CHAPTER 3

Supply and Demand

LEARNING OBJECTIVES

After learning about this chapter, you should know

LO3-1 The nature and determinants of market demand.

LO3-2 The nature and determinants of market supply.

LO3-3 How market prices are established.

LO3-4 What causes market prices and quantities to change.

LO3-5 How government price controls affect market outcomes.

Supply and Demand

The goal of this chapter is to explain how supply and demand really work.

- **What** determines the price of a good or service?
- **How** does the price of a product affect its production and consumption?
- **Why** do prices and production levels often change?

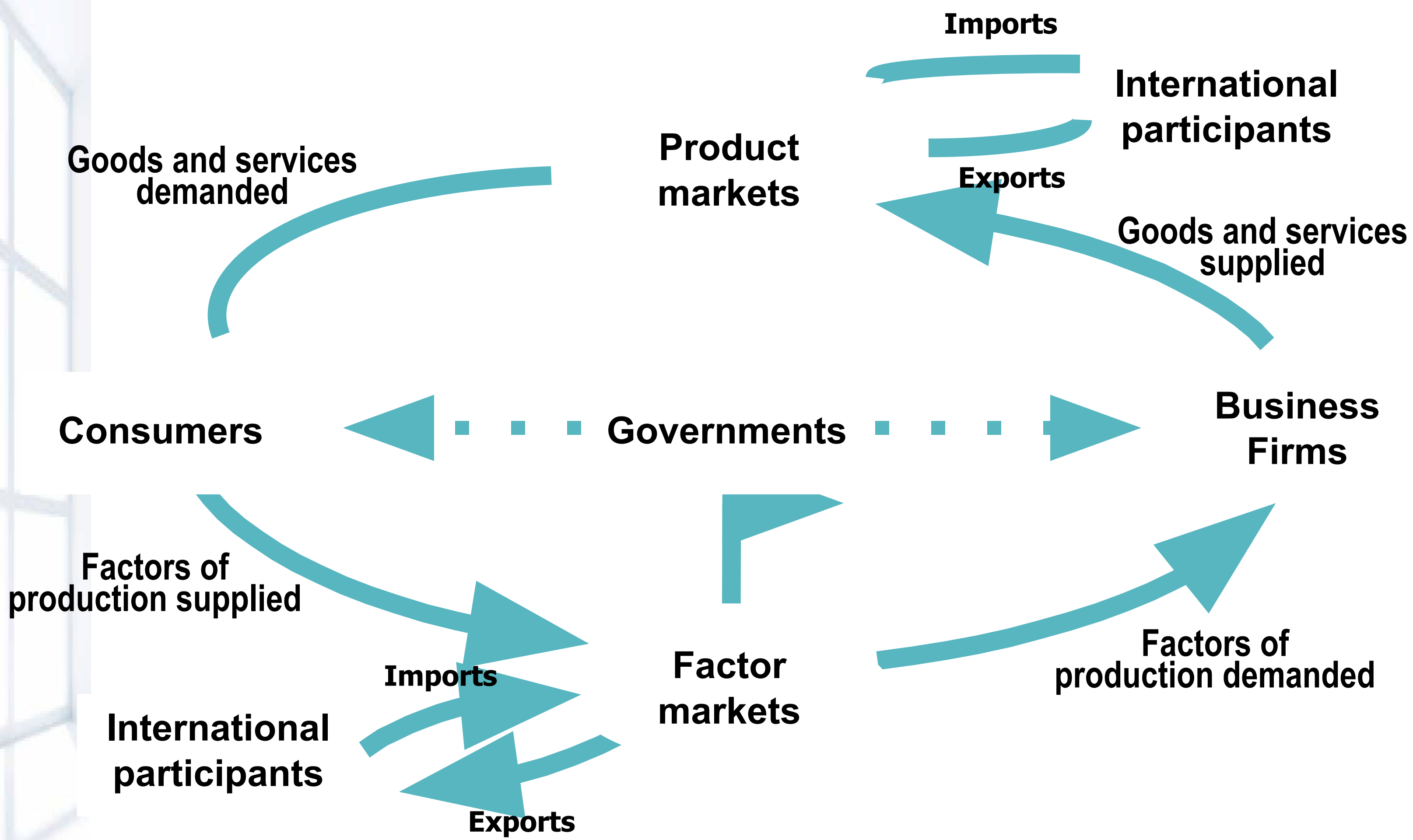
Market Participants

Market participants are trying to obtain the maximum return from the scarce resources they have.

- **Consumers:** maximize the utility (satisfaction of unmet wants) they can get from available incomes.
- **Businesses:** maximize profits by selling goods that satisfy demand while keeping costs low.
- **Government:** maximize the general welfare of society.

These motives explain most market activity.

The Circular Flow



Supply and Demand

- **Supply:** the ability and willingness to **sell** specific quantities of a good at alternative prices in a given time period, *ceteris paribus.*

- **Demand:** the ability and willingness to **buy** specific quantities of a good at alternative prices in a given time period, *ceteris paribus.*

- ***Ceteris paribus:*** the assumption that nothing else is changing.

The Law of Demand

Law of demand: in a given time period, the quantity demanded of a good increases as its price falls, *ceteris paribus* (and *vice versa*).

- ✔ Inverse relationship between price (P) and quantity demanded (Qd).
- ✔ A <u>downward-sloping</u> curve on a market diagram.

Individual Demand and Market Demand

- **Each of us has demand for a good or a service if we are willing and able to pay for it.**
- The amount we buy depends on its price.
  - If the price goes up, we buy less
  - If the price goes down, we buy more
- **Market demand** is the collective summation of all buyers' individual demands.

Demand Schedule and Curve

Price	Quantity Demanded
$50	1
45	2
40	3
35	5
30	7
25	9
20	12
15	15
10	20

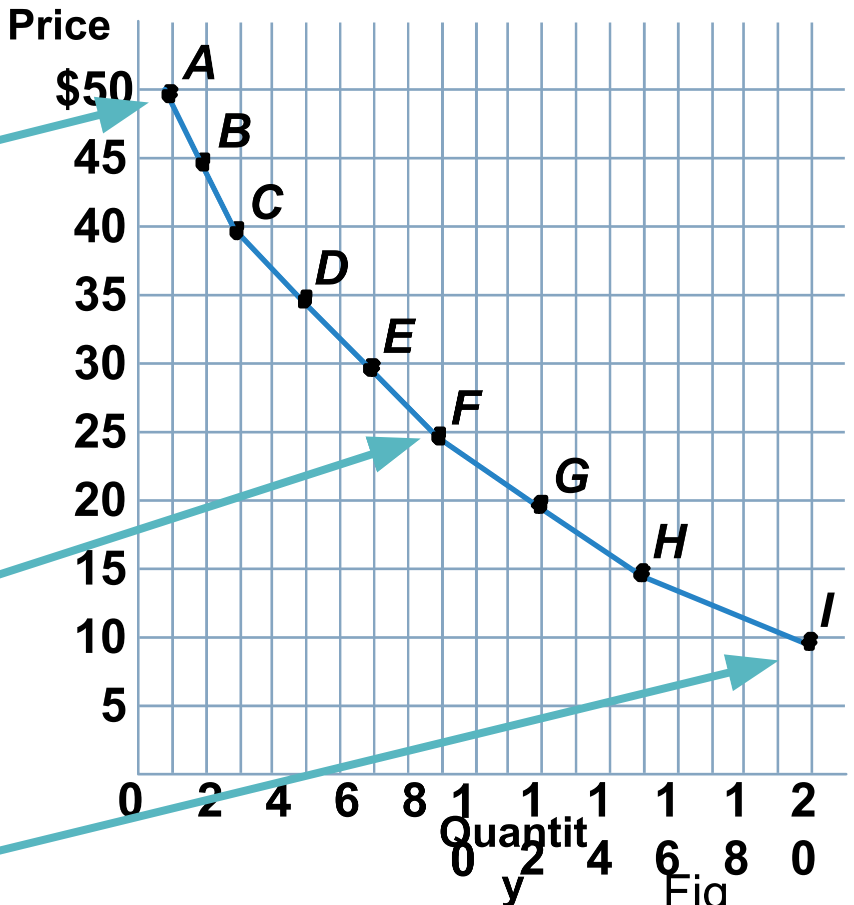


Fig 3.2

Factors That Set Demand Behavior (5 Determinants of Demand)

1. **Tastes**
2. **Income**
   - Normal Goods
   - Inferior Goods
3. **Expectations**
4. **Other goods:**
   - Substitutes
   - Complements
5. **Number of buyers**

If any of these factors change, demand behavior changes.

A demand behavior change is shown by shifting the demand curve.

- **Increase in demand:** shift the curve right.
- **Decrease in demand:** shift the curve left.

Movements vs. Shifts

- **Change in quantity demanded:** movement along a demand curve in response to a change in price.

- **Change in demand:** a shift of the demand curve due to a change in one or more of the determinants of demand, but **NOT** in response to a change in price.

Movements vs. Shifts II

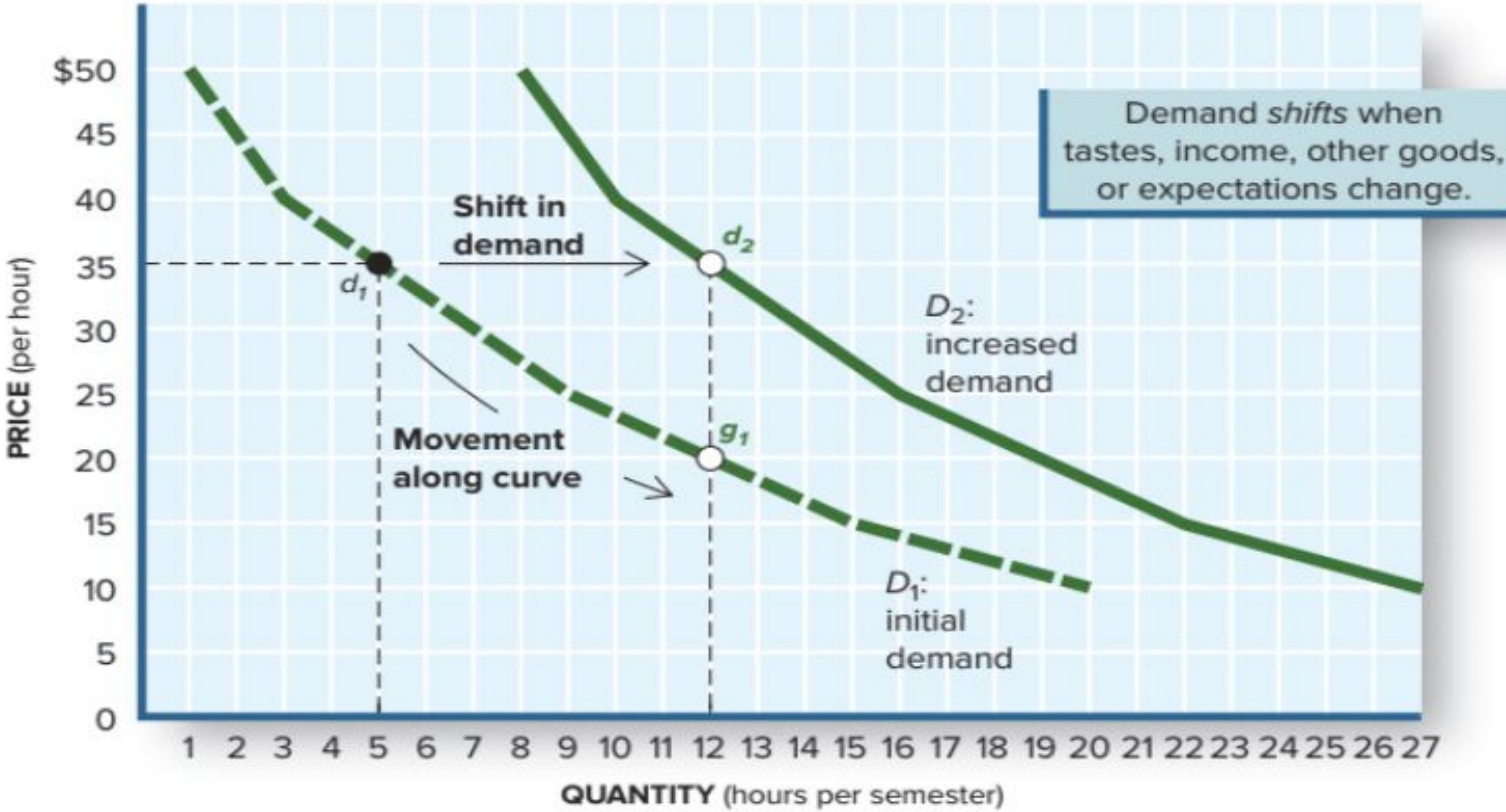


Fig 3.3

Movement along the curve: buyer's behavior <u>does not</u> change; buyers only react to a price change.
Shift the curve: buyers' behavior <u>does</u> change.

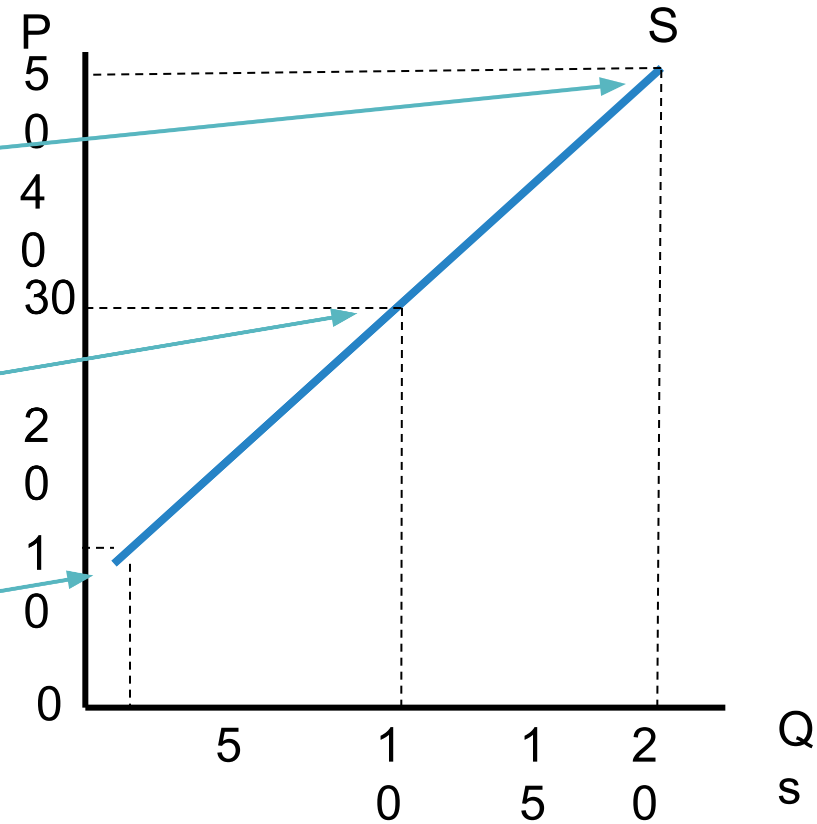
Law of Supply

Law of supply: the quantity of a good supplied in a given time period increases as its price increases, *ceteris paribus,* and vice versa.

- ✔ Direct relationship between price (P) and quantity supplied (Qs).
- ✔ It is an upward-sloping curve on a market diagram.

Supply Schedule and Curve

Price	Quantity Supplied (Q_s)
$50	20
40	15
30	10
20	5
10	1



Factors that Set Supply Behavior (6 Determinants of Supply)

1. **Technology**
2. **Factor Costs**
3. **Taxes and subsidies**
4. **Expectations**
5. **Other goods**
6. **Number of sellers**

If any of these factors change, supply behavior changes.

This type of change is shown by shifting the supply curve.

- **Increase in supply:** shift the curve right.
- **Decrease in supply:** shift the curve left.

Changing Supply (Shifting the Supply Curve)

Supply increases (shifts right) when;

- New technology lowers operating costs.
- Factor costs decrease.
- Taxes decrease or subsidies increase.
- Future prices are expected to rise.
- Price of alternative goods fall.
- Number of sellers increases.

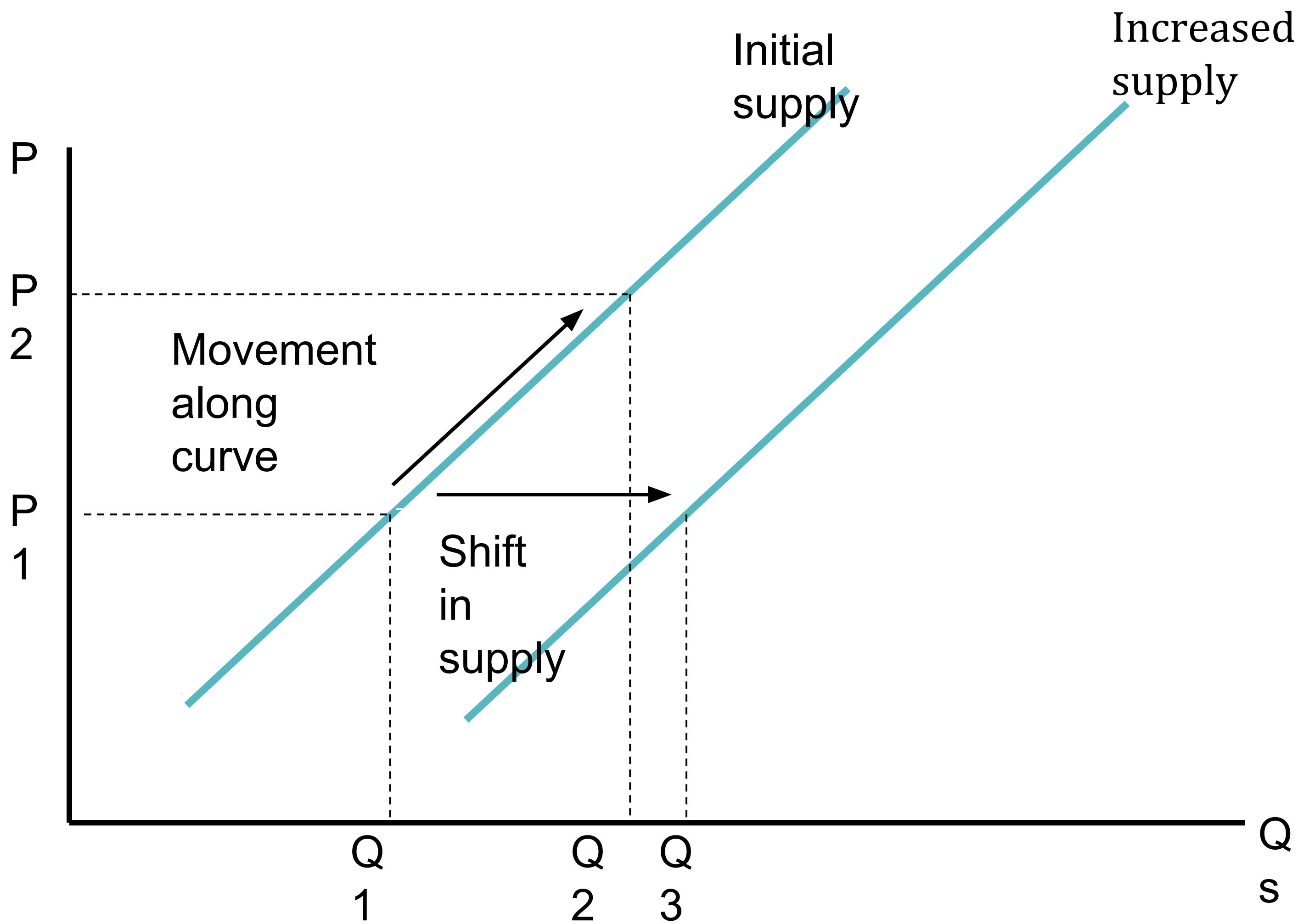
Vice versa, and supply decreases (shifts left).

Movements vs. Shifts

- **Change in quantity supplied:** movement along the supply curve due to a *change in price*.

- **Change in supply:** a shift in the supply curve due to one or more changes in the determinants of supply, but *NOT in response to a change in price*.

Movements vs. Shifts

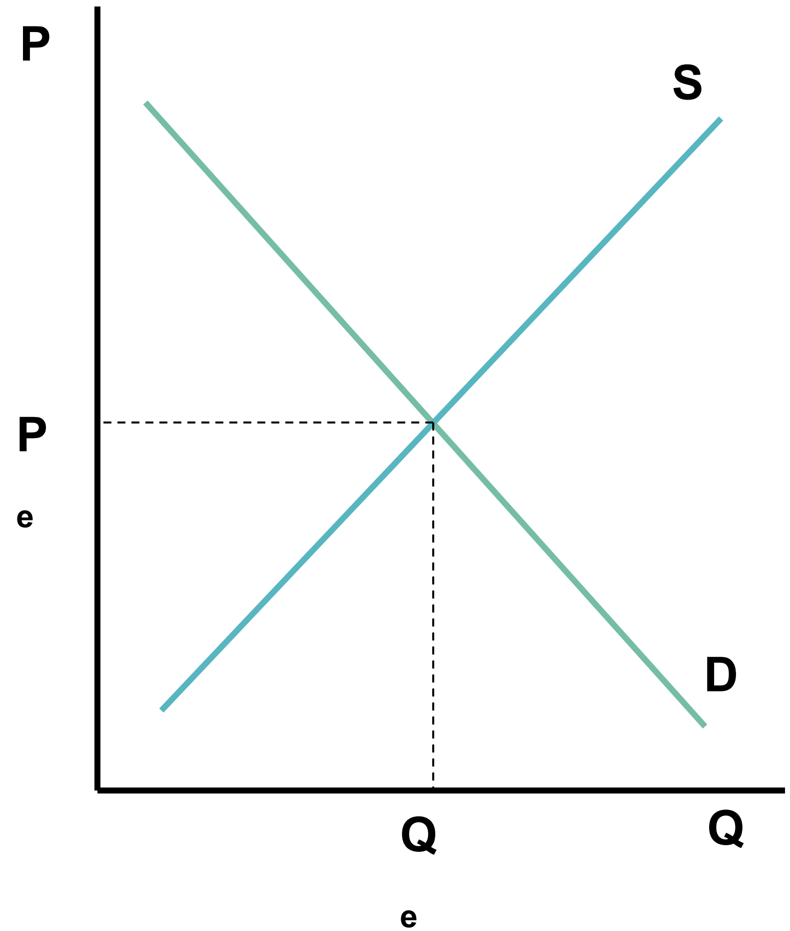


Individual Supply and Market Supply

- Each producer is willing and able to produce a good or service if he or she can make a profit.
- The amount produced depends on its price.
  - If the price goes up, more will be produced.
  - If the price goes down, less will be produced.
- Market supply is the collective summation of all producers’ individual supplies.

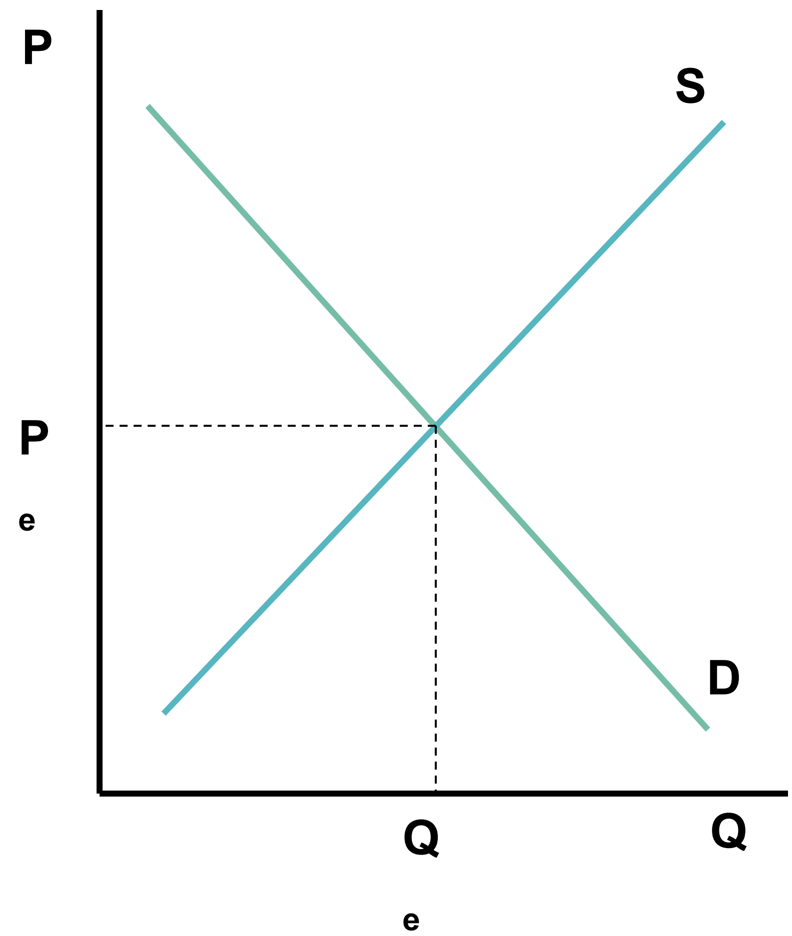
Putting a Market Together

- The interaction of buyers and sellers makes a market.
- **Equilibrium:** the one price and quantity combination that is compatible with the intentions of both buyers and sellers.
- Equilibrium is located where the demand curve and supply curve intersect.



Equilibrium

- No shortage exists.
- No surplus exists.
- Qd = Qs = Qe.
- The price will not change until there is a shift in demand or in supply.

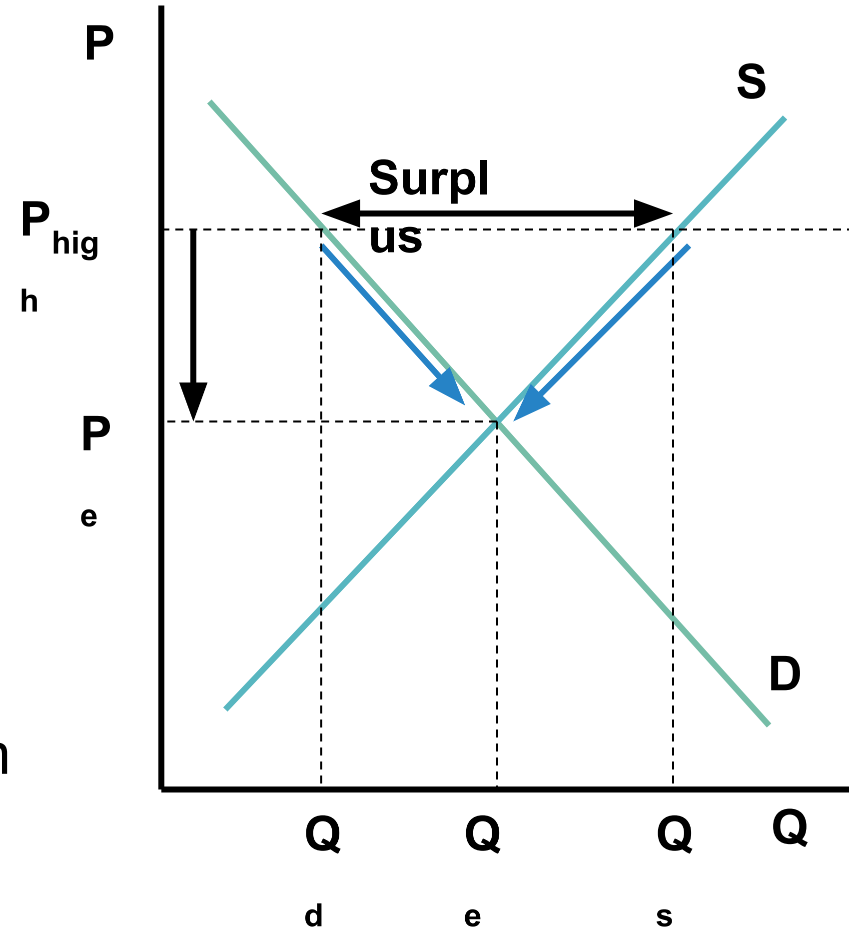


Equilibrium

- Markets reach equilibrium because buyers act on their **demand behavior** (raise price, buy less, and vice versa) and sellers act on their **supply behavior** (raise price, supply more, and vice versa).
  - No one is in charge!
  - The **market mechanism** leads the market to equilibrium, and signals the desired outcome at P_e.
- Quantity demanded (Q_d) equals quantity supplied (Q_s) at the equilibrium price (P_e).

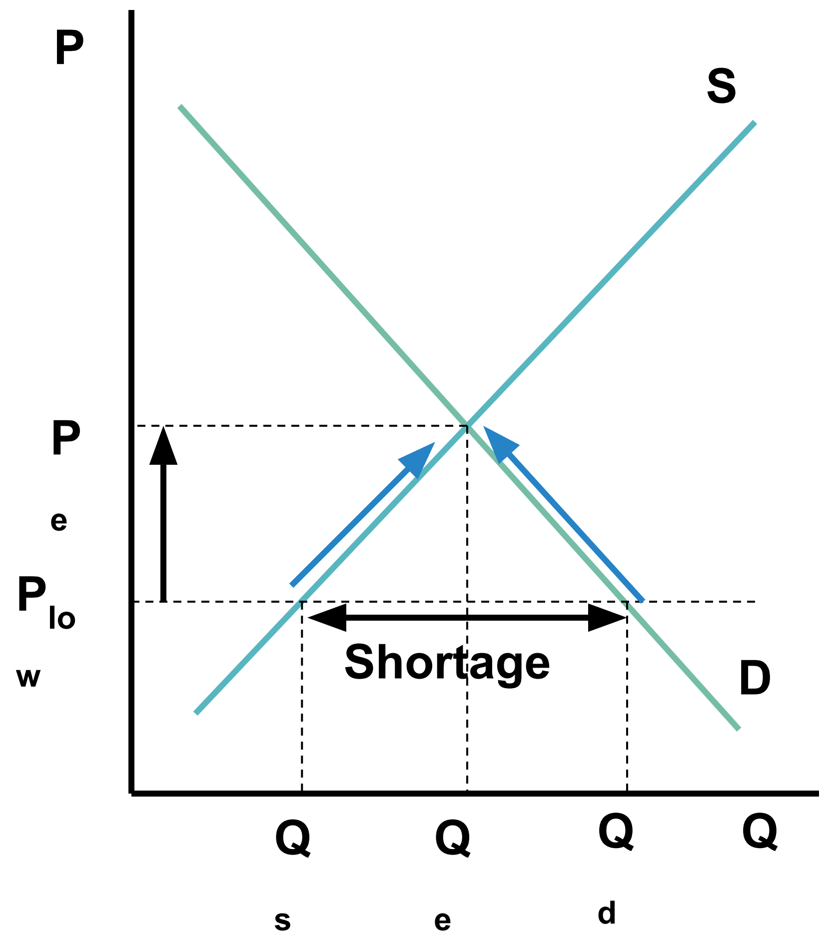
Resolving a Market Surplus

- **Market surplus:** the amount by which quantity supplied (Qs) exceeds quantity demanded (Qd) at a given price; excess supply.
- Price is <u>too high</u>.
- $Q_s > Q_d$, a surplus.
- Buyer and seller behaviors kick in.
- Price will fall to equilibrium price, P_e.



Resolving a Market Shortage

- **Market shortage:** The amount by which quantity demanded (Qd) exceeds quantity supplied (Qs) at a given price; excess demand.
- Price is too low.
- $Q_s < Q_d$, a shortage.
- Buyer and seller behaviors kick in.
- Price will rise to equilibrium price, P_e.



What Causes the Price to Change?

- Price changes when equilibrium is upset.
  - due to a **shift in demand** (a change in buyers' behavior),

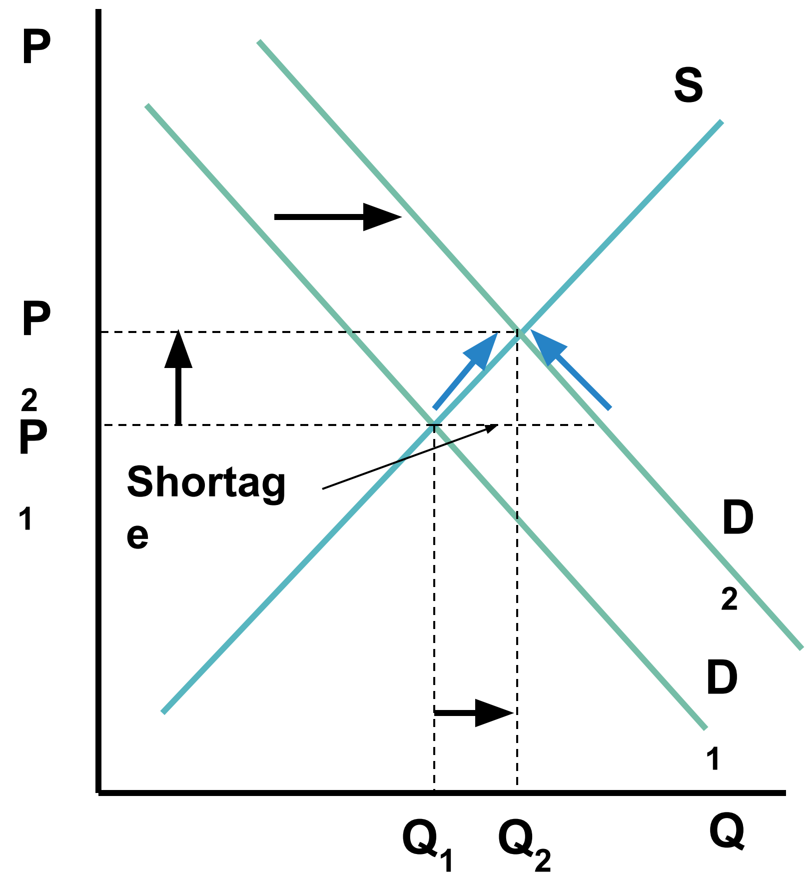
  or

  - due to a **shift in supply** (a change in sellers' behavior).
- After the shift, a surplus or a shortage is created, and the market mechanism begins to find the new equilibrium.

Demand Increases

- Buyers' behavior changes
  - Demand shifts <u>right</u>
- Old equilibrium is upset
- Creates a shortage
  - Price <u>rises</u>

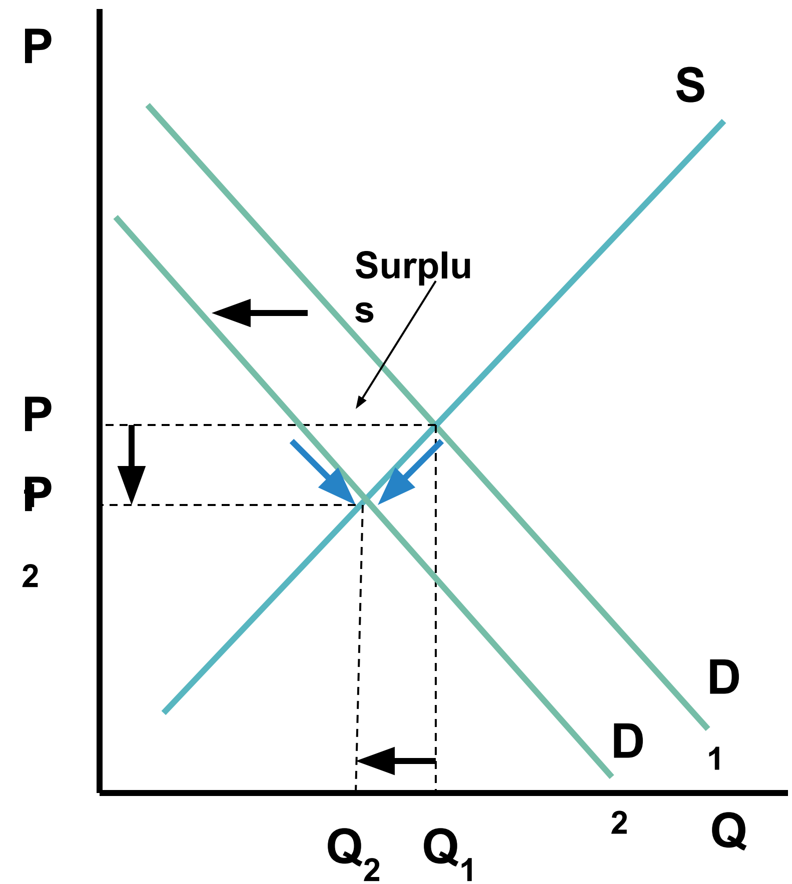
- A new equilibrium is established
- Price rises from P_1 to P_2
- Quantity rises from Q_1 to Q_2



Demand Decreases

- Buyers' behavior changes
  - Demand shifts <u>left</u>
- Old equilibrium is upset
- Creates a surplus
  - Price <u>falls</u>

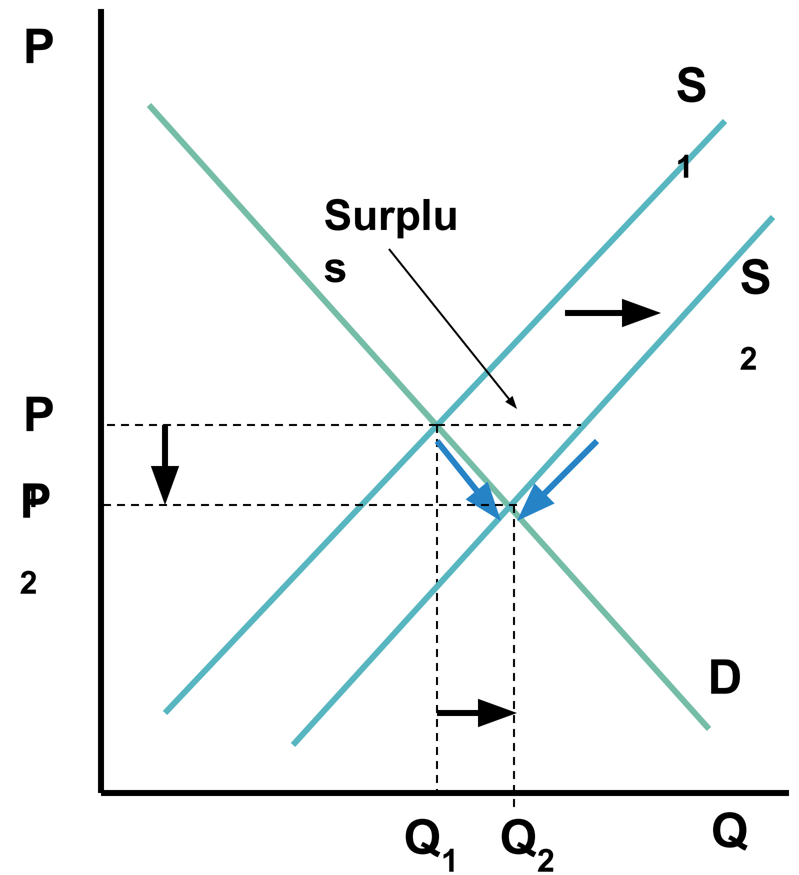
- A new equilibrium is established
- Price falls from P_1 to P_2
- Quantity falls from Q_1 to Q_2



Supply Increases

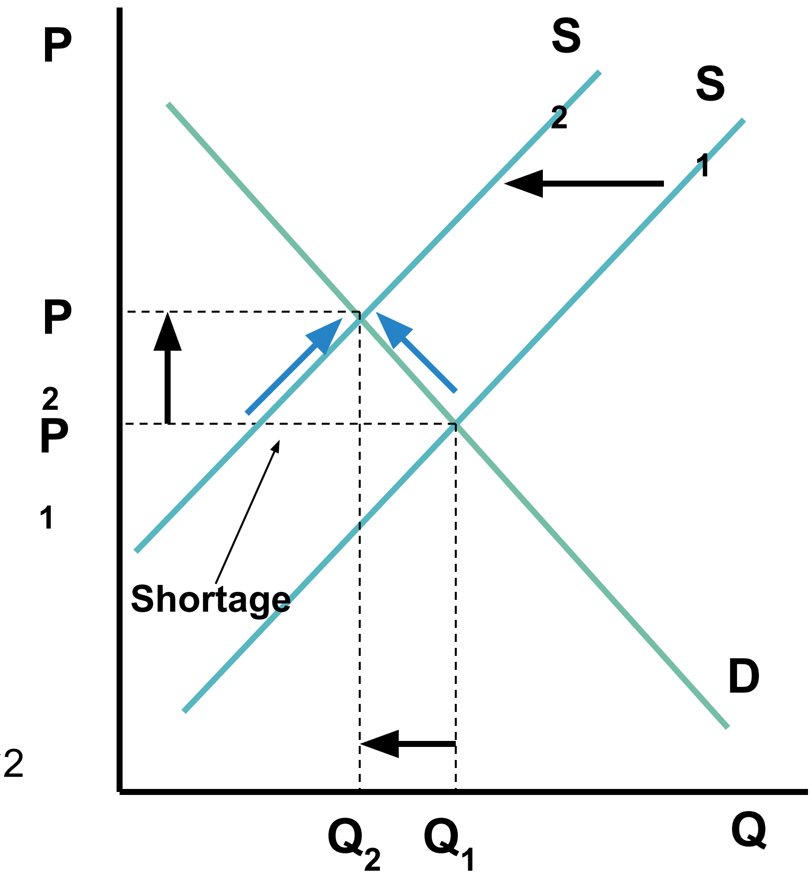
- Sellers' behavior changes
  - Supply shifts <u>right</u>
- Old equilibrium is upset
- Creates a surplus
  - Price <u>falls</u>

- A new equilibrium is established
- Price falls from P_1 to P_2
- Quantity rises from Q_1 to Q_2



Supply Decreases

- Sellers' behavior changes
  - Supply shifts <u>left</u>
- Old equilibrium is upset
- Creates a shortage
  - Price <u>rises</u>



- A new equilibrium is established
- Price rises from P_1 to P_2
- Quantity falls from Q_1 to Q_2

Summary: When Do Prices Change?

Only when a market is in **disequilibrium**

- Shortage? Price rises
- Surplus? Price falls

A shift in either demand or supply causes the price to change, BUT remember

A price change **does NOT** cause

- the demand curve to shift or
- the supply curve to shift

Market Outcomes

The market mechanism affects WHAT, HOW, and FOR WHOM to produce.

- **WHAT?** Markets determine which goods are desired and which are profitable.
- **HOW?** Profit-seeking producers will strive to produce goods in the most efficient way.
- **FOR WHOM?** To obtain a good, one must be both willing and able to purchase it.

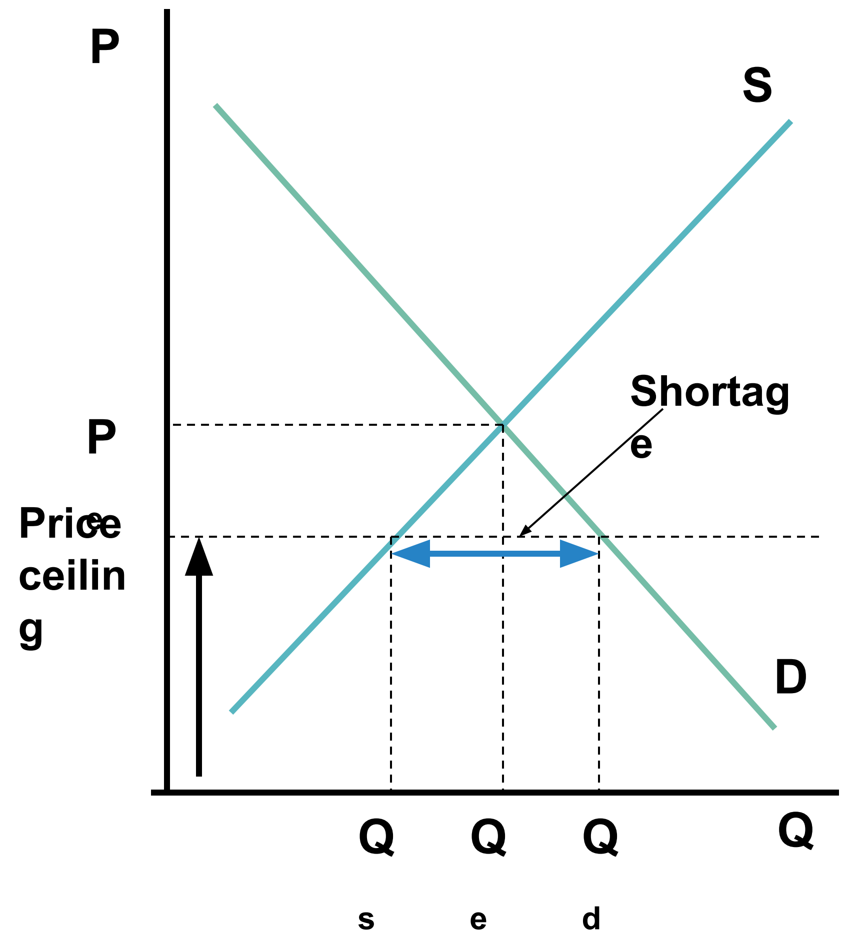
Price Controls

Governments may impose an arbitrary maximum price (price ceiling) or a minimum price (price floor) on a market.

- *The result is that the market cannot reach equilibrium.*

Price Ceiling

- Government imposes a maximum price less than P_e.
- This generates a shortage ($Q_d > Q_s$).
- The market mechanism cannot clear the market.
- A permanent shortage exists.



Price Floor

- Government imposes a minimum price greater than P_e.
- This generates a surplus ($Q_s > Q_d$).
- The market mechanism cannot clear the market.
- A permanent surplus exists.