- A market is a group of buyers and sellers of a particular good or service.
- A system where buyers and sellers exchange information and do business.
- The supply (S) and demand (D) model is a model of how a competitive market behaves.

Demand

- Demand is the willingness and ability of buyers to purchase different quantities of a good/service at different prices (P) during a specific time period.
- The Law of Demand (LoD) states that – as the P of a good rises the quantity demanded (QD) of that good falls, ceteris paribus.
- Inversely related, ceteris paribus.

ALWAYS REMEMBER

Demand and quantity demanded

are not the same.

Demand Schedule for Good X

P (Taka)	QD	Point on the Graph
4	10	A
3	20	B
2	30	C
1	40	D

Demand Curve for Good X

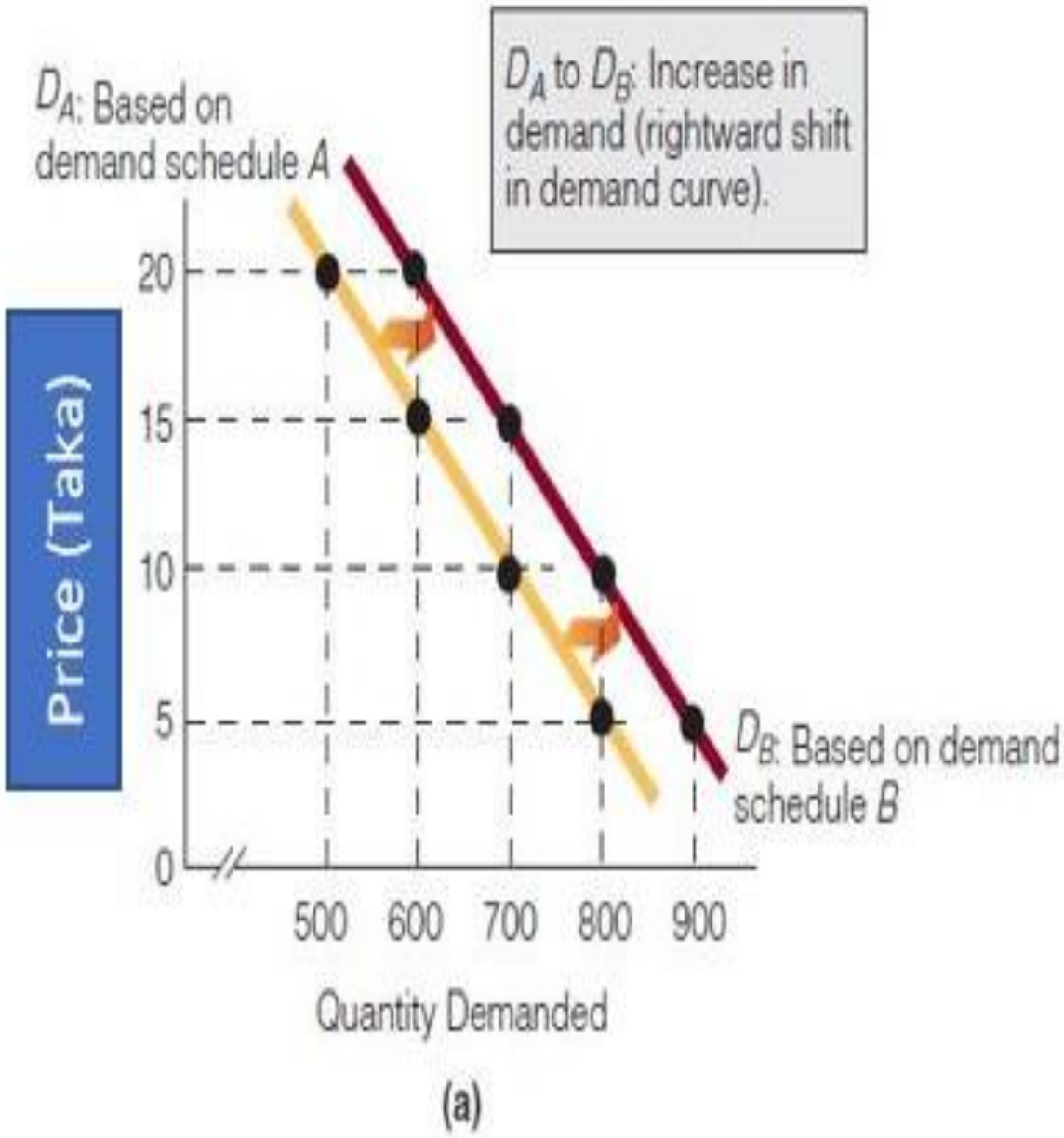
P and QD are inversely related → the D curve will be downward sloping.

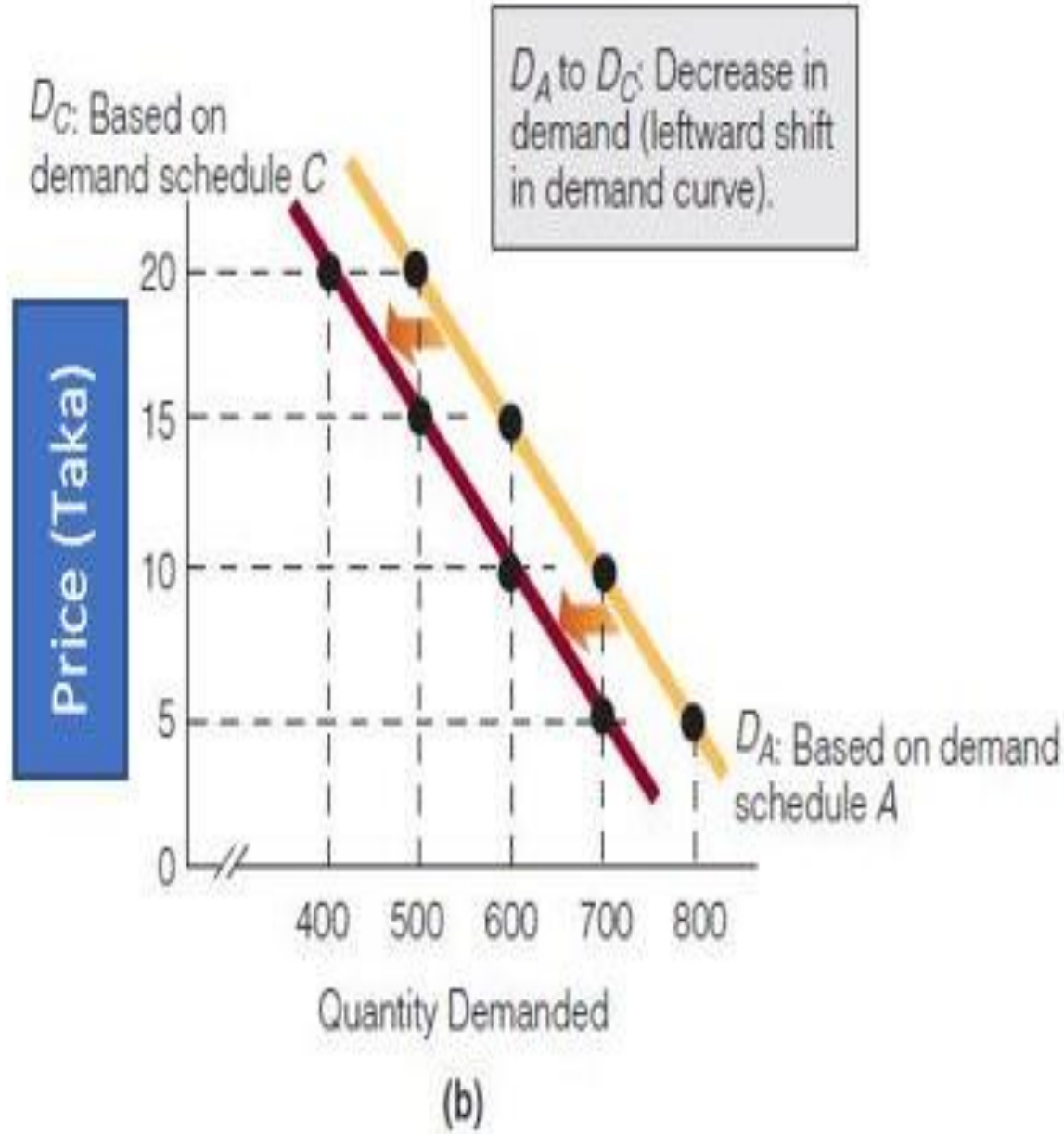
A Change in the QD vs a Change in the Demand

- A change in the QD is a movement along the same D curve due to a change in the P of the good, ceteris paribus.
- A change in the D for a good is shift in the good's D curve due to any other factors other than the P
- → more/less will now be demanded at the same P.
- A shift in the D curve = new D curve

Change in D/Shifts in the D Curve

	Demand Schedule A	Demand Schedule B	Demand Schedule C
P (Taka)	**QD**	**QD after the increase in Demand**	**QD after the decrease in Demand**
20	500	600	400
15	600	700	500
10	700	800	600
5	800	900	700


D_A: Based on demand schedule A
D_A to D_B: Increase in demand (rightward shift in demand curve).
Price (Taka)
20
15
10
5
0
500
600
700
800
900
Quantity Demanded
D_B: Based on demand schedule B
(a)


D_C: Based on demand schedule C
D_A to D_C: Decrease in demand (leftward shift in demand curve).
Price (Taka)
20
15
10
5
0
400
500
600
700
800
Quantity Demanded
D_A: Based on demand schedule A
(b)

Factors that Shift the D Curve

- Changes in the prices of related goods/services
  - Substitutes (P_A rises → D_B rises OR P_A falls → D_B falls)
  - Complements (P_A rises → D_B falls OR P_A falls → D_B rises)
- Changes in income (Y)
  - Normal goods (Y rises D_{good} rises OR Y falls D_{good} falls)
  - Inferior goods (Y rises D_{good} falls OR Y falls D_{good} rises)

Factors that Shift the D Curve

- Changes in tastes/preferences
- Changes in expectations (expected P, expected Y)
- Changes in the number of consumers/buyers

Supply

- Supply is the willingness and ability of sellers to produce and offer to sell different quantities of a good at different prices (P) during a specific time period.
- The Law of Supply (LoS) states that as the price of a good rises, the quantity supplied (QS) of the good rises, *ceteris paribus.*
- Directly related, *ceteris paribus.*

ALWAYS REMEMBER

Supply and quantity supplied

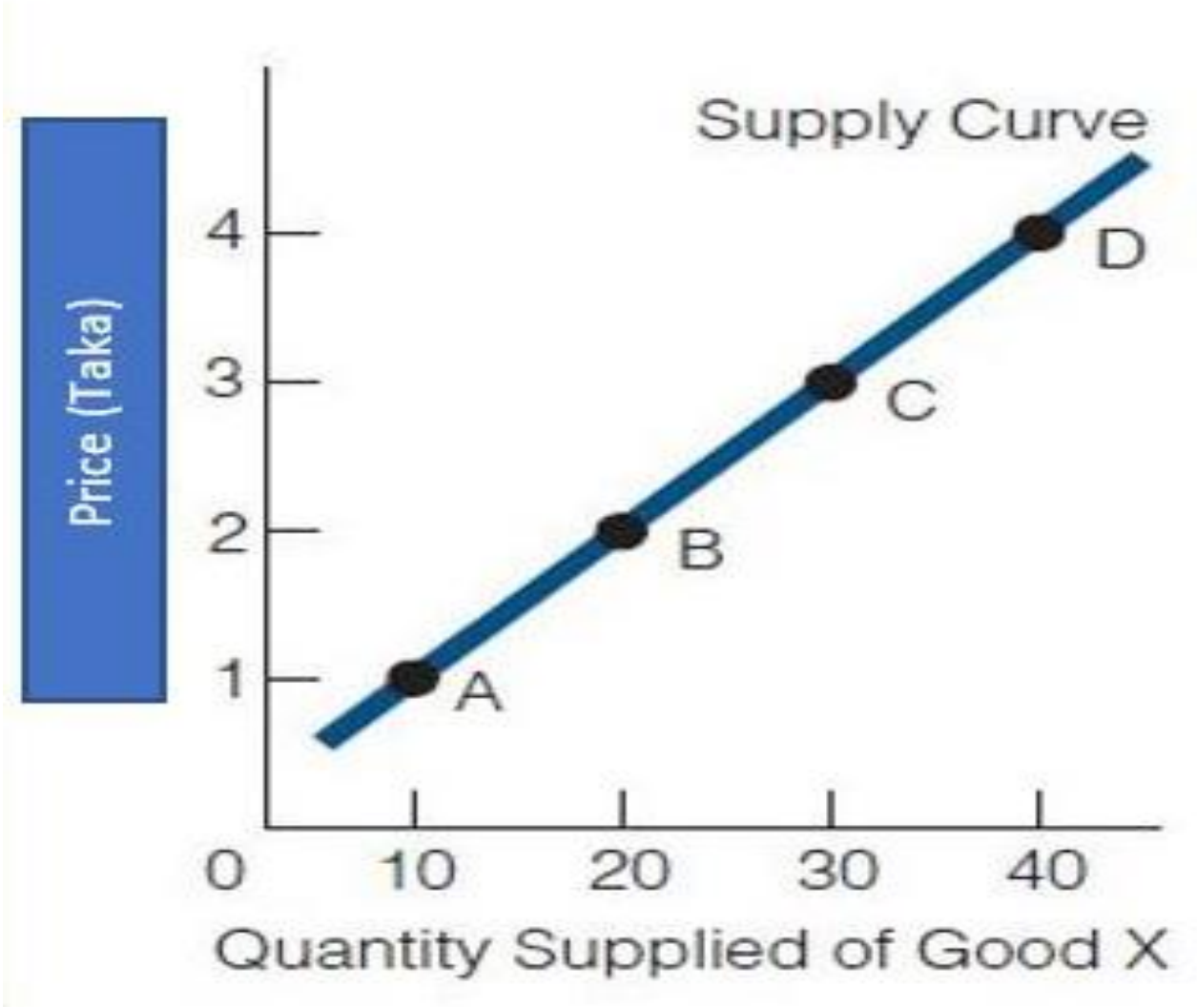
are not the same.

Supply Schedule of Good X

P (Taka)	QS	Point on the Graph
1	10	A
2	20	B
3	30	C
4	40	D

The Supply Curve for Good X

P and QS are directly related → the S curve will be upward sloping.



A Change in the QS vs a Change in the Supply

- A change in the QS is a movement along the same S curve → due to a change in the P of the good, ceteris paribus.
- A change in the supply for a good is a shift in the good's S curve due to any other factor other than the price
- → more/less now be supplied at the same P.
- A shift in the S curve = new S curve

Factors that Shift the S Curve

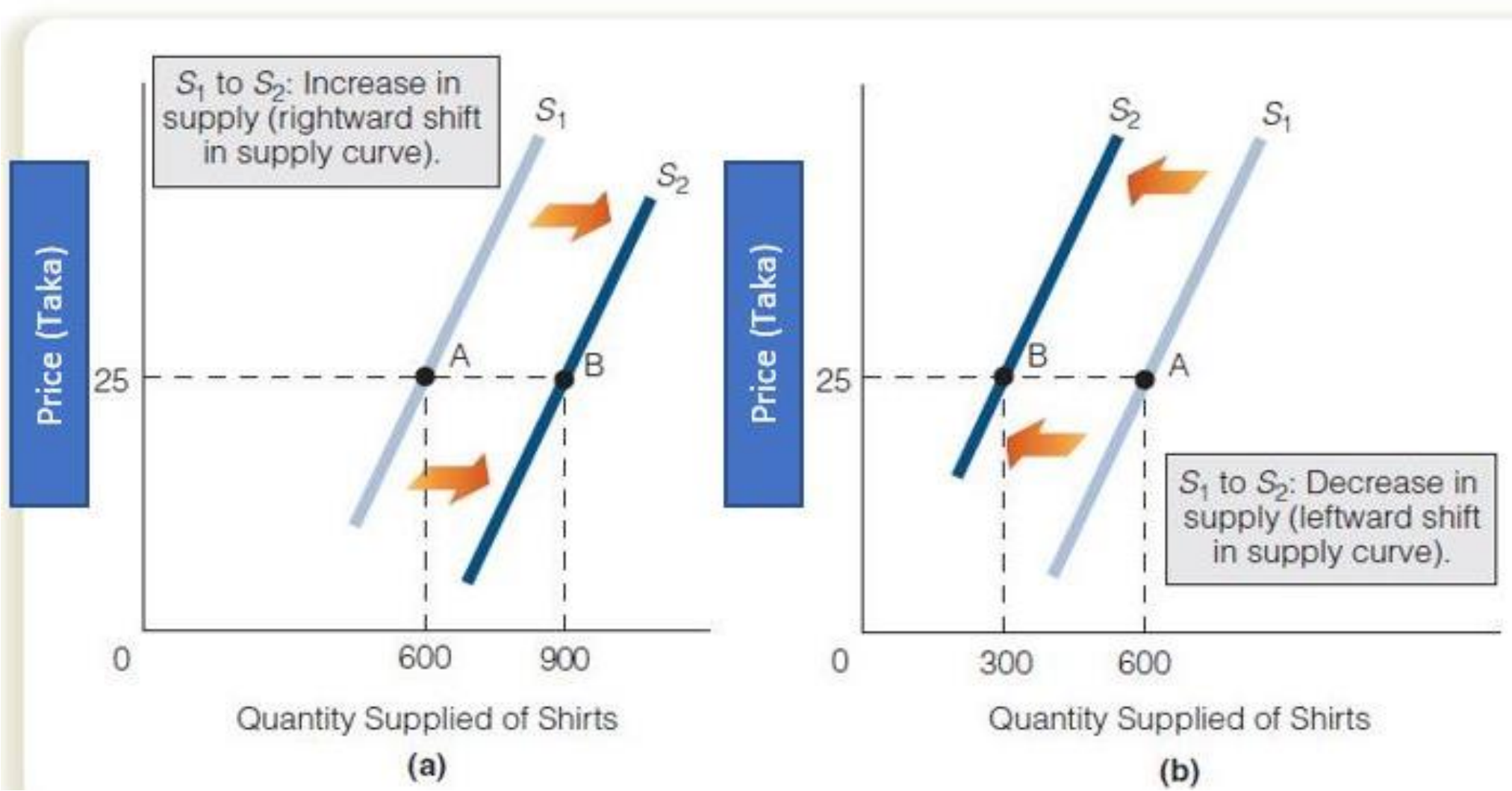
- Changes in price of inputs/relevant resources
- Changes in the prices of related goods or services
  - Substitutes in production
- Changes in technology
- Special Influences – Seasons.

Factors that Shift the S Curve

- Changes in expectations
- Changes in the number of producers/sellers
- Taxes and Subsidies
  - Taxes increase per-unit costs
  - Subsidies decrease per-unit costs.
  - *Subsidy - A monetary payment by government to a producer.*
- Government Restrictions

Changes in S/Shifts in S Curve of Shirts

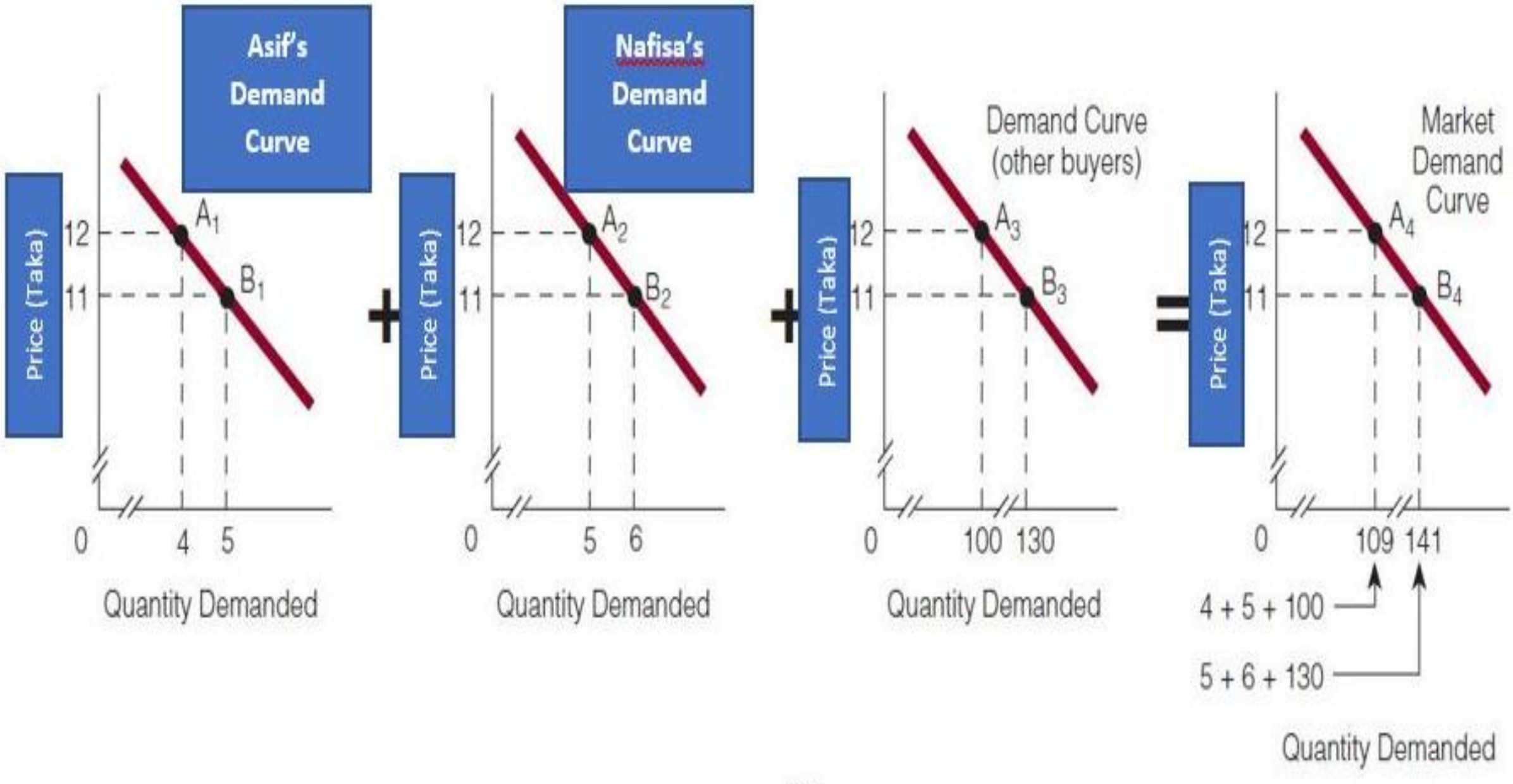
	Supply Schedule A	Supply Schedule B	Supply Schedule C
Price (Taka)	**QS**	**QS after the increase in Supply**	**QS after the decrease in Supply**
25	600	900	300


S_1 to S_2: Increase in supply (rightward shift in supply curve).
Price (Taka)
S_1
S_2
25
A
B
0
600
900
Quantity Supplied of Shirts
(a)
Price (Taka)
S_2
S_1
25
B
A
S_1 to S_2: Decrease in supply (leftward shift in supply curve).
0
300
600
Quantity Supplied of Shirts
(b)

Individual D vs Market D

- An *individual D curve* → relationship between QD and P for an individual consumer/single buyer.
- A *market D curve* → how total QD by all consumers depends on the market P of the good.
- The market D curve = *horizontal sum* of the individual D curves of all consumers in that market.

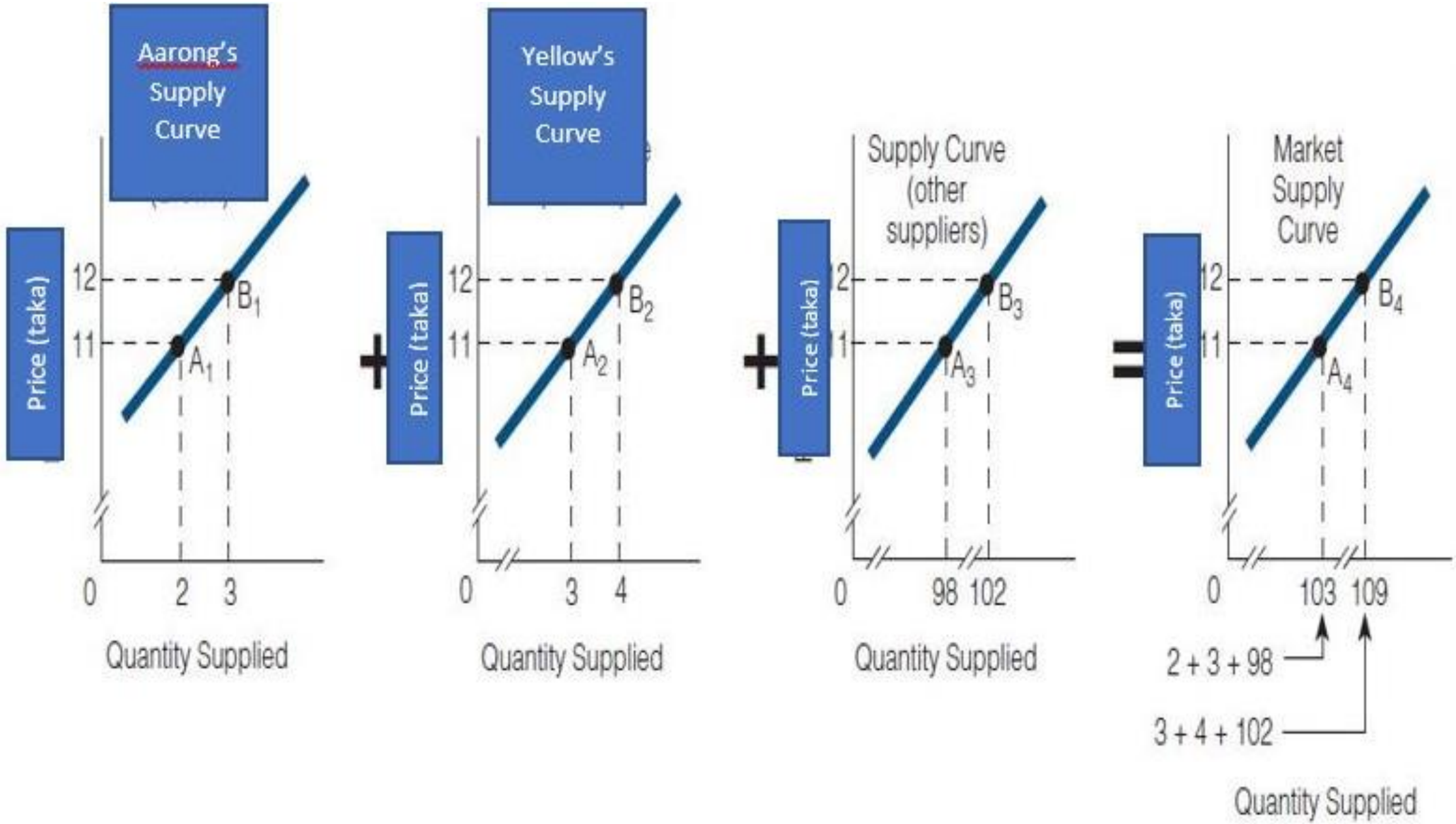
P (taka)	Asif		Nafisa		Other buyers		All buyers
15	1	+	2	+	20	=	23
14	2		3		45		50
13	3		4		70		77
12	4		5		100		109
11	5		6		130		141
10	6		7		160		173


Asif's Demand Curve
Price (Taka)
12
11
A1
B1
0
4
5
Quantity Demanded
+
Nafisa's Demand Curve
Price (Taka)
12
11
A2
B2
0
5
6
Quantity Demanded
+
Demand Curve (other buyers)
Price (Taka)
12
11
A3
B3
0
100
130
Quantity Demanded
=
Market Demand Curve
Price (Taka)
12
11
A4
B4
0
109
141
4 + 5 + 100
5 + 6 + 130
Quantity Demanded

Individual S vs Market S

- An *individual S curve* → relationship between QS and P for an individual seller/single seller or producer.
- A *market S curve* → how the total QS by all sellers depends on the market price of the good.
- Price-quantity combinations of a particular good for all sellers/producers of that good.
- The market S curve = *horizontal sum* of the individual supply curves of all sellers in that market.

P (taka)	Aarong		Yellow		Other sellers		All sellers
10	1	+	2	+	96	=	99
11	2		3		98		103
12	3		4		102		109
13	4		5		106		115
14	5		6		108		119
15	6		7		110		123

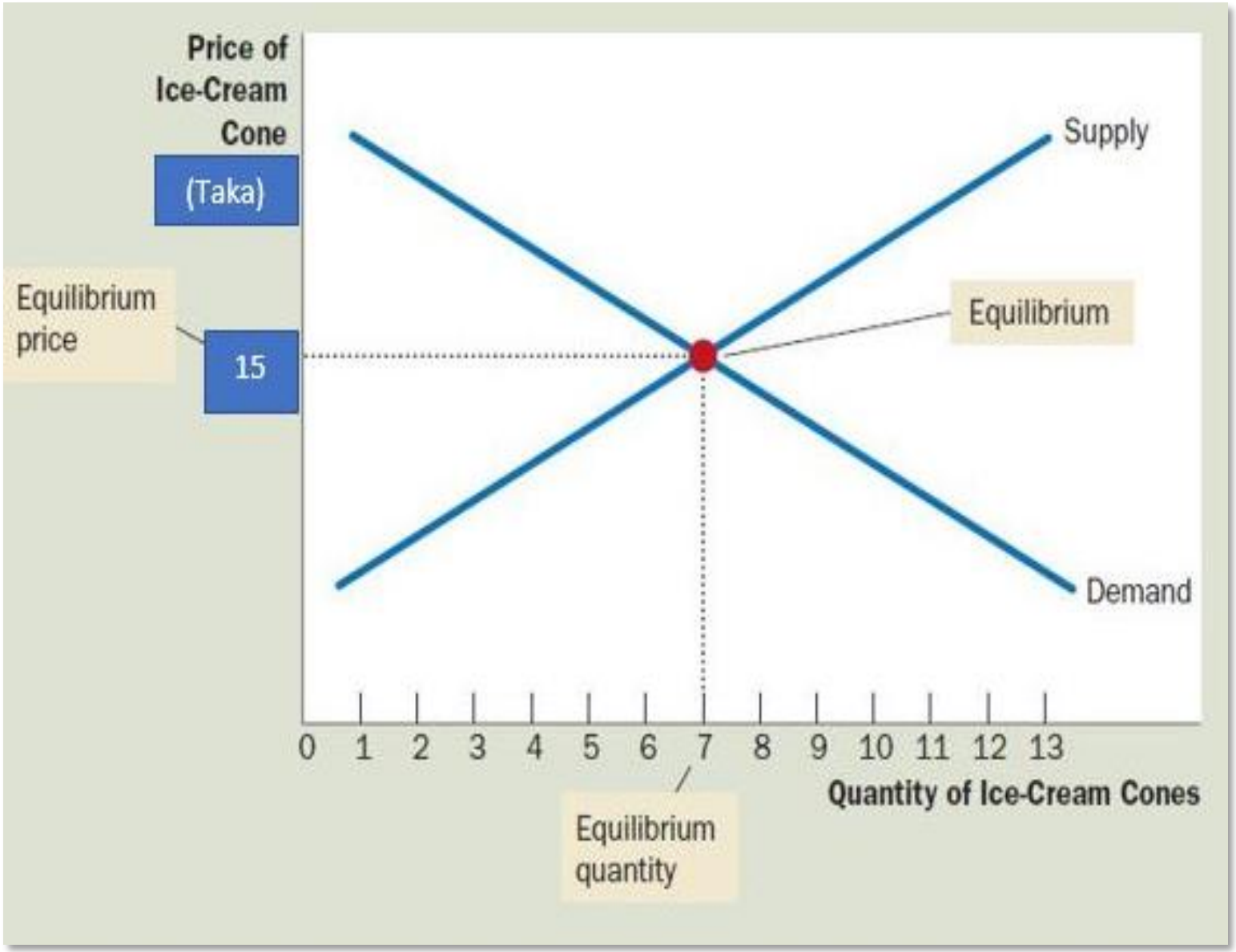

Aarong's Supply Curve
Price (taka)
12
11
B_1
A_1
0
2
3
Quantity Supplied
+
Yellow's Supply Curve
Price (taka)
12
11
B_2
A_2
0
3
4
Quantity Supplied
+
Supply Curve (other suppliers)
Price (taka)
12
11
B_3
A_3
0
98
102
Quantity Supplied
=
Market Supply Curve
Price (taka)
12
11
B_4
A_4
0
103
109
2 + 3 + 98
3 + 4 + 102
Quantity Supplied

Supply, Demand, and Equilibrium

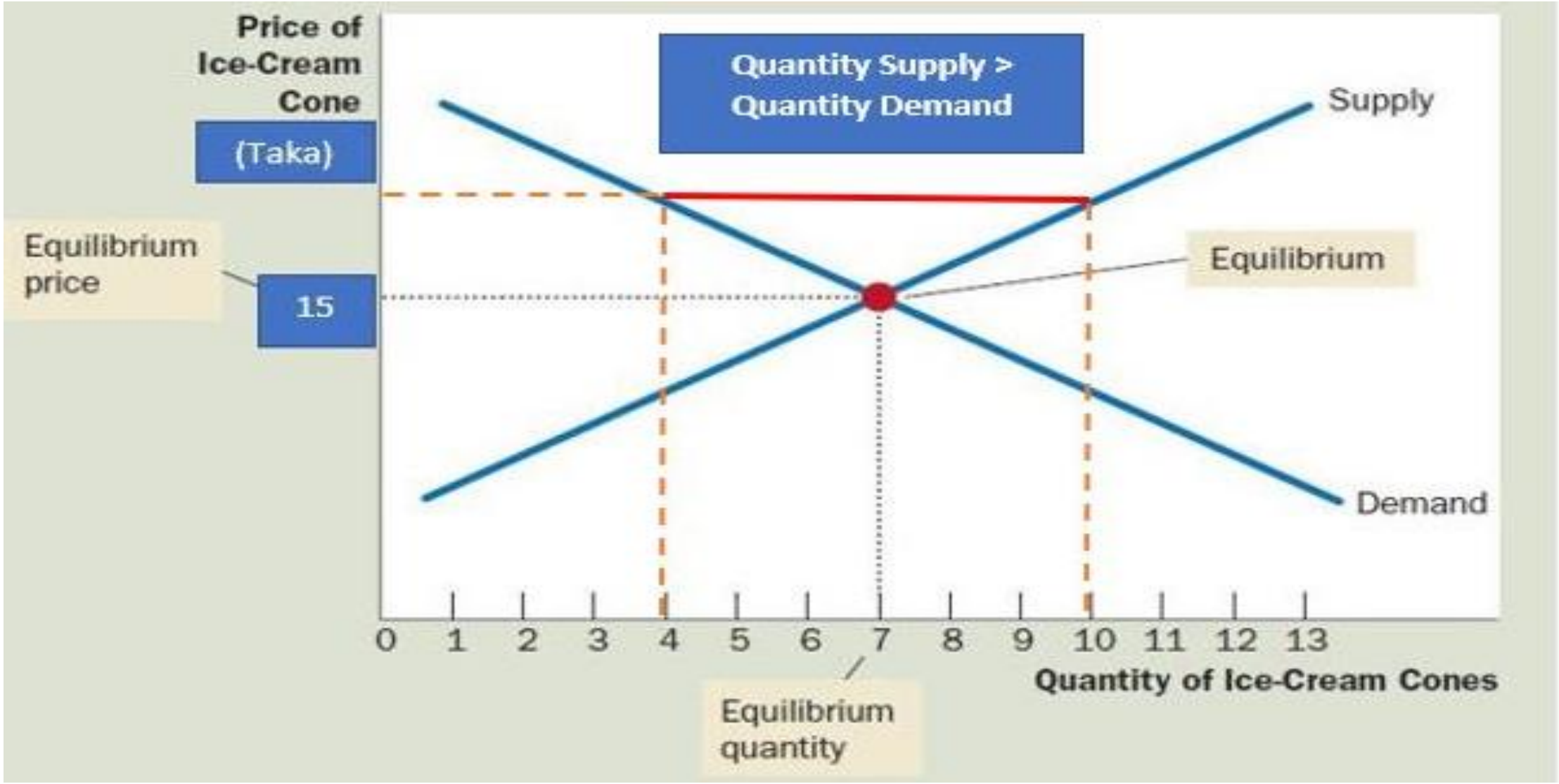
- A market is in equilibrium at a P where the QD = QS of a good.
- This P is the equilibrium price (also, the market-clearing price).
- The equilibrium P ensures that every buyer willing to pay that price finds a seller willing to sell at that price, and vice versa.
- The quantity of the good or service bought and sold at that P is the equilibrium quantity (QD = QS)

Equilibrium Price and Quantity

- At the equilibrium P of 15 taka, $Q_D = Q_S$ in the market.
- The equilibrium Q is 7 ice-cream cones.



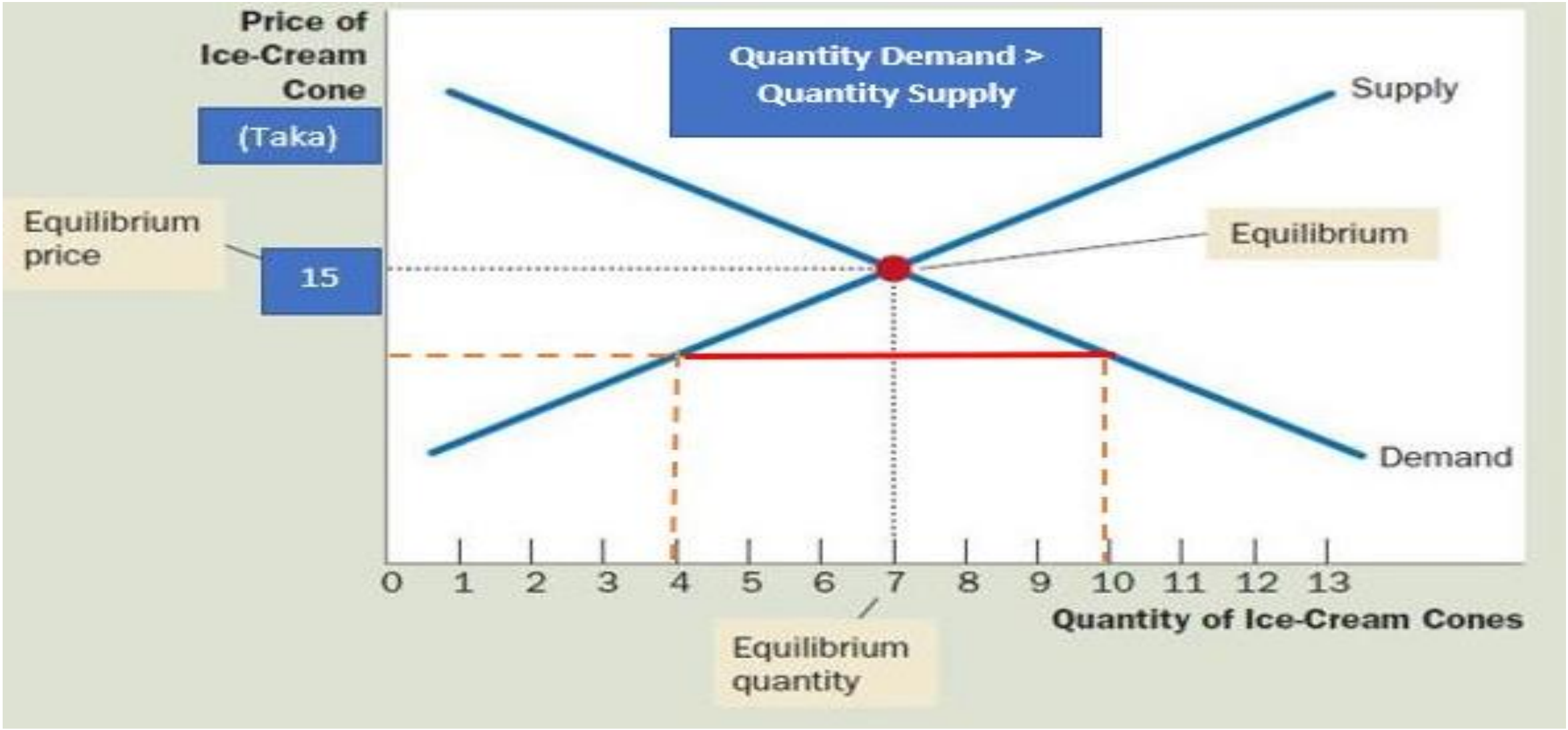
Why Does the Market P Fall If It Is Above the Equilibrium P?



Why Does the Market P Fall If It Is Above the Equilibrium P?

- Surplus (Excess Supply) = QS > QD
- Surpluses occur only at prices above equilibrium price.
- So the price of a good will fall whenever there is a surplus.

Why Does the Market P Rise If It Is Below the Equilibrium P?



Why Does the Market P Rise If It Is Below the Equilibrium P?

- Shortage (Excess Demand) – QD > QS
- Shortages occur only at prices below equilibrium price.
- So the price of a good will rise whenever there is a shortage.

Price Controls (Chapter 4, Roger Arnold, pp.87-94)

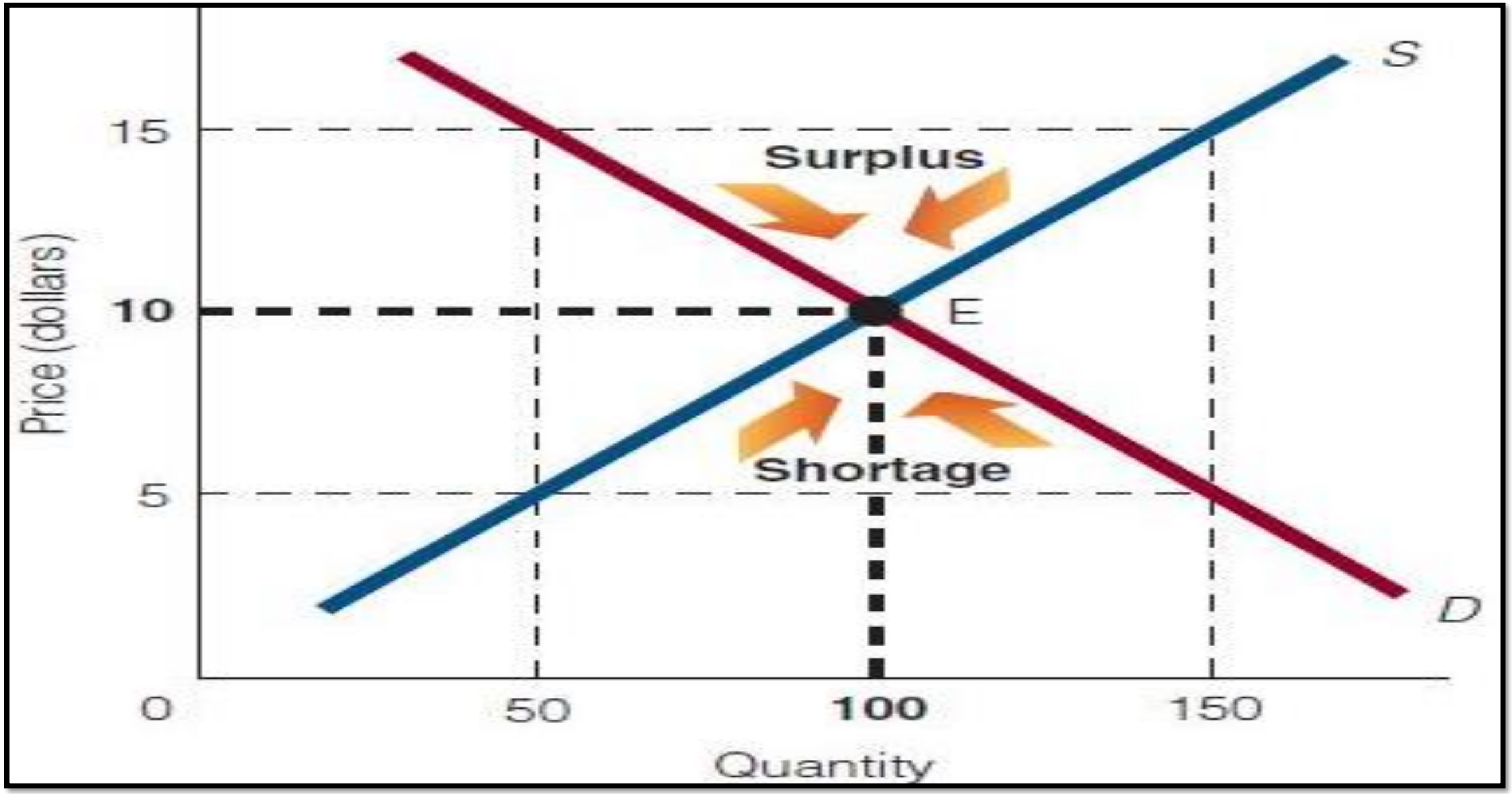
- *Price Floor* = A government-mandated minimum price below which legal trades cannot be made. (P > Equilibrium P).
  - causes surpluses
- *E.g.: Minimum Wages*
- *Price Ceiling* = A government-mandated maximum price above which legal trades cannot be made. (P < Equilibrium P)
  - causes shortages
- *E.g.: Rent Control*

- Price controls cause inefficiency and result in

  → fewer exchanges in the market

  → Illegal or black market activities

Moving towards the Equilibrium

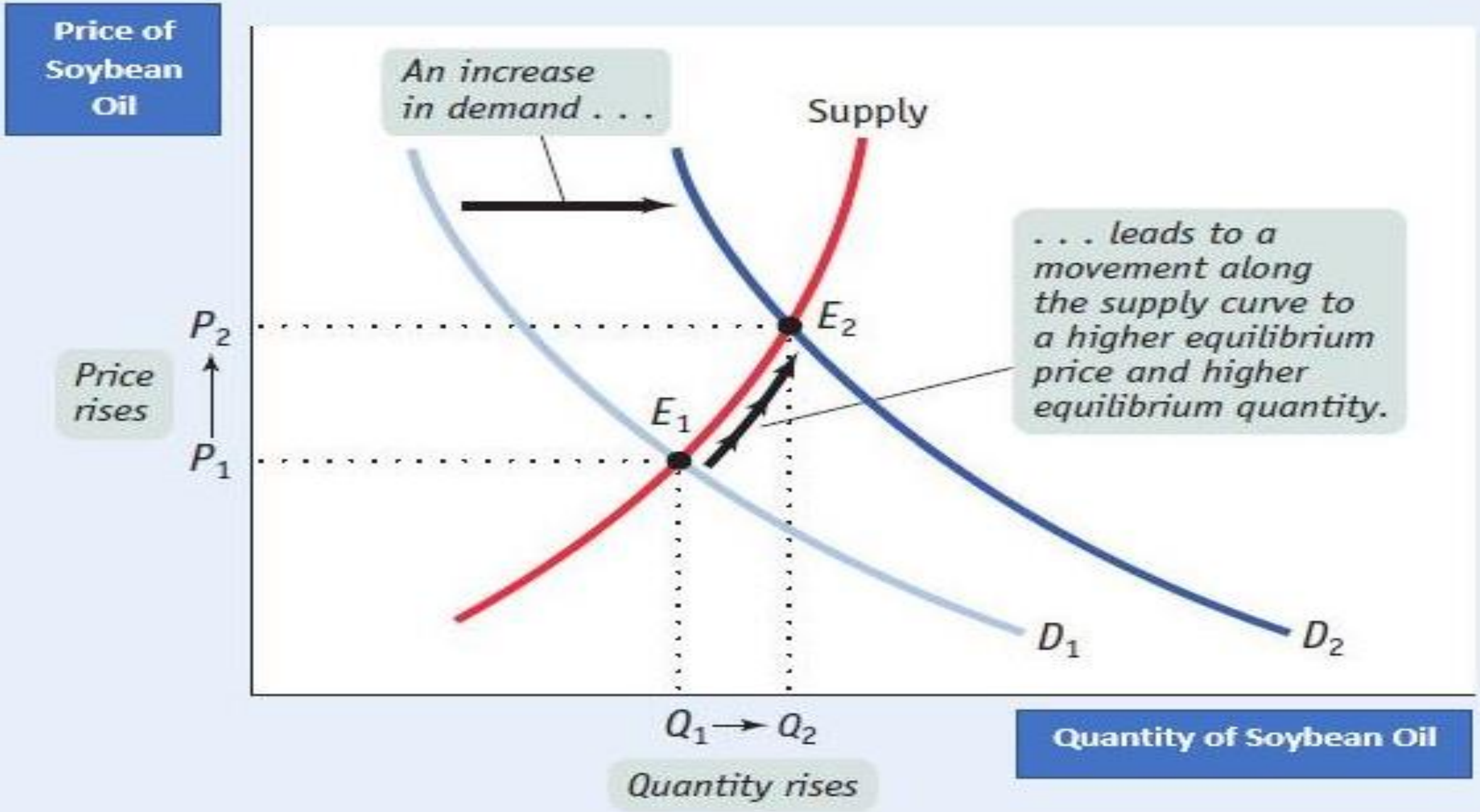


The market price always moves toward the equilibrium price, the price at which there is neither a surplus nor a shortage.

Changes in Supply and Demand

What Happens When the D Curve Shifts?

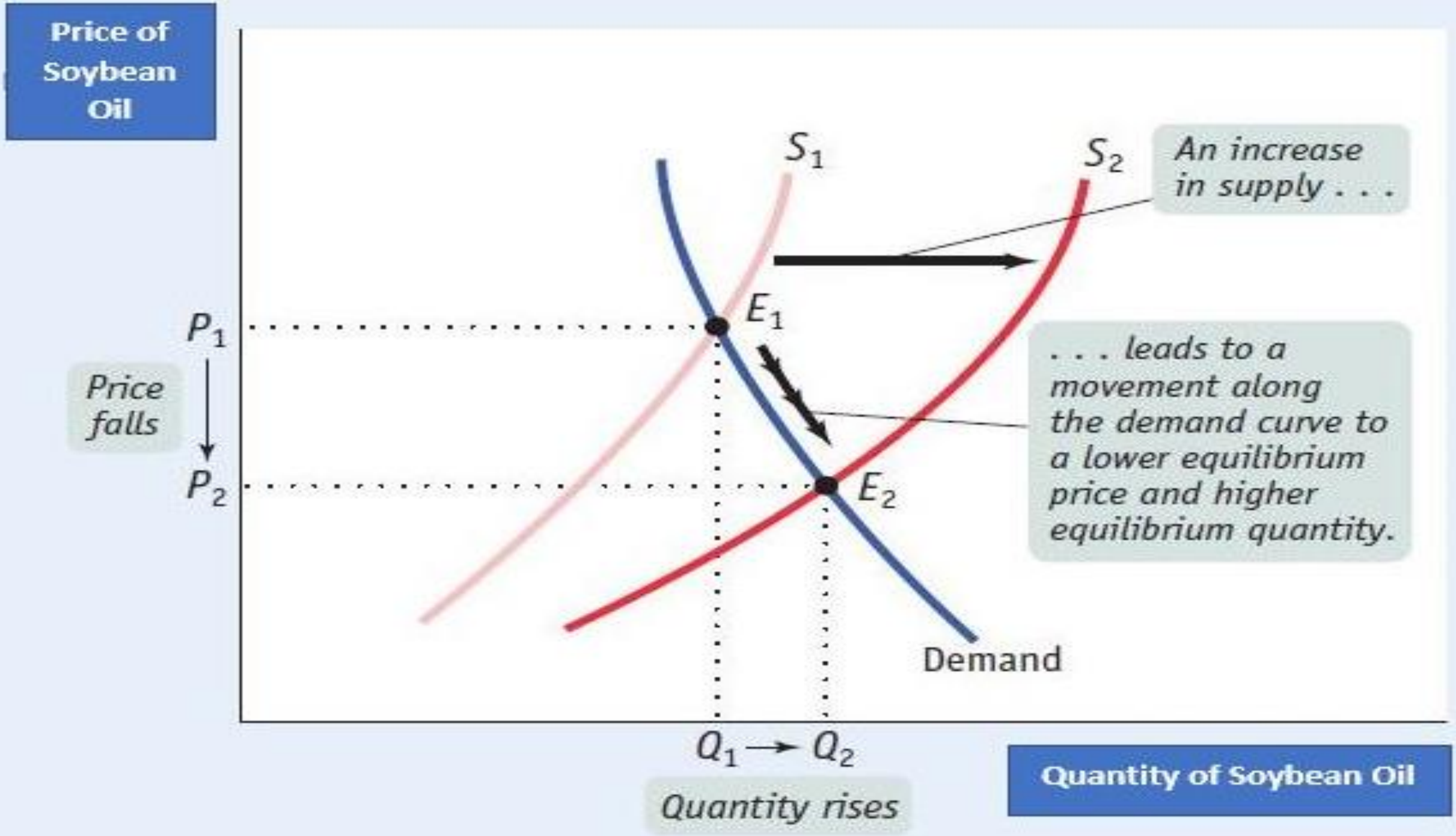
- Soybean oil and olive oil are substitutes.
- What will happen in the market for soybean oil if the price of olive oil rises?


Price of Soybean Oil
An increase in demand . . .
Supply
. . . leads to a movement along the supply curve to a higher equilibrium price and higher equilibrium quantity.
P_2
E_2
Price rises
E_1
P_1
D_1
D_2
$Q_1 \rightarrow Q_2$
Quantity rises
Quantity of Soybean Oil

Demand for a good increases → the equilibrium P and the equilibrium Q of the good both rise, ceteris paribus.

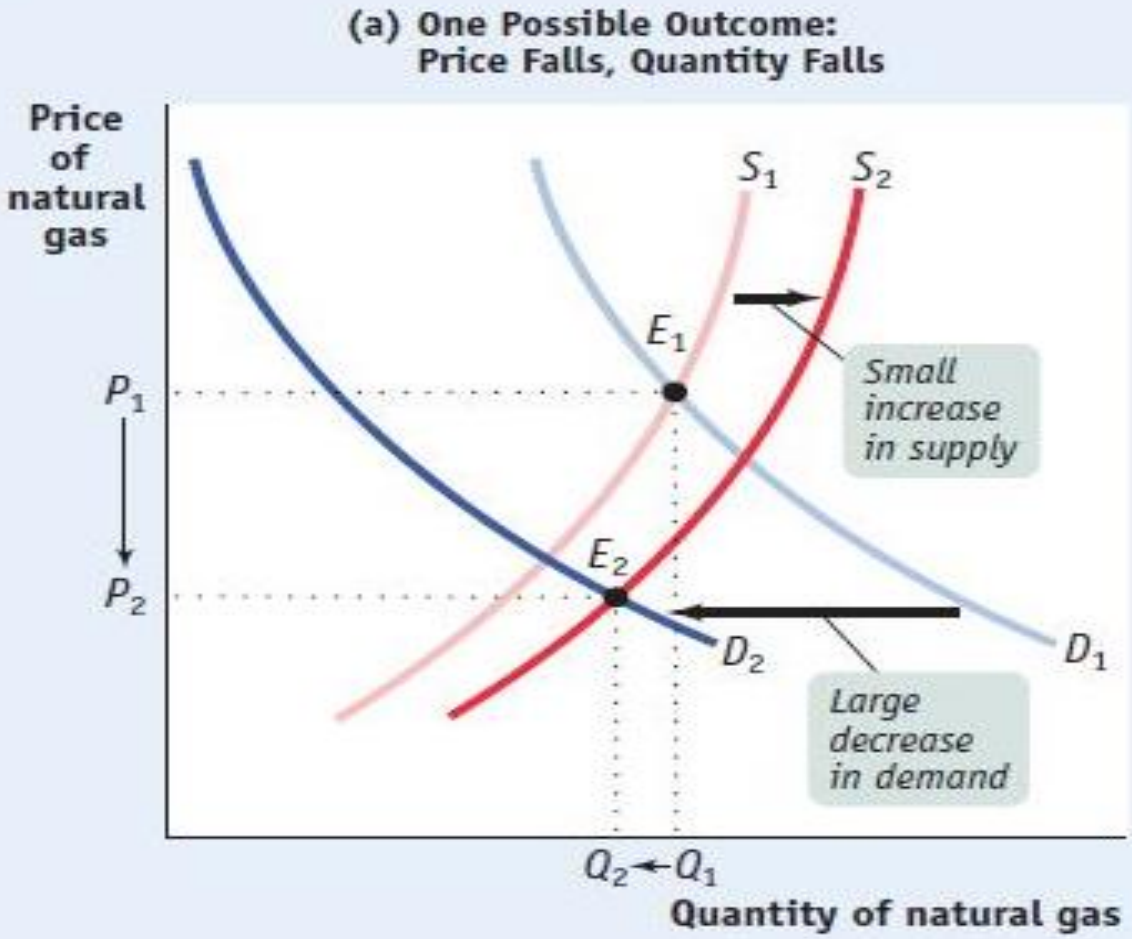
What Happens When the S Curve Shifts?

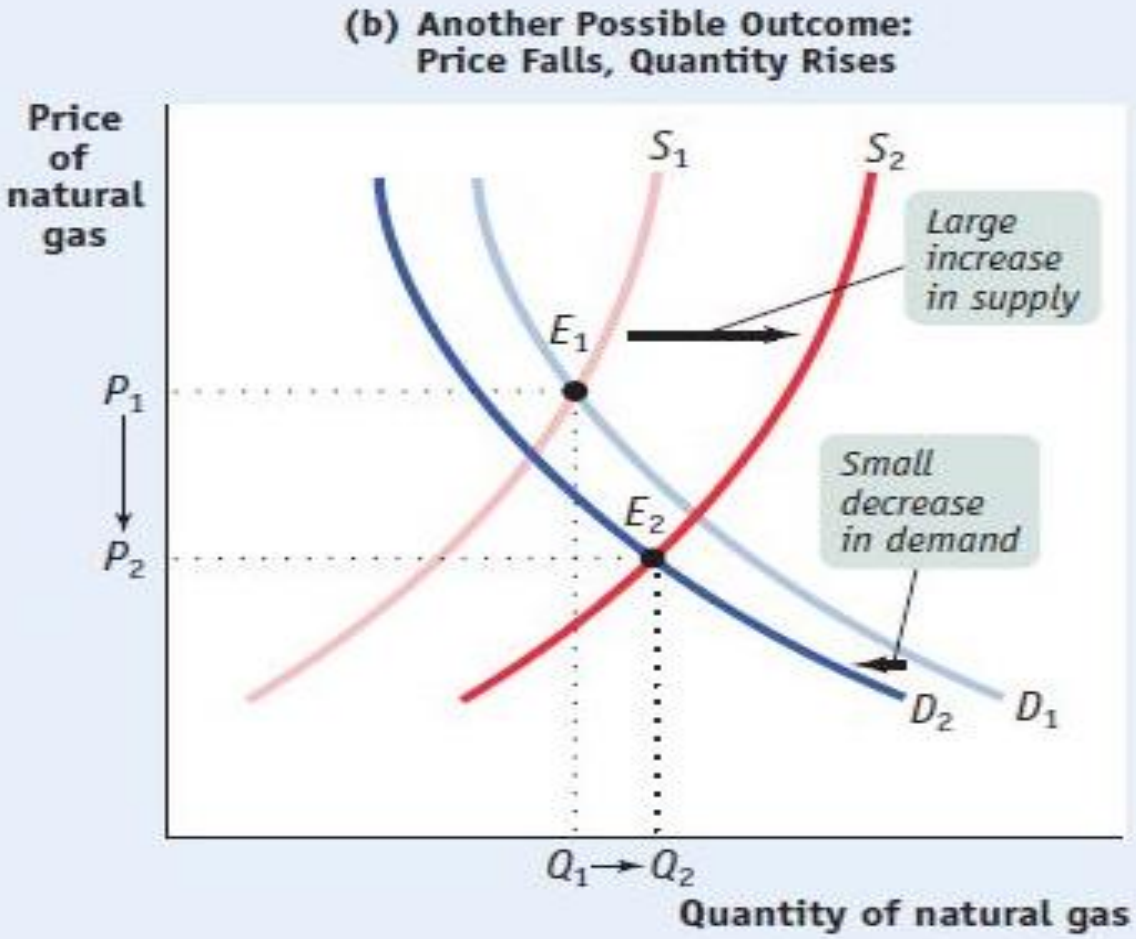
- Significant improvement in packaging technology for soybean oil production.
- What will happen in the market for soybean oil now?


Price of Soybean Oil
S_1
S_2
An increase in supply . . .
E_1
P_1
Price falls
P_2
E_2
. . . leads to a movement along the demand curve to a lower equilibrium price and higher equilibrium quantity.
Demand
$Q_1 \rightarrow Q_2$
Quantity rises
Quantity of Soybean Oil

Supply for a good increases → the equilibrium P of the good falls and the equilibrium Q of the good rises, ceteris paribus.

Simultaneous Shifts of Supply and Demand Curves





In panel (a) there is a simultaneous leftward shift of the demand curve and a rightward shift of the supply curve. Here the decrease in demand is relatively larger than the increase in supply, so the equilibrium quantity falls as the equilibrium price also falls. In panel (b) there is also a simultaneous leftward shift of the demand curve and rightward shift of the supply curve. Here the increase in supply is large relative to the decrease in demand, so the equilibrium quantity rises as the equilibrium price falls.

SUMMARY

- An increase in D → a rise in both the equilibrium P and the equilibrium Q.
- A decrease in D → a fall in both the equilibrium P and the equilibrium Q.

- An increase in S → a fall in the equilibrium P and a rise in the equilibrium Q.
- A decrease in S → a rise in the equilibrium P and a fall in the equilibrium Q.

- When D and S shift in opposite directions

→ Change in price = predictable

→ Change in quantity = ambiguous

  - depends on by much the D and S curves have shifted.
  - When D rises/falls and S falls/rises by the same amount Equilibrium Q remains unchanged.

- When D and S shift in the same direction

→Change in quantity = predictable

→Change in price = ambiguous

  - depends on by much the D and S curves have shifted
  - When D rises/falls and S rises/falls by the same amount Equilibrium P remains unchanged.