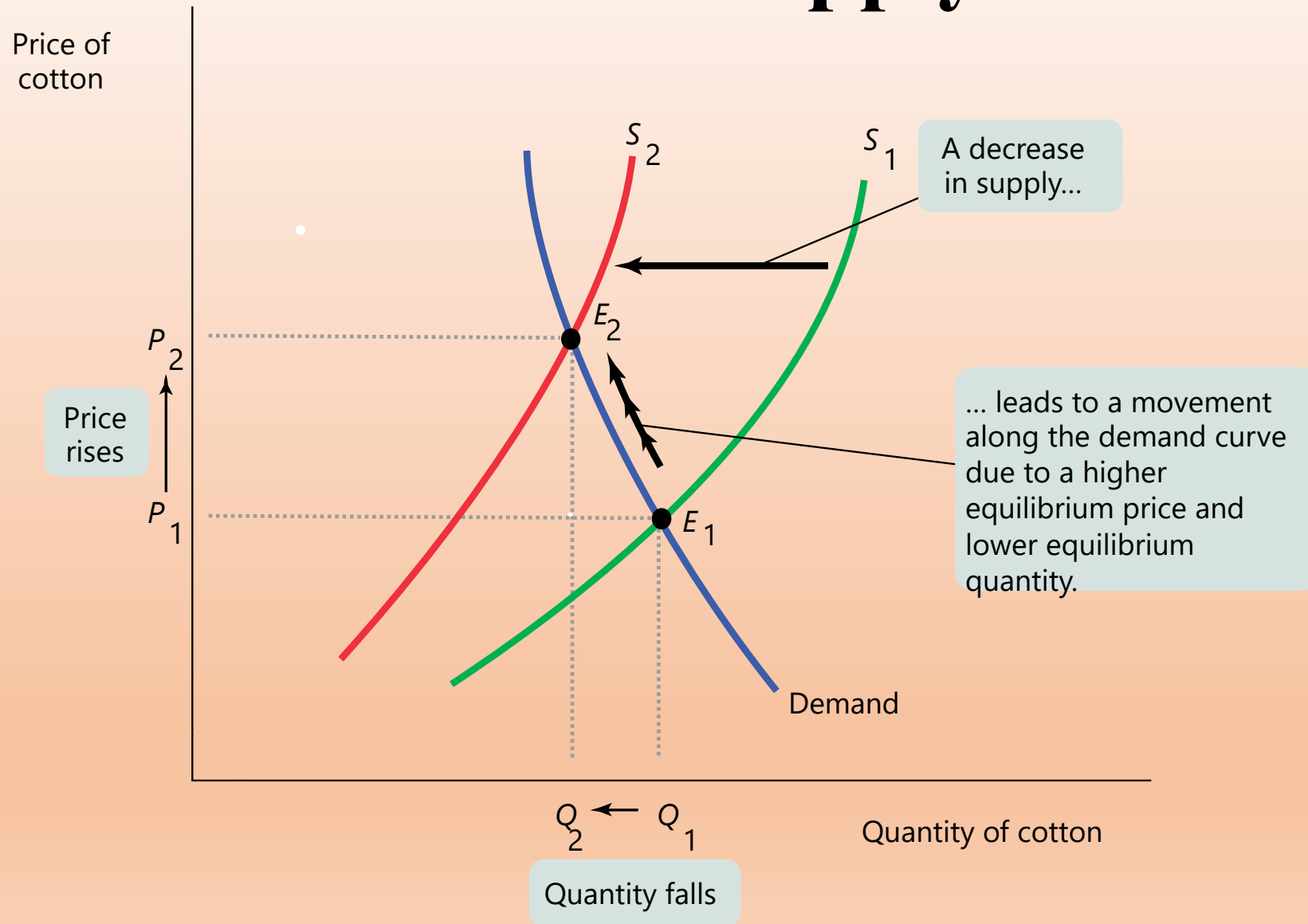


- There is a *shortage* when the *quantity demanded exceeds the quantity supplied*.
- Shortages occur when the *price is below its equilibrium level*.
- Shortages do not last: *sellers will increase price to increase revenue*.

Demand Curve Shifts

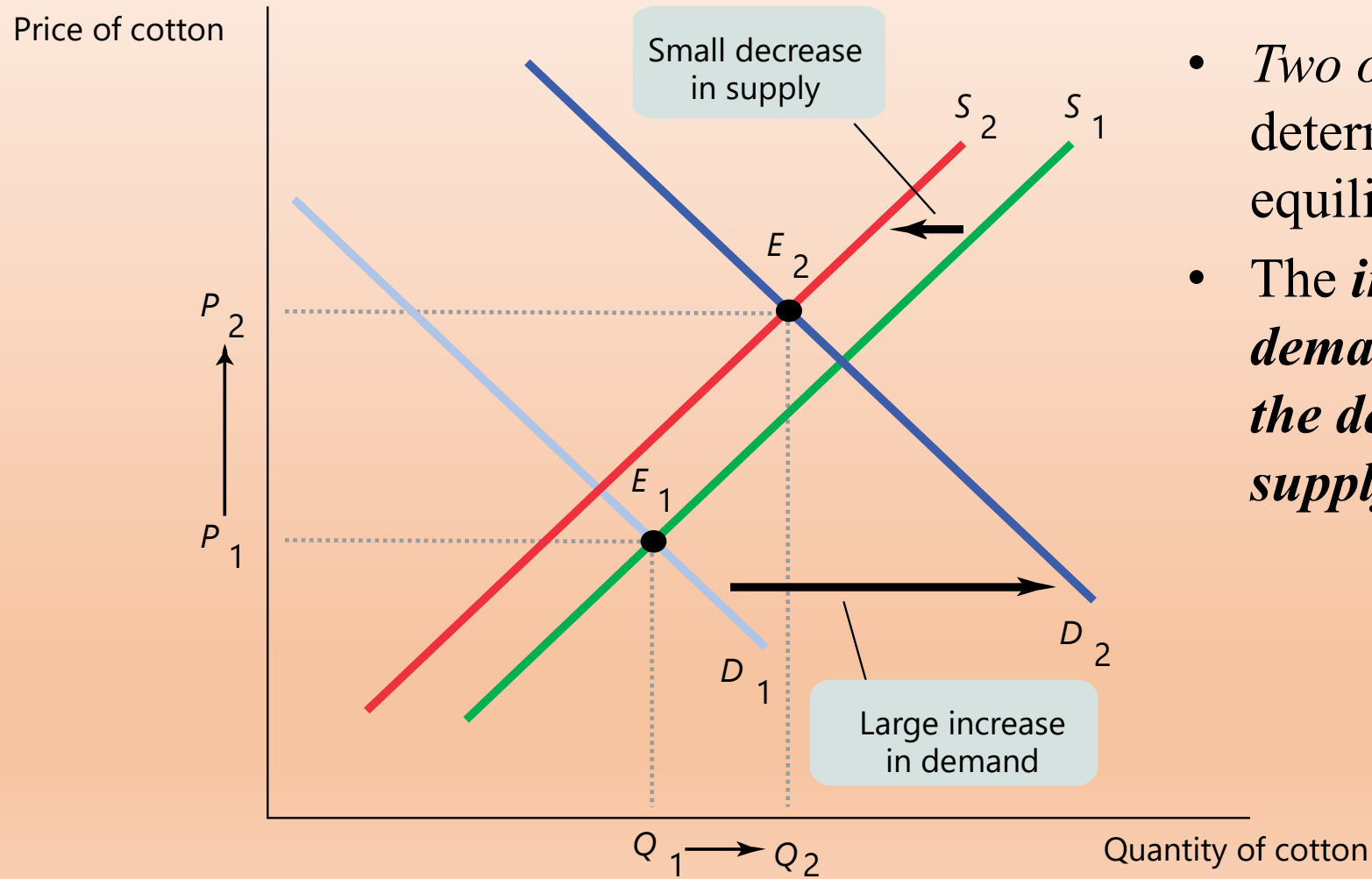


Supply Curve Shifts



Simultaneous Shifts

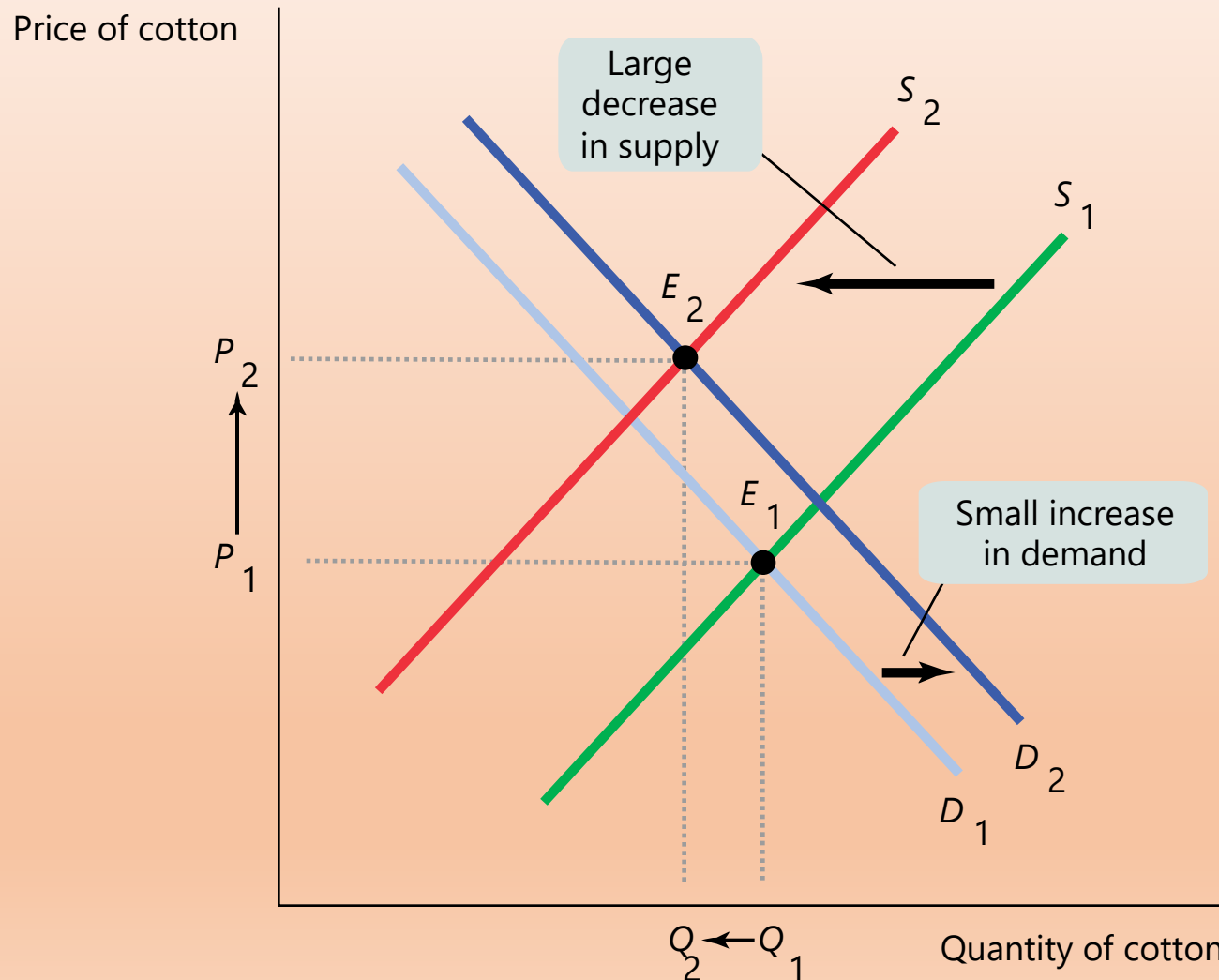
(a) *One possible outcome: Price rises, quantity rises.*



- *Two opposing forces determining the equilibrium quantity.*
- The *increase in demand dominates the decrease in supply.*

Simultaneous Shifts

(b) Another possible outcome: price rises, quantity falls



- *Two opposing forces* determining the equilibrium quantity.
- The *increase in supply dominates the decrease in demand*.

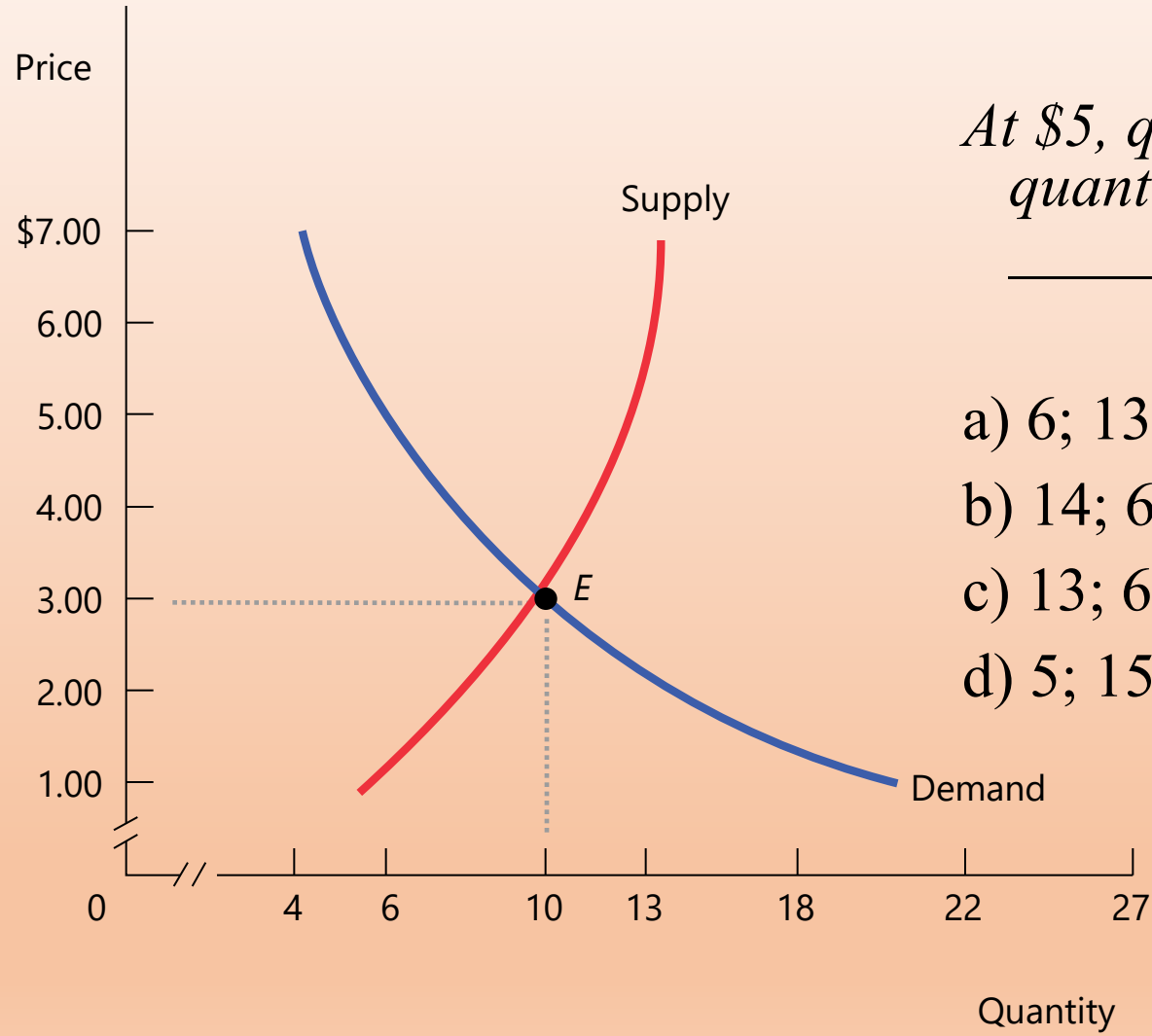
Equilibrium Change

- Any increase (or decrease) in demand (or supply) causes a situation of shortage (or surplus) that triggers a *process of adjustment towards a new equilibrium point*.
- Changes in supply/demand can be *simultaneous* (so often in reality).
- The *results will be different* depending on the intensity.

	O =	O ↑	O ↓
D =	Q = p =	Q ↑ p ↓	Q ↓ p ↑
D ↑	Q ↑ p ↑	Q ↑ p ?	Q ? p ↑
D ↓	Q ↓ p ↓	Q ? p ↓	Q ↓ p ?

- In the table you can see the picture of the effects of *simultaneous changes in demand (D) and supply (O)* on *quantity (Q) and price (p)* of equilibrium.
(↑ increase, ↓ decrease, = unchanged, ? ambiguous)

Practice Learning



At \$5, quantity supplied is _____ and quantity demanded is _____, leading to a _____.

- a) 6; 13; shortage of 7 units
- b) 14; 6; surplus of 8 units
- c) 13; 6; surplus of 7 units
- d) 5; 15; shortage of 10 units

Practice Learning

- *If garden gnomes regain popularity, what will happen?*
 - a) Equilibrium price and quantity both fall.
 - b) Equilibrium price and quantity both rise.
 - c) Equilibrium price falls and quantity rises.
 - d) Equilibrium price rises and quantity falls.

Practice Learning

If the cost of wood falls, what will happen to equilibrium price and quantity in the violin market?

- a) Both fall.
- b) Both rise.
- c) Price falls and quantity rises.
- d) Price rises and quantity falls.

Exercise 1

Market research has found the following information on the chocolate bar market:

- *Demand:* $Q_D = 1600 - 300P$
- *Supply:* $Q_O = 1400 + 700P$

➤ Calculate the price and quantity of equilibrium in the chocolate bar market.

Solution

In equilibrium: $Q_D = Q_O$

$$1600 - 300P = 1400 + 700P$$

$$1600 - 1400 = 700P + 300P$$

$$200 = 1000P$$

$$P = \frac{200}{1000} = 0,2: \text{price of equilibrium}$$

We replace the equilibrium price in the supply and demand:

$$Q_D = 1600 - 300 * 0,2 = 1540$$

$$Q_O = 1400 + 700 * 0,2 = 1540$$

$$Q_D = Q_O = 1540: \text{quantity of equilibrium}$$

Exercise 2

In the tablet market the inverse demand functions is:

$$P_D = 400 - \frac{Q}{6}$$

The inverse supply function is:

$$P_O = 50 + Q$$

➤ Determine the market equilibrium.

Solution

In equilibrium: $P_D = P_O$

$$400 - \frac{Q}{6} = 50 + Q$$

$$400 - 50 = Q + \frac{Q}{6}$$

$$350 = \frac{7}{6}Q$$

$$Q = \frac{350 * 6}{7} = 300: \text{quantity of equilibrium}$$

We replace the balance price in the supply and demand cards:

$$P_D = 400 - \frac{300}{6} = 350$$

$$P_O = 50 + 300 = 350$$

$$P_D = P_O = 350: \text{price of equilibrium}$$