

AP Macroeconomics

Demand and Supply

Price and Quantity

- Price – the amount of money paid for an economic good/service
 - Ex. A gallon of gasoline has a price of \$3.00
- Quantity – the amount of items
 - Ex. If I buy a dozen eggs, then the quantity is 12 eggs

Demand

- Consumers' willingness and ability to buy an item at a given price
 - Willingness means that buyers must want the item
 - Ability means that buyers must have the financial resources to afford the item
- It is important to understand that demand does not refer to a numerical amount but instead to a behavior.

The Law of Demand

- The price of an item determines the quantity demanded
- The lower the price the higher the quantity demanded
 - When goods/services are cheap, I tend to buy more
- The higher the price the lower the quantity demanded
 - When goods/services are expensive, I tend to buy less
- Therefore, the price of a good/service is inversely related with the quantity demanded

3 Reasons Why the Law of Demand Exists

1. Income Effect

- When things are expensive, money buys less
- When things are cheap, money buys more

2. Substitution Effect

- When apples are expensive and their substitutes (pears) are relatively cheap, I buy fewer apples and more pears

3. Diminishing Marginal Utility

- Each additional unit of an item purchased gives less marginal utility (happy points) than the previous unit. Therefore, the only way I will buy more is if the price is lower.
- Ex. When I'm hungry, I typically will buy 2 breakfast tacos. The reason I don't buy a third taco is because the marginal utility of the third taco is less than the price of the taco. But, if the price of the taco is less than the marginal utility of the taco, then I will buy the third taco

Demand Schedule

Mr. Mayer's Demand
for Breakfast Tacos

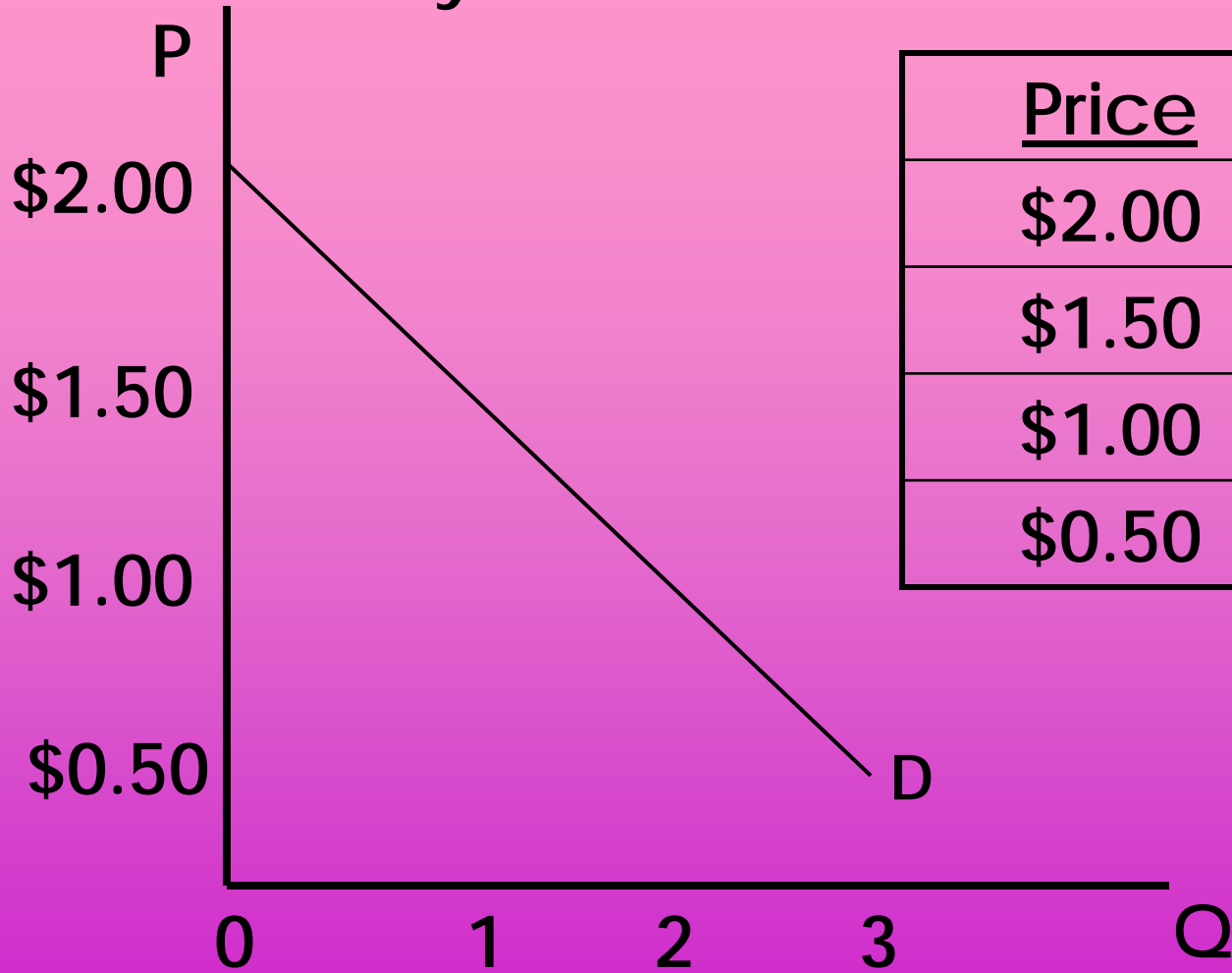


<u>Price</u>	<u>Quantity</u>
\$2.00	0
\$1.50	1
\$1.00	2
\$0.50	3

Notice that Mr. Mayer is obeying the law of demand. Now that's making a good choice!!!!

Demand Curve

Mr. Mayer's Demand for Breakfast Tacos



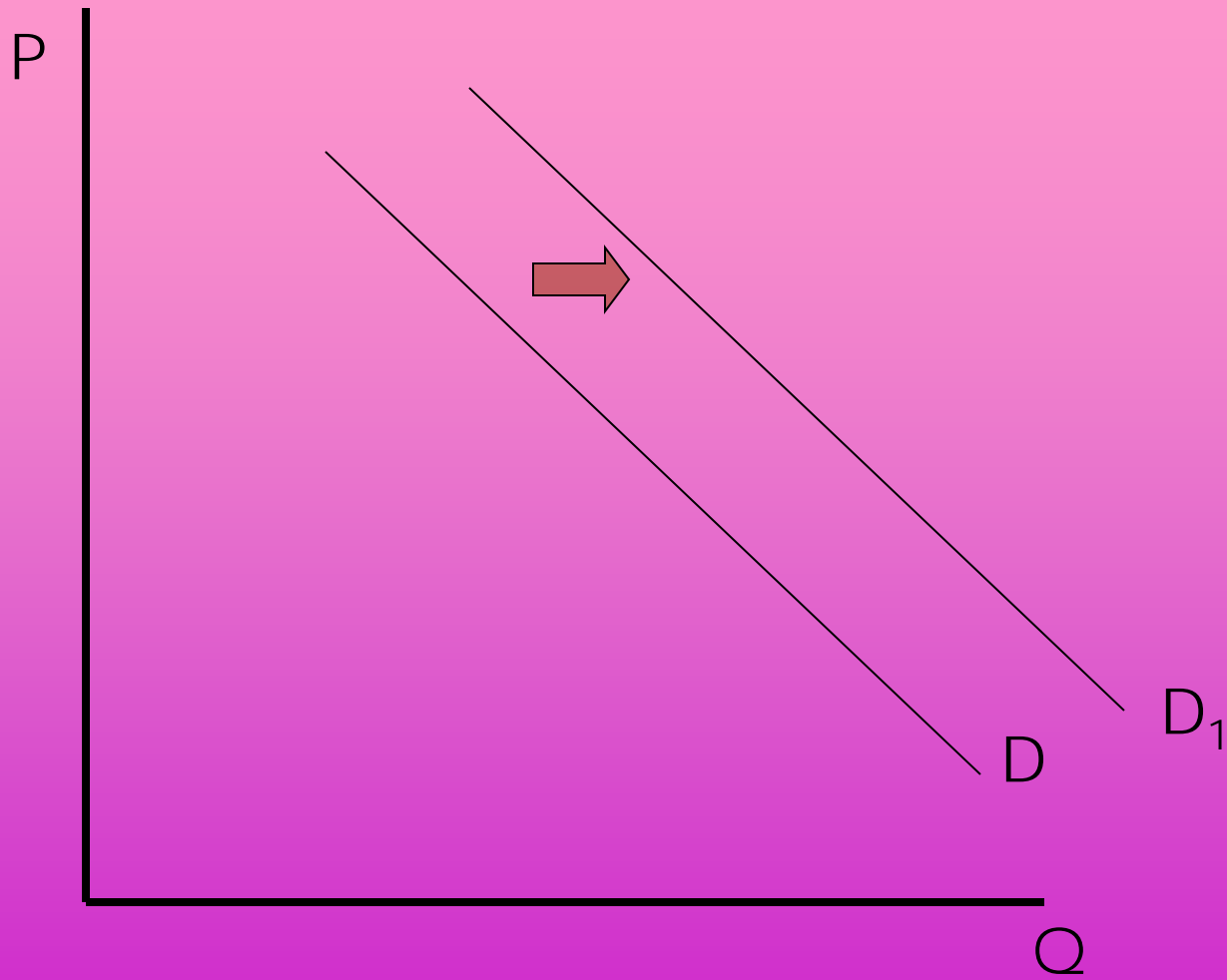
<u>Price</u>	<u>Quantity</u>
\$2.00	0
\$1.50	1
\$1.00	2
\$0.50	3



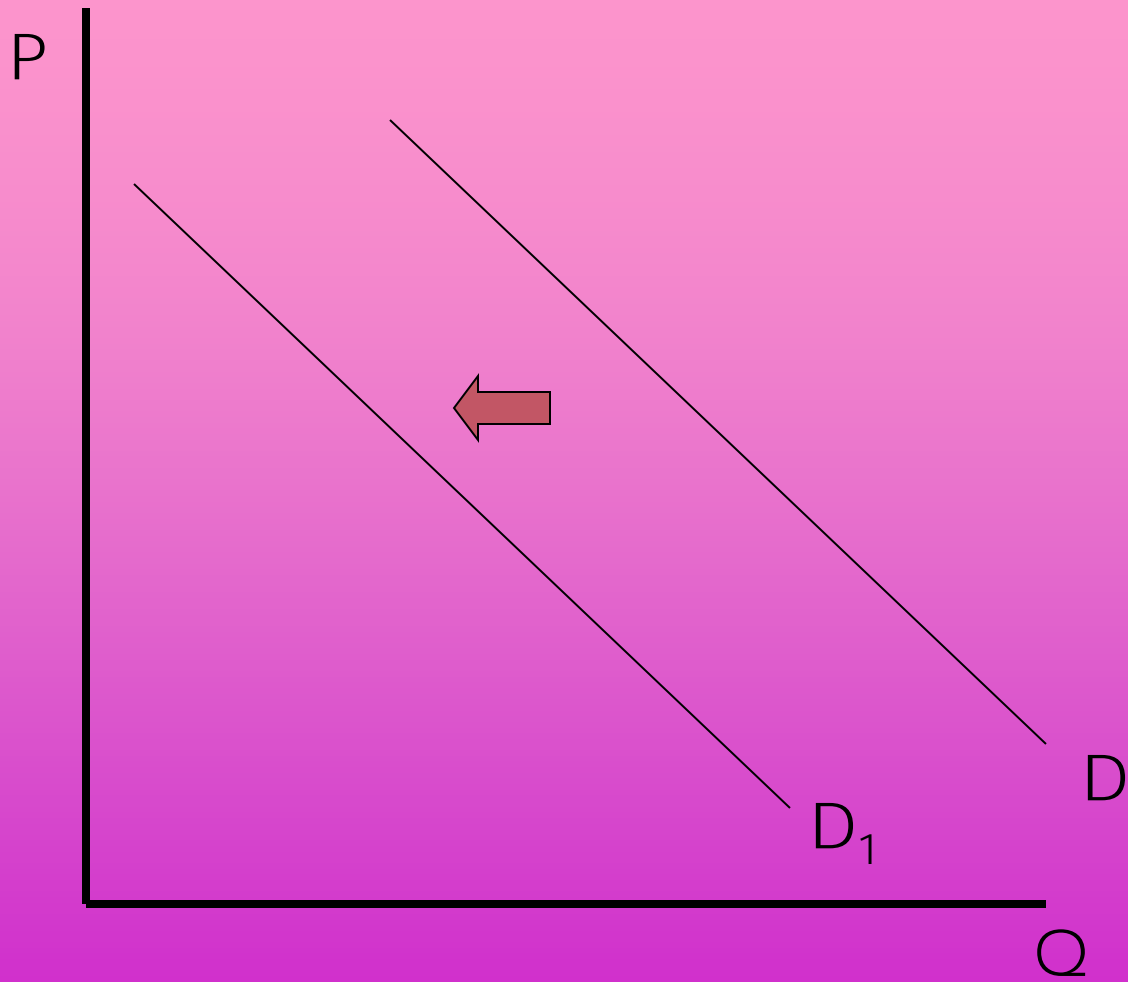
Changes in Demand

- Increase in Demand
 - More quantity demanded at all prices
 - Demand Curve shifts →
- Decrease in Demand
 - Less quantity demanded at all prices
 - Demand Curve shifts ←
- Know that Price does not change Demand!

Increase in Demand



Decrease in Demand



Changes in Demand

T.R.I.P.E.

- The following cause the entire demand curve to shift
 - Tastes and Preferences
 - Related Goods (Complements & Substitutes)
 - Income
 - Population
 - Expectations of future price changes

Changes in Demand

T.R.I.P.E.

- Tastes and Preferences
 - Preferences and tastes are affected by advertising, trends, health considerations, etc.
 - Ex. Demand for dark chocolate has increased because research has recently shown that it has health benefits
 - Ex. Demand for spinach decreased when the FDA discovered high concentrations of e. coli.

Changes in Demand

T.R.I.P.E.

- Related Goods

- Complements – goods/services used in conjunction

- Ex. When the price of gasoline increases the demand for its complement, Hummers, decreases.
 - Ex. When the price of movie tickets decreases, the demand for theatre popcorn increases.

- Substitutes – goods/services used in lieu of other goods/services

- Ex. When the price of gasoline increases, the demand for ethanol increases.
 - Ex. When the price of movie tickets increases, the demand for DVD's increases.

Changes in Demand

T.R.I.P.E.

- **Income of consumers**
 - **When consumers' income increases:**
 - Demand for normal goods/services increases
 - Ex. More income means more demand for steak
 - Demand for inferior goods/services decreases
 - Ex. More income means less demand for Top Ramen
 - **When consumers' income decreases**
 - Demand for normal goods/services decreases
 - Ex. Less income means less demand for steak
 - Demand for inferior goods/services increases
 - Ex. Less income means more demand for Top Ramen

Changes in Demand

T.R.I.P.E.

- Population

- More population = more demand

- Ex. As America's population grows so does the demand for housing

- Less population = less demand

- Ex. As Japan's population declines so does the demand for education (fewer Japanese schools)

Changes in Demand

T.R.I.P.E.

- Expectations of future price changes
 - If consumers expect prices to rise in the future, then demand increases now
 - Ex. Prior to Hurricanes Katrina and Rita, consumers expected higher fuel prices and this caused demand for fuel to increase.
 - If consumers expect prices to fall in the future, then demand decreases now
 - Ex. If investors believe stock prices are going to decline, then demand for stocks decreases.

Supply

- Producers willingness and ability to sell a good/service
- Supply is not an amount but a behavior

The Law of Supply

- The price of an item determines the quantity supplied
- The lower the price the lower the quantity supplied
 - When goods/services command a low price, I tend to produce less of them
- The higher the price the higher the quantity supplied
 - When goods/services command a high price, I tend to produce more of them
- Therefore, the price of a good/service is directly related with the quantity supplied

The Reason for the Law of Supply

- The law of increasing marginal cost
 - It is more costly to produce two than one. Therefore, I must collect a higher price if I am going to produce more.

Supply Schedule

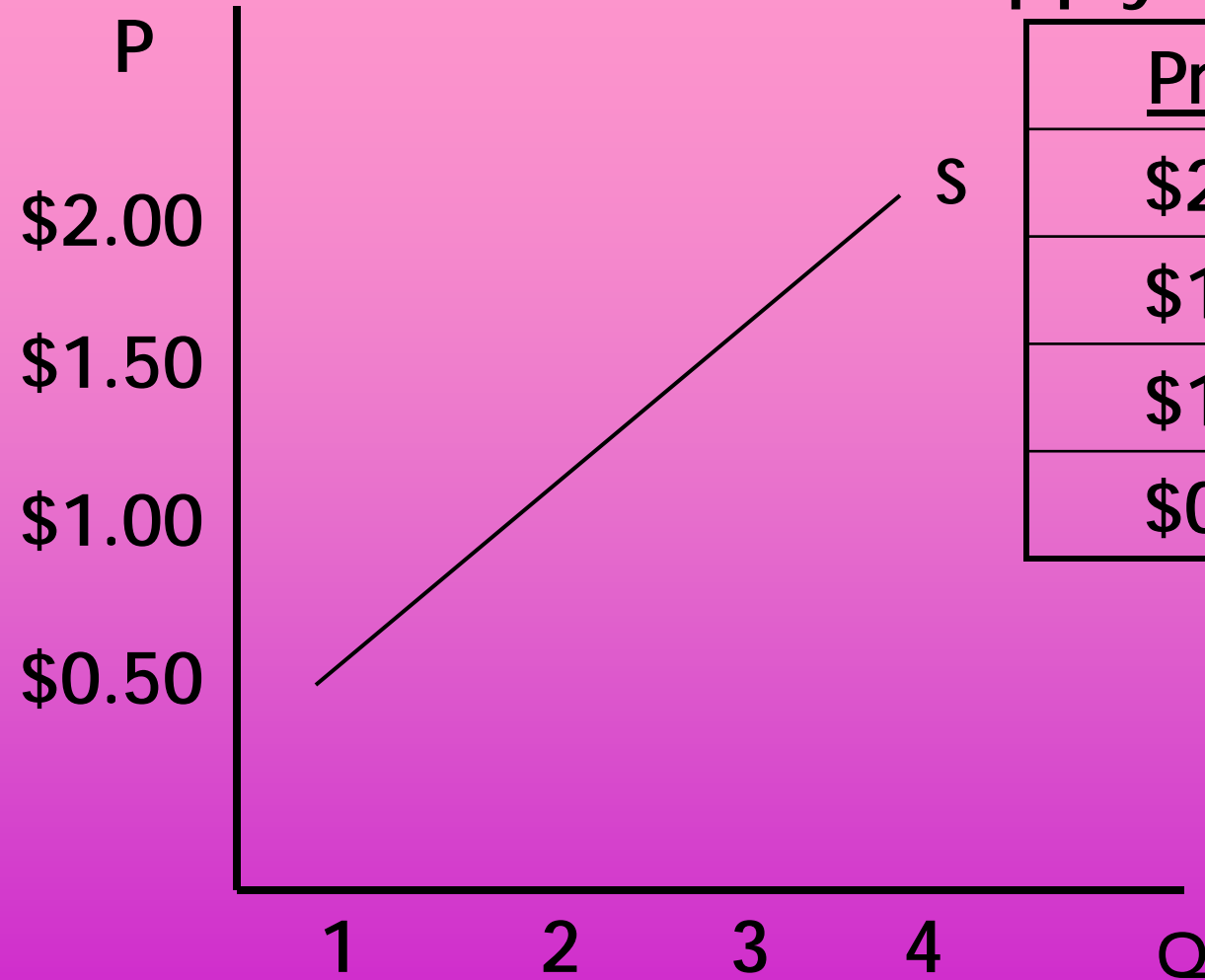
Taco Mucho Bueno's
Supply of Breakfast
Tacos



<u>Price</u>	<u>Quantity</u>
\$2.00	4
\$1.50	3
\$1.00	2
\$0.50	1

Supply Curve

Taco Mucho Bueno's Supply of Breakfast Tacos



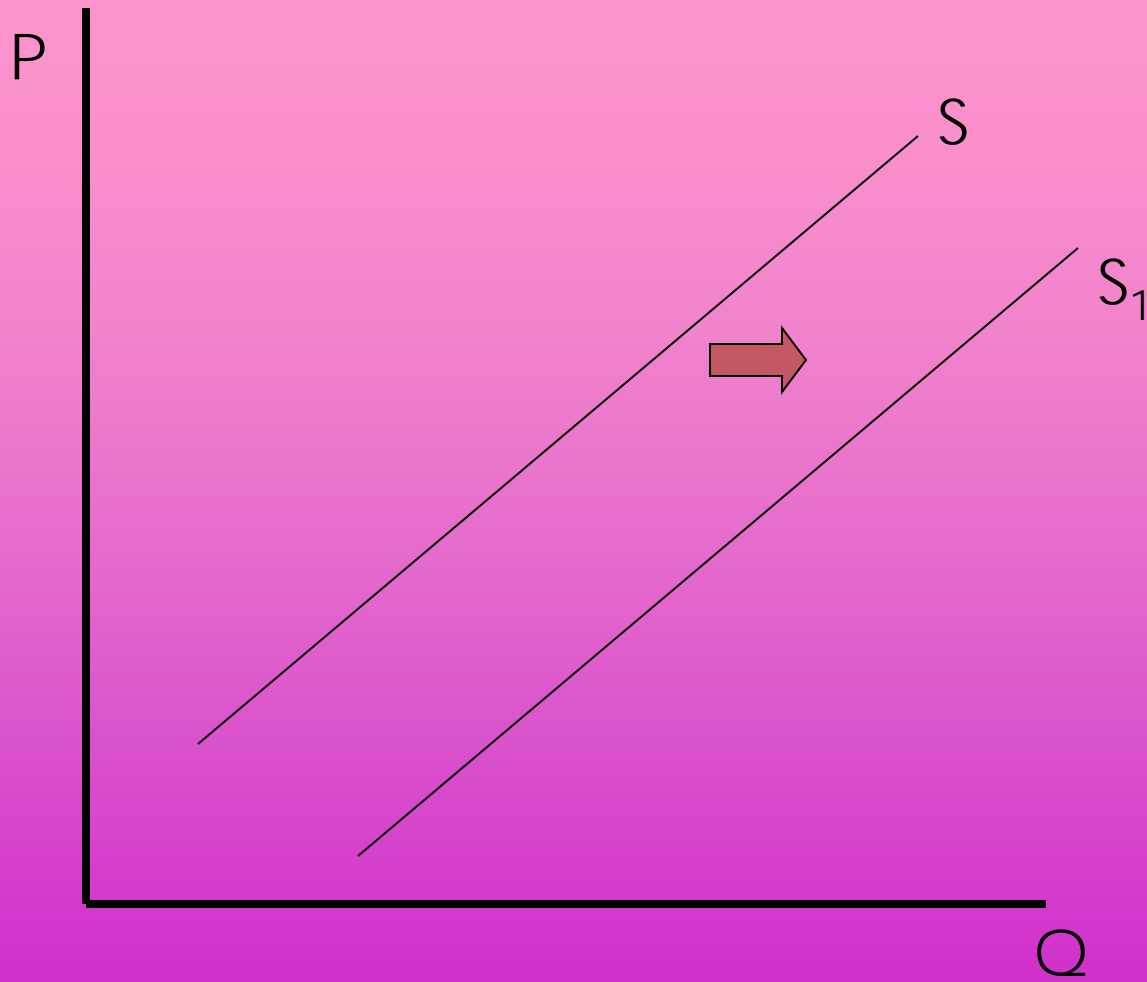
<u>Price</u>	<u>Quantity</u>
\$2.00	4
\$1.50	3
\$1.00	2
\$0.50	1



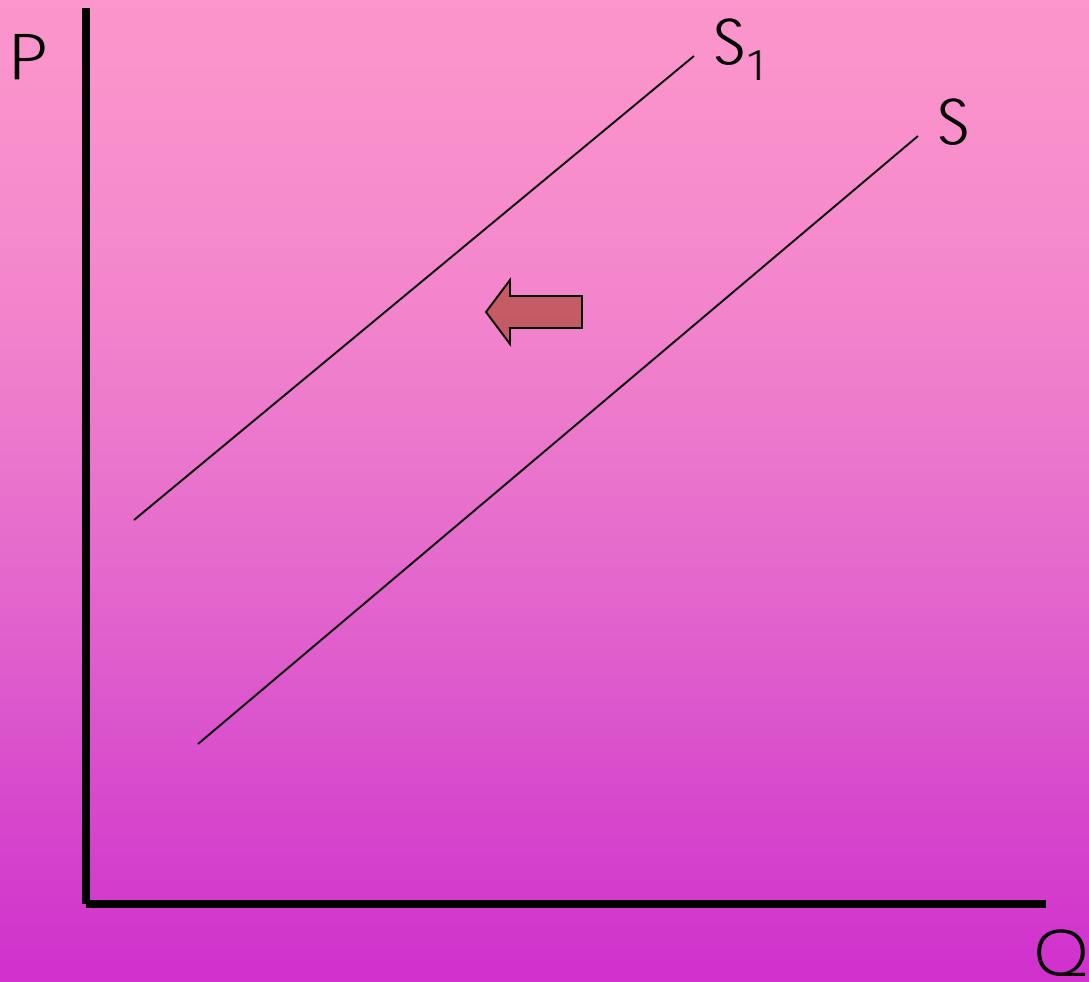
Changes in Supply

- Increase in Supply
 - More quantity supplied at all prices
 - Supply Curve shifts →
- Decrease in Supply
 - Less quantity supplied at all prices
 - Supply Curve shifts ←
- Know that Price does not change Supply!

Increase in Supply



Decrease in Supply



Changes in Supply

N.I.C.E.J.A.G.

- Natural/Manmade Phenomenon
- Input Costs
- Competition
- Expectations
- Profitability of alternative goods in supply
- Profitability of goods in joint-supply
- Government action

Changes in Supply

N.I.C.E.J.A.G.

- Natural/Manmade Phenomenon
 - Natural disasters
 - Weather
 - Wars
 - Riots
 - Strikes
 - Pretty much anything not covered under your homeowner's policy causes supply to change.

Changes in Supply

N.I.C.E.J.A.G.

- Input Costs
 - Prices of raw materials or other factors of production
 - Changes in technology
 - Changes in productivity (efficiency gains/losses)

Changes in Supply

N.I.C.E.J.A.G.

- **Competition**

- Number of producers in the market

- Ex. Fewer producers = less supply

- More Producers = more supply

Competitive Market supplies more than
Monopolistic Market

Changes in Supply

N.I.C.E.J.A.G.

- Expected Prices

- If producers expect prices to rise in the future, then they supply less now, so that they can sell their good/service at the future higher price
 - Ex. If you expect your stocks to increase in value, then you are inclined to not sell them now, but instead you are inclined to sell them later at a higher price
- If producers expect prices to fall in the future then they supply more now while prices are still relatively higher
 - Ex. If you expect your stocks to decrease in value, then you are inclined to sell them now

Changes in Supply

N.I.C.E.J.A.G.

- Profitability of goods in joint-supply
 - If the supply of beef increases, then the supply of leather increases
 - If the supply of artichokes increases, then the supply of artichoke hearts increases
- Think by-products

Changes in Supply

N.I.C.E.J.A.G.

- Profitability of alternative goods in supply
 - If farmers can make more money growing pineapples instead of bananas, then the supply of pineapples will increase and the supply of bananas will decrease
 - If auto manufacturers can make more money selling SUV's instead of sedans, then the supply of SUV's will increase while the supply of sedans will decrease
- Remember productive resources are scarce, therefore decisions about what to produce must be made and this entails sacrifice. Remember opportunity cost.

Changes in Supply

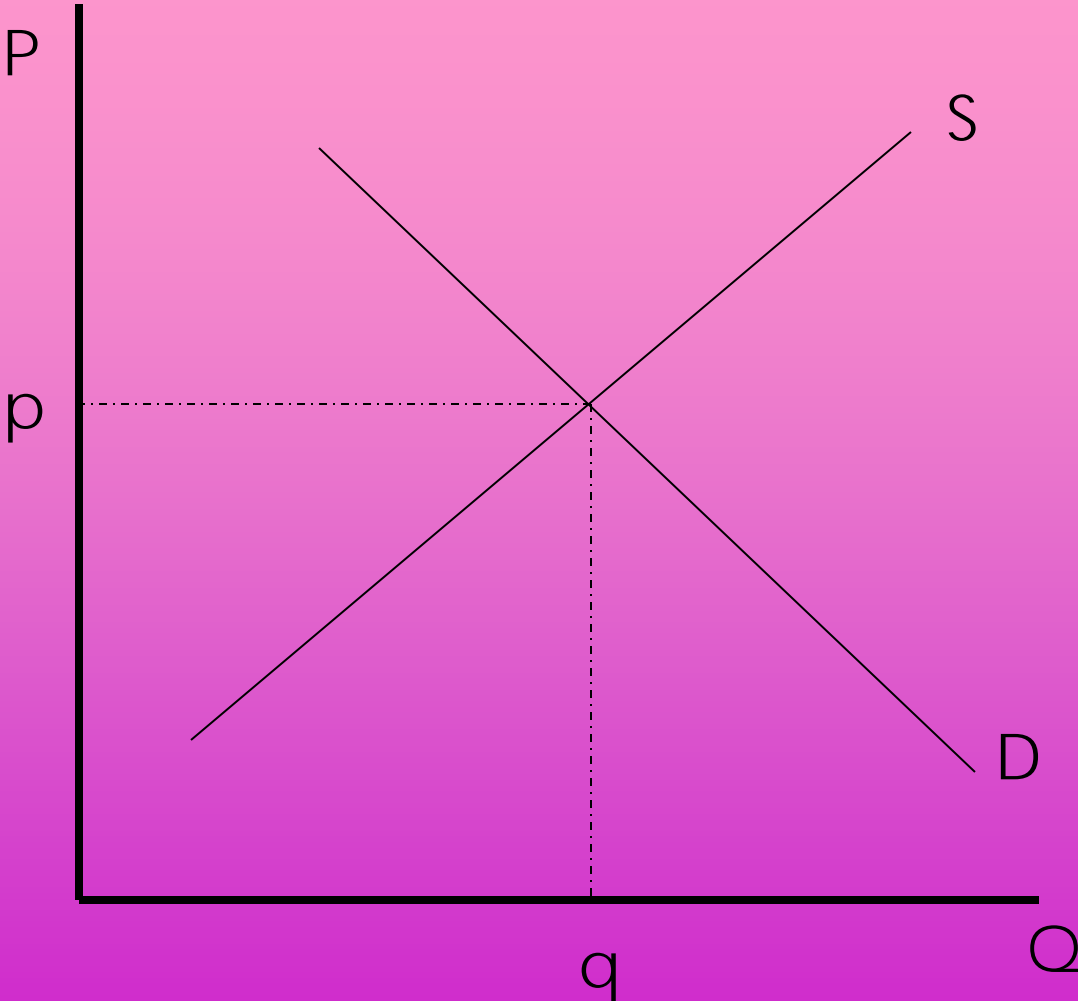
N.I.C.E.J.A.G.

- **Government action**
 - Business taxes
 - Regulation
 - Subsidies (money from govt)

Equilibrium

- When supply = demand, there is equilibrium in the market
- Equilibrium creates a single price and quantity for a good/service

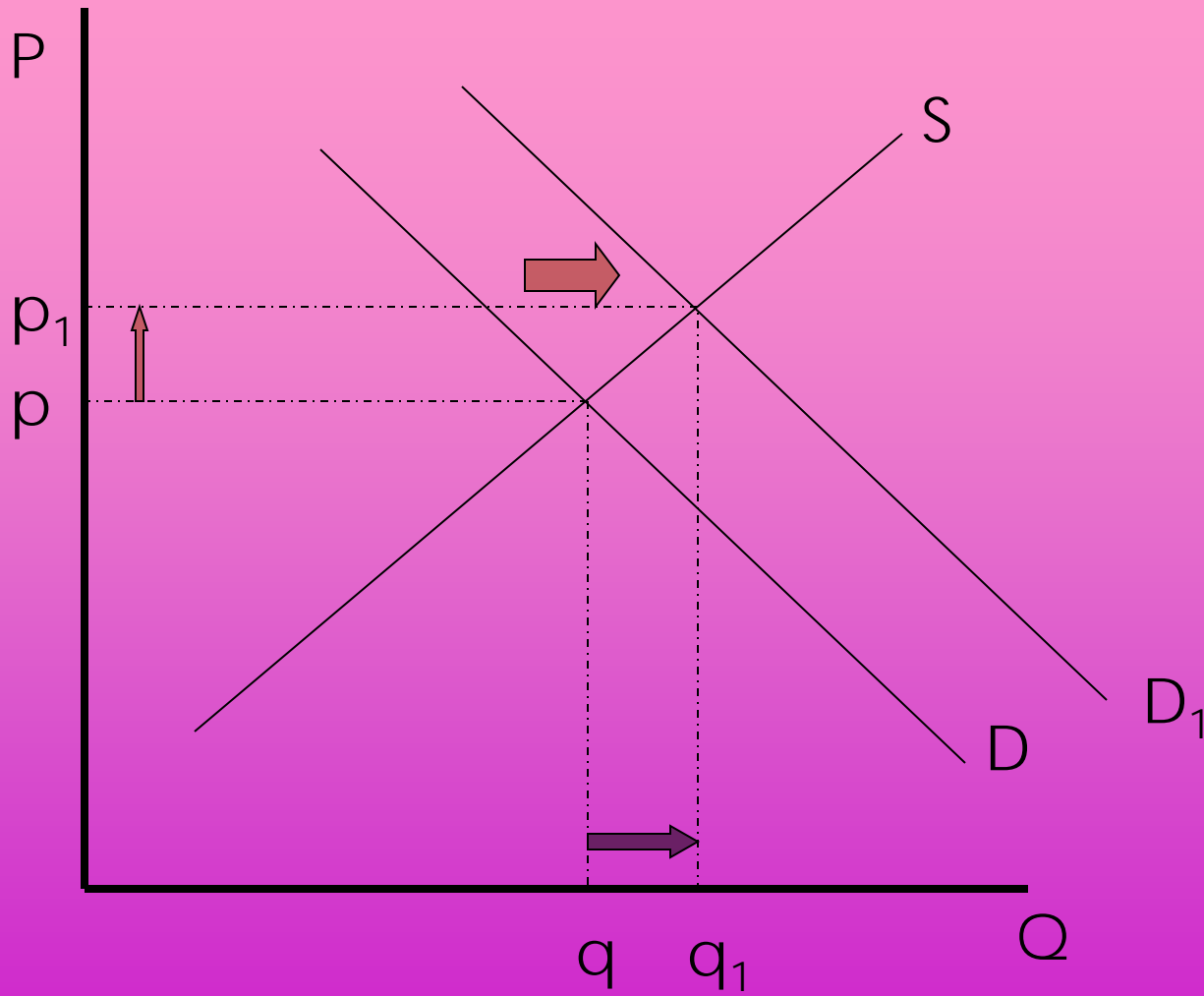
Market Equilibrium



Changes in equilibrium

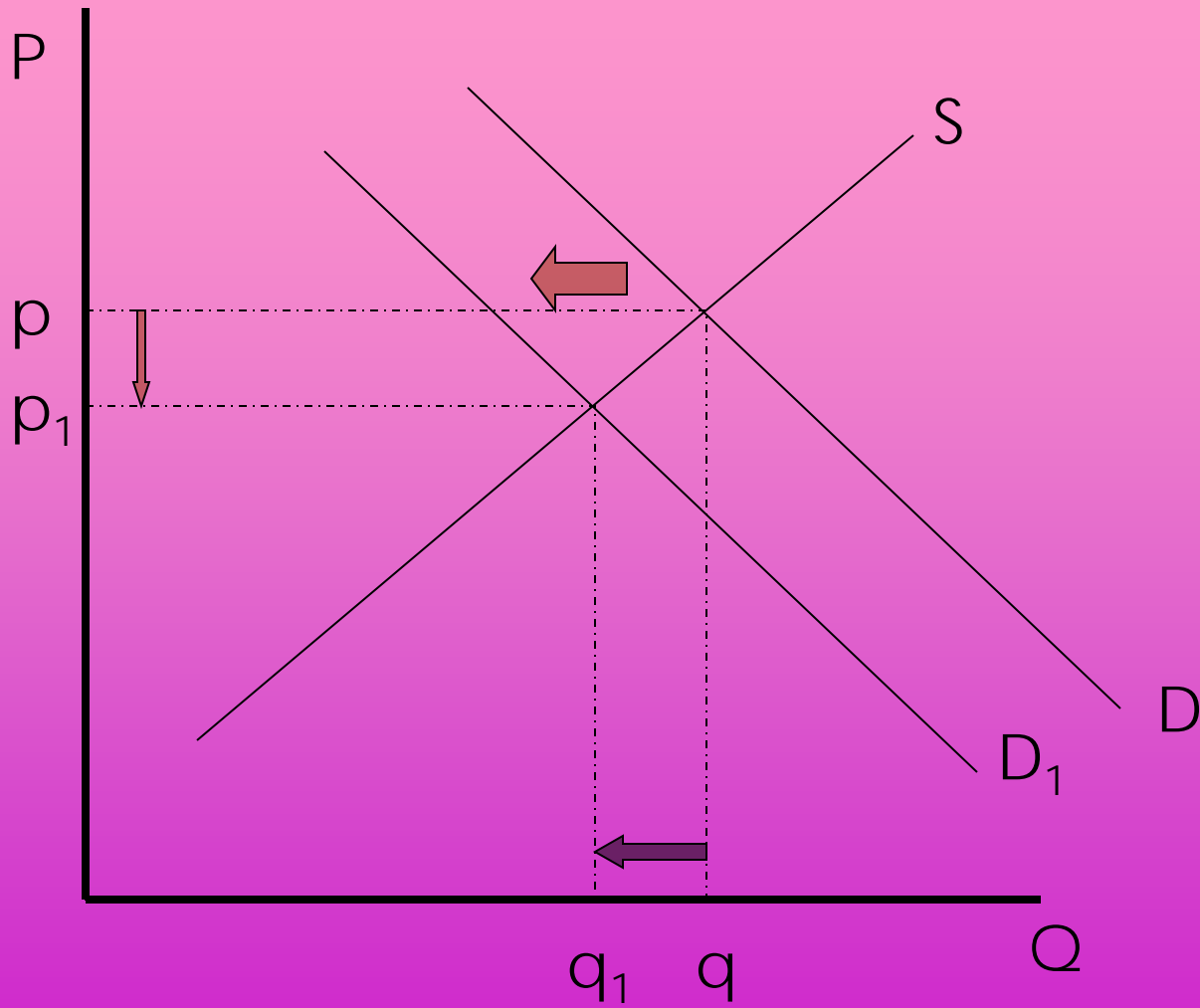
- When supply or demand changes, the equilibrium price and quantity change
- If demand increases then price increases and quantity increases
- If demand decreases then price decreases and quantity decreases
- If supply increases then price decreases and quantity increases
- If supply decreases then price increases and quantity decreases

Increase in Demand



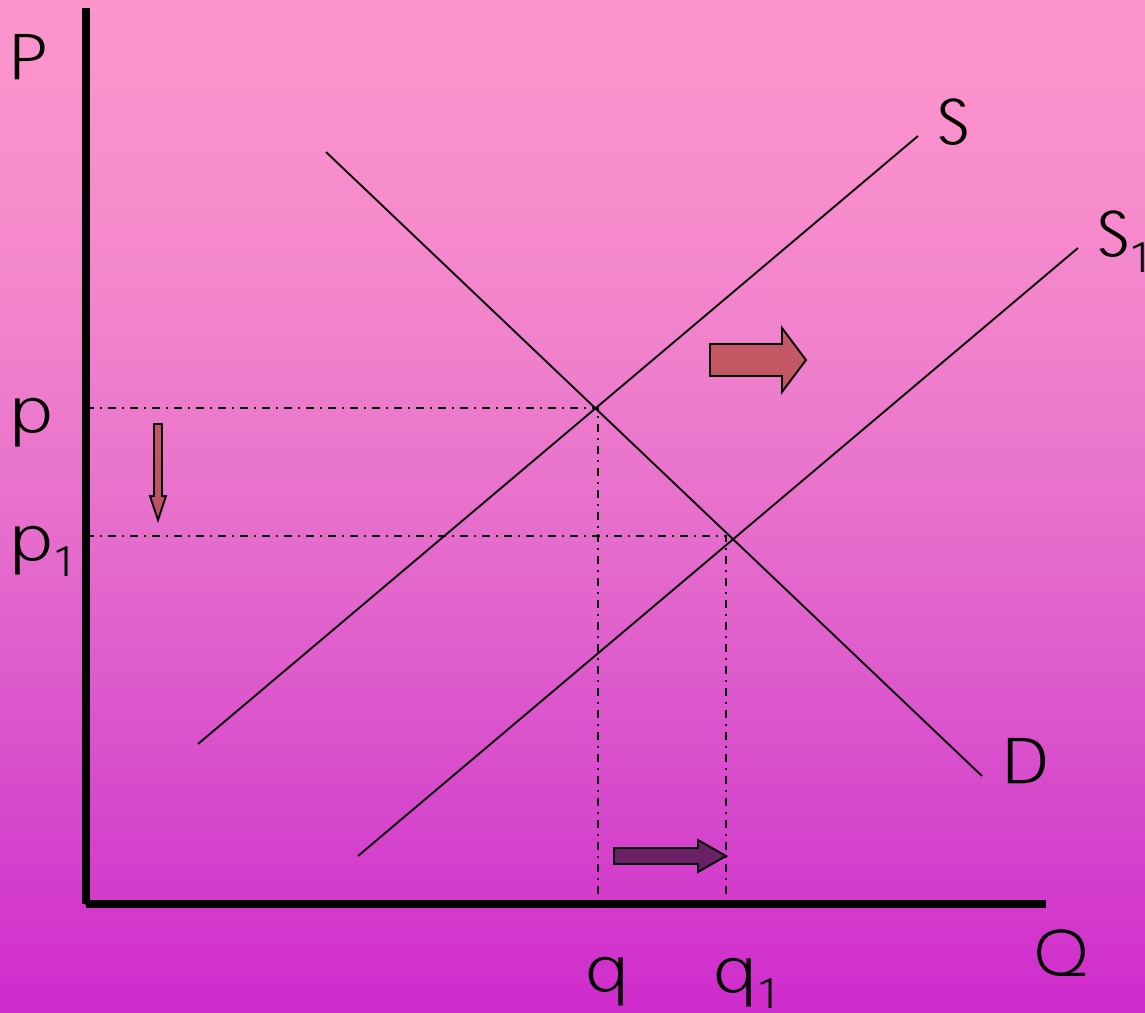
$D \rightarrow \therefore P \uparrow \& Q \uparrow$

Decrease in Demand



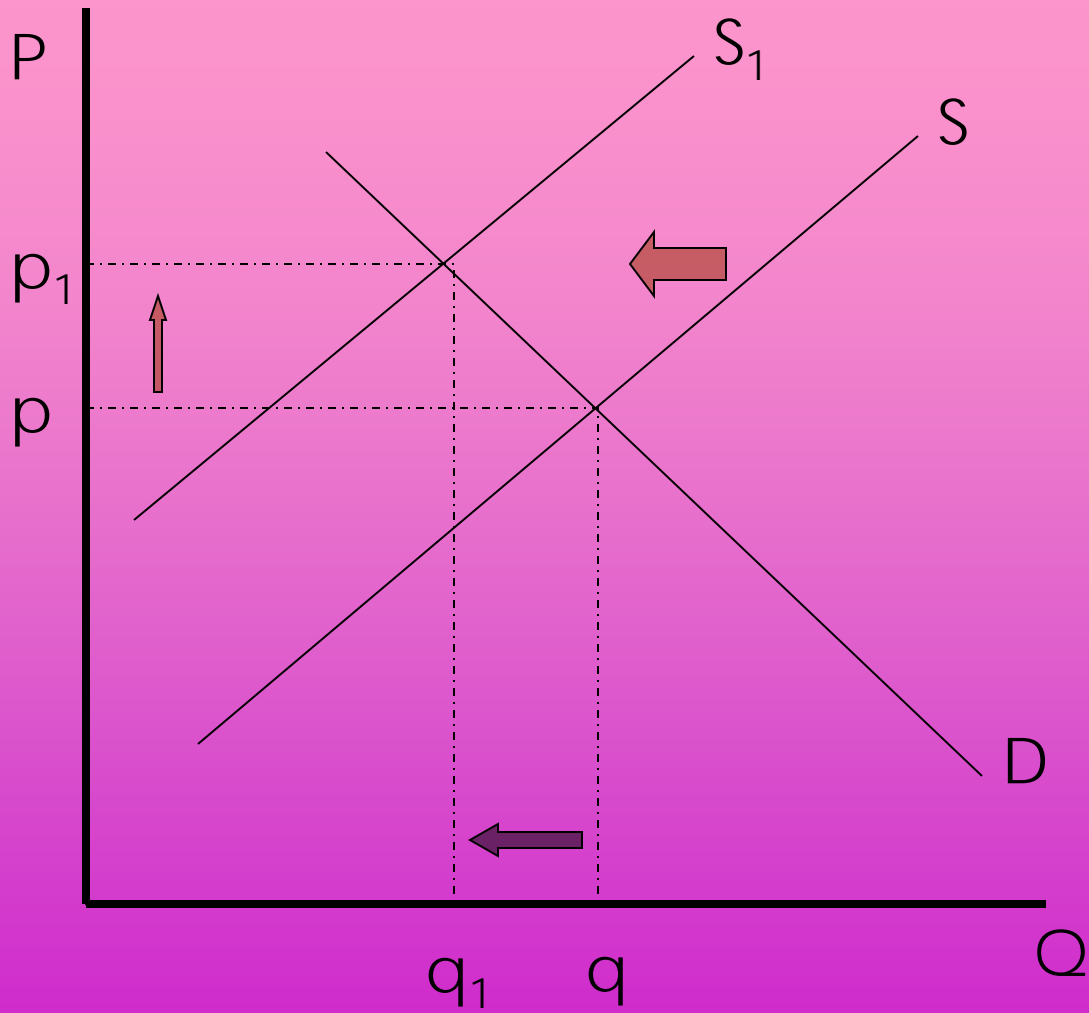
$D \leftarrow \therefore P \downarrow \ \& \ Q \downarrow$

Increase in Supply



$S \rightarrow \therefore P \downarrow \& Q \uparrow$

Decrease in Supply

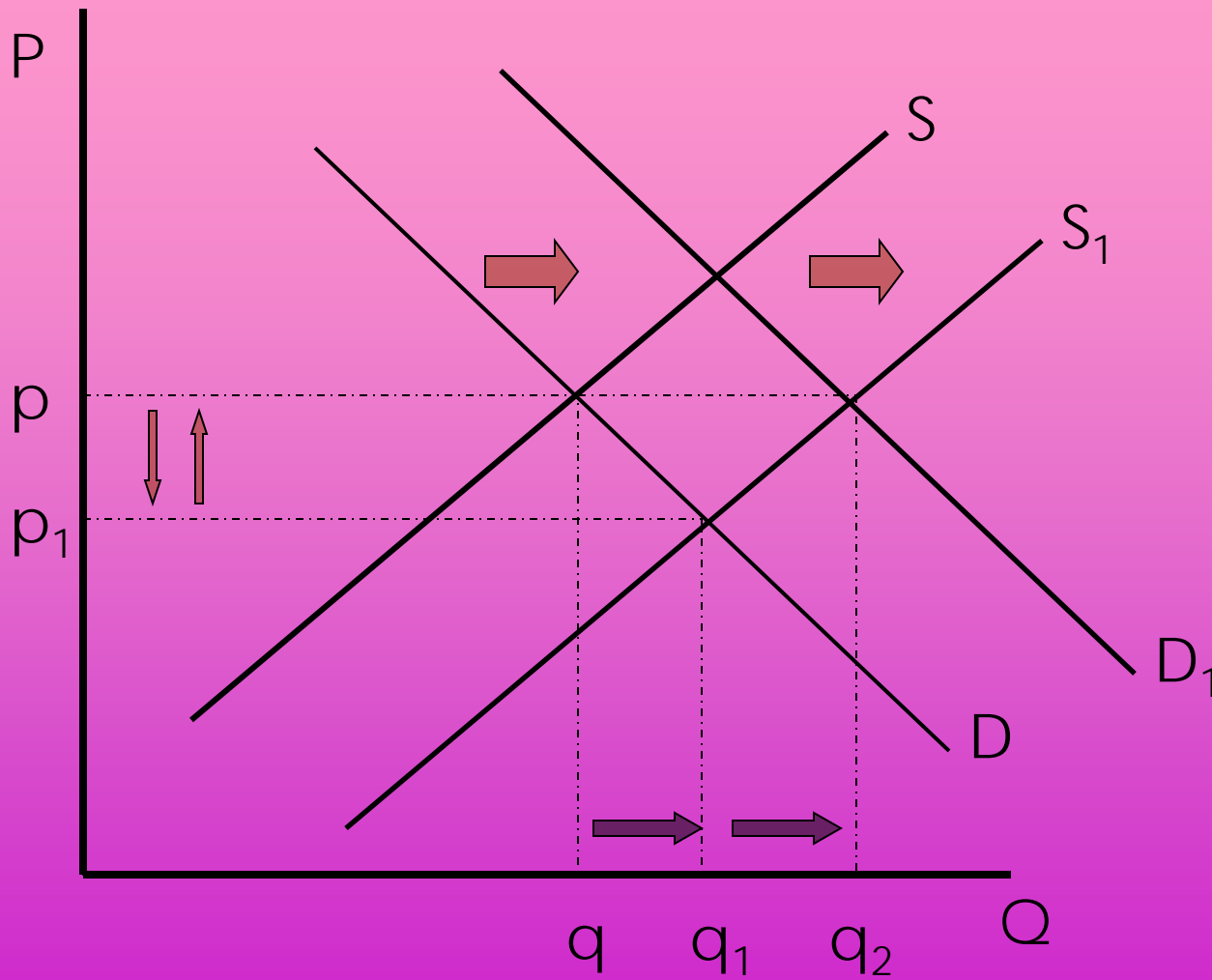


$S \leftarrow \therefore P \uparrow \ \& \ Q \downarrow$

Simultaneous Changes in Supply and Demand

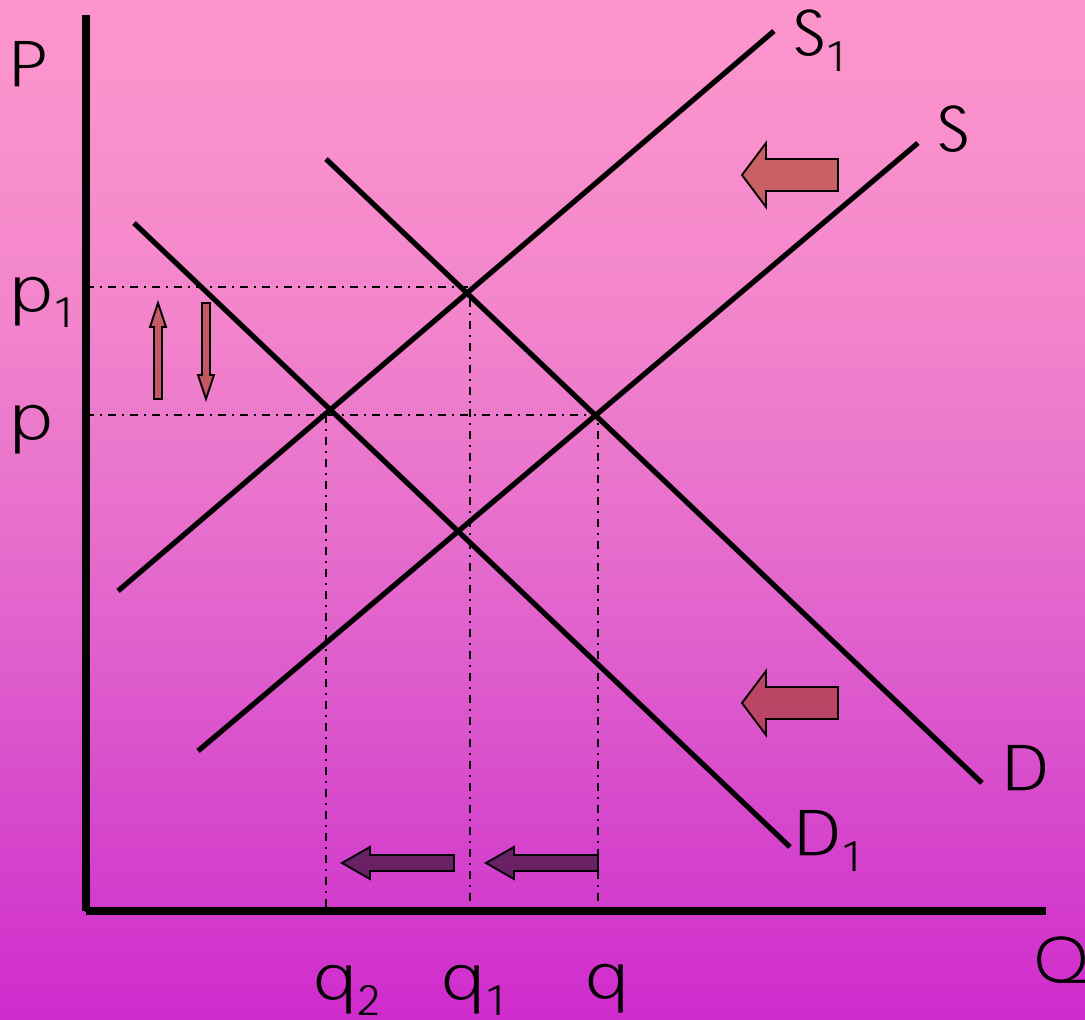
- If supply and demand both increase then price is indeterminate, but quantity definitely increases
- If supply and demand both decrease then price is indeterminate, but quantity definitely decreases

Simultaneous Increase in Supply & Demand



$S \rightarrow \& D \rightarrow \therefore P ? \& Q \uparrow$

Simultaneous Decrease in Supply & Demand

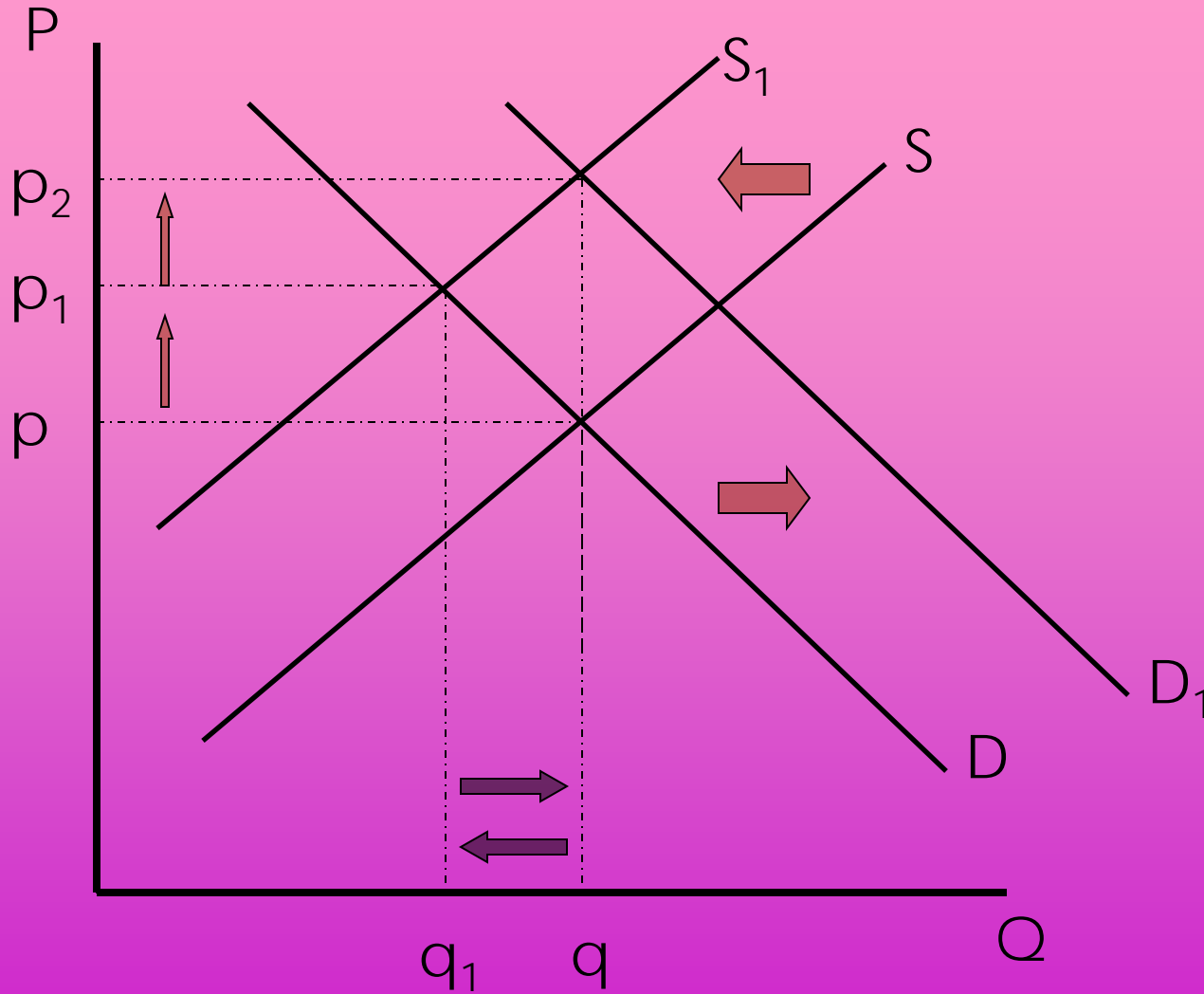


$S \leftarrow \& D \leftarrow \therefore P ? \& Q \downarrow$

Simultaneous Changes in Supply and Demand

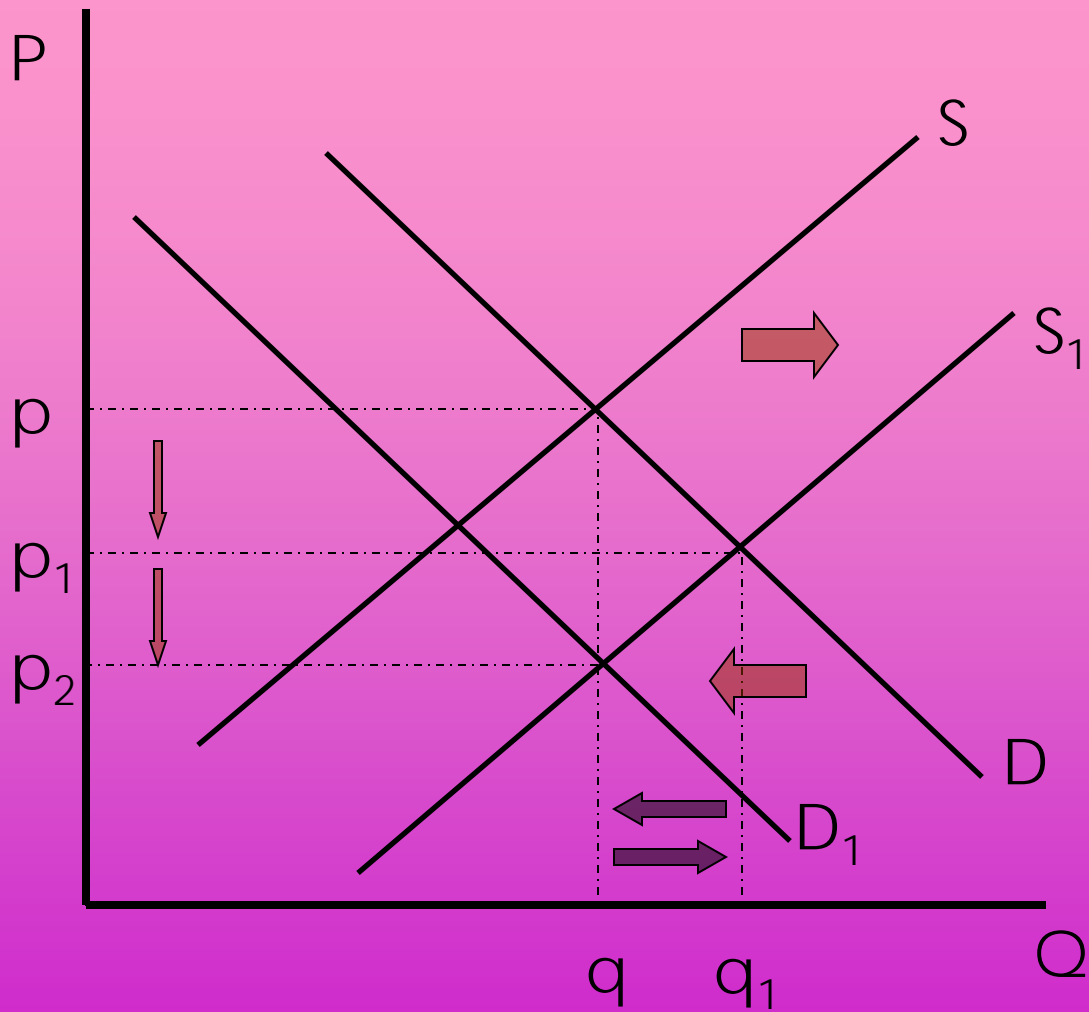
- If supply decreases while demand increases, then price definitely increases while quantity is indeterminate
- If supply increases while demand decreases, then price definitely decreases while quantity is indeterminate

Decrease in Supply w/ Simultaneous Increase in Demand



$S \leftarrow \& D \rightarrow \therefore P \uparrow \& Q ?$

Increase in Supply w/ Simultaneous Decrease in Demand



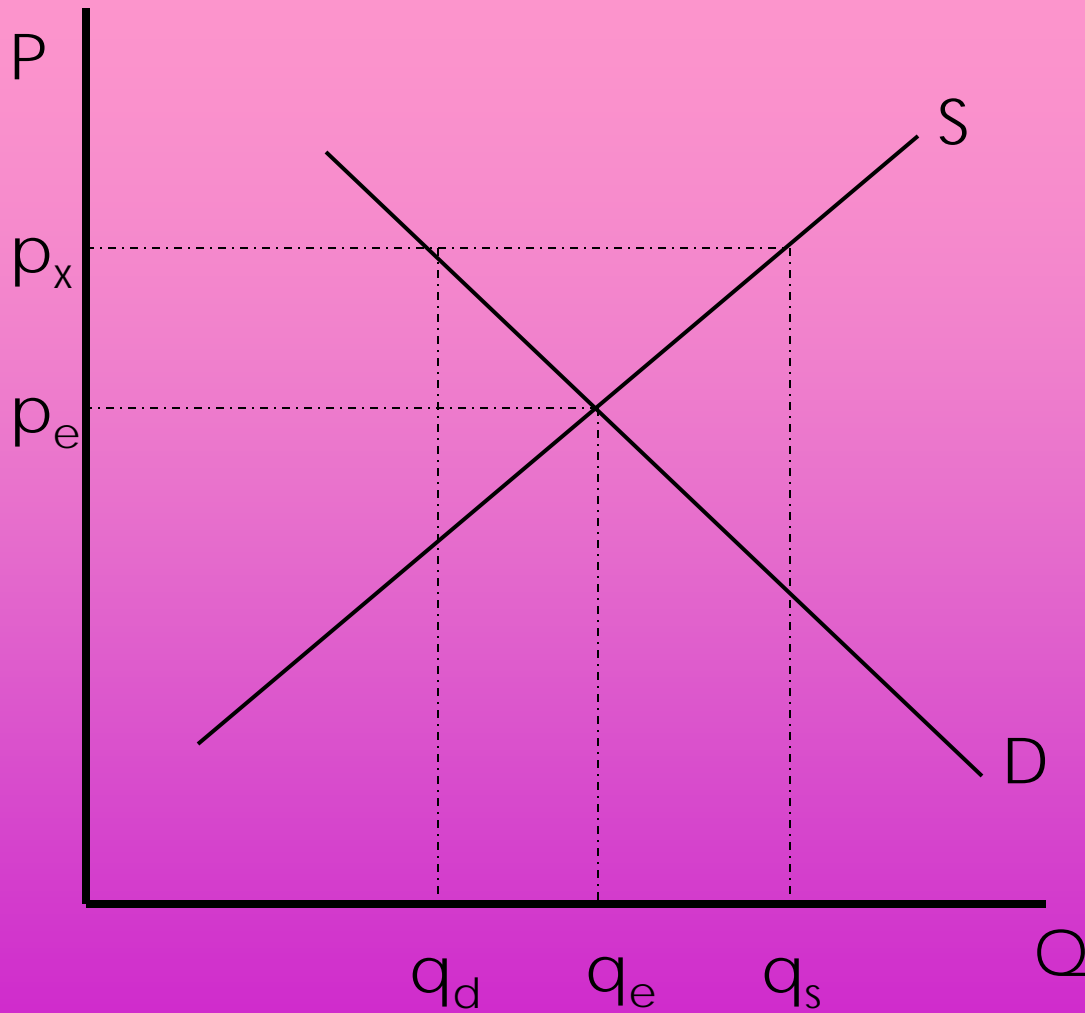
$S \rightarrow \& D \leftarrow \therefore P \downarrow \& Q ?$

Disequilibrium

- If price occurs at some point where supply and demand are not =, then disequilibrium exists.
- If the price is higher than the equilibrium price, then a surplus ($Q_s > Q_D$) occurs
- If the price is lower than the equilibrium price, then a shortage occurs ($Q_s < Q_D$)

Market Disequilibrium

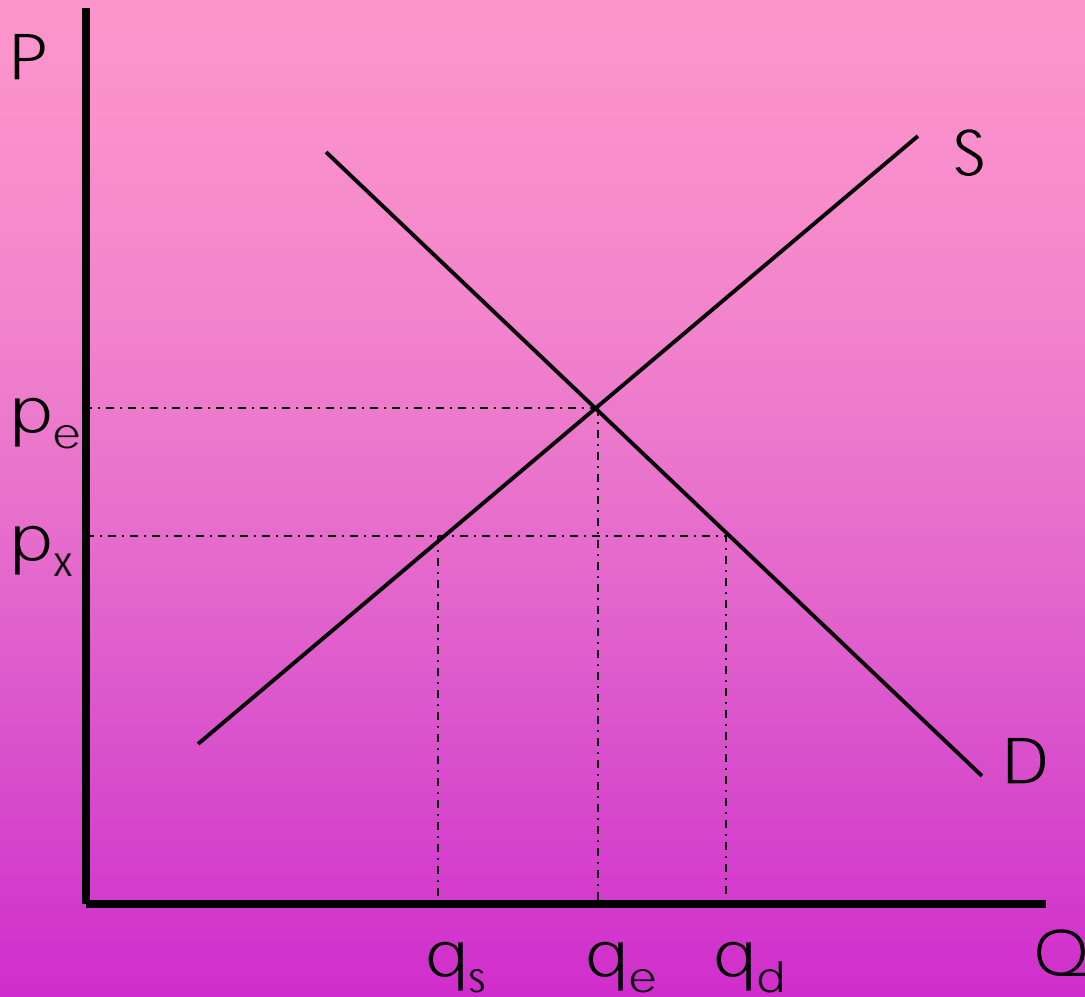
(Price, p_x , above Equilibrium Price, p_e)



If price is p_x , then $q_d < q_s \therefore$ surplus exists (surplus = $q_s - q_d$)

Market Disequilibrium

(Price, p_x , below Equilibrium Price, p_e)



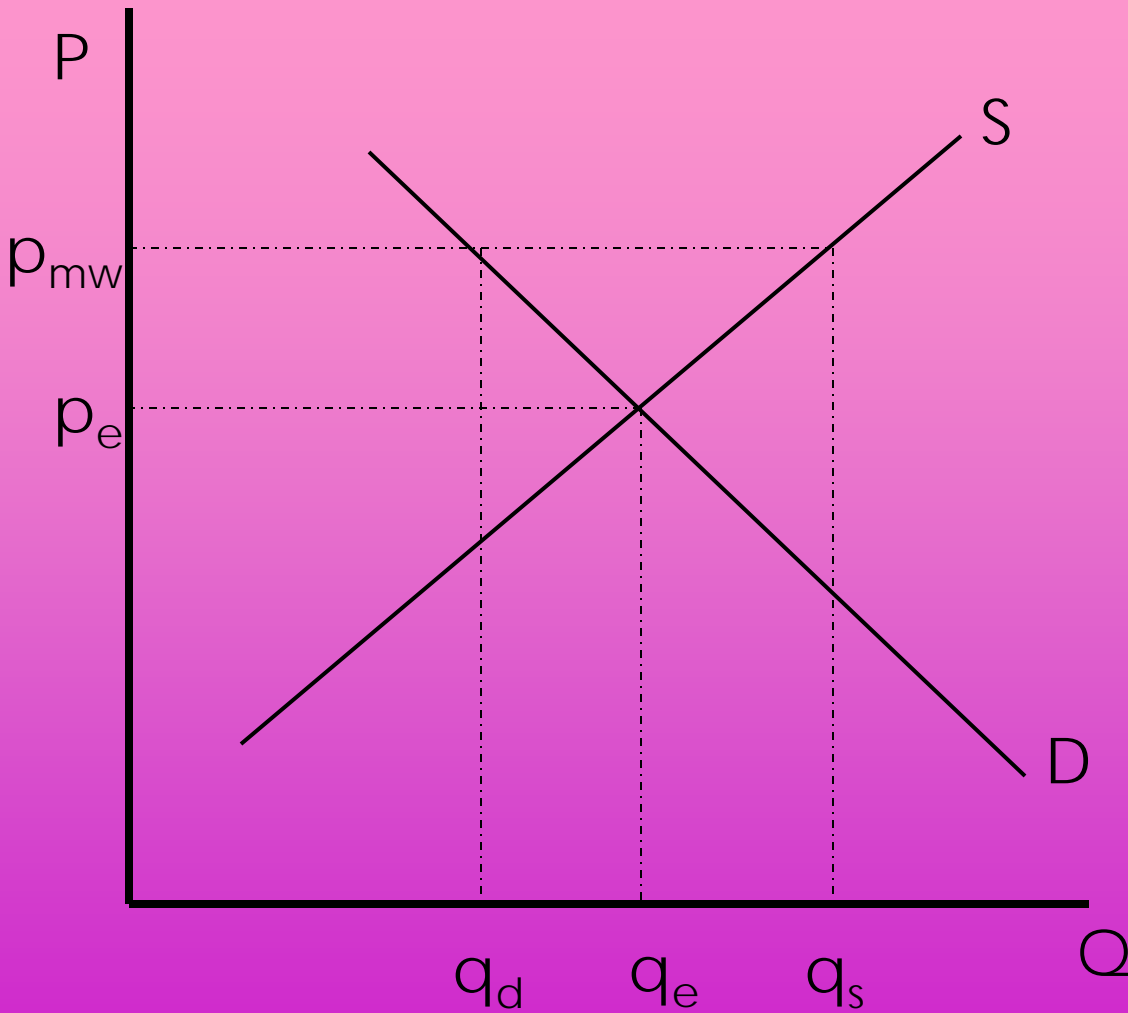
If price is p_x , then $q_s < q_d$ \therefore shortage exists (shortage = $q_d - q_s$)

Causes of Disequilibrium

- Price floor – a minimum price for a good/service or resource determined outside of the market
 - Ex. Minimum wage
- Price ceiling – a maximum price for a good/service or resource determined outside of the market
 - Ex. Concert tickets sold by Ticket-master

Effective Price Floor

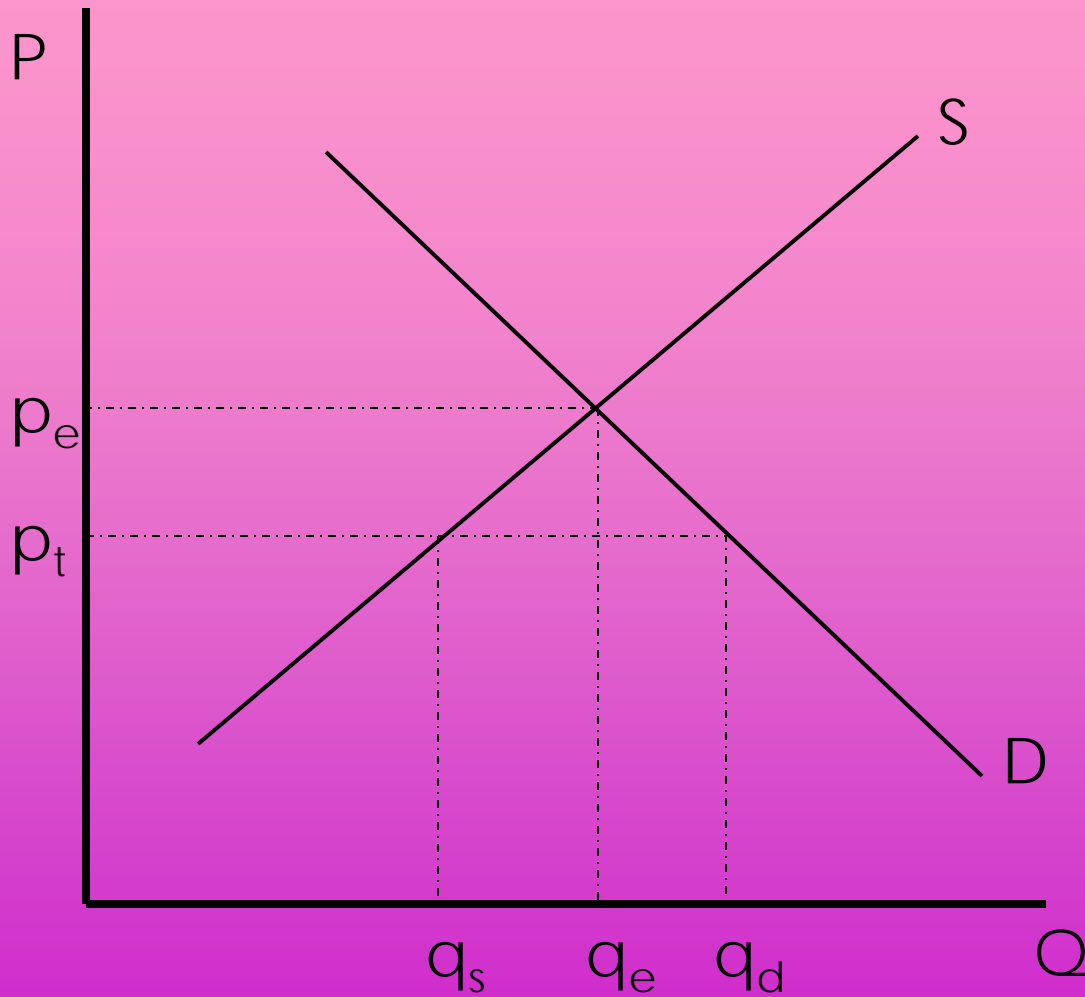
(ex. Minimum wage in competitive unskilled labor market)



If price floor is effective, then $q_d < q_s \therefore$ surplus labor exists

Effective Price Ceiling

(ex. Single price for admission to a popular concert)



If price ceiling is effective then $q_s < q_d$ \therefore ticket shortage exists

Conclusion

- Markets work best when supply and demand determine the price of goods/services or resources.
- When forces other than supply and demand determine the price of goods/services or resources, surpluses and shortages result.
- Over time, the forces of supply and demand undermine artificial price controls
 - Ex. Black markets, ticket scalping, undocumented workers

Practice

[Click Here for Supply
& Demand Practice](#)