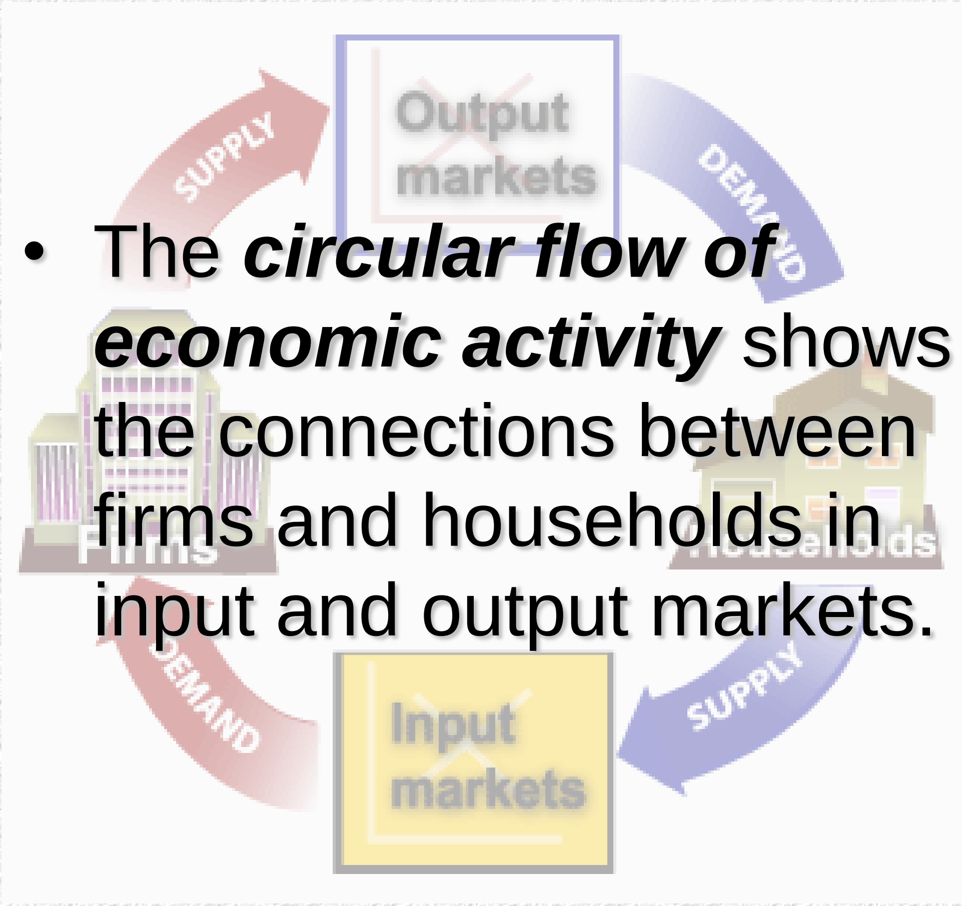
Demand, Supply and Market Equilibrium

- Demand reflects buyer’s decision making
- Supply reflects seller’s decision making
- Put supply and demand together, we have a market

The Basic Decision-Making Units

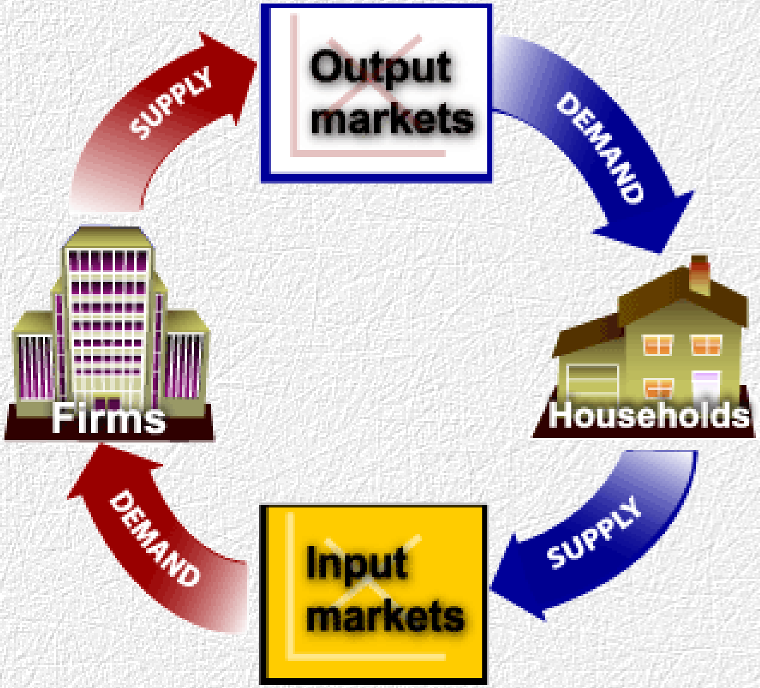
- A ***firm*** is an organization that transforms resources (inputs) into products (outputs). Firms are the primary producing units in a market economy.
- An ***entrepreneur*** is a person who organizes, manages, and assumes the risks of a firm, taking a new idea or a new product and turning it into a successful business.
- ***Households*** are the consuming units in an economy.

The Circular Flow of Economic Activity



- The ***circular flow of economic activity*** shows the connections between firms and households in input and output markets.

Input Markets and Output Markets



- Payments flow in the opposite direction as the physical flow of resources, goods, and services (counterclockwise).

- ***Output, or product, markets*** are the markets in which goods and services are exchanged.
- ***Input markets*** are the markets in which resources—labor, capital, and land—used to produce products, are exchanged.

Input Markets

Input markets include:

- The ***labor market***, in which households supply work for wages to firms that demand labor.
- The ***capital market***, in which households supply their savings, for interest or for claims to future profits, to firms that demand funds to buy capital goods.
- The ***land market***, in which households supply land or other real property in exchange for rent.

Determinants of Household Demand

A household's decision about the quantity of a particular output to demand depends on:

- The ***price of the product*** in question.
- The ***income*** available to the household.
- The household's amount of ***accumulated wealth****.*
- The ***prices of related products*** available to the household.
- The household's ***tastes and preferences***.
- The household's ***expectations*** about future income, wealth, and prices.

Price and Quantity Demanded

$$Q_d = f(\overset{-}{P}, \overset{+or-}{M}, \overset{+or-}{P_R}, \overset{+}{T}, \overset{+}{P_e}, \overset{+}{N})$$

Price and quantity demanded are inversely related. If price increases, holding other factors constant, quantity demanded decreases. This inverse relationship is often referred to as the Law of Demand.

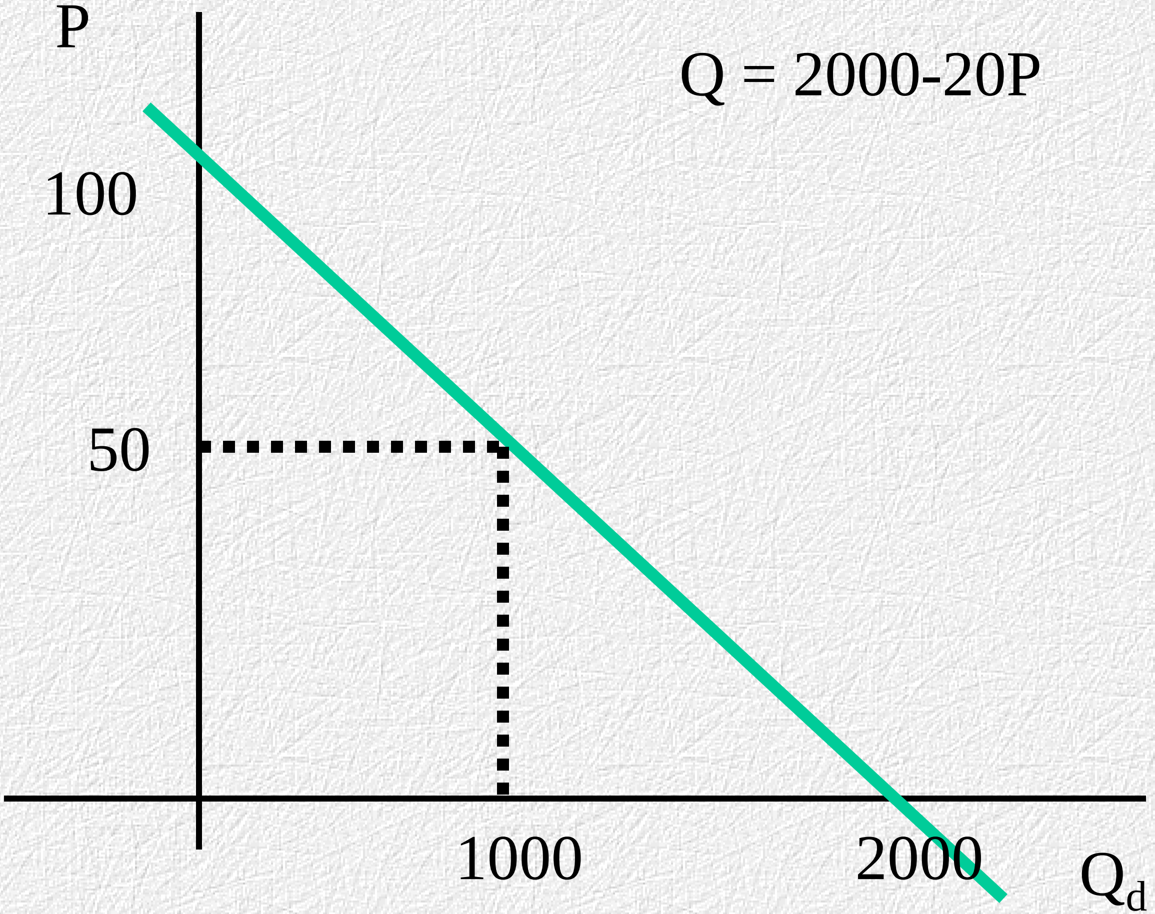
Demand Functions

- Demand or the demand function is the relationship between price and quantity demanded, holding other factors constant.
  - Table: see slide following
  - Graph: see slide following
  - Equation: $Q_d = 2000 - 20P$

Demand Schedule

Price	$Q_d=2000-20P$
0	2000
25	1500
50	1000
75	500
100	0

Demand Curve



Demand in Output Markets

ANNA'S DEMAND SCHEDULE FOR TELEPHONE CALLS	
PRICE (PER CALL)	QUANTITY DEMANDED (CALLS PER MONTH)
$ 0	30
0.50	25
3.50	7
7.00	3
10.00	1
15.00	0

- A ***demand schedule*** is a table showing how much of a given product a household would be willing to buy at different prices.
- Demand curves are usually derived from demand schedules.

The Demand Curve

ANNA'S DEMAND SCHEDULE FOR TELEPHONE CALLS	
PRICE (PER CALL)	QUANTITY DEMANDED (CALLS PER MONTH)
$ 0	30
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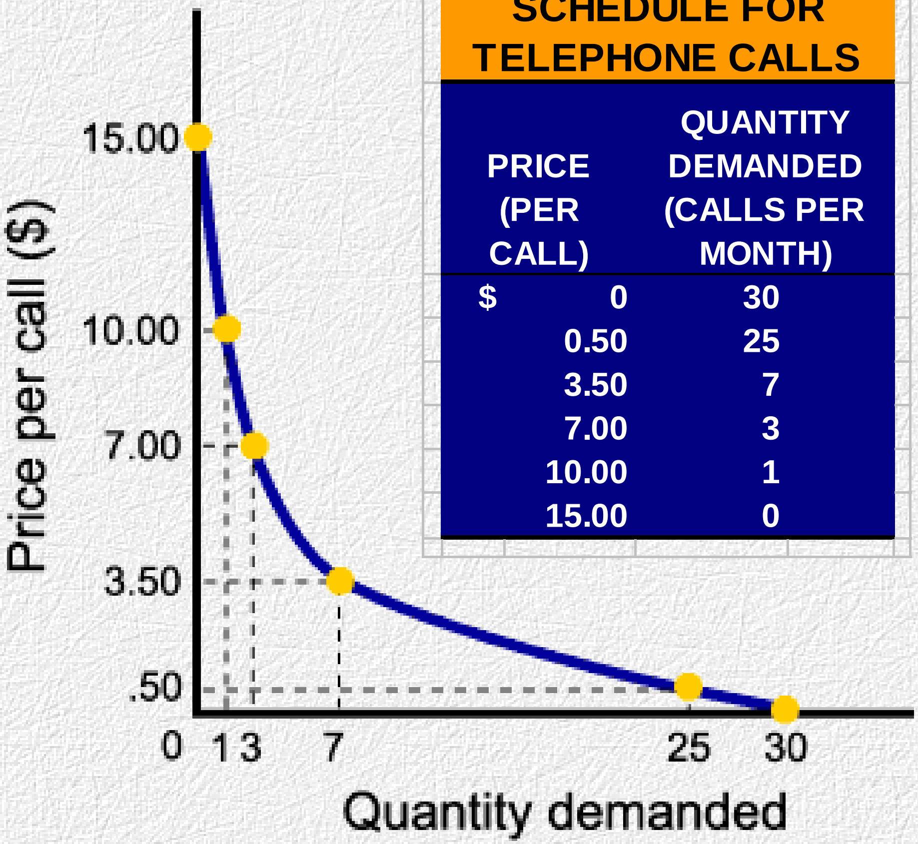
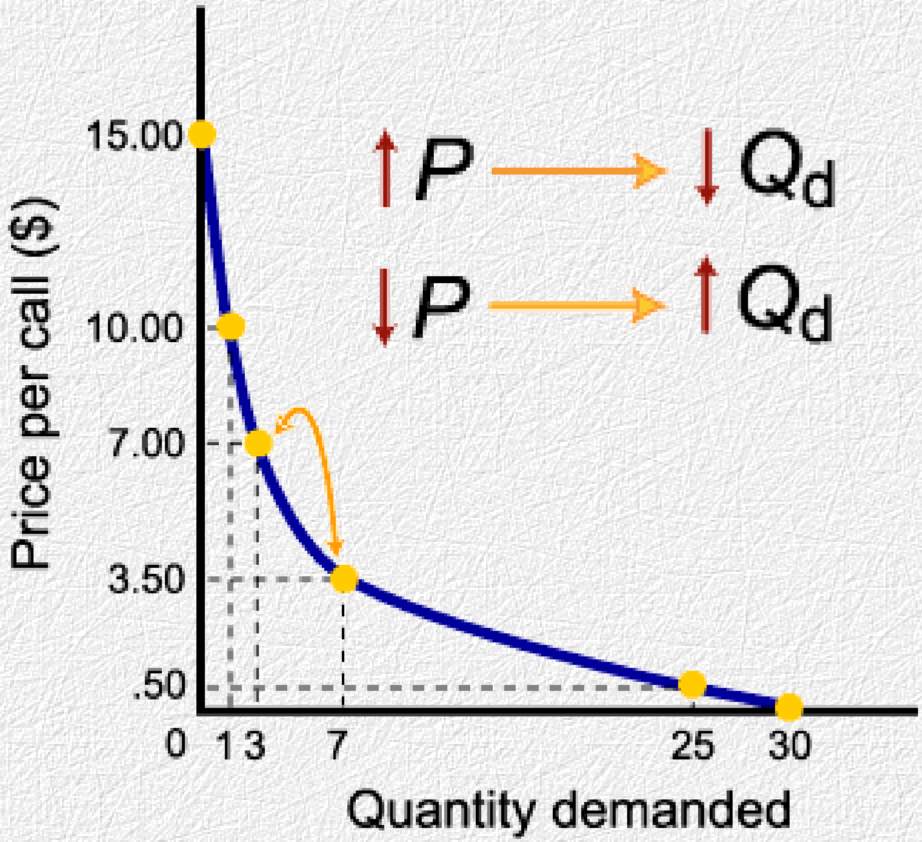


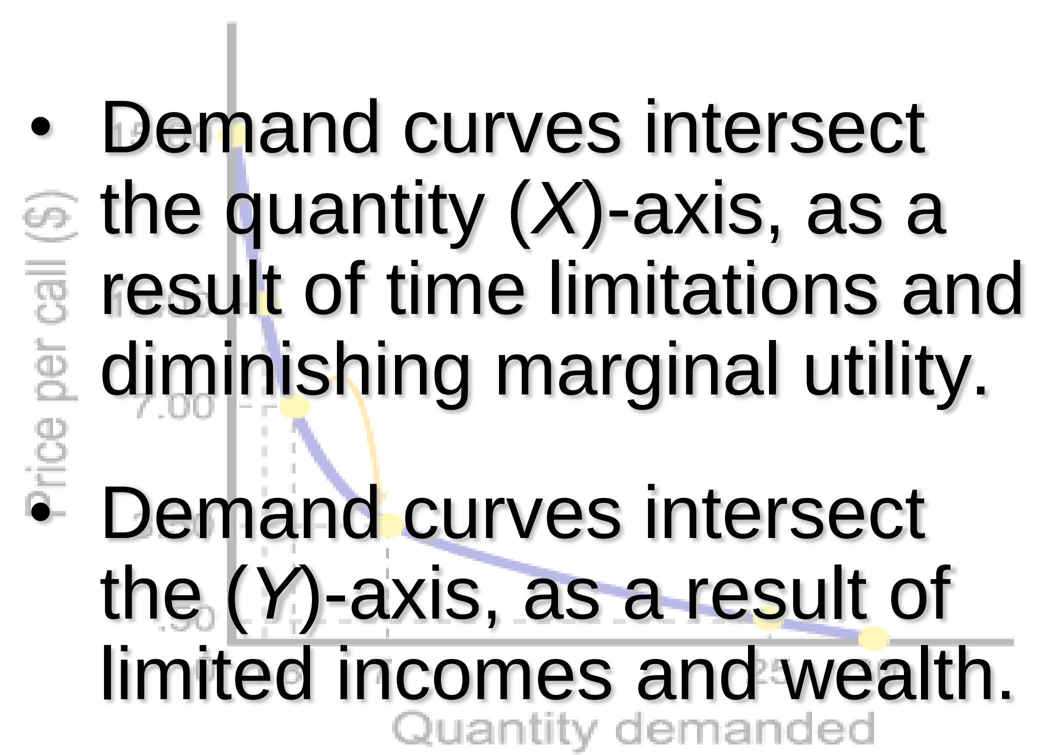
- The ***demand curve*** is a graph illustrating how much of a given product a household would be willing to buy at different prices.

The Law of Demand



- The ***law of demand*** states that there is a negative, or inverse, relationship between price and the quantity of a good demanded and its price.
- This means that demand curves slope downward.

Other Properties of Demand Curves



- Demand curves intersect the quantity (*X*)-axis, as a result of time limitations and diminishing marginal utility.
- Demand curves intersect the (*Y*)-axis, as a result of limited incomes and wealth.

Income and Wealth

- ***Income*** is the sum of all households wages, salaries, profits, interest payments, rents, and other forms of earnings in a given period of time. It is a ***flow*** measure.

- ***Wealth***, or ***net worth***, is the total value of what a household owns minus what it owes. It is a ***stock*** measure.

Related Goods and Services

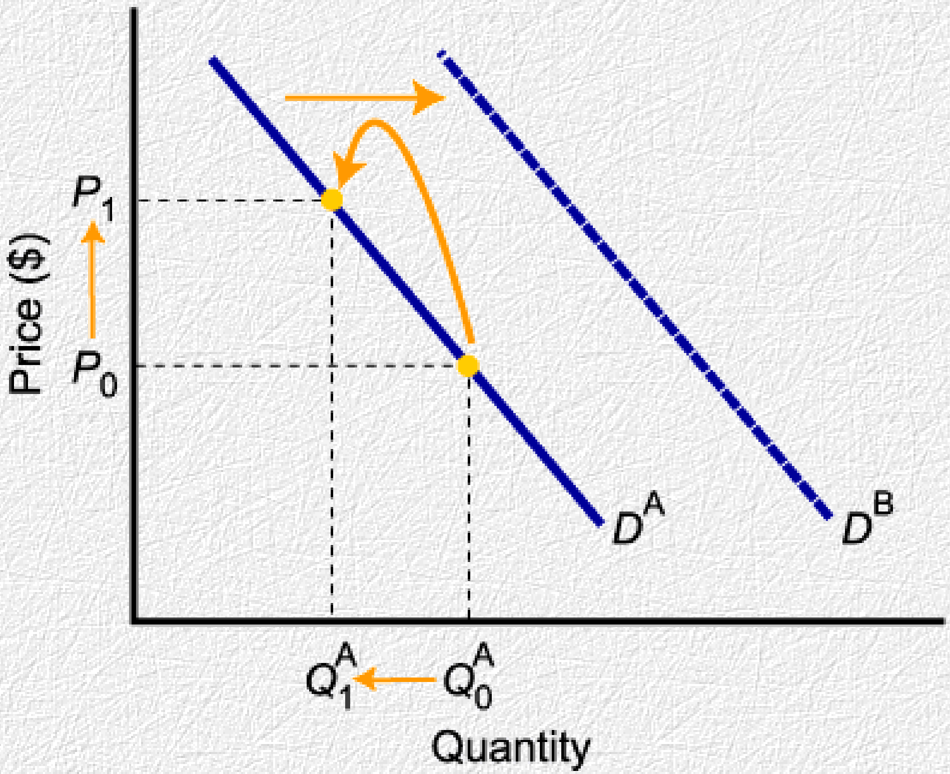
- ***Normal Goods*** are goods for which demand goes up when income is higher and for which demand goes down when income is lower.
- ***Inferior Goods*** are goods for which demand falls when income rises.

Related Goods and Services

- ***Substitutes*** are goods that can serve as replacements for one another; when the price of one increases, demand for the other goes up. ***Perfect substitutes*** are identical products.

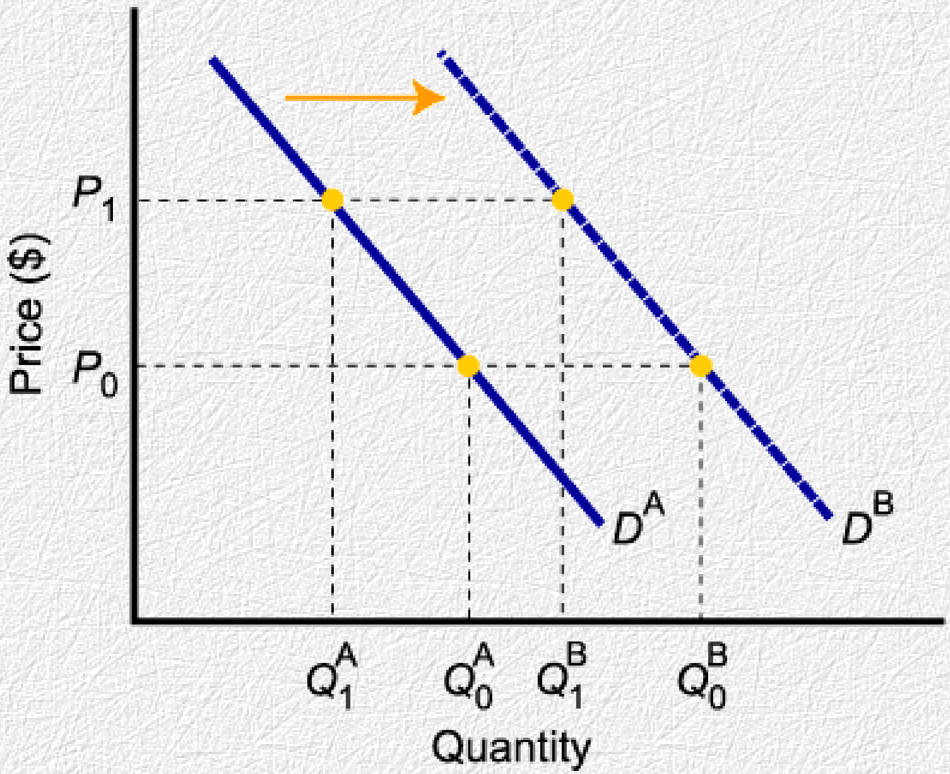
- ***Complements*** are goods that "go together"; a decrease in the price of one results in an increase in demand for the other, and vice versa.

Shift of Demand Versus Movement Along a Demand Curve



- A change in ***demand*** is not the same as a change in ***quantity demanded***.
- In this example, a higher price causes lower ***quantity demanded***.
- Changes in determinants of demand, other than price, cause a change in ***demand***, or a ***shift*** of the entire demand curve, from D_A to D_B.

A Change in Demand Versus a Change in Quantity Demanded



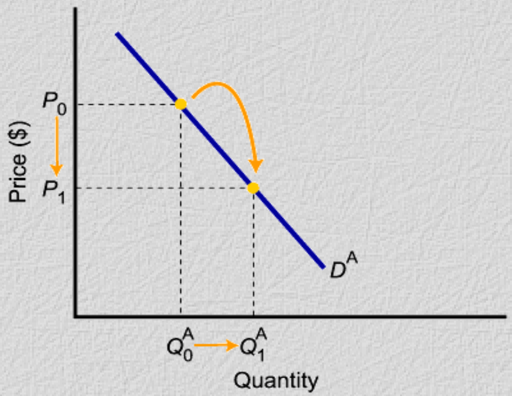
- When ***demand shifts*** to the right, demand increases. This causes ***quantity demanded*** to be greater than it was prior to the shift, ***for each and every price level.***

A Change in Demand Versus a Change in Quantity Demanded

To summarize:

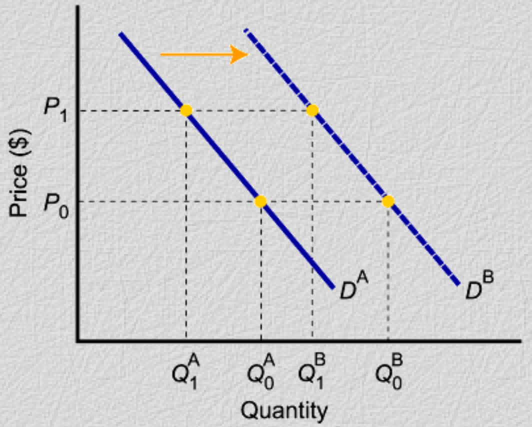
Change in price of a good or service leads to

Change in *quantity demanded* (**Movement along the curve**).



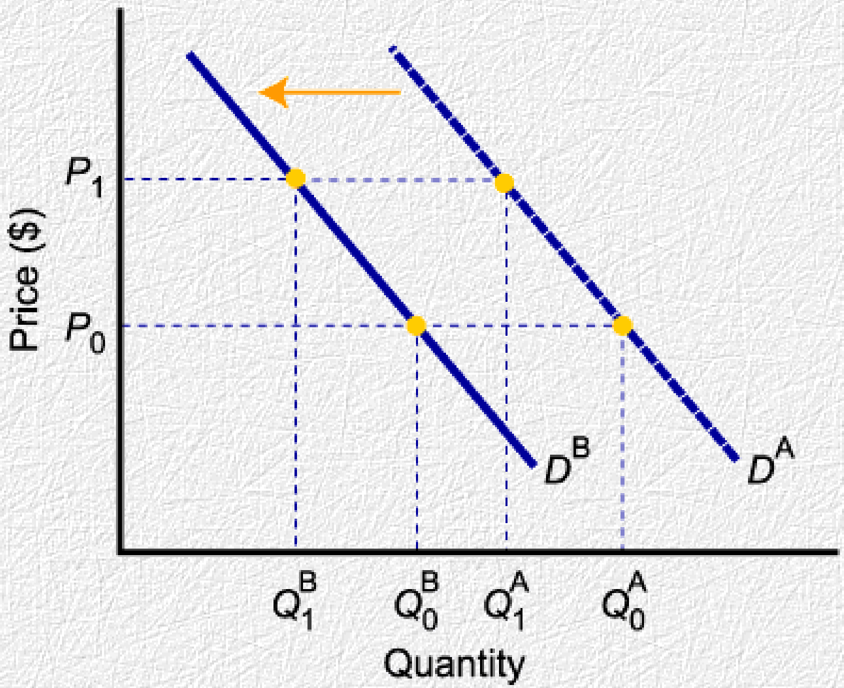
Change in income, preferences, or prices of other goods or services leads to

Change in demand (**Shift of curve**).

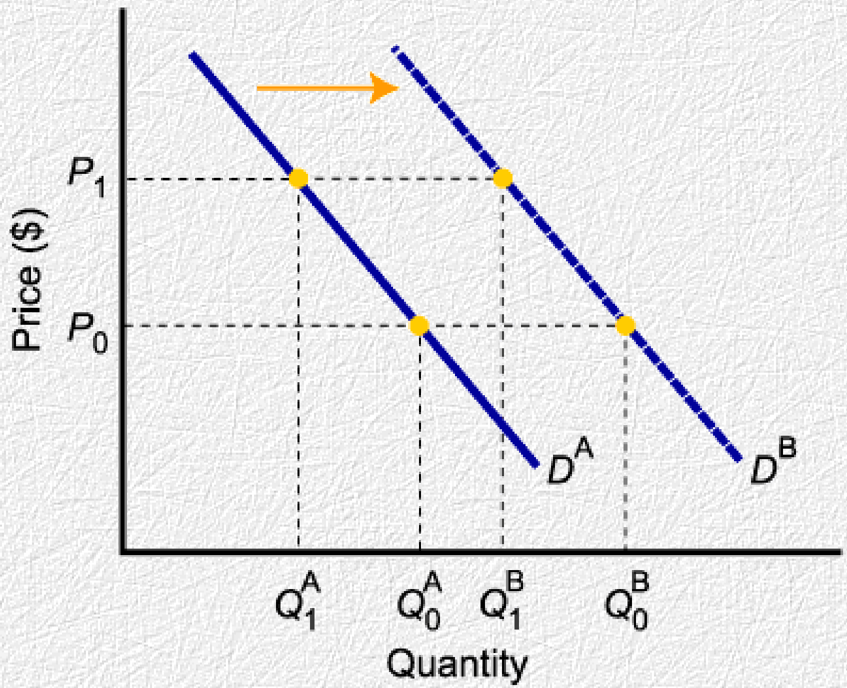


The Impact of a Change in Income

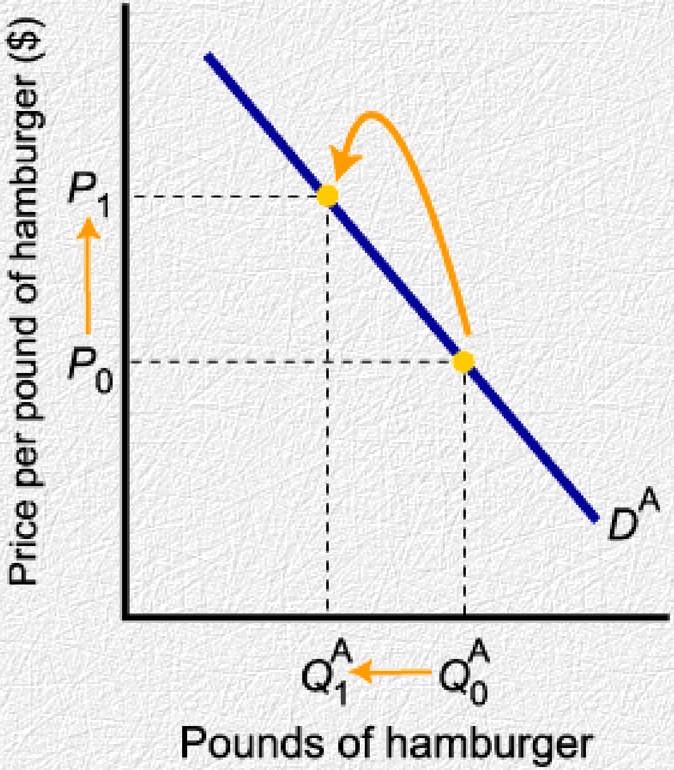
- Higher income decreases the demand for an ***inferior*** good



- Higher income increases the demand for a ***normal*** good

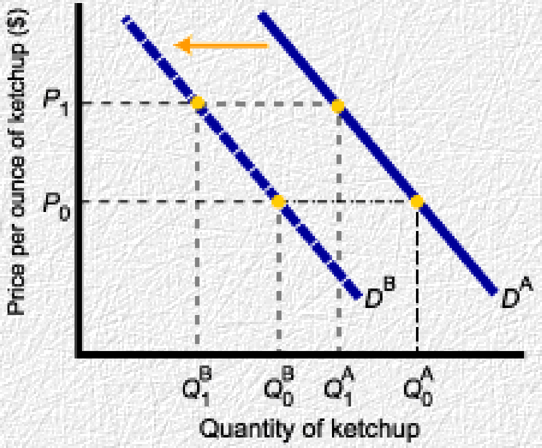


The Impact of a Change in the Price of Related Goods

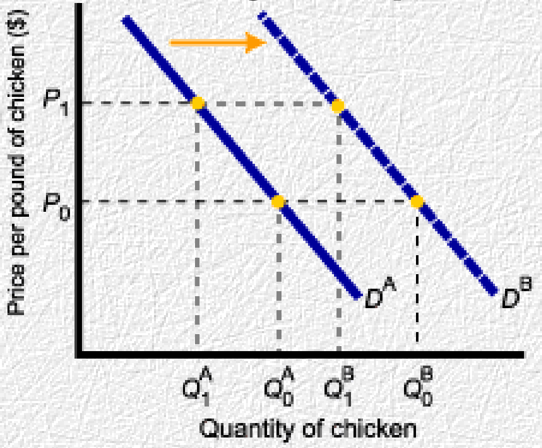


- **Price of hamburger rises**
- **Quantity of hamburger demanded falls**

- **Demand for complement good (ketchup) shifts left**



- **Demand for substitute good (chicken) shifts right**



From Household to Market Demand

- Demand for a good or service can be defined for an ***individual household***, or for a group of households that make up a ***market***.
- ***Market demand*** is the sum of all the quantities of a good or service demanded per period by all the households buying in the market for that good or service.

From Household Demand to Market Demand

- Assuming there are only two households in the market, market demand is derived as follows:

Supply in Output Markets

CLARENCE BROWN'S SUPPLY SCHEDULE FOR SOYBEANS	
PRICE (PER BUSHEL)	QUANTITY SUPPLIED (THOUSANDS OF BUSHELS PER YEAR)
$ 2	0
1.75	10
2.25	20
3.00	30
4.00	45
5.00	45

- A ***supply schedule*** is a table showing how much of a product firms will supply at different prices.
- ***Quantity supplied*** represents the number of units of a product that a firm would be willing and able to offer for sale at a particular price during a given time period.

The Supply Curve and the Supply Schedule

- A ***supply curve*** is a graph illustrating how much of a product a firm will supply at different prices.

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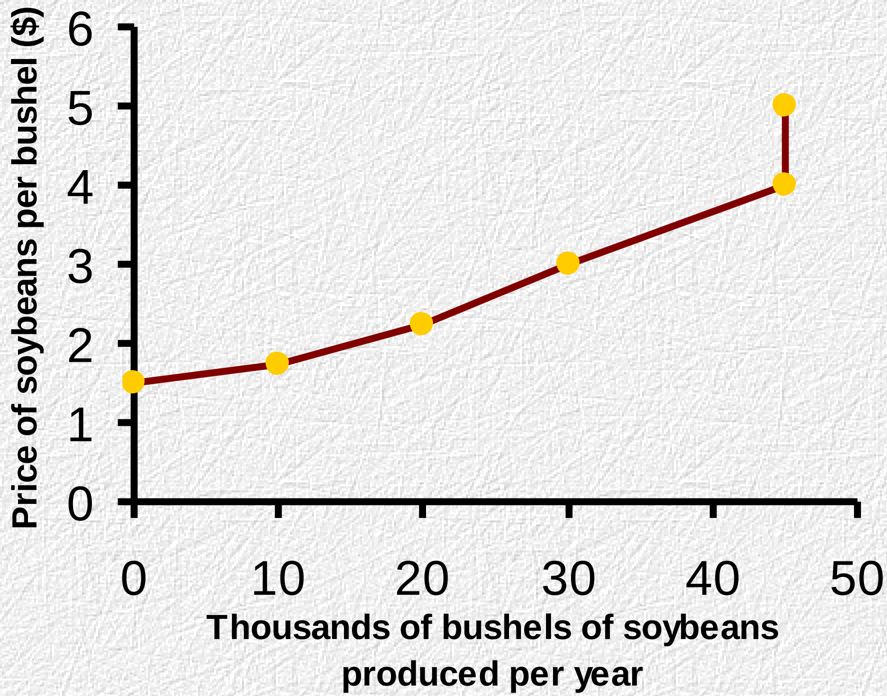
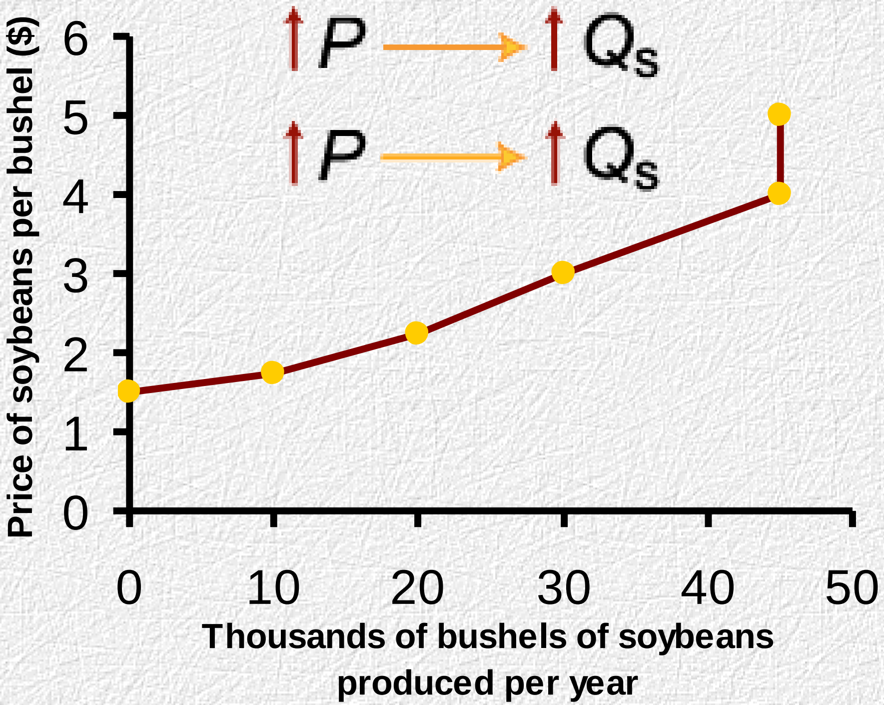


The Law of Supply

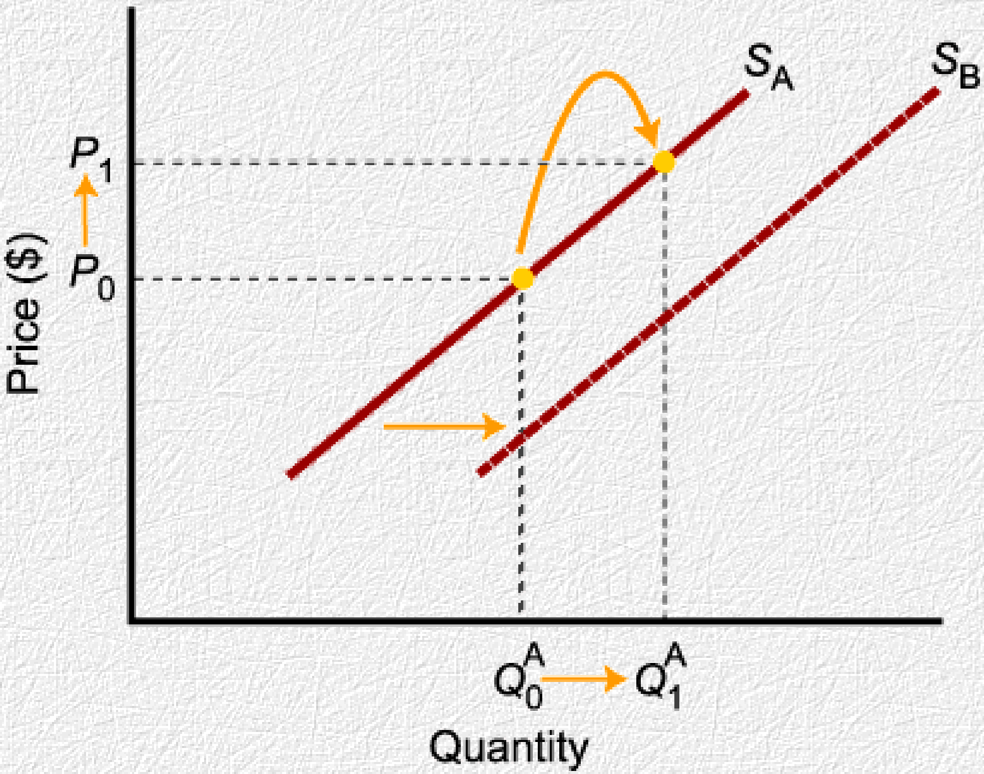


- The ***law of supply*** states that there is a positive relationship between price and quantity of a good supplied.
- This means that supply curves typically have a positive slope.

Determinants of Supply

- The ***price*** of the good or service.
- The ***cost*** of producing the good, which in turn depends on:
  - The ***price of required inputs*** (labor, capital, and land),
  - The ***technologies*** that can be used to produce the product,
- The ***prices of related products.***

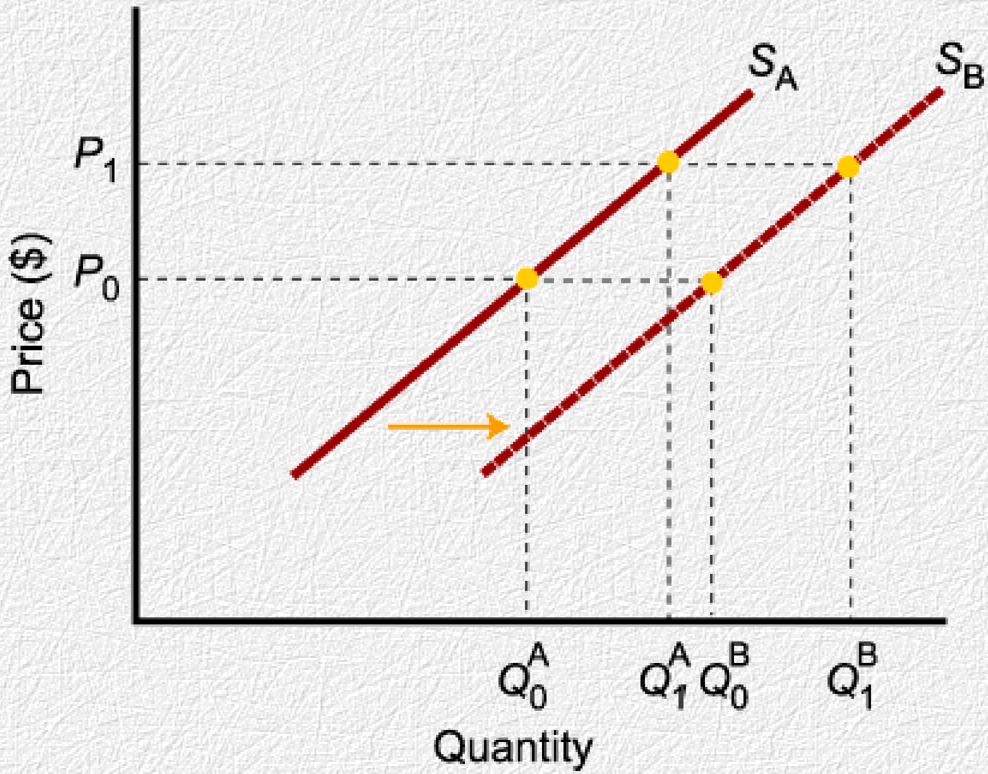
A Change in Supply Versus a Change in Quantity Supplied



- A change in ***supply*** is not the same as a change in ***quantity supplied***.
- In this example, a higher price causes ***higher quantity supplied***, and a ***move along*** the demand curve.

- In this example, changes in determinants of supply, other than price, cause an ***increase in supply***, or a ***shift*** of the entire supply curve, from S_A to S_B.

A Change in Supply Versus a Change in Quantity Supplied



- When ***supply shifts*** to the right, supply increases. This causes ***quantity supplied*** to be greater than it was prior to the shift, ***for each and every price level.***

A Change in Supply Versus a Change in Quantity Supplied

To summarize:

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leads to
Change in *quantity supplied*
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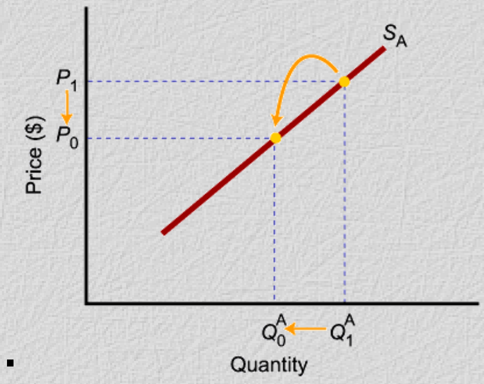
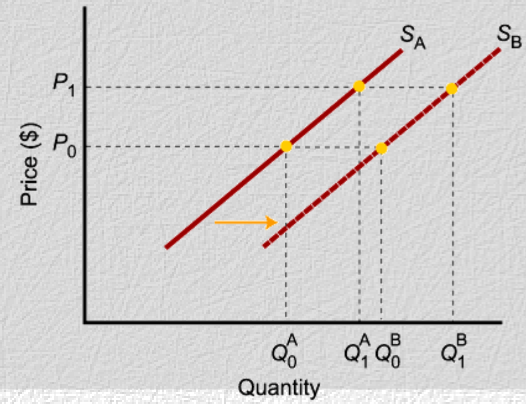


Change in costs, input prices, technology, or prices of related goods and services
leads to
Change in supply
(**Shift of curve**).

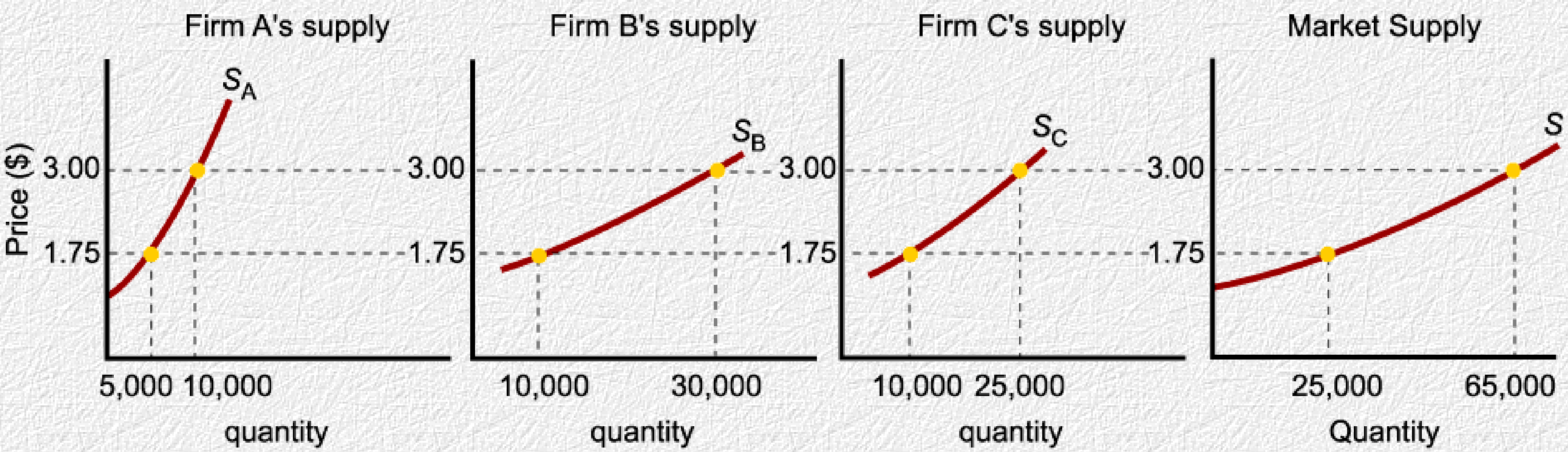


From Individual Supply to Market Supply

- The supply of a good or service can be defined for an individual firm, or for a group of firms that make up a market or an industry.
- ***Market supply*** is the sum of all the quantities of a good or service supplied per period by all the firms selling in the market for that good or service.

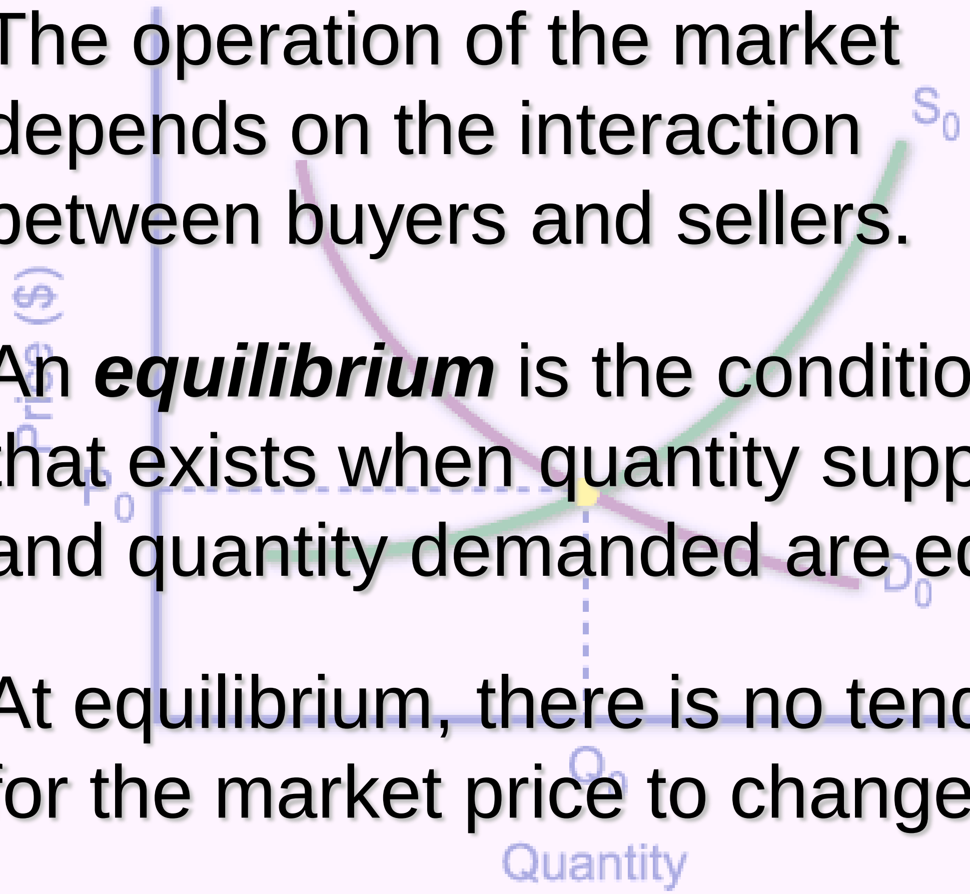
Market Supply

- As with market demand, ***market supply*** is the horizontal summation of individual firms' supply curves.

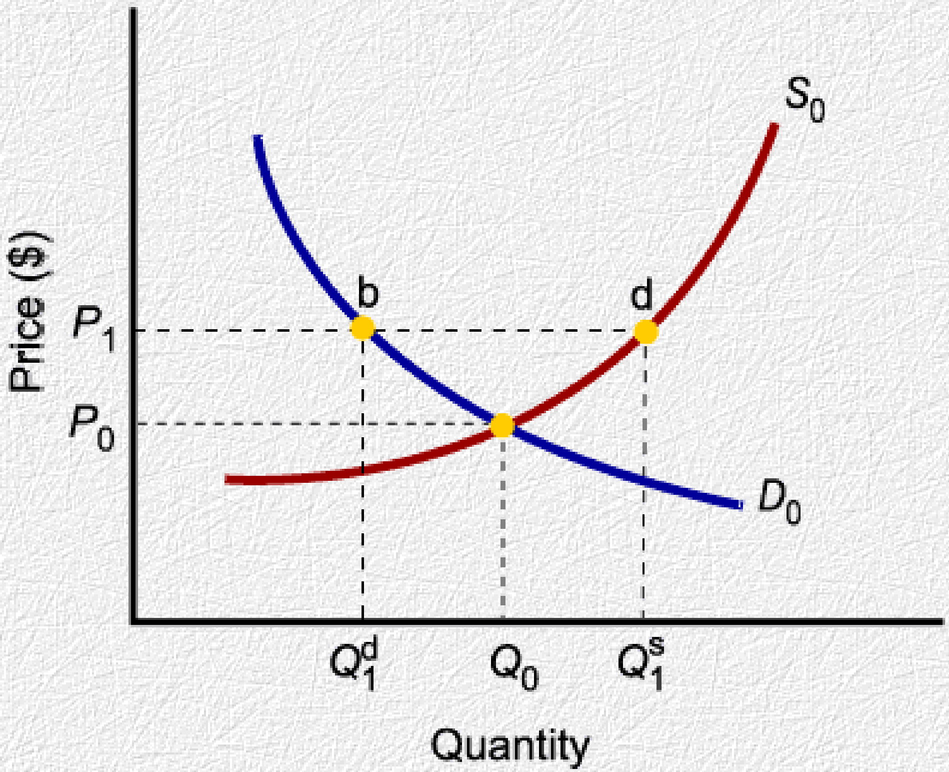


Market Equilibrium

- The operation of the market depends on the interaction between buyers and sellers.
- An ***equilibrium*** is the condition that exists when quantity supplied and quantity demanded are equal.
- At equilibrium, there is no tendency for the market price to change.

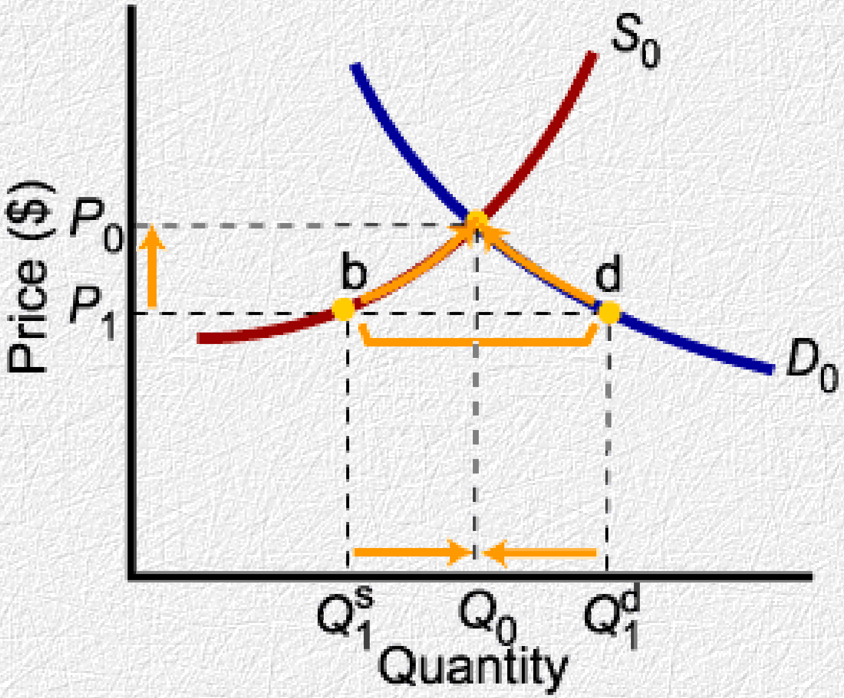


Market Equilibrium



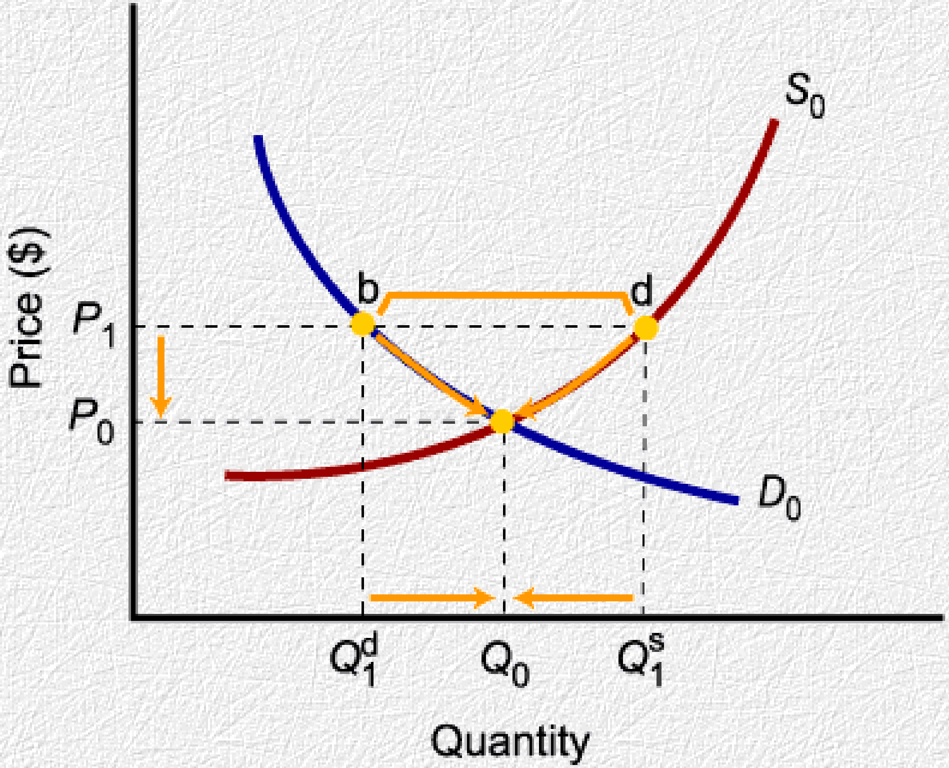
- Only in equilibrium is quantity supplied equal to quantity demanded.
- At any price level other than P_0, the wishes of buyers and sellers do not coincide.

Market Disequilibria



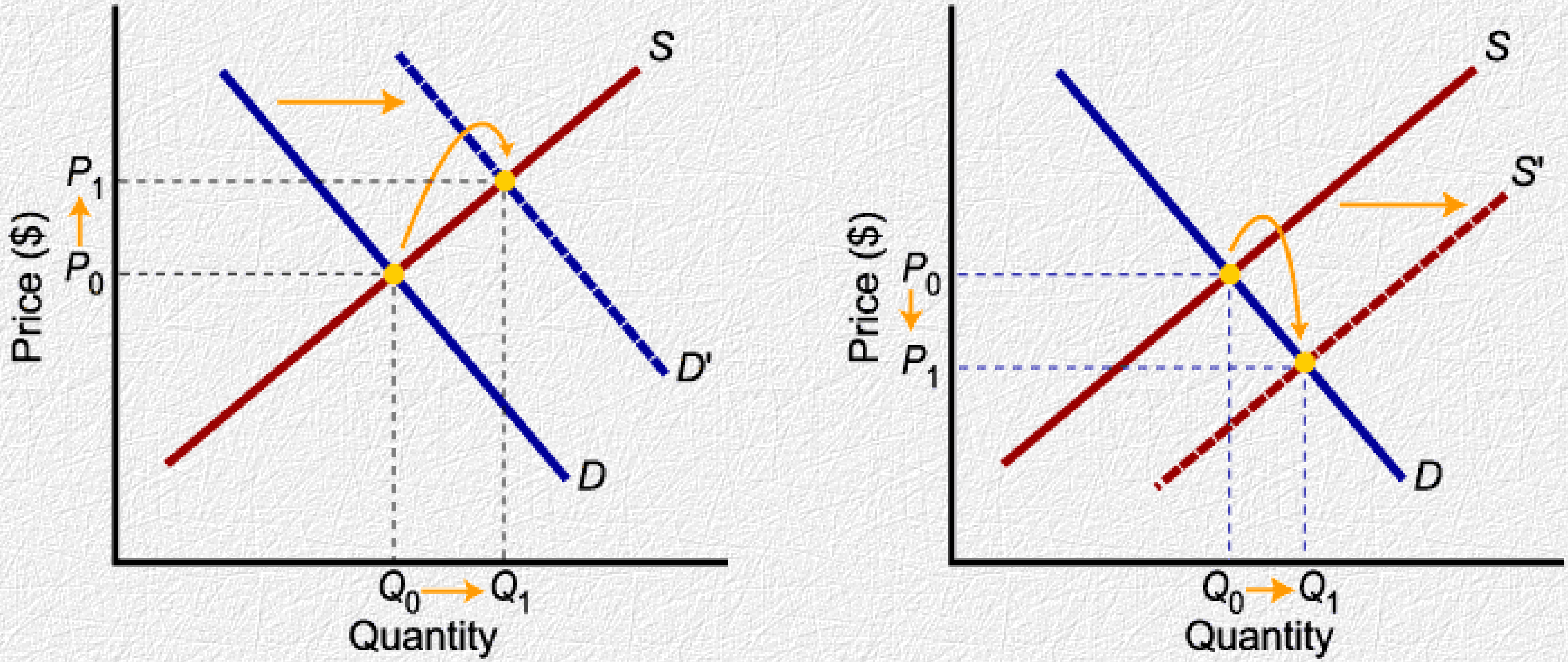
- ***Excess demand***, or shortage, is the condition that exists when quantity demanded exceeds quantity supplied at the current price.
- When quantity demanded exceeds quantity supplied, price tends to rise until equilibrium is restored.

Market Disequilibria



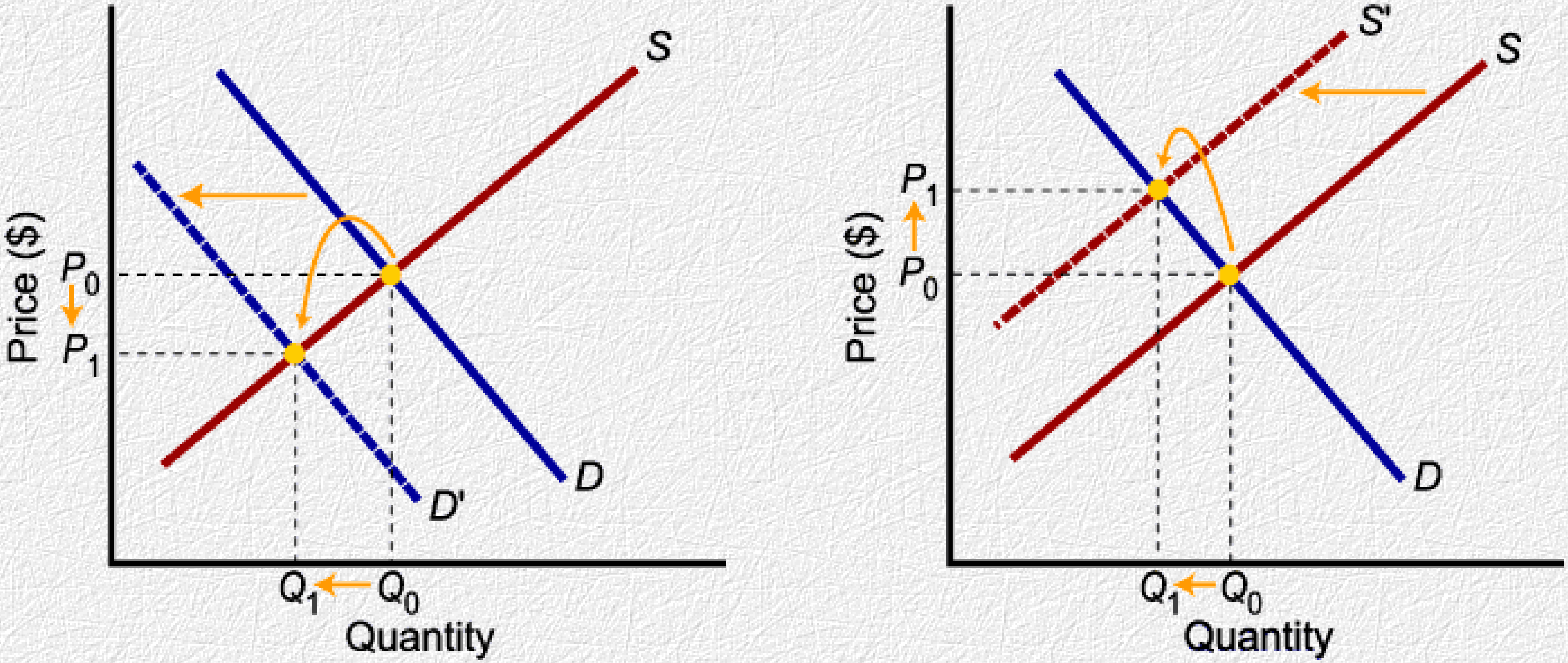
- ***Excess supply***, or surplus, is the condition that exists when quantity supplied exceeds quantity demanded at the current price.
- When quantity supplied exceeds quantity demanded, price tends to fall until equilibrium is restored.

Increases in Demand and Supply



- ***Higher demand*** leads to higher equilibrium price and higher equilibrium quantity.
- ***Higher supply*** leads to lower equilibrium price and higher equilibrium quantity.

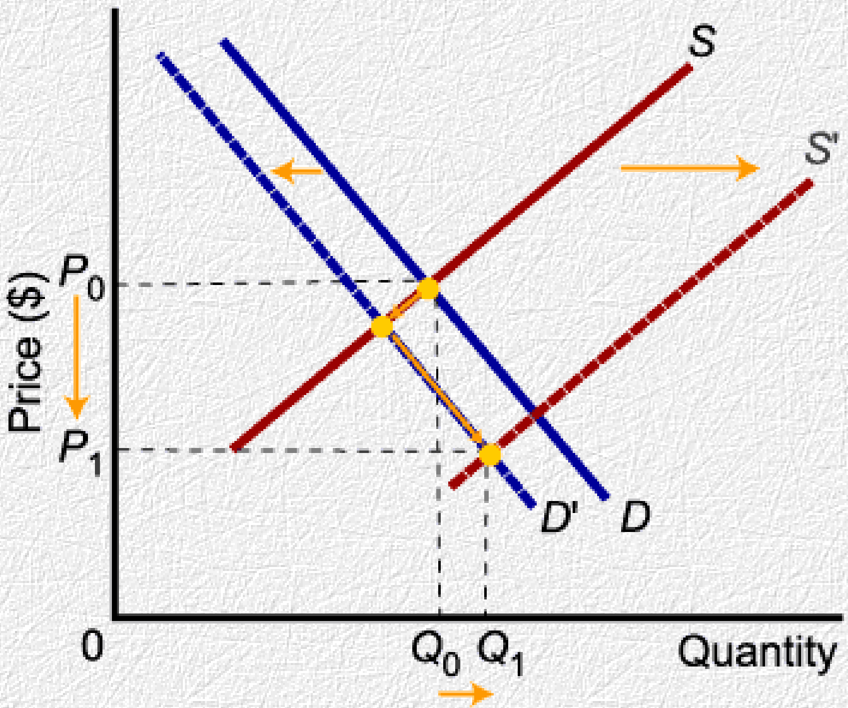
Decreases in Demand and Supply



- ***Lower demand*** leads to lower price and lower quantity exchanged.
- ***Lower supply*** leads to higher price and lower quantity exchanged.

Relative Magnitudes of Change

$\uparrow S > \downarrow D \longrightarrow \uparrow Q, \downarrow P$



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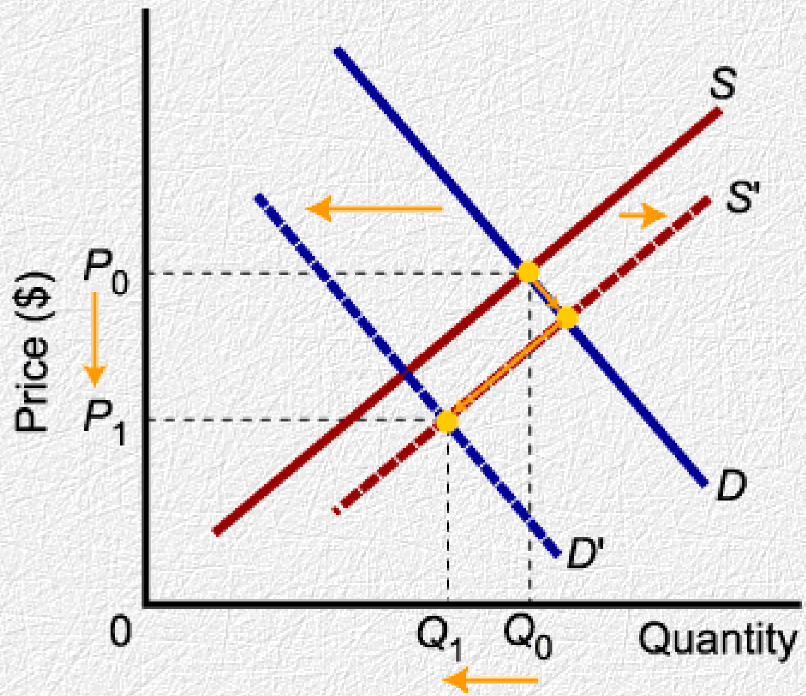
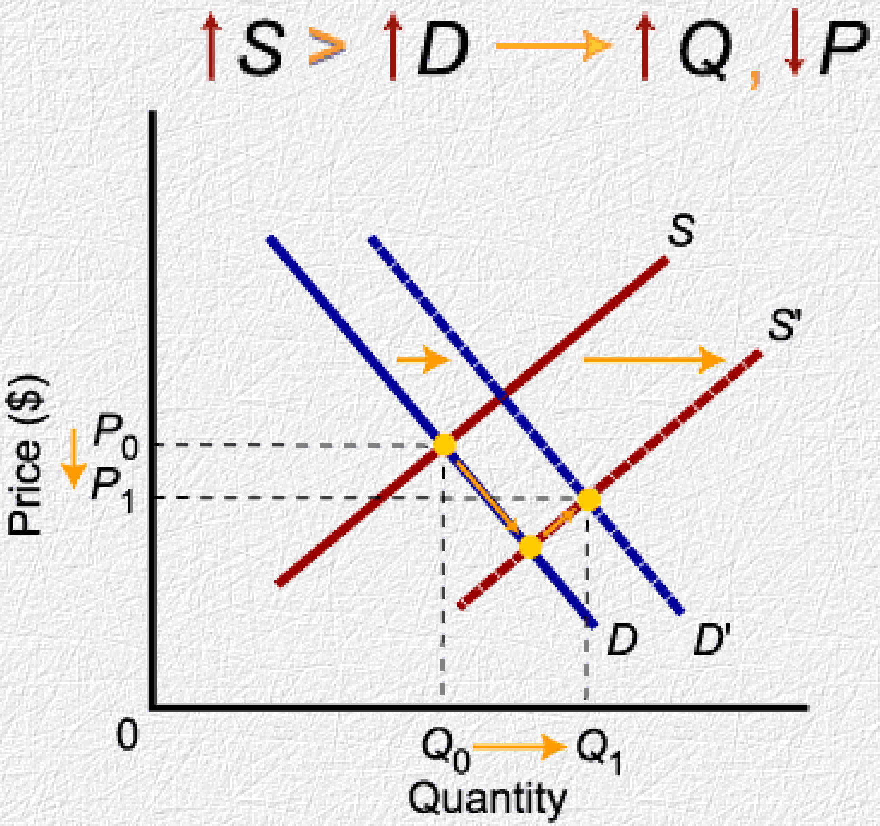
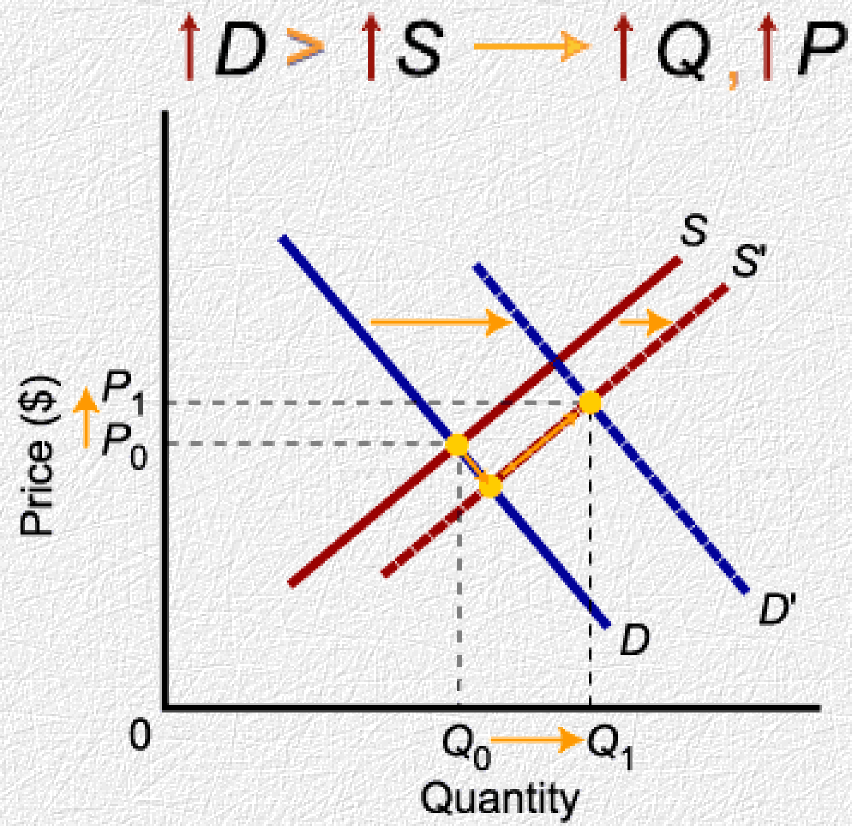


- The relative magnitudes of change in supply and demand determine the outcome of market equilibrium.

Relative Magnitudes of Change





- When supply and demand both increase, quantity will increase, but price may go up or down.