

MARKET DYNAMICS: PRICING

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Previously...

- We studied the concepts of demand and supply.
- More importantly, we studied the causes for changes in quantity demanded/supplied and shifts in demand/supply
- These are the *market dynamics* we will study in this section.

Market equilibrium

- The concepts of demand and supply were previously discussed separately.
- However, they both operate in the same framework (i.e. the same market).
- As a matter of fact, we defined a market as *the place of interaction between demand and supply*.

Market equilibrium (2)

- Following are a market supply schedule and a market demand schedule for hamburgers.

Price (in \$)	Quantity supplied
5	15
4	13
3	10
2	6
1	0

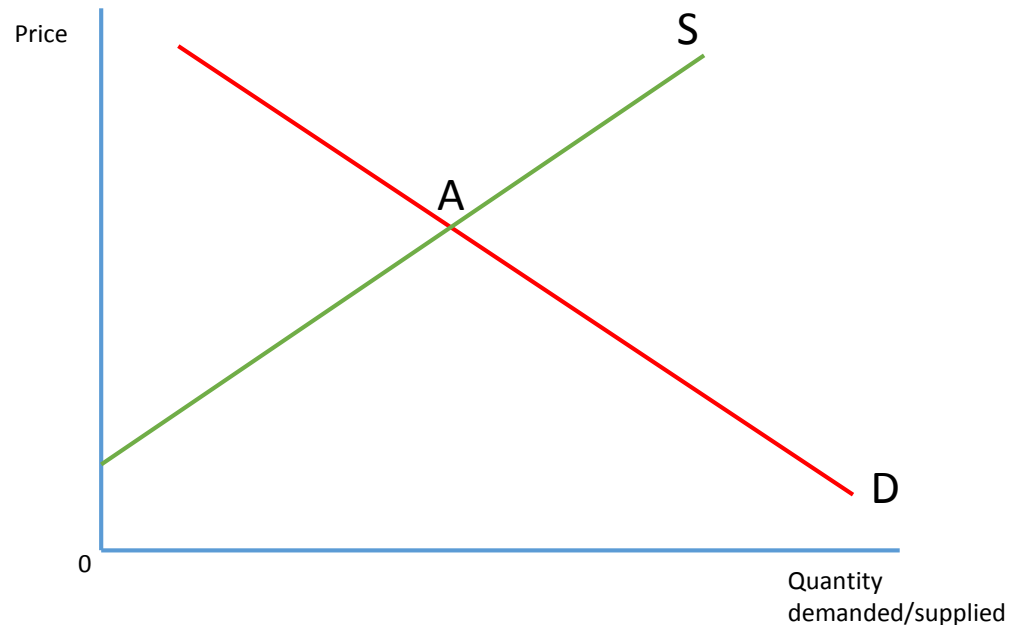
Price (in \$)	Quantity demanded
5	5
4	7
3	10
2	15
1	22

- When a hamburger is priced at \$3, *the quantity of hamburgers the producers are collectively willing and able to produce and sell is exactly equal to the quantity of hamburgers the consumers are collectively willing and able to buy*.
- In other words, **the quantity demanded is equal to the quantity supply**. This is called: **market equilibrium**.

Market equilibrium (3)

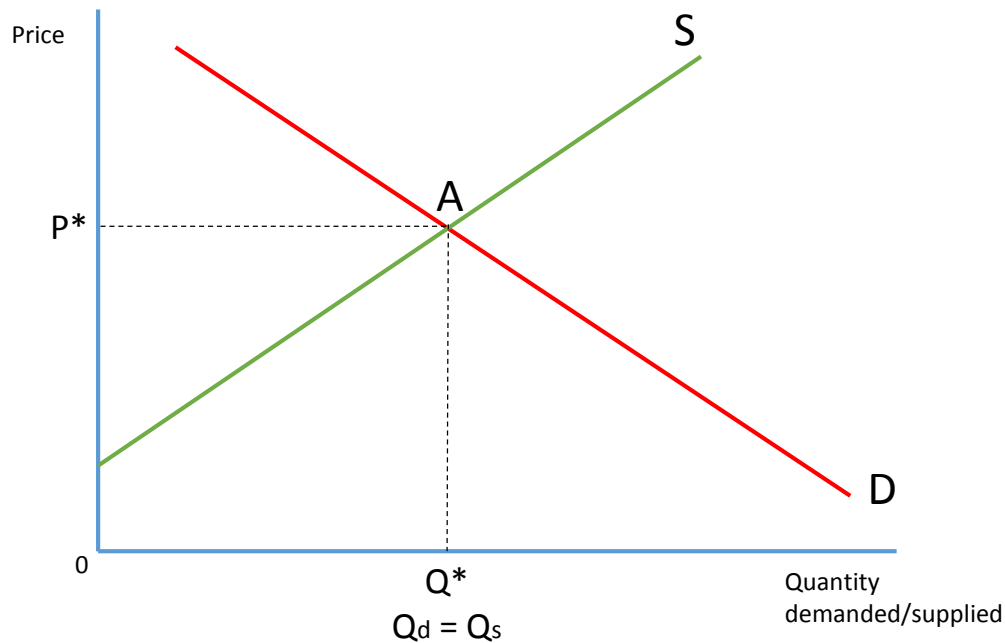
- *A market equilibrium is a state in the market where the price level reconciles quantity demanded with quantity supplied.*
- Let's illustrate it graphically:

Market equilibrium (4)



- The demand curve is downward sloping and the supply curve is upward sloping.
- Therefore, *they intersect*.
- The point of intersection (i.e. point A) is called *the equilibrium point*.

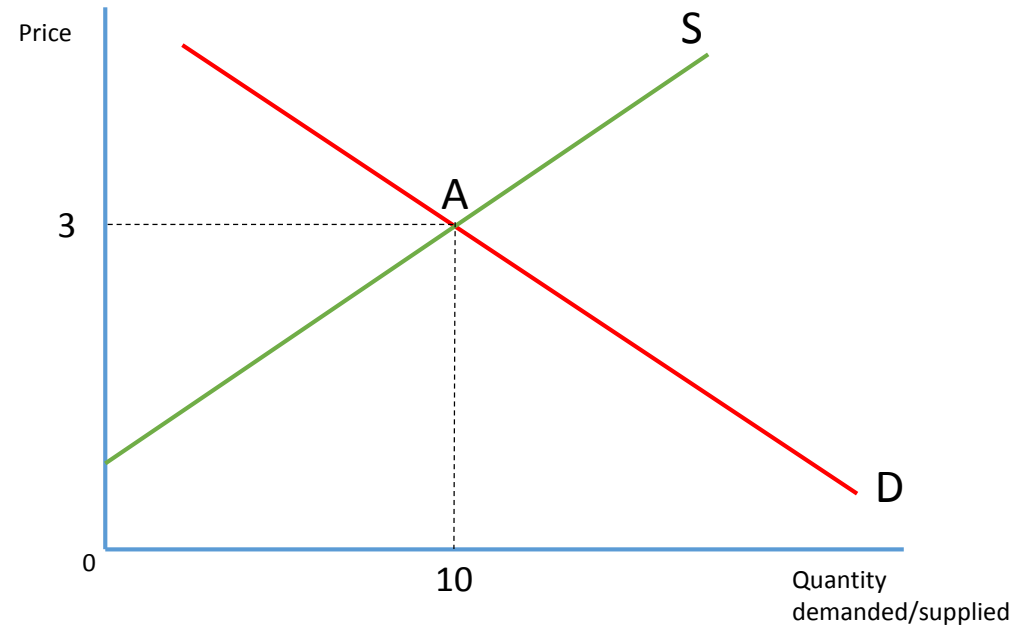
Market equilibrium (5)



- The point of equilibrium is the point that depicts the *price* at which *quantity demanded is equal to quantity supplied*.
- P^* is the equilibrium price.
- Q^* is the equilibrium quantity.

Market equilibrium (5)

Price (in \$)	Quantity supplied	Quantity demanded
5	15	5
4	13	7
3	10	10
2	6	15
1	0	22



- The equilibrium price is \$3.
- The equilibrium quantity is 10 hamburgers.
- When hamburgers cost \$3, all the producers plan to produce 10 hamburgers and all the consumers plan to buy 10 hamburgers.

Off-equilibrium prices

- What happens when the market price is not the equilibrium price?
- There are two cases:
 - When the market price is above the equilibrium price
 - When the market price is below the equilibrium price

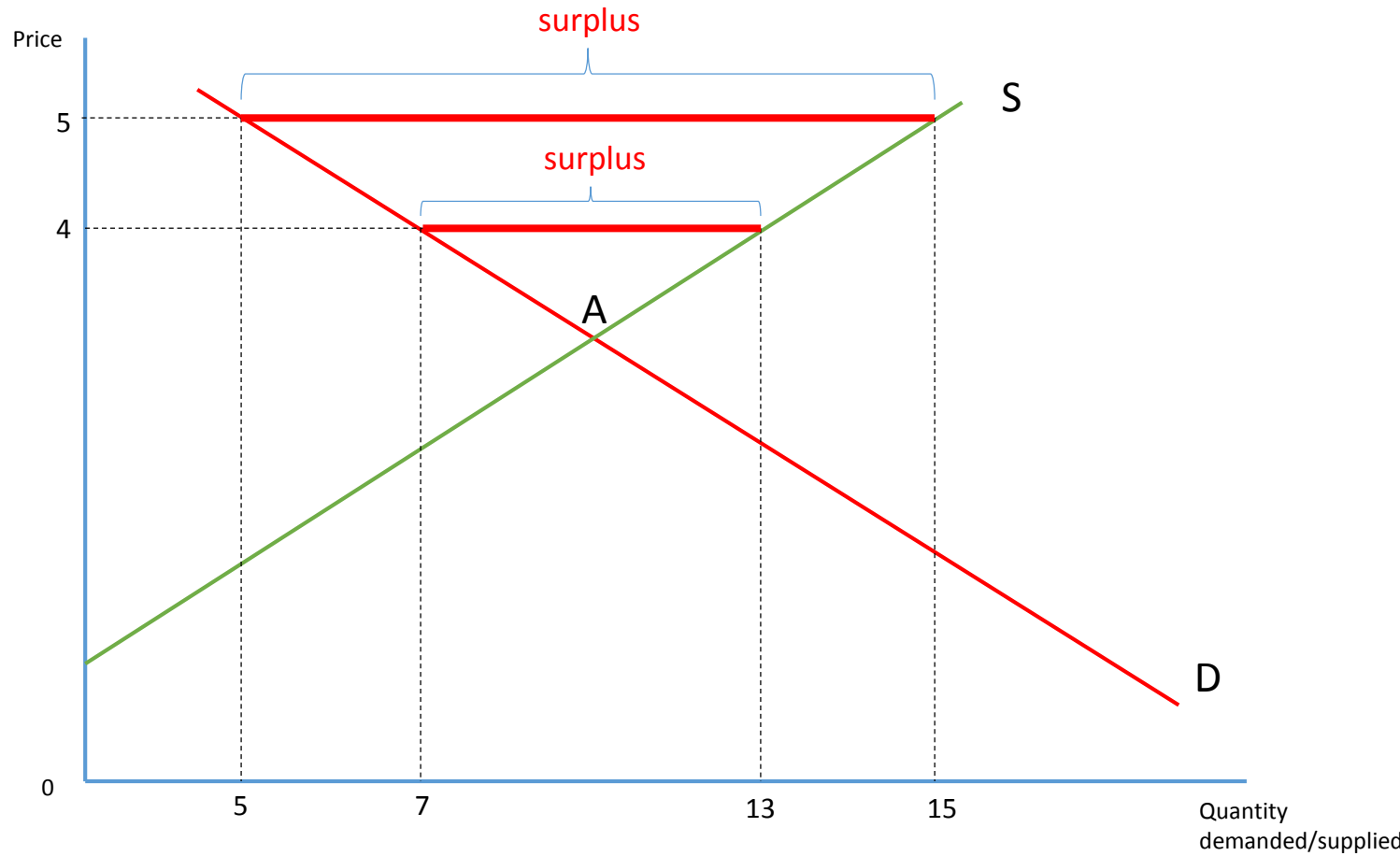
Price (in \$)	Quantity supplied	Quantity demanded
5	15	5
4	13	7
3	10	10
2	6	15
1	0	22

Above-equilibrium prices: surplus

- When the market price is above the equilibrium price, *quantity supplied is more than quantity demanded*.
- The producers plan to produce more than the consumers plan to purchase.
- There is a **surplus**.
- When the price is \$5, there is a surplus of 10 hamburgers.
- When the price is \$4, there is a surplus of 6 hamburgers.

Price (in \$)	Quantity supplied	Quantity demanded	Surplus
5	15	5	+10
4	13	7	+6
3	10	10	0
2	6	15	
1	0	22	

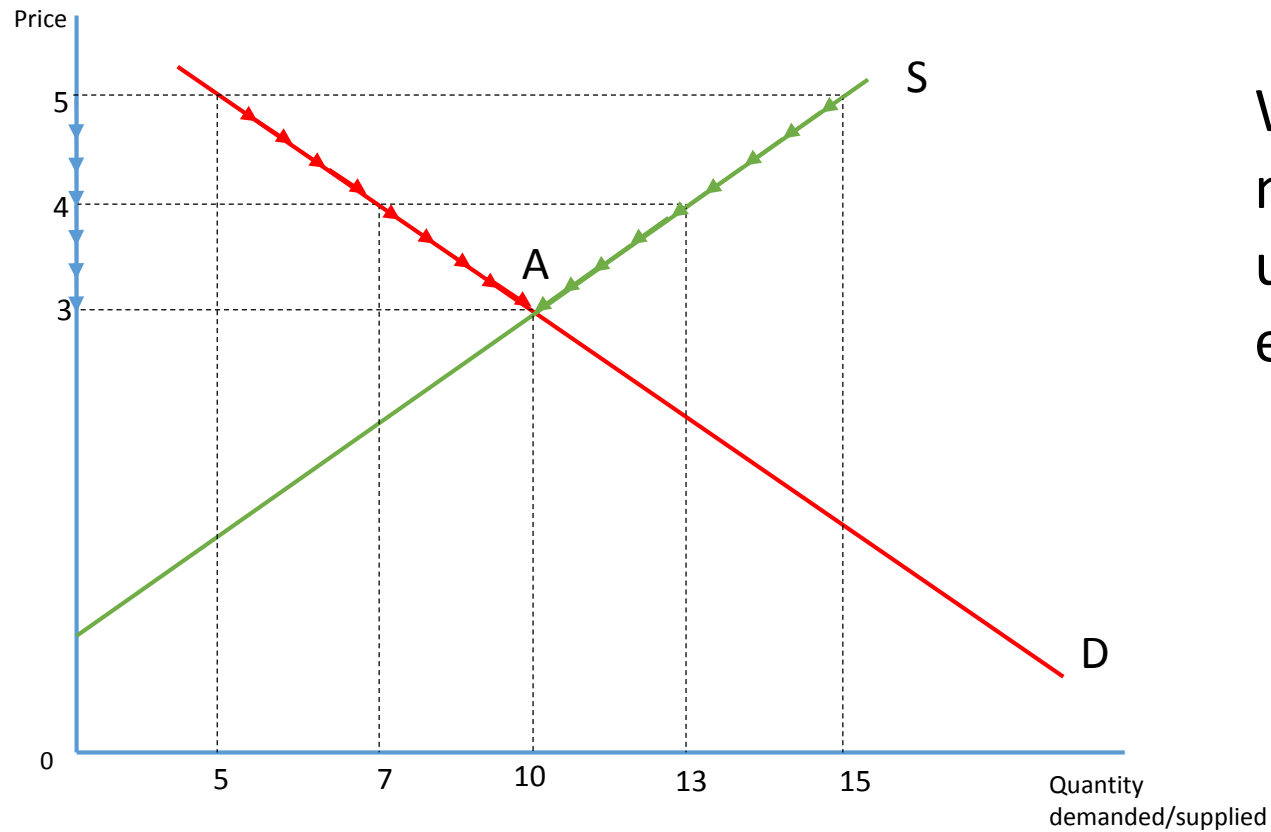
Above equilibrium prices: surplus (2)



Price adjustments in a surplus

- Again, there is a surplus when the quantity supplied is more than the quantity demanded.
- The producers are left with stock nobody wants.
- So, they will try to attract buyers by decreasing the price.
- They will decrease the price until their stock is depleted.
- In other words, they will decrease the price until the quantity supplied is equal to the quantity demanded.
- *They will decrease the price until it equates the equilibrium price.*

Price adjustments in a surplus (2)



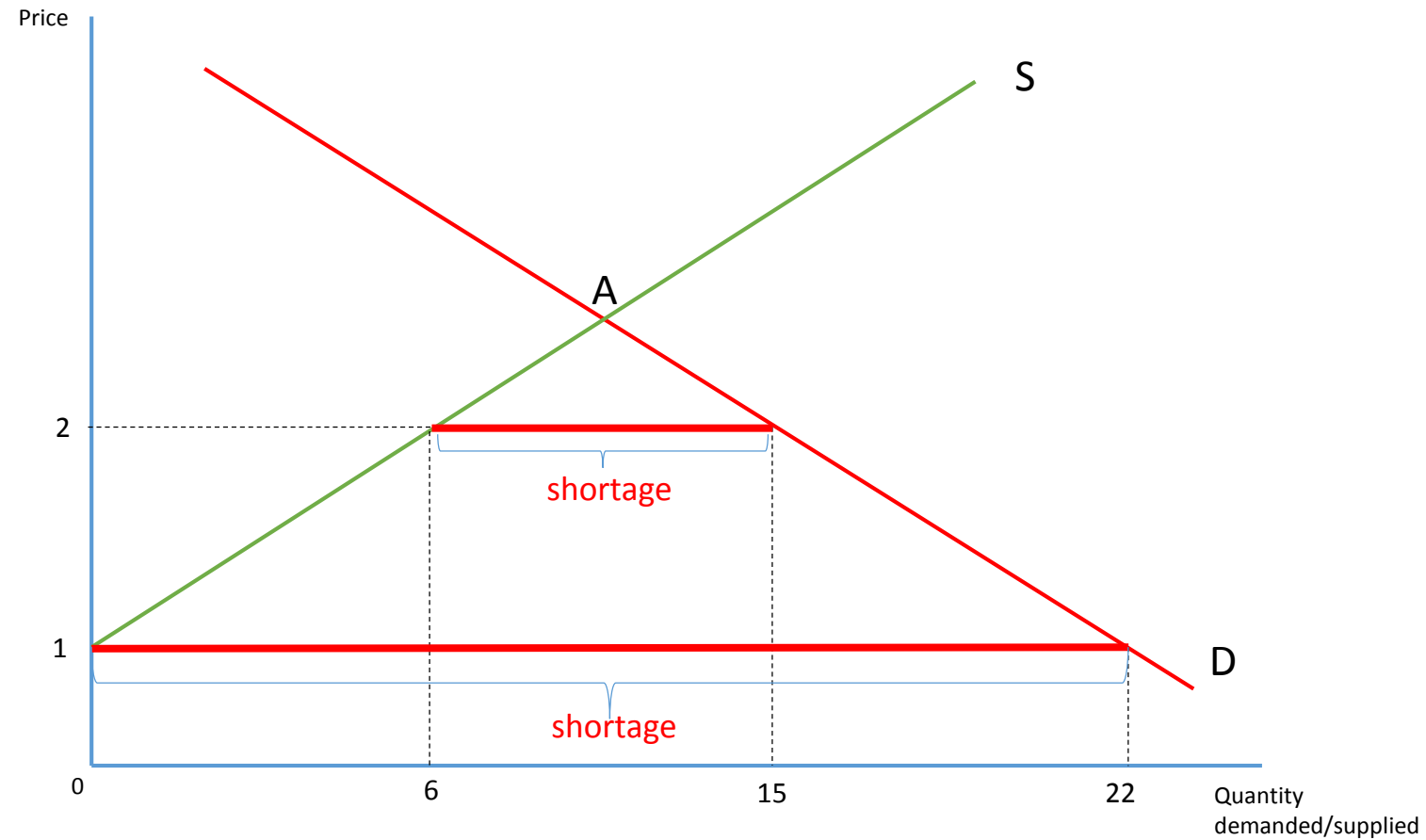
When there is a surplus, the market price for the good falls until it is equal to the equilibrium price.

Below-equilibrium prices: shortage

- When the market price is below the equilibrium price, *quantity demanded is more than quantity supplied*.
- The consumers plan to buy more than the producers plan to produce and sell.
- There is a **shortage**.
- When the price is \$2, there is a shortage of 9 hamburgers.
- When the price is \$1, there is a shortage of 22 hamburgers.

Price (in \$)	Quantity supplied	Quantity demanded	Shortage
5	15	5	
4	13	7	
3	10	10	0
2	6	15	-9
1	0	22	-22

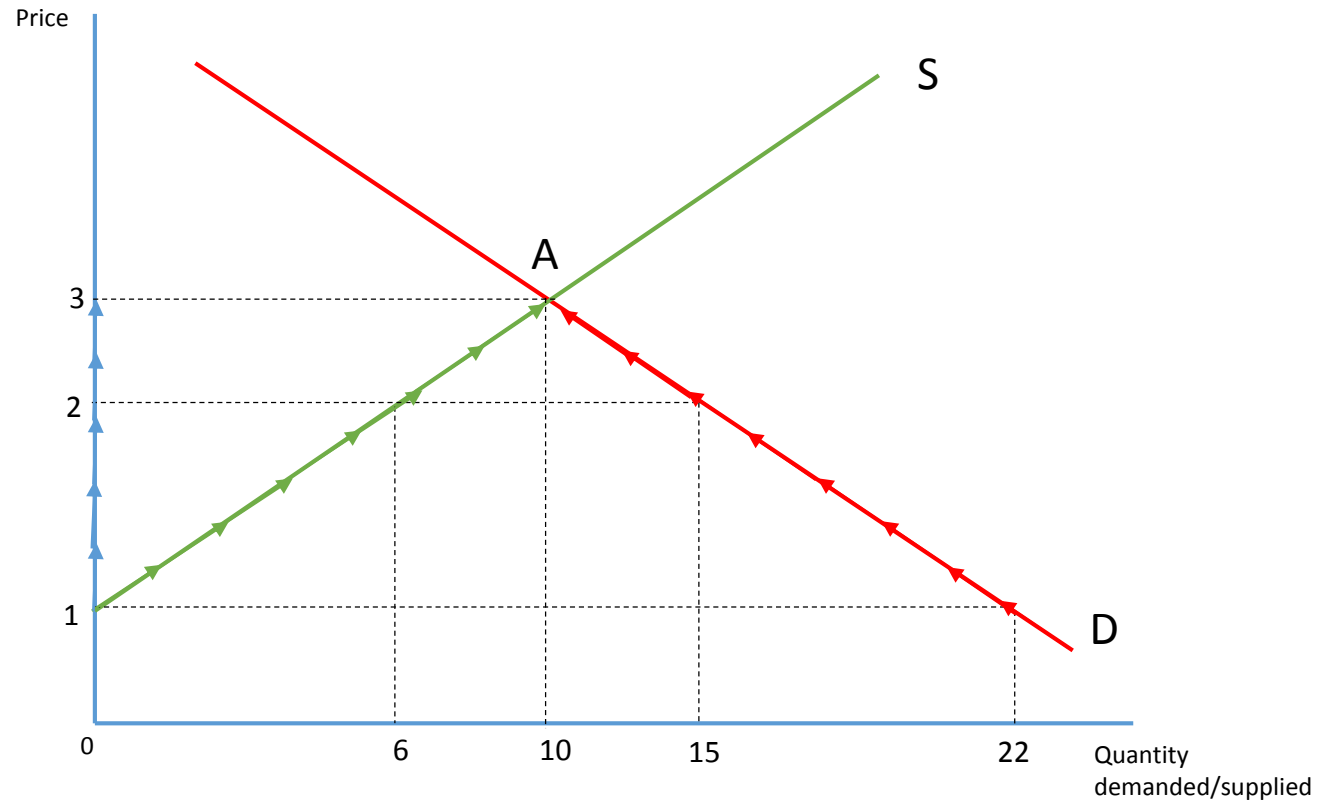
Below-equilibrium prices: shortage (2)



Price adjustments in a shortage

- Again, there is a shortage when the quantity demanded is more than the quantity supplied.
- The producers own a relatively small quantity of the good that many consumers want.
- So, they know they can make more profit by increasing the price.
- They will increase the price until there are just enough consumers still willing and able to purchase the available stock of goods.
- In other words, they will increase the price until the quantity demanded is equal to the quantity supplied.
- *They will increase the price until it equates the equilibrium price.*

Price adjustments in a shortage (2)



When there is a shortage, the market price for the good increases until it is equal to the equilibrium price.

Government pricing policies

- Quick review:
 - When the market price for a good is *above the equilibrium price*, there is a surplus. Consequently, *the price falls back to the equilibrium level*.
 - When the market price for a good is *below the equilibrium price*, there is a shortage. Consequently, *the price increases until it reaches the equilibrium level*.
- These analyses are based on the assumption of a **free market**.

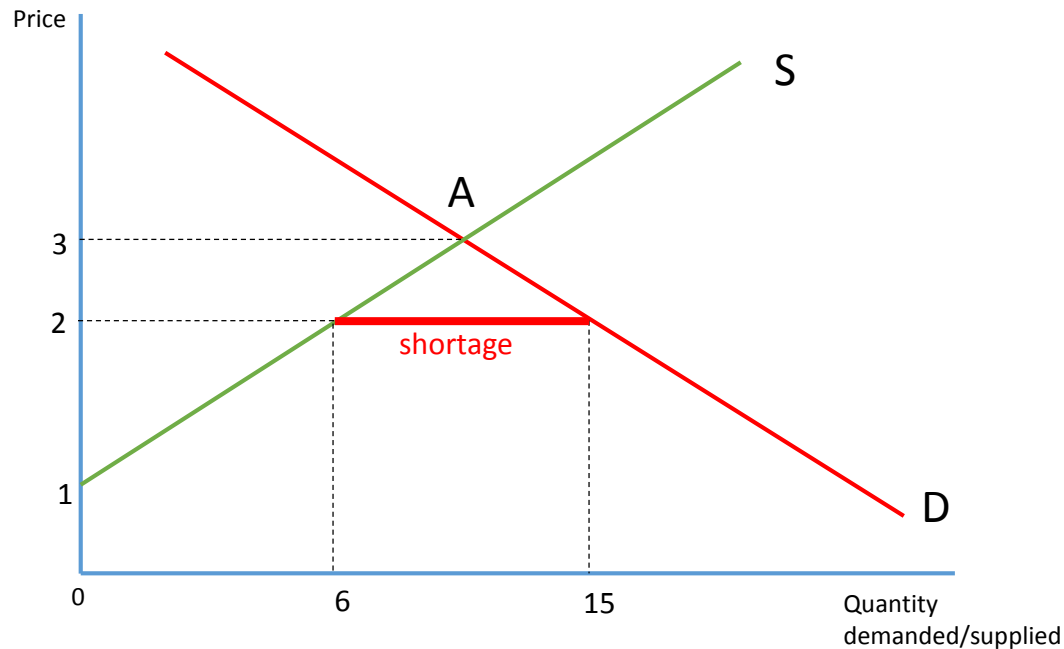
Government pricing policies (2)

- A *free market* is a market in which all the economic agents (i.e. consumers and producers) are 'free' to make their own choices without any intervention from the Government.
- However, it is a fact that market are not always free.
- The Government does intervene in order to reach some desired outcomes.

Government pricing policies: price ceiling

- A price ceiling is a limit in price set by the Government above which the producers of a good are not allowed to set the price for the good.
- The legal price is thus set *artificially* low (below the equilibrium price) so that consumers can afford it.
- This pricing policy is often implemented when the good is essential (e.g. drugs) in order to make it accessible to everybody.

Government pricing policies: price ceiling (2)

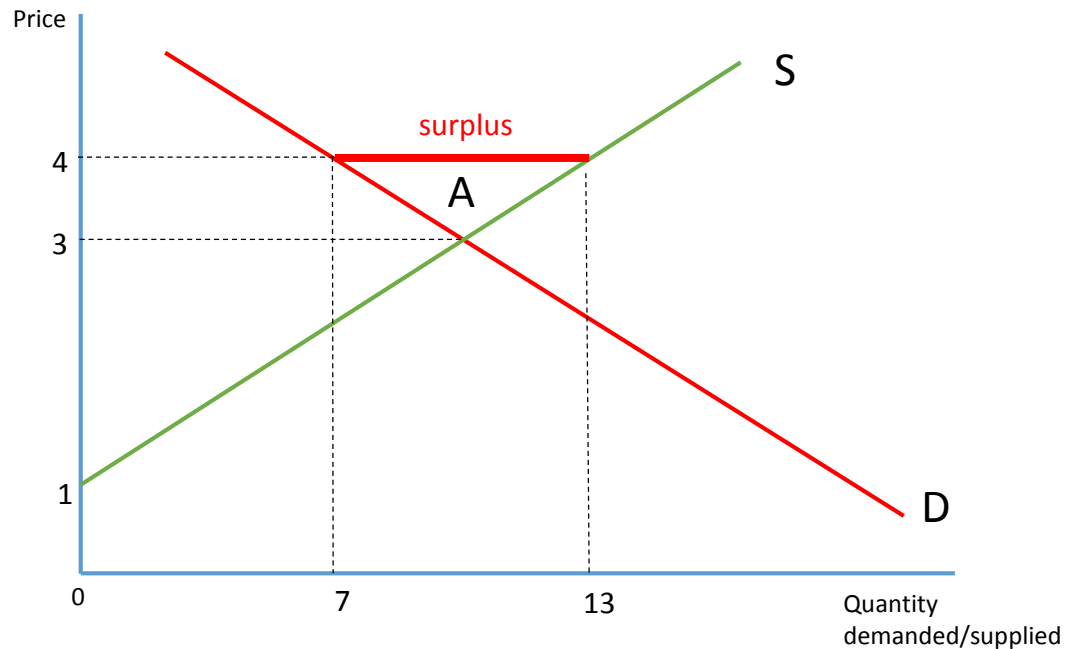


- Let's assume, the Government implements a price ceiling of \$2.
- Consequently, there is a shortage of $(15 - 6 =)$ 9 hamburgers.
- However, *there is no price adjustment*.
- Producers are NOT allowed to increase the price of hamburgers.
- So, there is a perpetual shortage.

Government pricing policies: price floor

- A price floor is a limit in price set by the Government below which the producers of a good are not allowed to set the price for the good.
- The legal price is thus set *artificially* high (above the equilibrium price) so that the producers can earn higher profits.
- This pricing policy is often implemented in order to protect an industry.
- A good example of a price floor is the minimum wage (because a wage is the price of labor).

Government pricing policies: price floor (2)

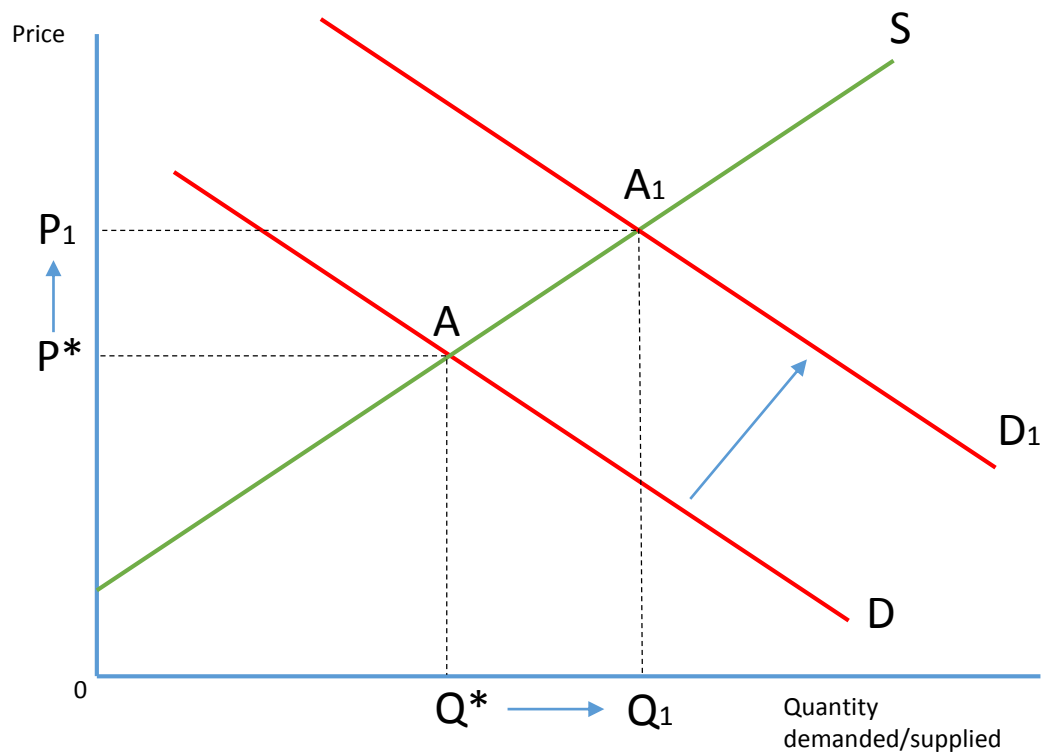


- Let's assume, the Government implements a price floor of \$4.
- Consequently, there is a surplus of $(13 - 7 =) 6$ hamburgers.
- However, *there is no price adjustment*.
- Producers are NOT allowed to decrease the price of hamburgers.
- So, there is a perpetual surplus.

Predicting changes in price and quantity

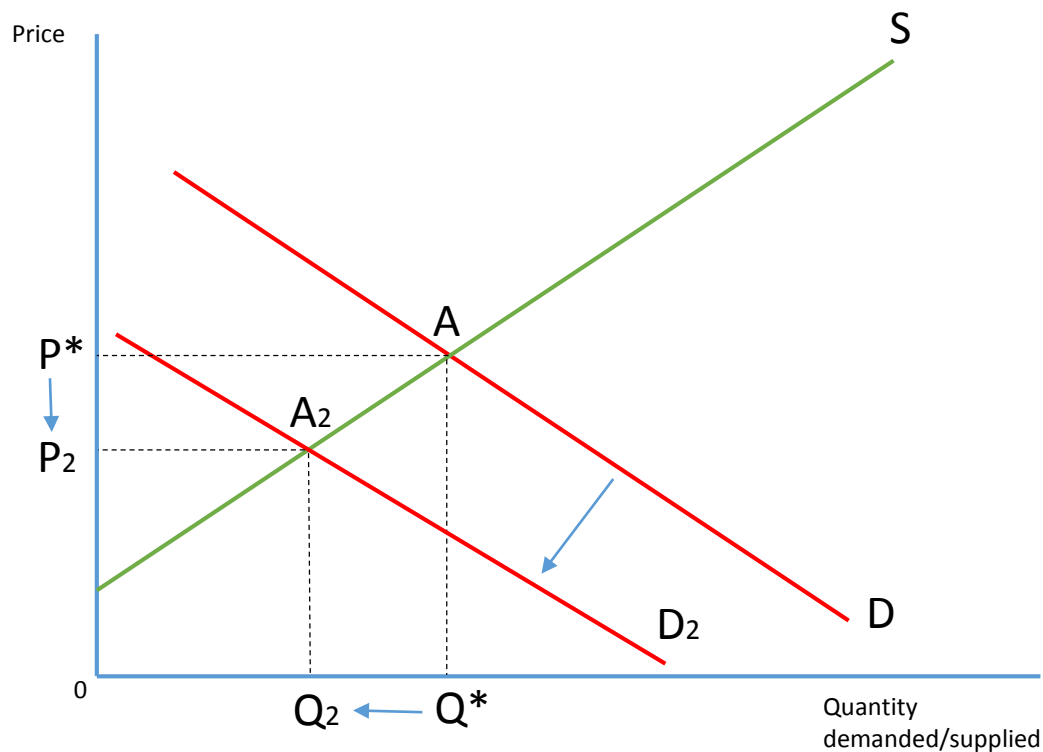
- Previously, we learned that the point of intersection between demand and supply is called *the equilibrium point*.
- We also learned that for every equilibrium point, there is a corresponding *equilibrium price* and *equilibrium quantity*.
- Just as the demand curve and the supply curve are dynamic (they can either shift to the left or to the right), the equilibrium point can also change.
- This means that the equilibrium price and quantity will change too.

Shifts in demand: demand increases



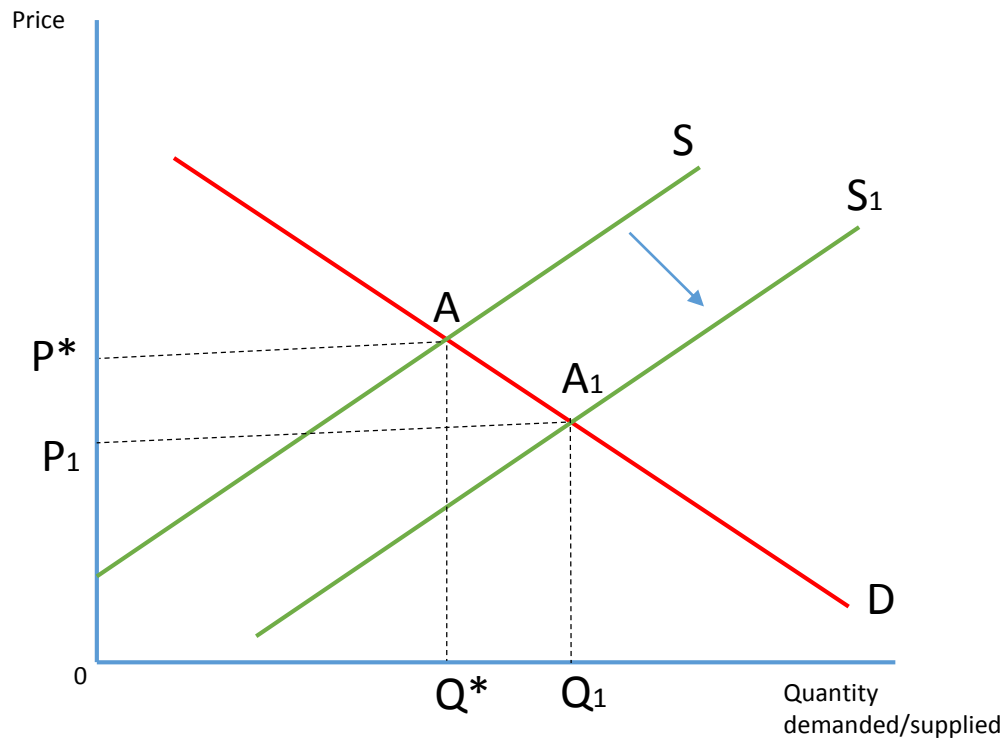
- When demand increases, the demand curve shifts to the right from D to D_1 .
- Given the same supply curve (S) the equilibrium point moves from A to A_1 .
- The equilibrium price increases from P^* to P_1 .
- The equilibrium quantity increases from Q^* to Q_1 .

Shifts in demand: demand decreases



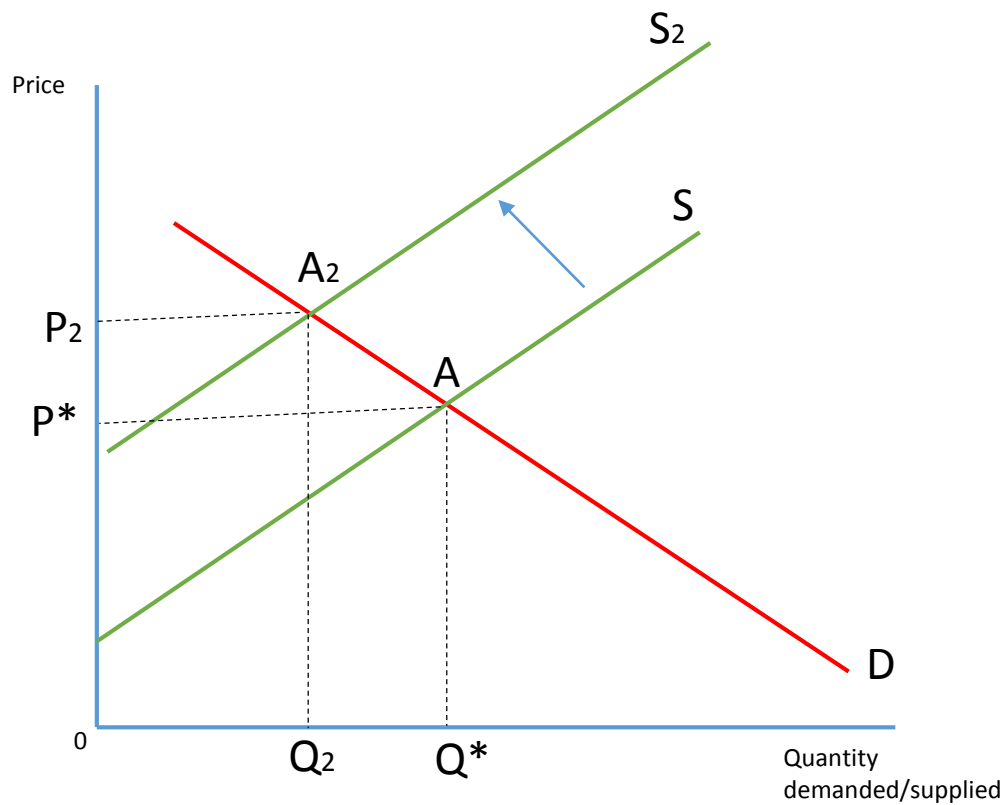
- When demand decreases, the demand curve shifts to the left from D to D₂.
- Given the same supply curve (S) the equilibrium point moves from A to A₂.
- The equilibrium price decreases from P* to P₂.
- The equilibrium quantity decreases from Q* to Q₂.

Shifts in supply: supply increases



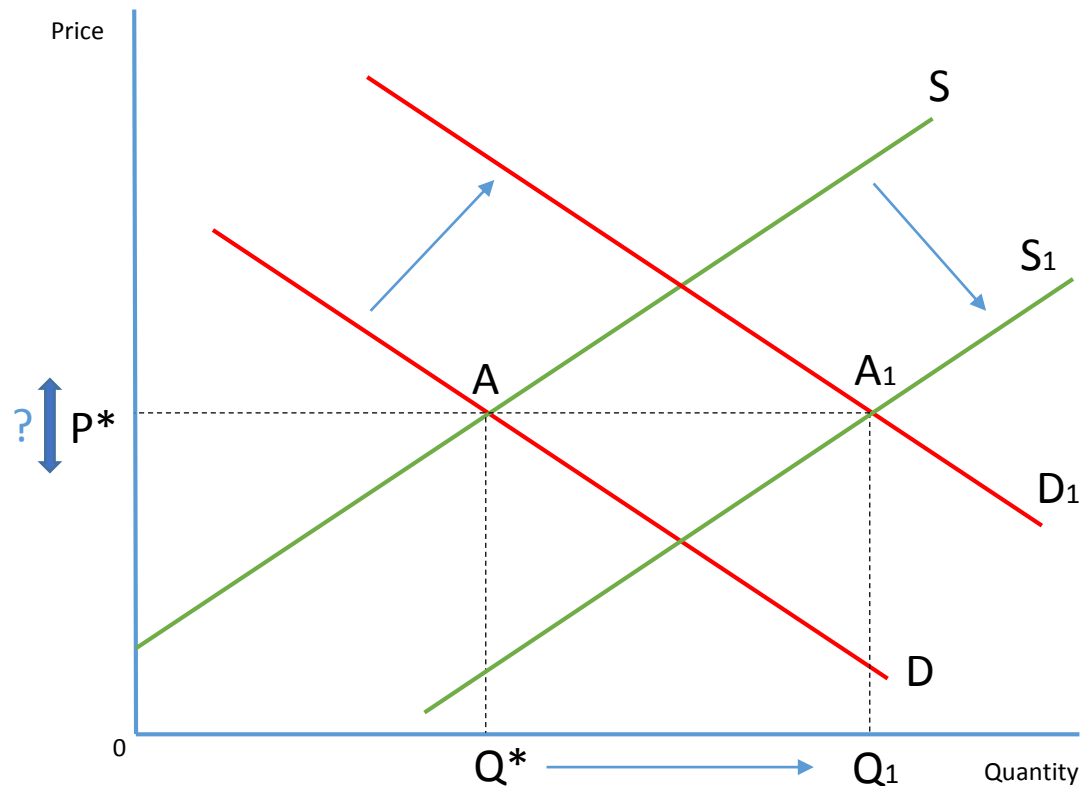
- When supply increases, the supply curve shifts to the right from S to S₁.
- Given the same demand curve (D) the equilibrium point moves from A to A₁.
- The equilibrium price decreases from P* to P₁.
- The equilibrium quantity increases from Q* to Q₁.

Shifts in supply: supply decreases



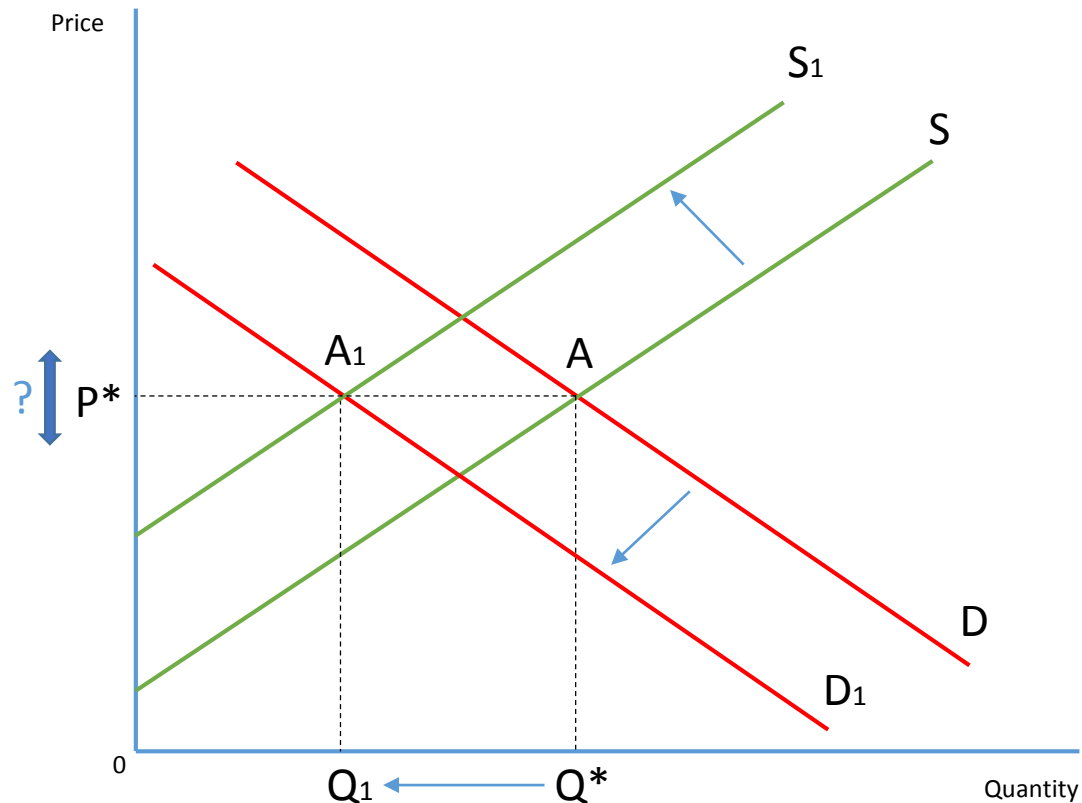
- When supply decreases, the supply curve shifts to the left from S to S₂.
- Given the same demand curve (D) the equilibrium point moves from A to A₂.
- The equilibrium price increases from P* to P₂.
- The equilibrium quantity decreases from Q* to Q₂.

Simultaneous shifts: demand and supply increase



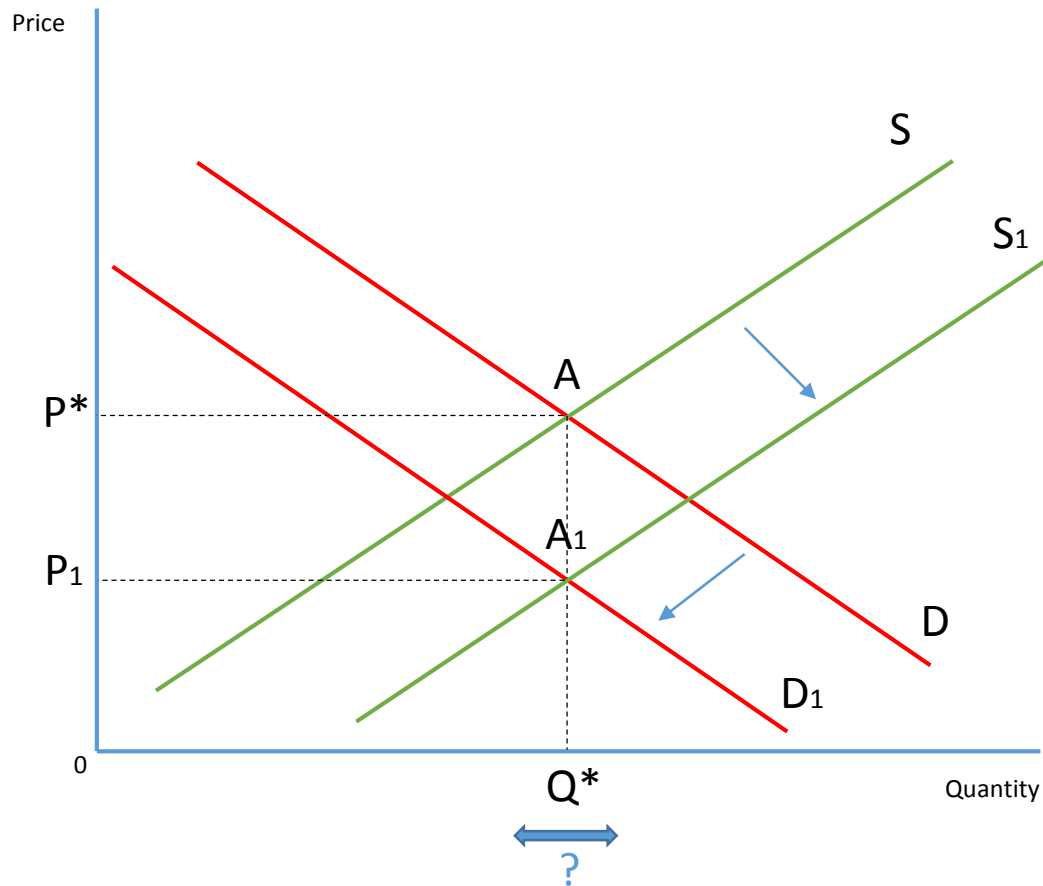
- When demand increases, the demand curve shifts to the right from D to D_1 .
- When supply increases, the supply curve shifts to the right from S to S_1 .
- The equilibrium point moves from point A to A_1 .
- *The equilibrium quantity increases from Q^* to Q_1 .*
- *In this example, the equilibrium price remains constant, but the change in price is not deterministic.*

Simultaneous shifts: demand and supply decrease



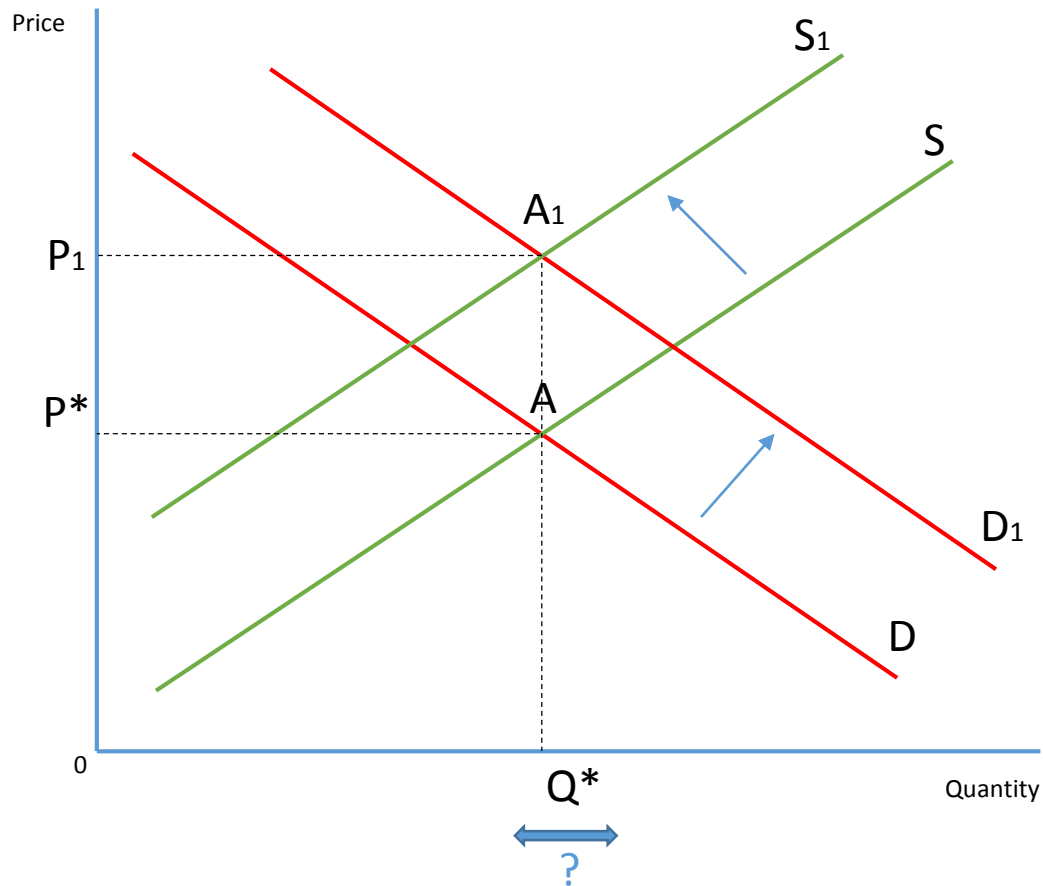
- When demand decreases, the demand curve shifts to the left from D to D_1 .
- When supply decreases, the supply curve shifts to the left from S to S_1 .
- The equilibrium point moves from point A to A_1 .
- *The equilibrium quantity decreases from Q^* to Q_1 .*
- *In this example, the equilibrium price remains constant, but the change in price is not deterministic.*

Simultaneous shifts: demand decreases and supply increases



- When demand decreases, the demand curve shifts to the left from D to D_1 .
- When supply increases, the supply curve shifts to the right from S to S_1 .
- The equilibrium point moves from point A to A_1 .
- *The equilibrium price falls from P^* to P_1 .*
- *In this example, the equilibrium quantity remains constant, but the change in quantity is not deterministic.*

Simultaneous shifts: demand increases and supply decreases



- When demand decreases, the demand curve shifts to the left from D to D_1 .
- When supply increases, the supply curve shifts to the right from S to S_1 .
- The equilibrium point moves from point A to A_1 .
- *The equilibrium price rises from P^* to P_1 .*
- *In this example, the equilibrium quantity remains constant, but the change in quantity is not deterministic.*

You should now be able to...

- Define and explain the concept of market equilibrium (with words and graphs).
- Identify and explain the consequences of off-equilibrium prices (surpluses and shortages).
- Understand and explain the price adjustment mechanisms resulting from off-equilibrium prices.
- Explain the effects of Government policies such as price ceiling/floor on the market.
- Explain the changes in the market equilibrium values resulting from shifts in demand and/or supply.