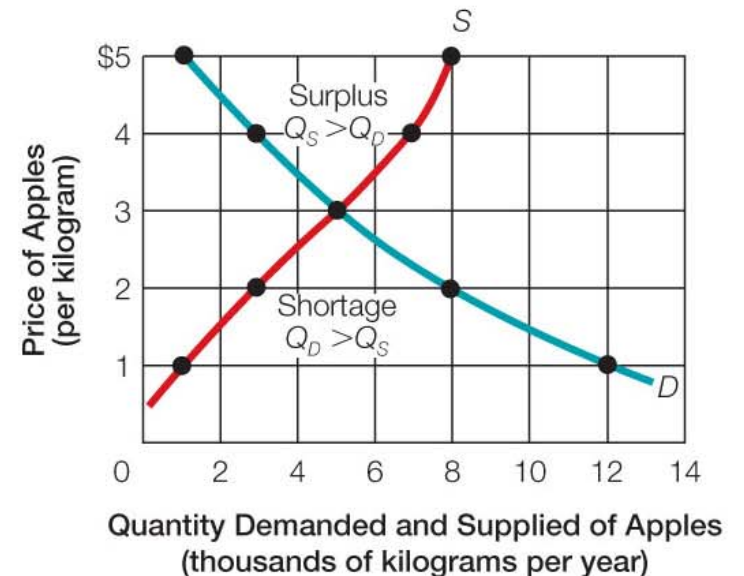


# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Schedule for Apples*

Price	Quantity Supplied	Quantity Demanded	Difference	State of Market
\$5	8000	1 000	7 000	Surplus
4	7000	3 000	4 000	Surplus
3	5000	5 000	0	Equilibrium
2	3000	8 000	-5 000	Shortage
1	1000	12 000	-11 000	Shortage

The equilibrium is \$3 per kilogram and 5000 kilograms of apples, where quantity demanded and quantity supplied are equal. At higher prices, quantity supplied exceeds quantity demanded, resulting in a surplus. Below \$3, quantity demanded exceeds quantity supplied, leading to a shortage.



Let's examine this more closely...

# 4.1 Market Equilibrium Price and Quantity

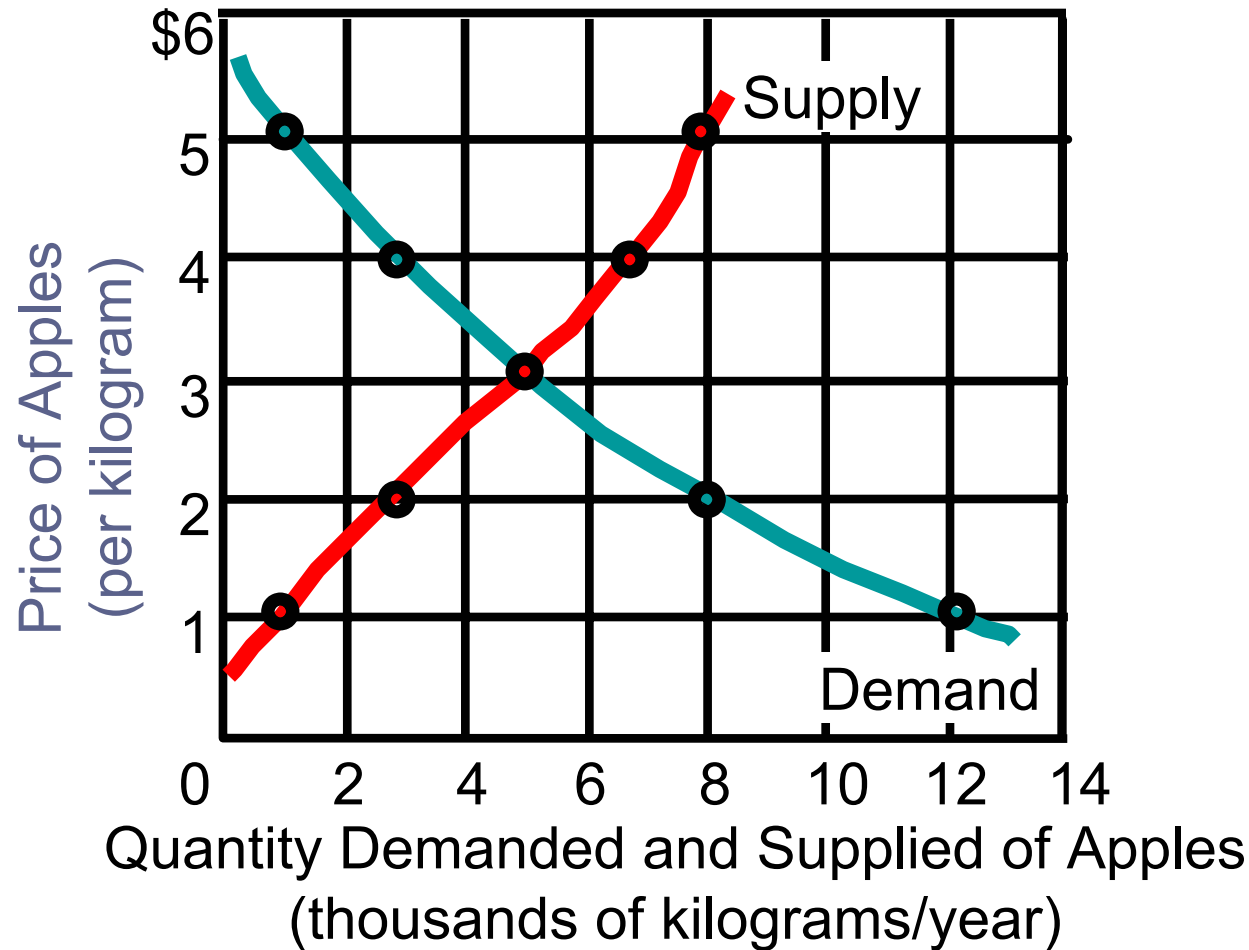
*Exhibit 1: A Hypothetical Market Supply and Demand Schedule for Apples*

Price	Quantity Supplied	Quantity Demanded
\$ 5.00	8000	1000
\$ 4.00	7000	3000
\$ 3.00	5000	5000
\$ 2.00	3000	8000
\$ 1.00	1000	12000

**Use this schedule to make the chart on the next slide**

# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Schedule for Apples*



# 4.1 Market Equilibrium Price and Quantity

What is the Equilibrium Price and Equilibrium Quantity?

- the price at the intersection of the market supply and demand curves;
- at this price, the quantity that buyers are willing and able to buy is equal to the quantity that sellers are willing and able to produce.

# 4.1 Market Equilibrium Price and Quantity

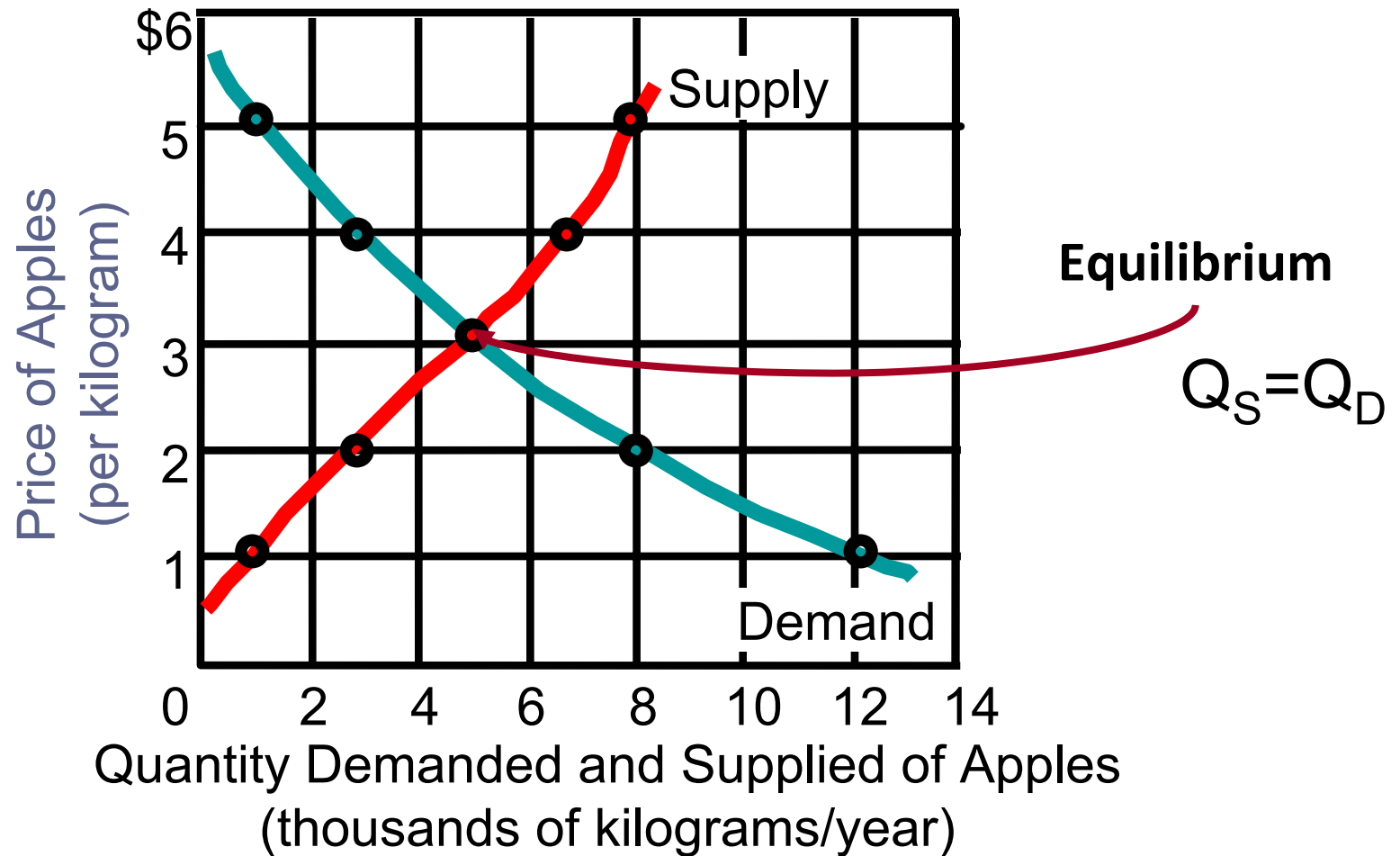
*Exhibit 1: A Hypothetical Market Supply and Demand Chart for Apples*

Price	Quantity Supplied	Quantity Demanded	Difference	State of the Market
\$ 5.00	8000	1000		
\$ 4.00	7000	3000		
\$ 3.00	5000	5000	0	<i>Equilibrium</i>
\$ 2.00	3000	8000		
\$ 1.00	1000	12000		

**This is marked on the chart on the next slide**

# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Schedule for Apples*



# 4.1 Market Equilibrium Price and Quantity

What is a Shortage?

- a situation where quantity demanded exceeds quantity supplied;
- occurs when price is below equilibrium.

# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Chart for Apples*

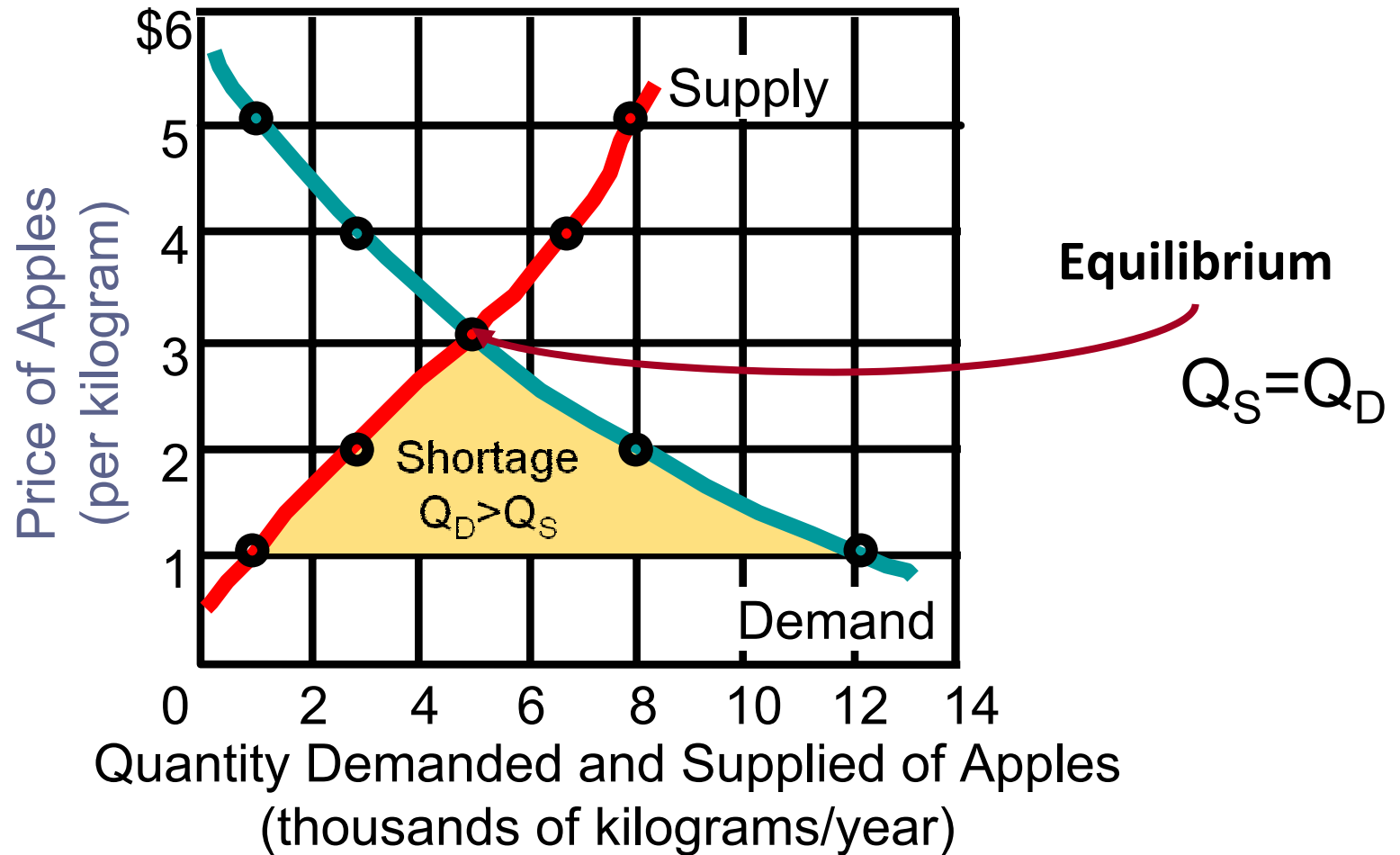
Price	Quantity Supplied	Quantity Demanded	Difference	State of the Market
\$ 5.00	8000	1000		
\$ 4.00	7000	3000		
\$ 3.00	5000	5000	0	Equilibrium
\$ 2.00	3000	8000	-5000	Shortage
\$ 1.00	1000	12000	-11000	Shortage

shortage



# 4.1 Market Equilibrium Price and Quantity

Exhibit 1: A Hypothetical Market Supply and Demand Chart for Apples



# 4.1 Market Equilibrium Price and Quantity

What is a Shortage?

- at a price **lower** than equilibrium price, there is a shortage, ie. excess quantity demanded;
- buyers want more than is available;
- frustrated buyers compete for goods, causing prices to rise.

# 4.1 Market Equilibrium Price and Quantity

What is a Shortage?

As the price rises:

- producers supply more;
- buyers demand less;
- the shortage is eliminated; and,
- the market returns to equilibrium.

# 4.1 Market Equilibrium Price and Quantity

What is a Surplus?

- a situation where quantity supplied exceeds quantity demanded.
- occurs when price is above equilibrium.

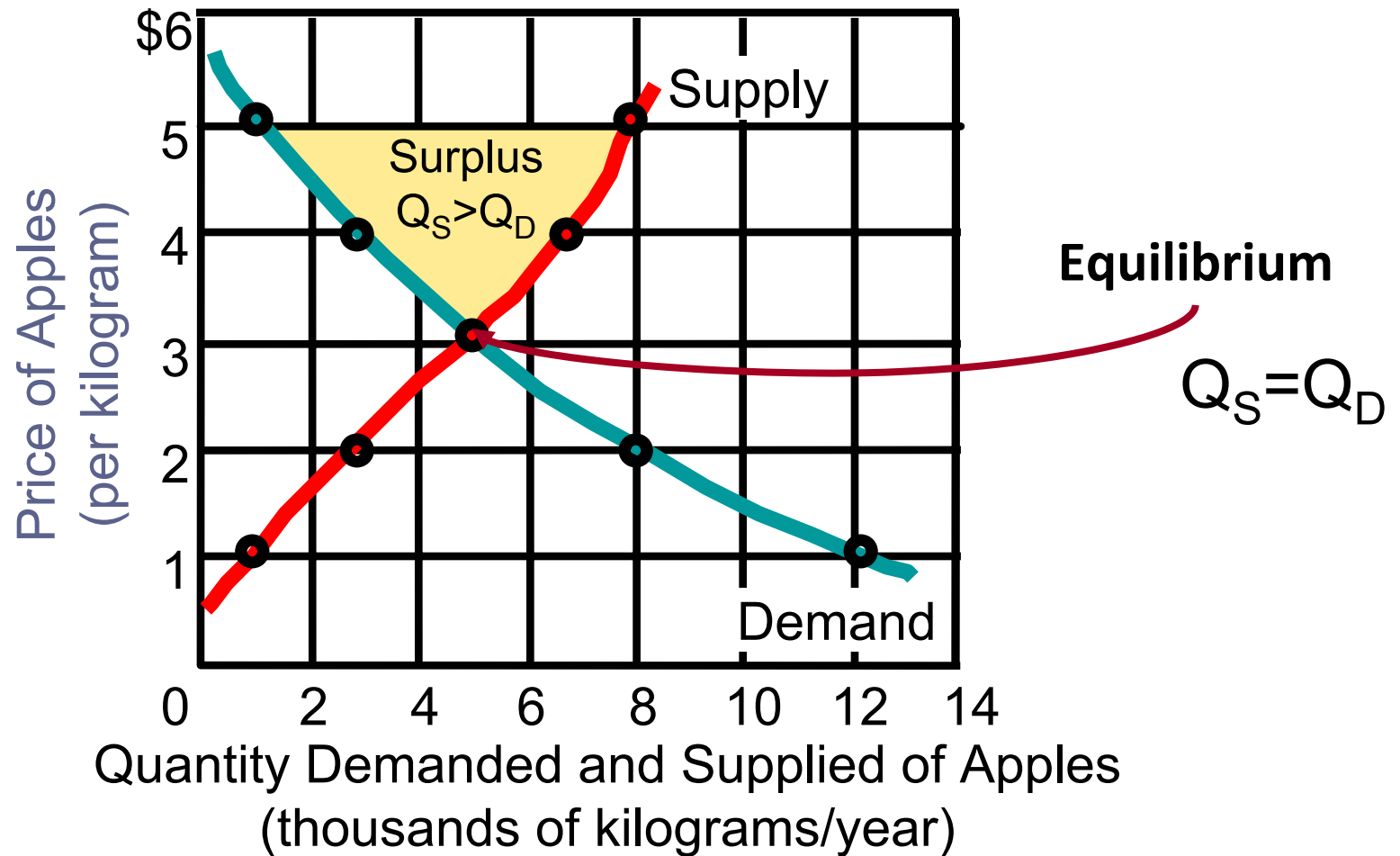
# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Chart for Apples*

	Price	Quantity Supplied	Quantity Demanded	Difference	State of the Market
surplus	\$ 5.00	8000	1000	+7000	Surplus
	\$ 4.00	7000	3000	+4000	Surplus
	\$ 3.00	5000	5000	0	<b>Equilibrium</b>
	\$ 2.00	3000	8000		
	\$ 1.00	1000	12000		

# 4.1 Market Equilibrium Price and Quantity

*Exhibit 1: A Hypothetical Market Supply and Demand Chart for Apples*



# 4.1 Market Equilibrium Price and Quantity

What is a Surplus?

- If price is greater than equilibrium price;
- there is a surplus, ie. excess quantity supplied;
- sellers are unable to sell all their goods;
- frustrated suppliers cut their price.

# 4.1 Market Equilibrium Price and Quantity

What is a Surplus?

At the lower price:

- suppliers cut back on production;
- consumers buy more;
- surplus is eliminated; and,
- market returns to equilibrium.



# 4.1 Market Equilibrium Price and Quantity

## Section Check

- At equilibrium there are no shortages or surpluses.
- When quantity supplied exceeds quantity demanded, there is a ***market surplus***. Prices fall.
- When quantity demanded exceeds quantity supplied, there is a ***market shortage***. Prices rise.

## 4.2 Changes in Equilibrium Price and Quantity

### The demand curve shifts:

- when any of the other factors that affect buyers' behaviour change.
- *not* when the price of the good itself changes.

### The supply curve shifts:

- when any of the other factors that affect sellers' behaviour change.
- *not* when the price of the good itself changes.

## 4.2 Changes in Equilibrium Price and Quantity

- Answer three key questions to analyze changes in market
  1. Which side of the market is being affected by the event in question: demand or supply?
  2. Is the event in question a “shift” or a “movement along the curve”?
  3. Is the event in question having an expansionary or contractionary impact on the market?

## 4.2 Changes in Equilibrium Price and Quantity

What happens at equilibrium when there is a change in demand?

■ an increase in demand (shift to the right) results in:

- higher equilibrium price.
- greater equilibrium quantity.

## 4.2 Changes in Equilibrium Price and Quantity

What happens at equilibrium when there is a change in demand?

■ a decrease in demand (shift to the left) results in:

- lower equilibrium price.
- lower equilibrium quantity.

# 4.2 Changes in Equilibrium Price and Quantity

## A Change in *Demand*



The Canadian Press/Jacques Boissinot

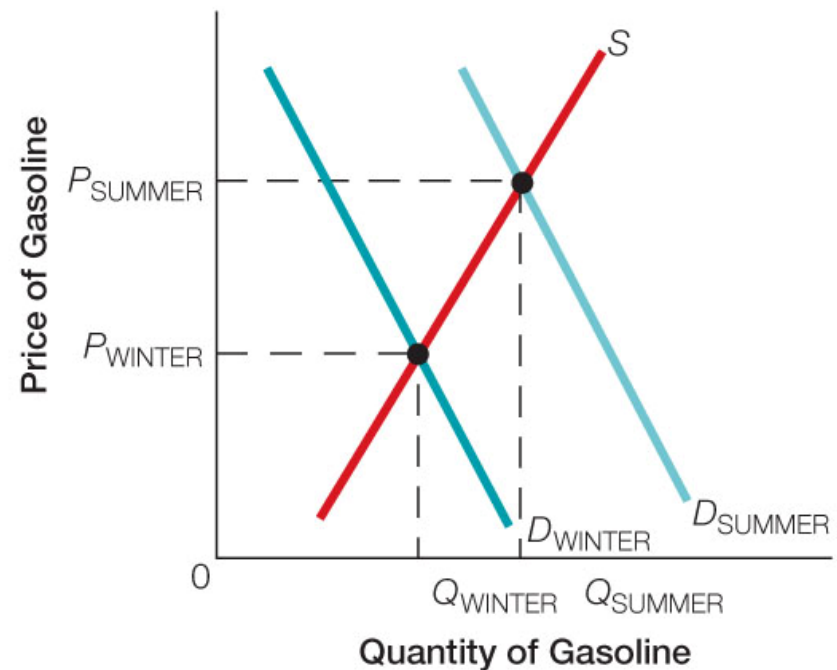
- demand for gasoline is higher in the summer
- the seasonal increase in demand leads to a shortage at the original (out of season) price

# 4.2 Changes in Equilibrium Price and Quantity

## A Change in *Demand*

Exhibit 1: Changes in Gasoline Prices in the Summer

- Note how the demand curve has shifted to the right, in summer
- The market has expanded because of the increased summer demand. Equilibrium price is higher.

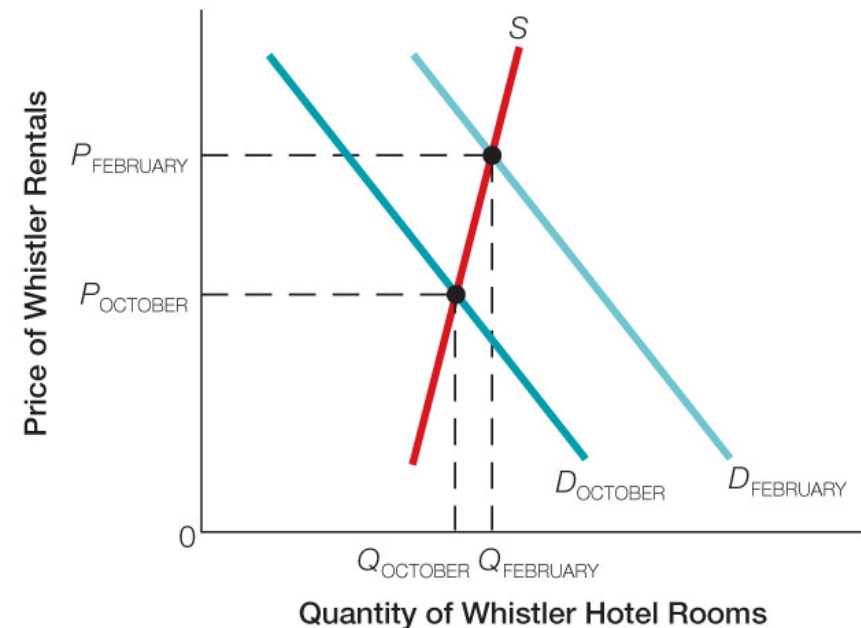


# 4.2 Changes in Equilibrium Price and Quantity

## A Change in *Demand*

Exhibit 2: Changes in Whistler, B.C. hotel room prices in the Winter

- The demand curve has shifted to the right, in February (peak ski season at Whistler)
- Less demand in summer means room prices fall





## 4.2 Changes in Equilibrium Price and Quantity

What happens at equilibrium when there is a change in supply?

- a ***decrease*** in supply (shift to left) results in:
  - higher equilibrium price.
  - lower equilibrium quantity.

## 4.2 Changes in Equilibrium Price and Quantity

What happens at equilibrium when there is a change in supply?

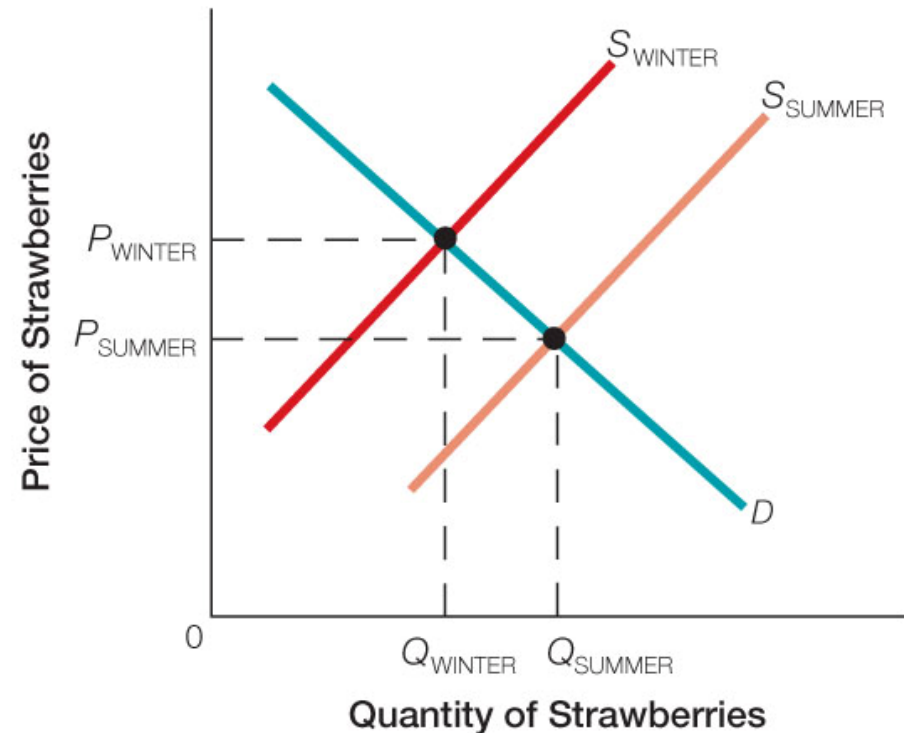
- an ***increase*** in supply (shift to right) results in:
  - lower equilibrium price.
  - higher equilibrium quantity.

# 4.2 Changes in Equilibrium Price and Quantity

## A Change in *Supply*

Exhibit 3: Lower Strawberry Prices in the Summer

- the supply curve **shifts to the right** in summer, when local strawberries are available
- The result is **lower prices**

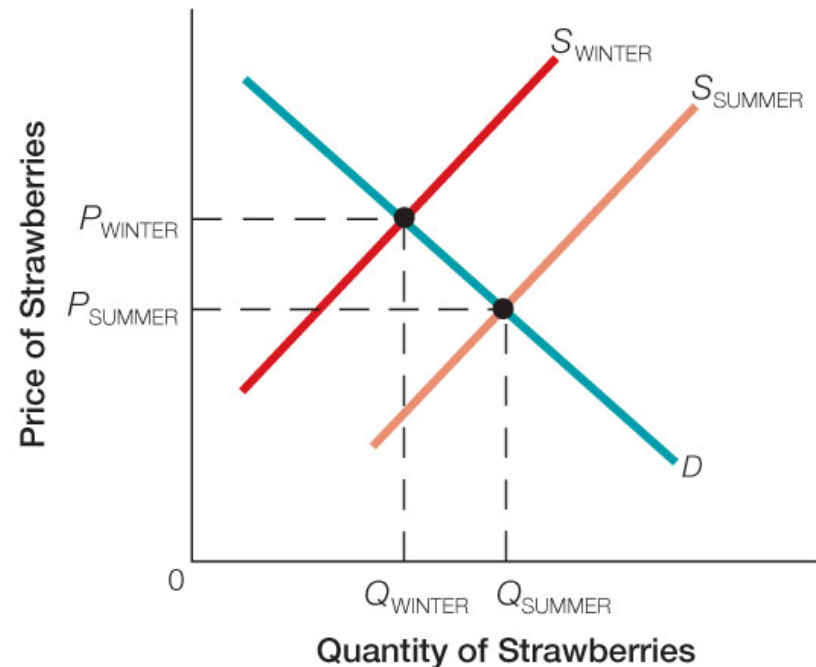


# 4.2 Changes in Equilibrium Price and Quantity

## A Change in *Supply*

Exhibit 3: Lower Strawberry Prices in the Summer

■ At the higher winter price for strawberries there would be a surplus of strawberries in-season. This surplus forces the in-season price down to  $P_1$ .



## 4.2 Changes in Equilibrium Price and Quantity

What happens when supply and demand change at the same time?

- we can predict the change in *one* equilibrium variable ( $\text{price}_E$  or  $\text{quantity}_E$ );
- cannot predict effect on the other variable;
- change in second variable is indeterminate until we know the relative changes in supply and demand.

## 4.2 Changes in Equilibrium Price and Quantity

What happens when supply and demand change at the same time?

*Can predict equilibrium price and quantity by looking at effects of individual shifts, then putting them together:*

↑ supply → ↓ price, ↑ quantity  
↓ demand → ↓ price, ↓ quantity

Taken together,

↓ price, *indeterminate* quantity

## 4.2 Changes in Equilibrium Price and Quantity

What happens when supply and demand change at the same time?

- the change in quantity will depend on the relative changes in supply and demand:
  - if the decrease in demand is greater than the increase in supply, the equilibrium quantity will decrease.

## 4.2 Changes in Equilibrium Price and Quantity

What happens when supply and demand change at the same time?

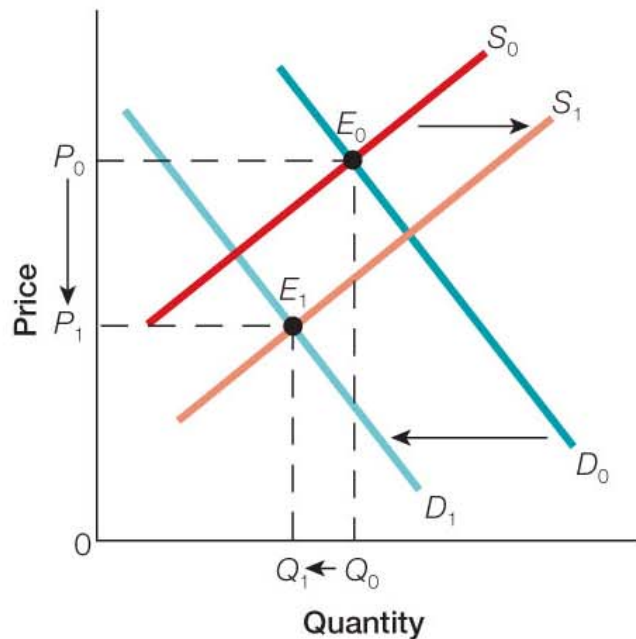
- the change in quantity will depend on the relative changes in supply and demand:
  - if the increase in supply is greater than the decrease in demand, the equilibrium quantity will increase



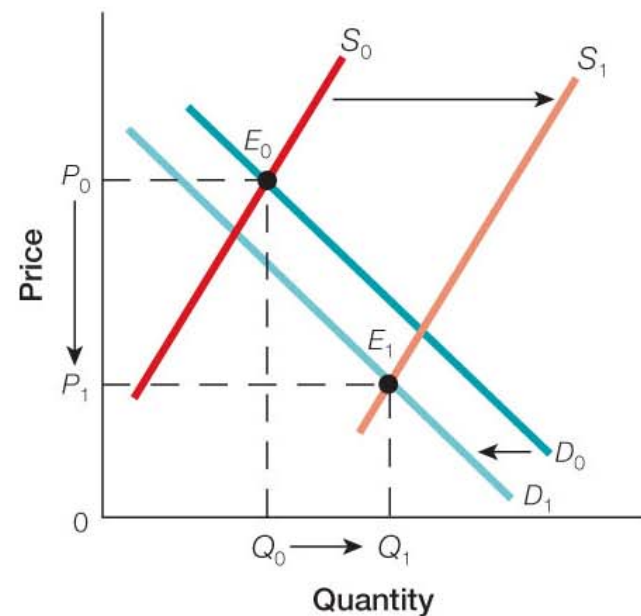
# 4.2 Changes in Equilibrium Price and Quantity

## Exhibit 5: Shifts in Supply and Demand

a. A Little Increase in Supply and a Big Decrease in Demand



b. A Big Increase in Supply and a Little Decrease in Demand



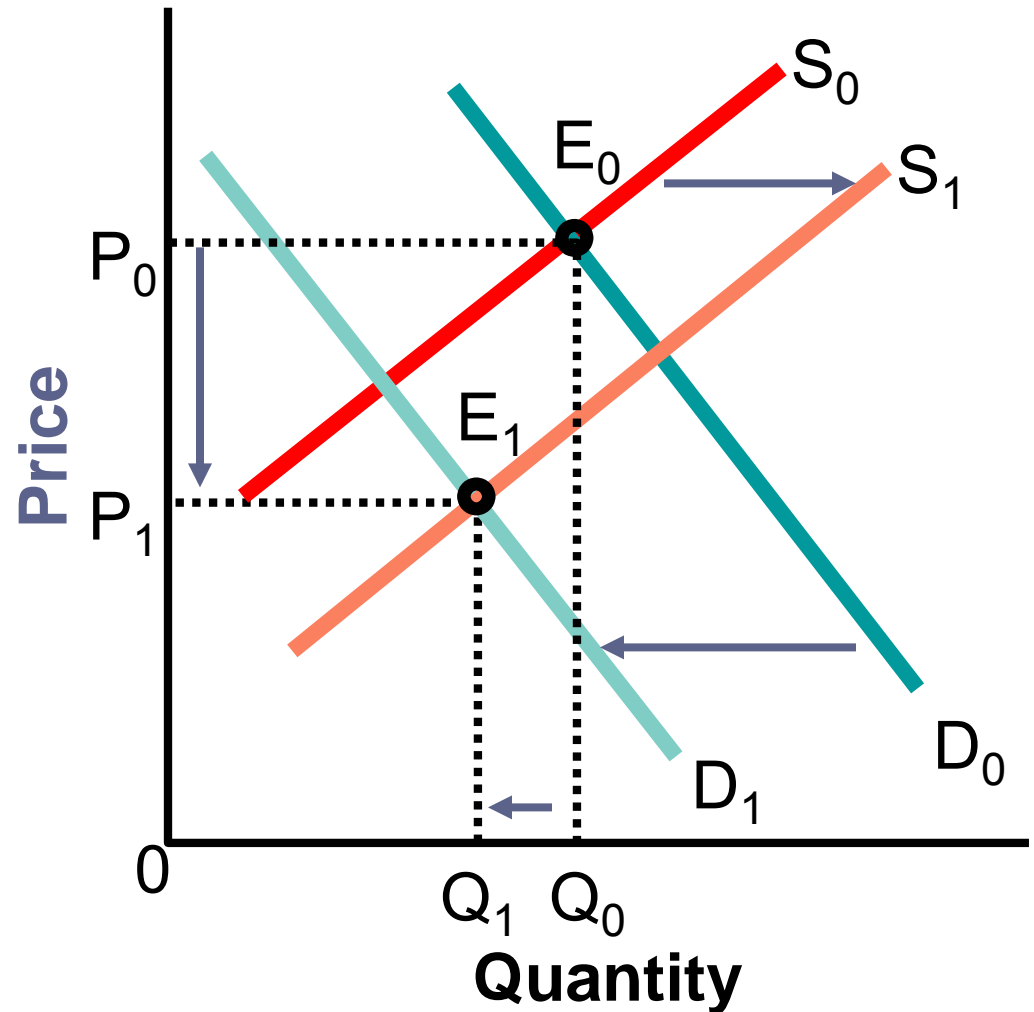
Let's examine this more closely...

## 4.2 Changes in Equilibrium Price and Quantity

### *Exhibit 5: Shifts in Supply and Demand*

a. A Little Increase in Supply and a Big Decrease in Demand

The price definitely falls, but the quantity shift is indeterminate, until we know the magnitude of the changes in demand and supply

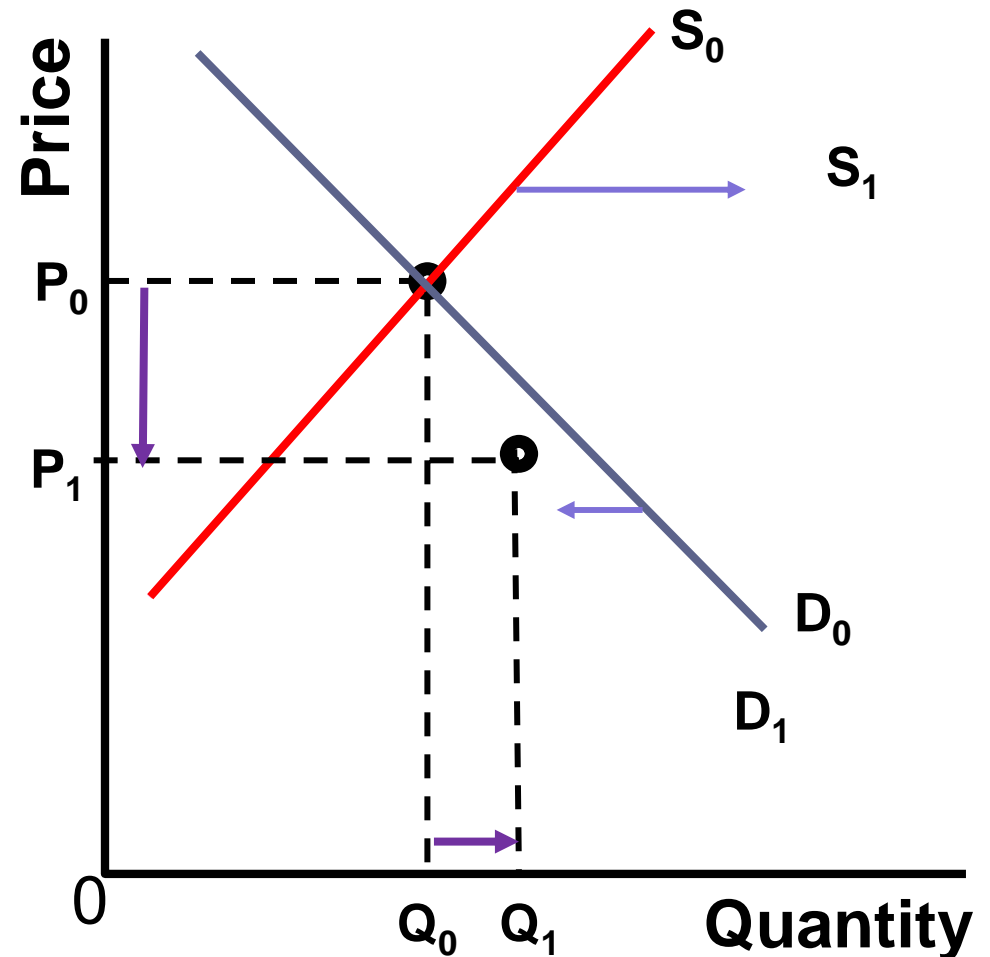


## 4.2 Changes in Equilibrium Price and Quantity

### *Exhibit 5: Shifts in Supply and Demand*

b. A Big Increase in Supply and a Little Decrease in Demand

If the increase in supply (rightward shift) is greater than the decrease in demand (leftward shift), the equilibrium price will fall and the equilibrium quantity will rise.



## 4.2 Changes in Equilibrium Price and Quantity

What happens when supply and demand change at the same time?

*Can predict equilibrium price and quantity by looking at effects of individual shifts, then putting them together:*

↑ supply → ↓ price, ↑ quantity

↑ demand → ↑ price, ↑ quantity

Taken together,

*indeterminate price, ↑ quantity*

## 4.2 Changes in Equilibrium Price and Quantity

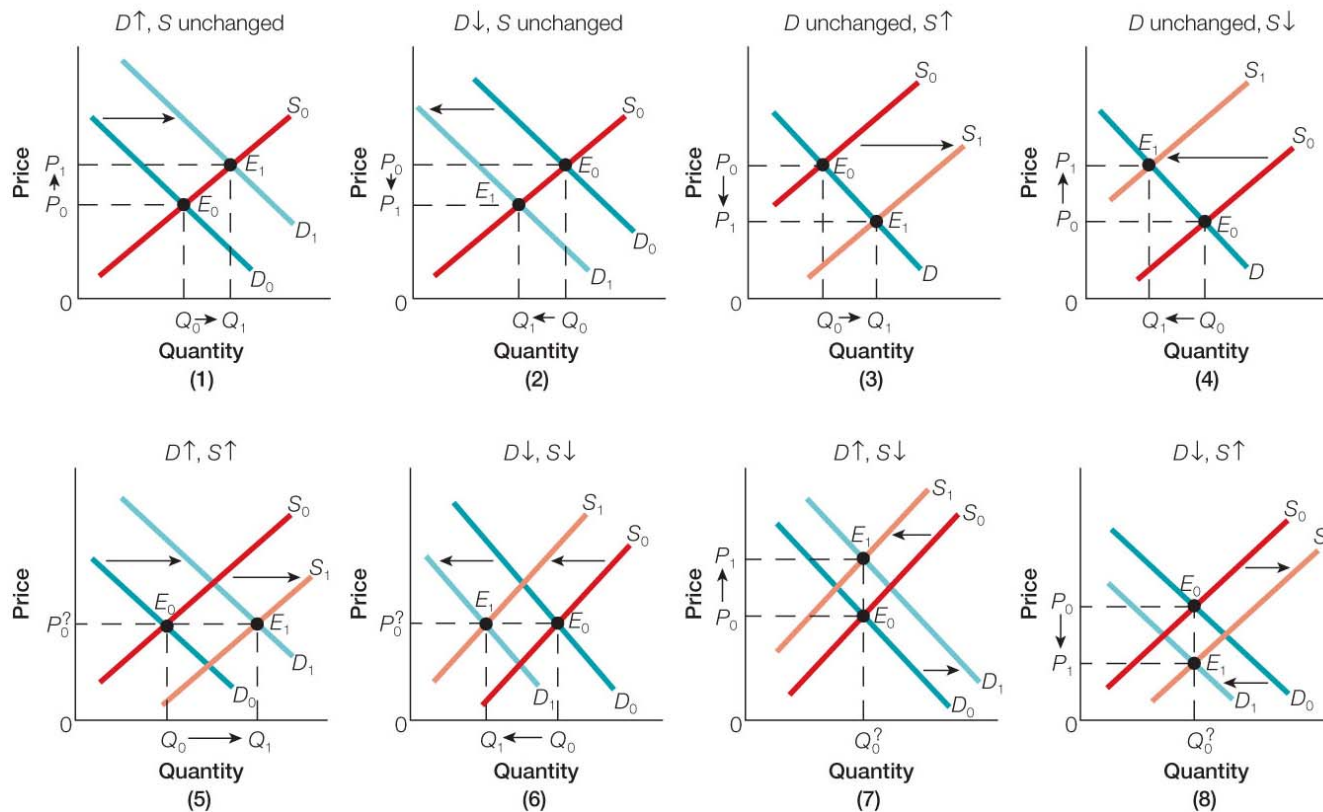
What happens when supply and demand change at the same time?

- The change in equilibrium price will depend on the relative changes in supply and demand
  - If supply shifts more than demand, the equilibrium price will drop; but,
  - If demand shifts more than supply, then the equilibrium price will rise.

# 4.2 Changes in Equilibrium Price and Quantity

## Exhibit 6: The Effect of Changing Demand and/or Supply

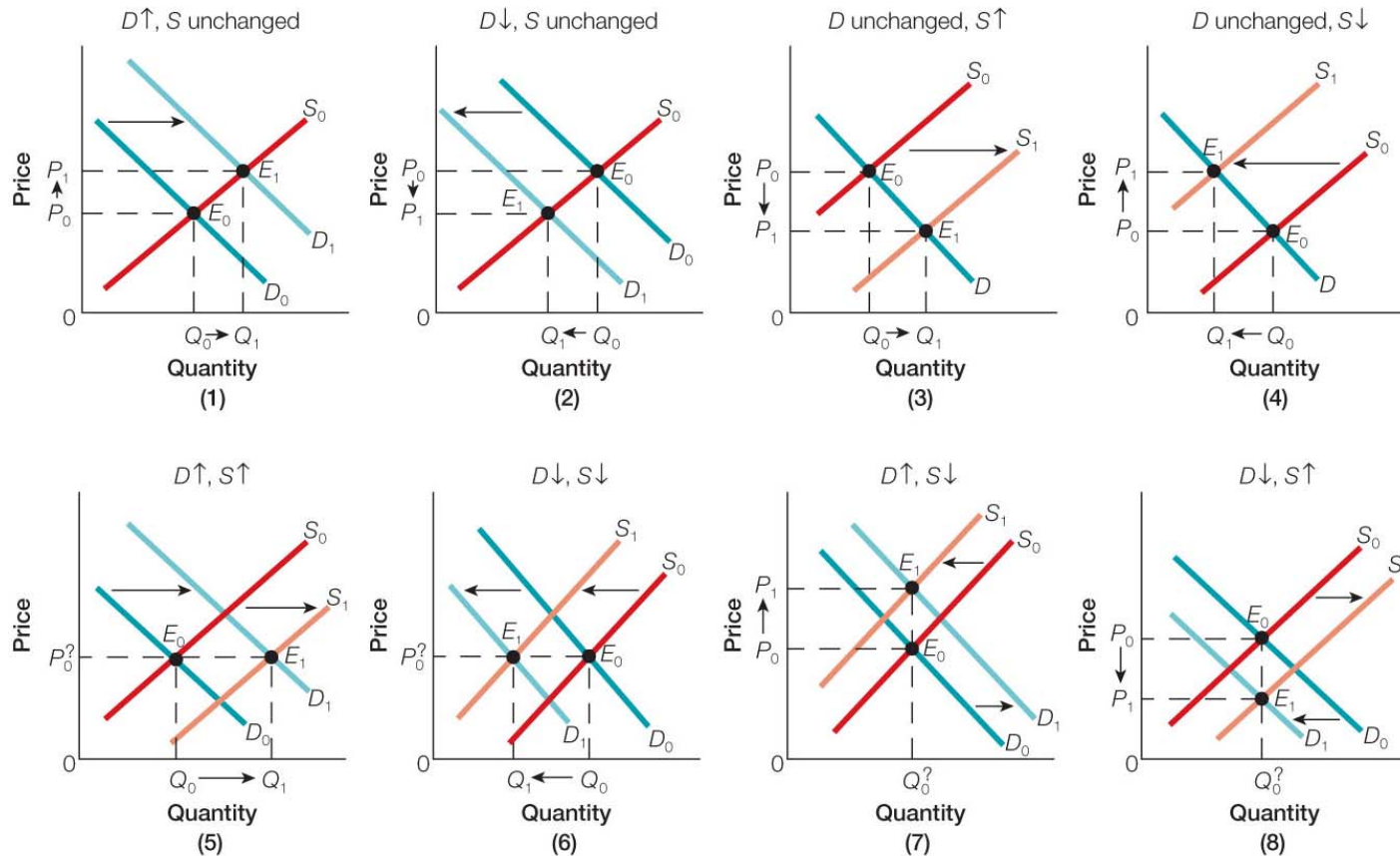
Eight possible changes in demand and/or supply are presented, along with the resulting changes in equilibrium quantity and equilibrium price



# 4.2 Changes in Equilibrium Price and Quantity

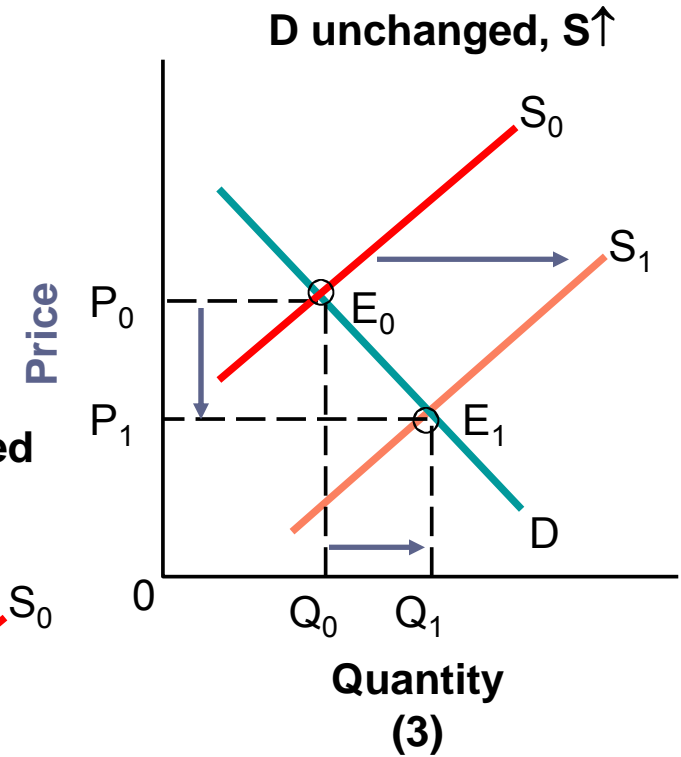
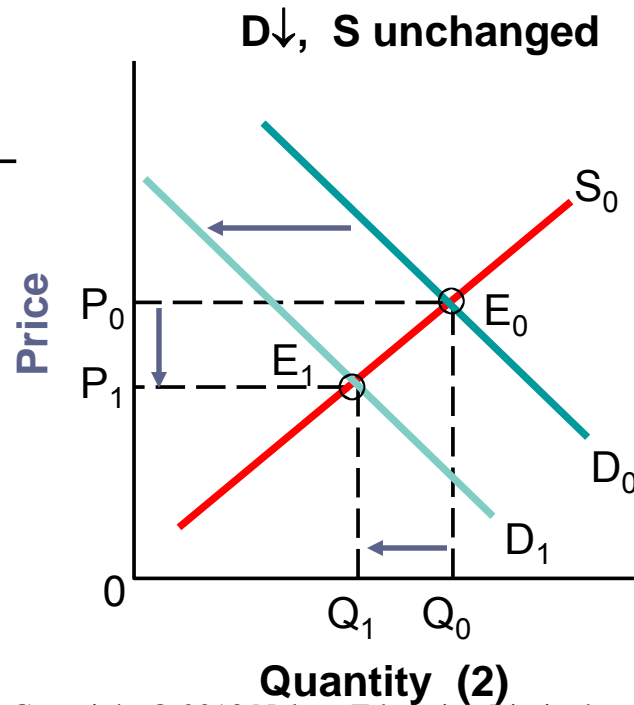
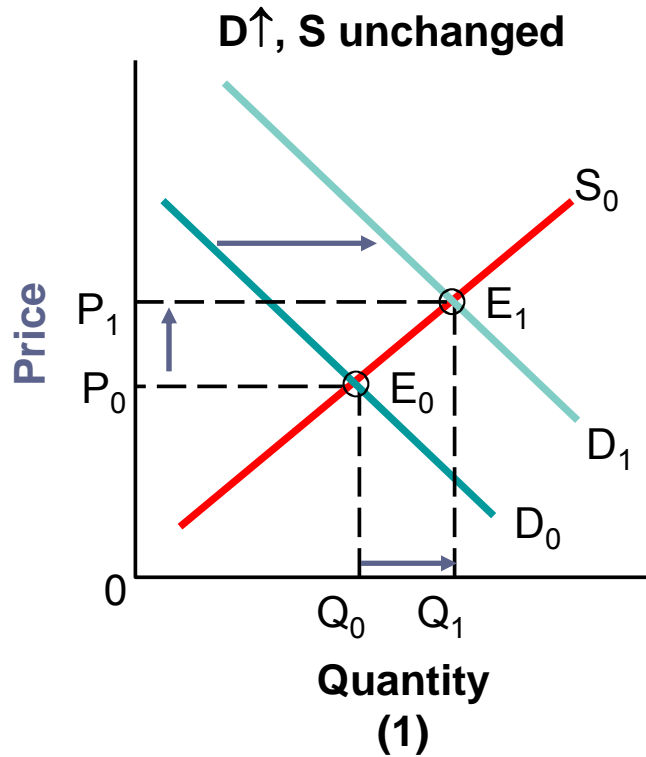
## Exhibit 7: The Combinations of Demand and Supply Shifts

Know how to draw the graphs, rather than memorizing all the combinations



# 4.2 Changes in Equilibrium Price and Quantity

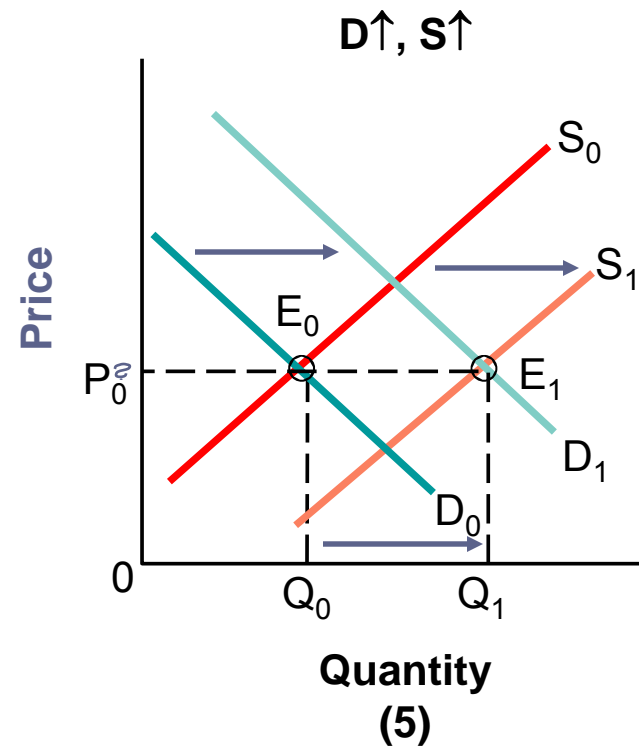
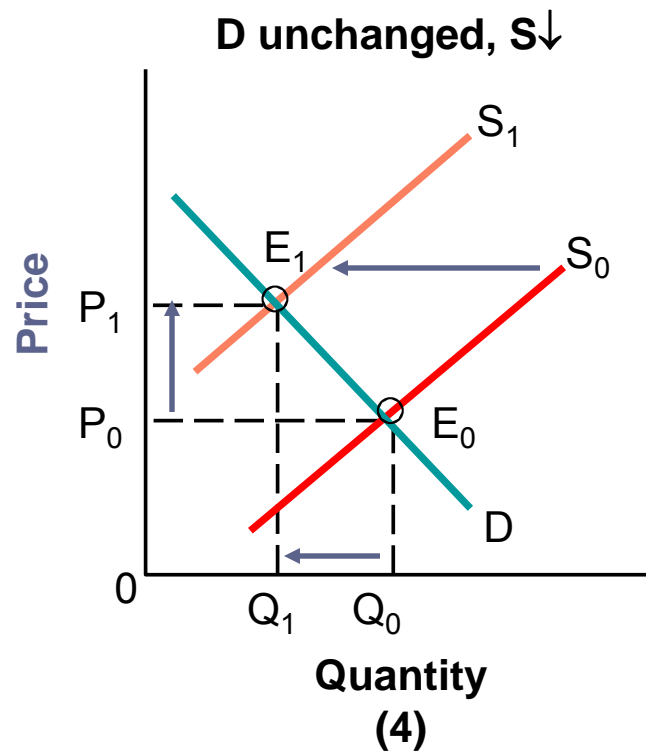
## Exhibit 7: The Combinations of Demand and Supply Shifts





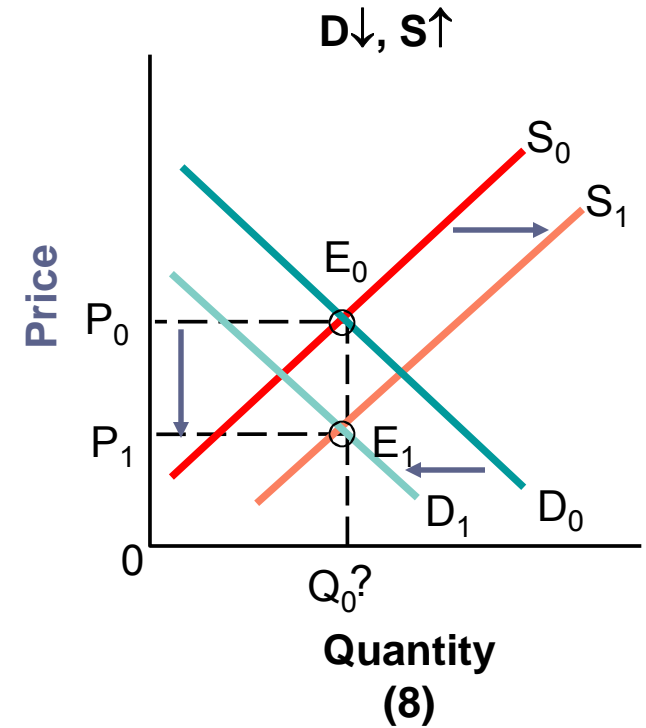
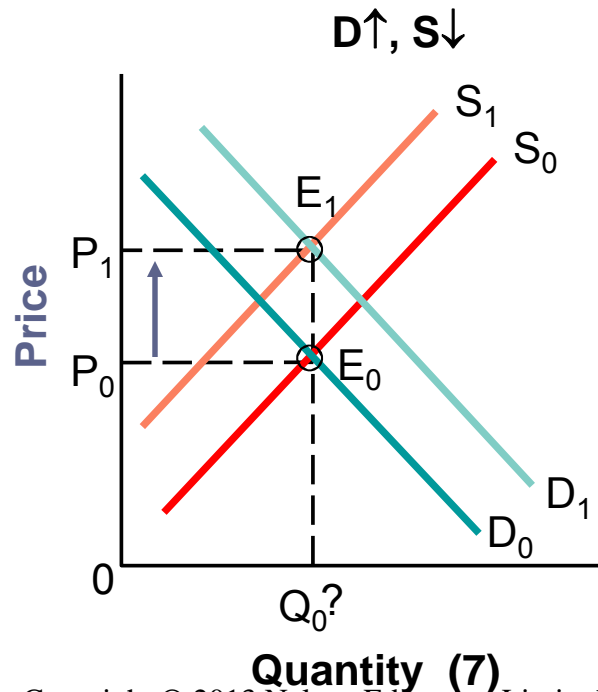
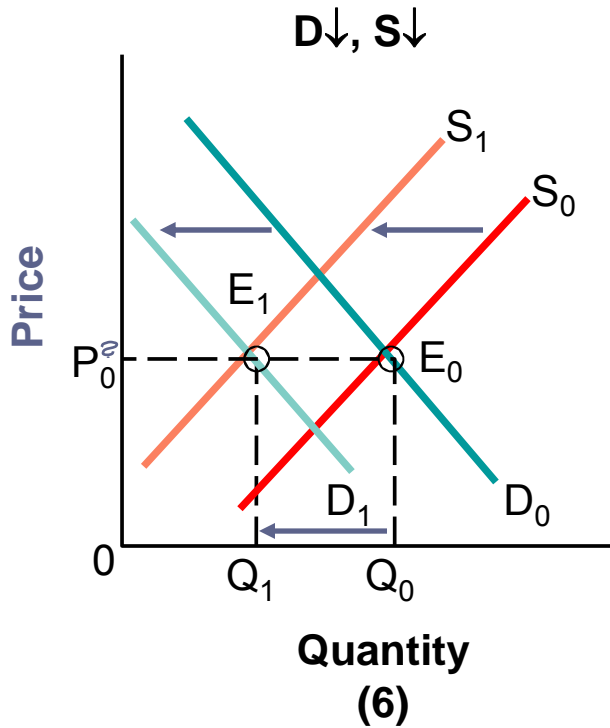
# 4.2 Changes in Equilibrium Price and Quantity

## Exhibit 7: The Combinations of Demand and Supply Shifts



# 4.2 Changes in Equilibrium Price and Quantity

## Exhibit 7: The Combinations of Demand and Supply Shifts



# 4.2 Changes in Equilibrium Price and Quantity

## Section Check

- Changes in demand will cause a change in the equilibrium price and quantity, *ceteris paribus*.
- Changes in supply will cause a change in the equilibrium price and quantity, *ceteris paribus*.
- When there are simultaneous shifts in both supply and demand curves, either the equilibrium price or the equilibrium quantity will be indeterminate without more information.

## 4.3 Price Controls

What are Price Controls?

- the use of government power to establish a price different from market equilibrium price.
  - A ***price ceiling***, or a legal maximum price, is often set for goods deemed important to low income households, like housing.
  - A ***price floor***, or a legal minimum price, may be set on wages because wages are the primary source of income for most people.

## 4.3 Price Controls

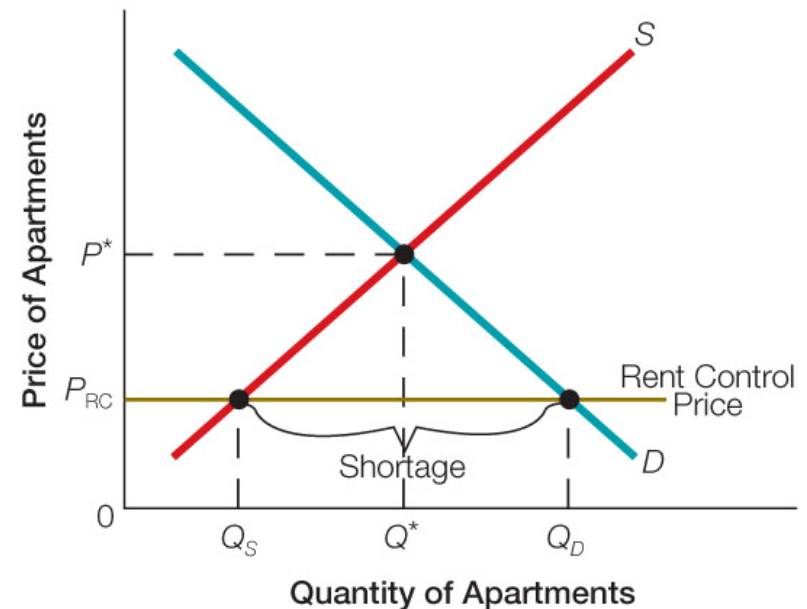
# What are Price Ceilings?

## 4.3 Price Controls

### What are Price Ceilings?

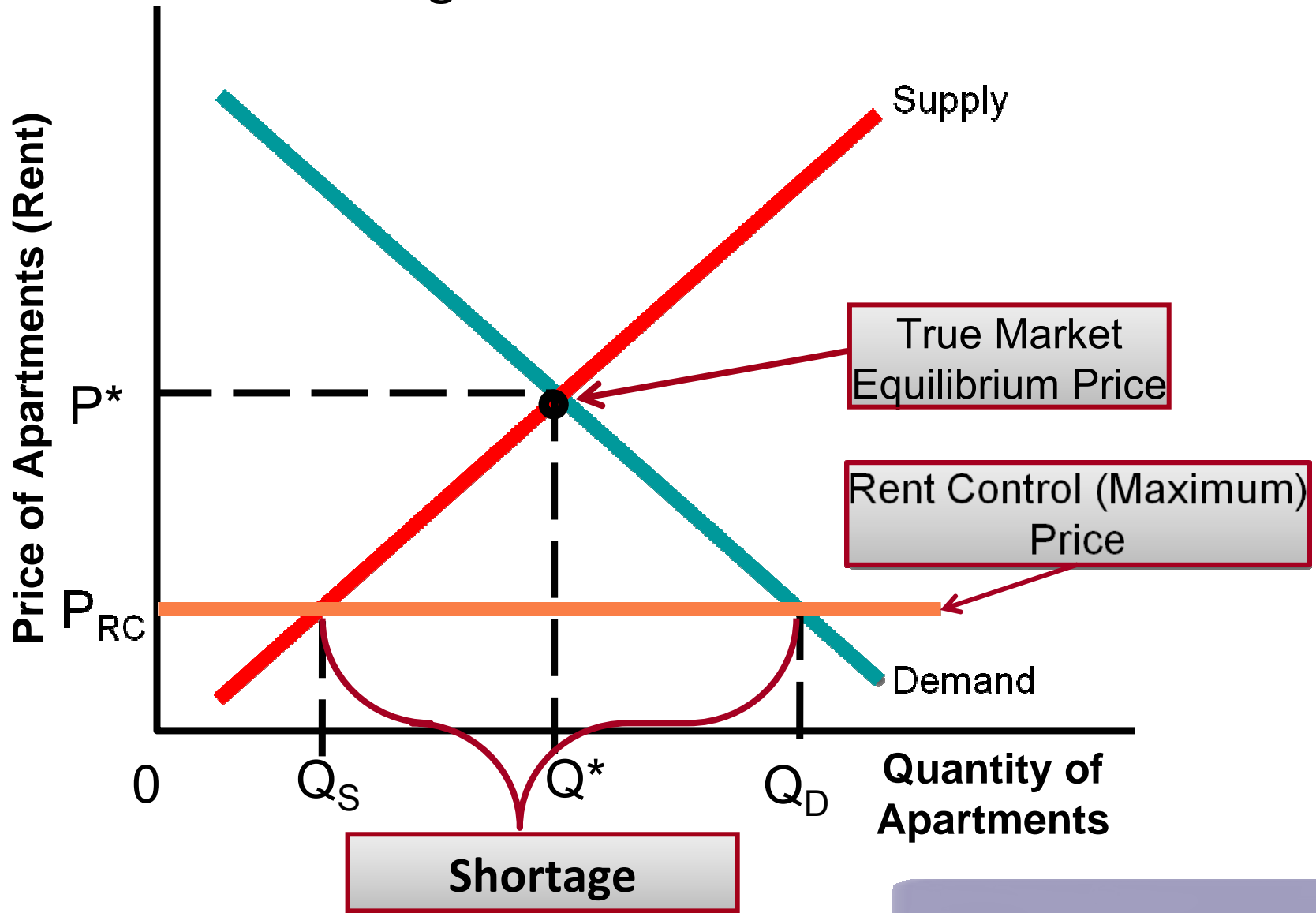
#### *Exhibit 1: Rent Controls*

- the price (or rent) of an apartment is held below market rental rates.
- when a renter moves out, the owner can sometimes (not always) raise the rent to a near-market level for the next occupant.



# 4.3 Price Controls

What are Price Ceilings?



## 4.3 Price Controls

What are Price Ceilings?

Results of Rent Controls

- tenants are reluctant to move and give up their below-market-rent apartment.
- the rate of return on housing investments falls:
  - reduces incentives to construct new rental housing.
  - reduces incentives to improve or upgrade rental apartments.



## 4.3 Price Controls

### Results of Rent Controls

- where rent controls are successful:
  - generally little new construction.
  - many renters want an apartment at the below-equilibrium price.
  - persistent shortage of apartments that grows over time.

## 4.3 Price Controls

# What are Price Floors?

## 4.3 Price Controls

### Price Floor: Minimum Wage

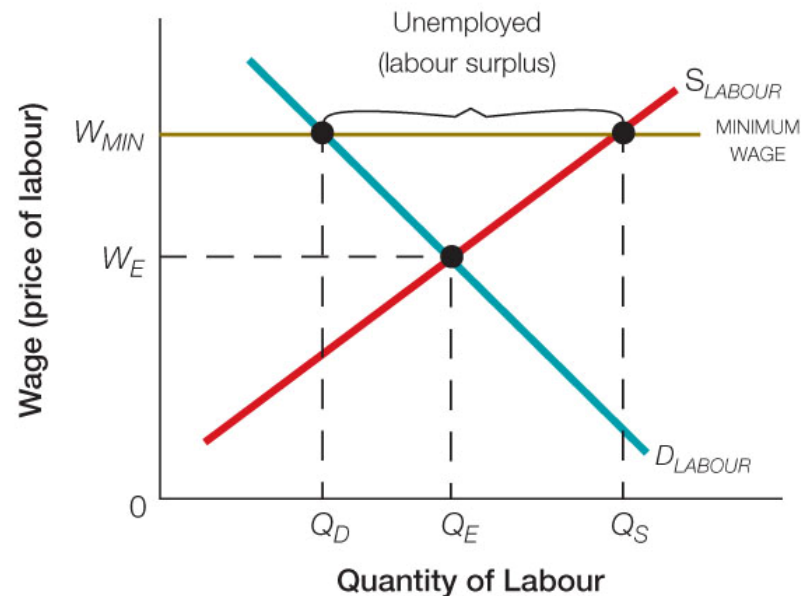
- the provincial and territorial governments has legislated a minimum wage (price for labour services) for most workers.

# 4.3 Price Controls

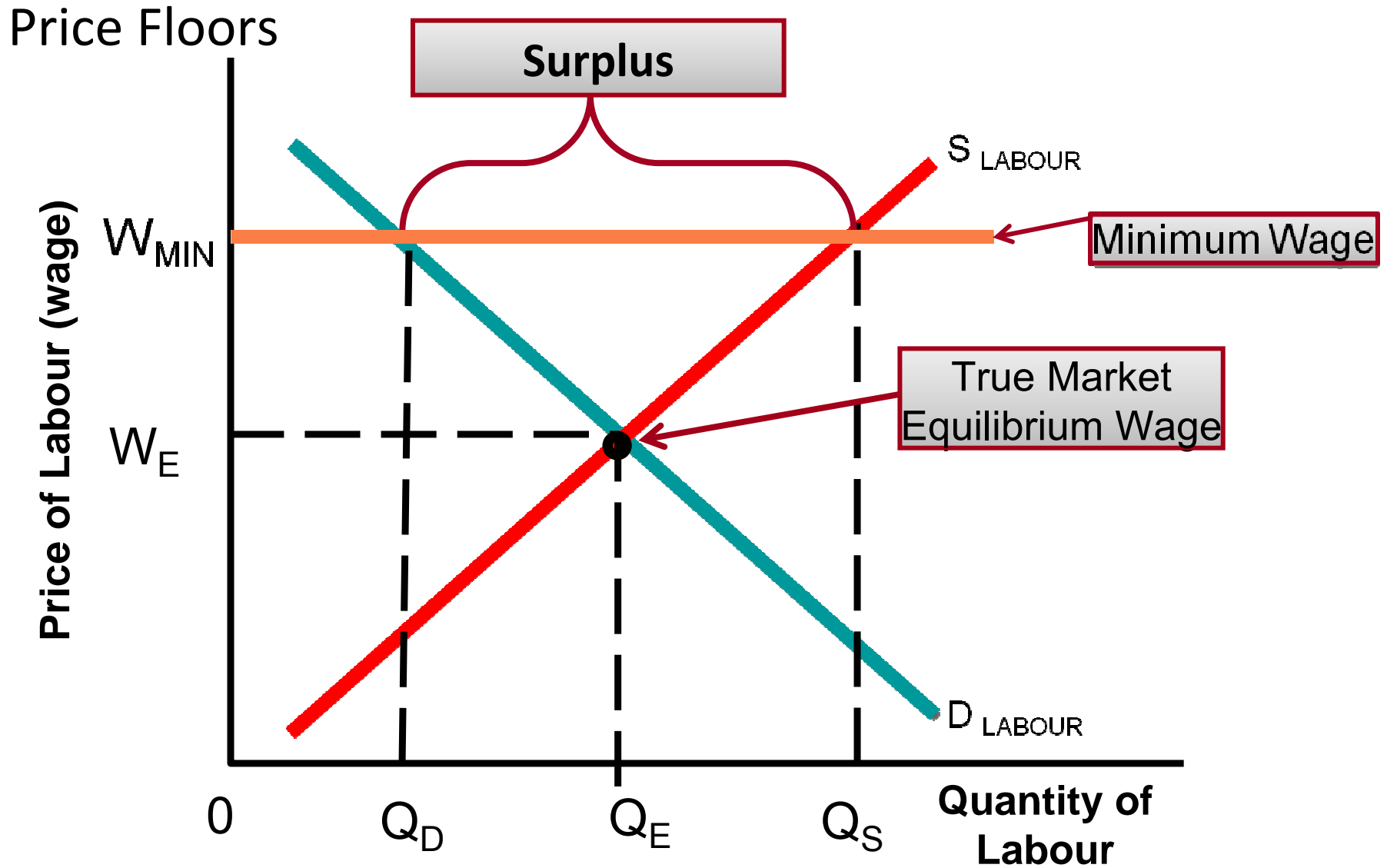
## What are Price Floors?

### *Exhibit 2: Minimum Wage*

- Existing wages for workers in some types of labour markets do not allow for a very high standard of living.
- Legislation makes it illegal to pay most workers an amount below the current legislated minimum wage.



# 4.3 Price Controls



## 4.3 Price Controls

### Results of Minimum Wage

- some willing workers will be unable to find jobs, creating additional unemployment.
- the unemployment impact falls mainly on the least experienced, least skilled persons holding the lowest paying jobs.

## 4.3 Price Controls

### Results of Minimum Wage

- empirical *question* of how much unemployment is caused by minimum wages.
- cost of higher unemployment can be seen as price for assuring a reasonable wage.

## 4.3 Price Controls

### Results of Minimum Wage

- those who continue to hold minimum-wage jobs gain substantially.
- very little effect on skilled and experienced workers earning wages that exceed the minimum wage.
- consumers pay more for products that were made more costly by the minimum wage.

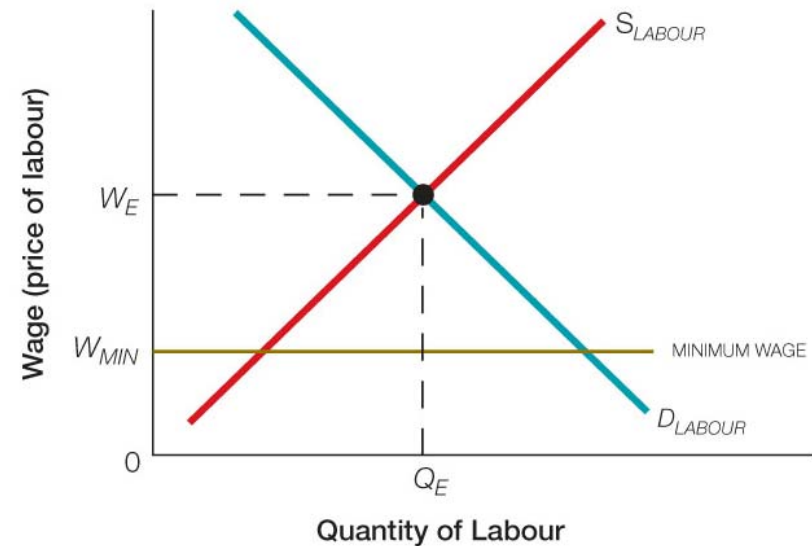


## 4.3 Price Controls

### What are Price Floors?

#### *Exhibit 3: Minimum Wage*

- There is no impact of a price floor on the market for skilled and experienced workers.
- In this market, the price floor (the minimum wage) is not binding, because it is much lower than the market wage.



# 4.3 Price Controls

## Results of Price Controls

- when markets are altered for policy reasons, the results are not always as intended.
- **unintended consequences** are secondary effects that may occur along with the intended effects.
- the *unintended* effects may sometimes undermine the intended effects

# 4.3 Price Controls

## Section Check

- Price controls involve government mandates to keep prices above or below the market-determined equilibrium price.
- Price ceilings are government-imposed maximum prices. When price ceilings are set below the equilibrium price, shortages will result.
- Price floors are government-imposed minimum prices. When price floors are set above the equilibrium price, surpluses will result.