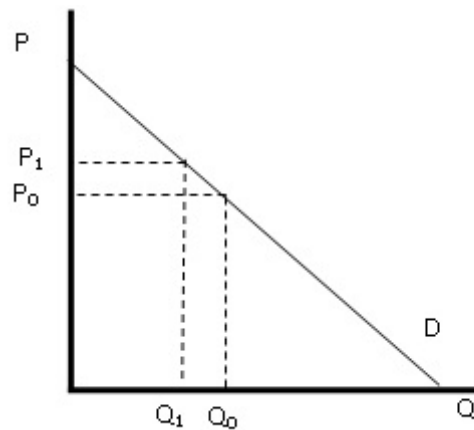


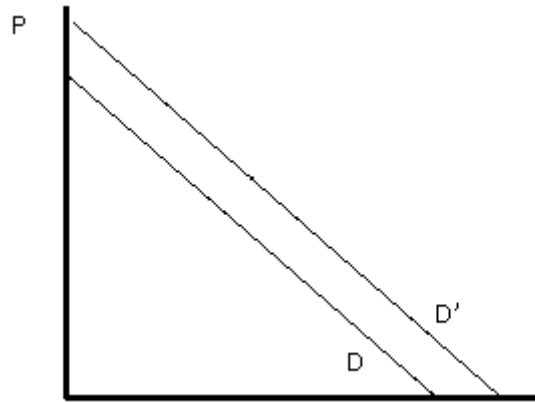
Lecture # 3 -- The Basics of Supply and Demand

I. The Demand Curve

- The Demand Curve shows how much consumers are willing to buy at a given price.
 - Be sure to understand the distinction between *demand* (the curve itself) and *quantity demanded* (a point on the demand curve).
- Demand slopes downward.
- Factors influencing demand:
 - Price of the good
 - Income
 - Preferences
 - Substitutes & complements
- A change in prices (note: on the axis) leads to a movement along the demand curve.
 - Here, as price increases to P_1 , quantity demanded falls to Q_1 .



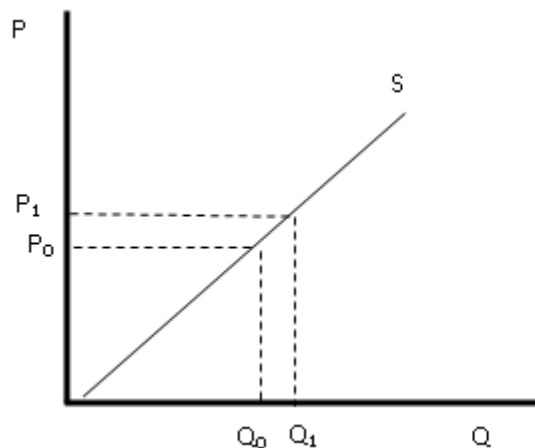
- Other changes (note: not on the axis) cause the demand curve to shift.
 - Here is an example of demand shifting outward (e.g. because of higher income).



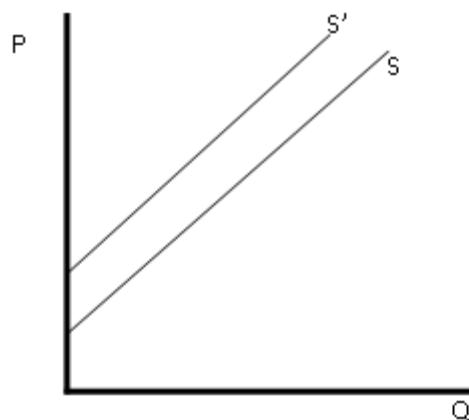
- The slope of the curve depends on the substitutes available for the good.

II. The Supply Curve

- The Supply Curve shows the quantities producers are willing to make available at a given price.
- Supply slopes upward.
- Factors influencing supply:
 - Price of the good
 - Prices of inputs
 - Technology
 - Weather (e.g. for agriculture)
- Again, a change in price (note: on the axis) leads to a movement along the supply curve.
 - Here, as price increase from P_0 to P_1 , quantity supplied increase from Q_0 to Q_1 .

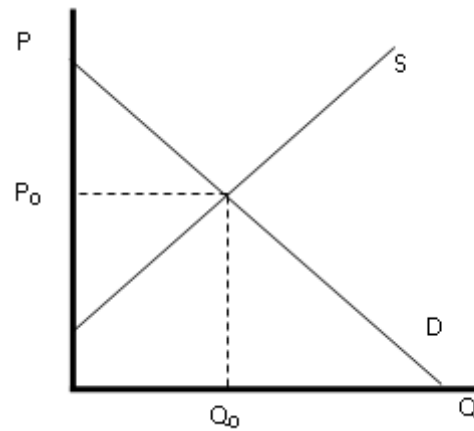


- Other changes (note: not on the axis) cause the supply curve to shift.
 - Here is an example of supply shifting in (e.g. because costs have increased).

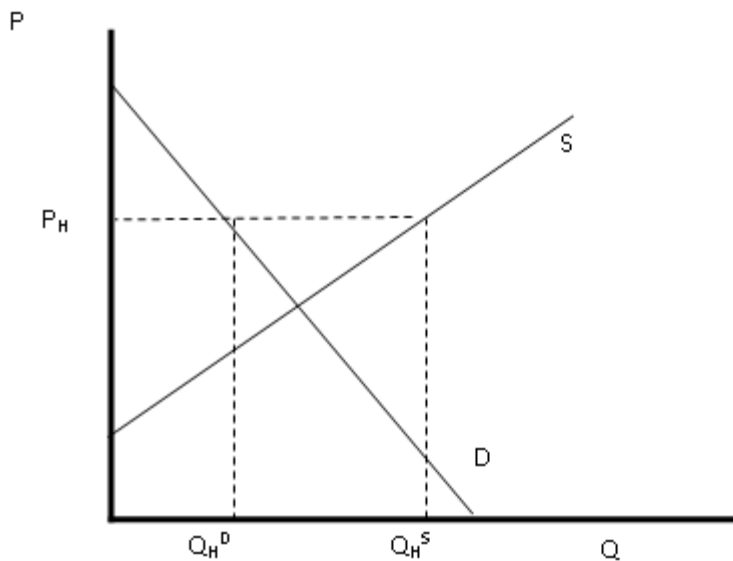


III. Equilibrium

- Equilibrium occurs where the quantity demanded equals quantity supplied. At this point, no participant wants to change his or her behavior.
 - There is neither a shortage nor excess supply, so there is no pressure for price to change further.

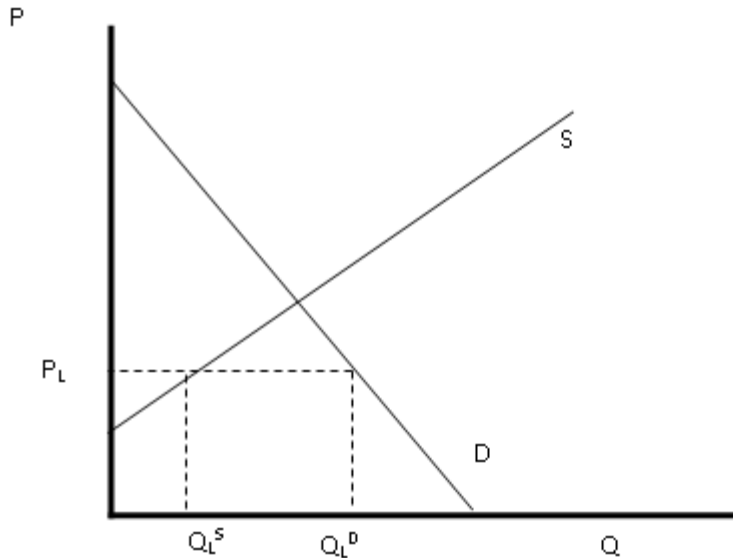


- The graphs below illustrate how a market gets to equilibrium.
 - In this first example, the price, P_H , is higher than the equilibrium price



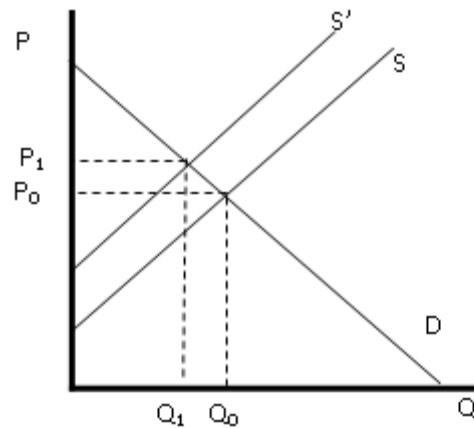
- At this price, suppliers will wish to sell a lot, so quantity supplied will be large (note that Q_H^S is on the right of the graph, signifying a high quantity)
- However, consumers will not wish to purchase much at this price, so quantity demanded, Q_H^D , will be low.
 - This results in a *surplus* in the market, also referred to as *excess supply*.
- As a result of this surplus, sellers have incentive to lower the price to sell more of their goods.

- In this second example, the price, P_L , is lower than the equilibrium price

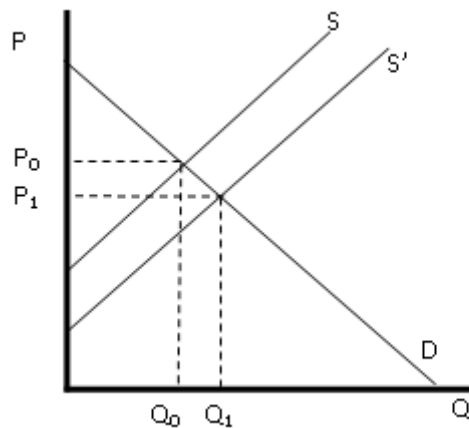


- At this price, consumers will wish to buy a lot, so quantity demanded, Q_L^D , will be large
- However, sellers are not willing to sell much at a low price, so quantity supplied, Q_L^S , will be small.
 - This results in a *shortage* in the market, also referred to as *excess demand*.
 - As a result of this shortage, consumers have incentive to offer a higher price to get what they want.
- Note that the only point where neither buyers nor sellers have a reason to change their behavior is when the price is where supply equals demand.
 - The supply and demand curves intersect at this point.
 - This intersection gives us the equilibrium price and quantity.

- As our examples in class show, a *shift* in one curve leads to a *movement along* the other curve.
 - Here, for example, supply shifting in (e.g. because of a drought affecting corn markets) causes us to move to a new equilibrium with higher prices and lower quantity.



- Application: General equilibrium effects
 - The drought affecting corn markets also illustrates how other markets may be affected. Economists call these secondary impacts general equilibrium effects.
 - In this case, the high price of corn has made it difficult for ranchers to feed their cattle.
 - As a result, more cattle are being sent to slaughter. This increases the supply of beef this year. This is illustrated below.



- As a result, beef prices fall as a result of the drought.
 - Note that this will be a temporary effect. Since more cattle are being slaughtered this year, next year there will be fewer cattle remaining to send to slaughter.

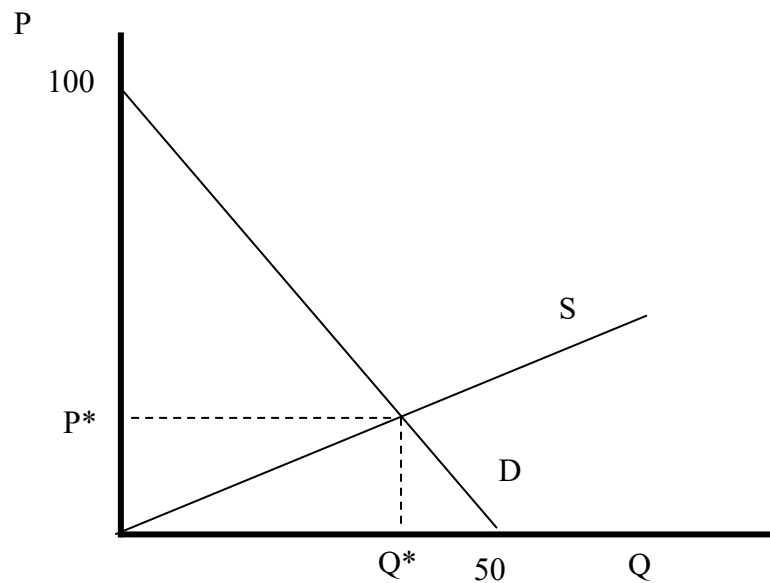
This example reviews how to solve for equilibrium.

Demand: $P = 100 - 2Q$

Supply: $P = 0.5Q$

The equilibrium occurs where supply equals demand. Begin with the graph:

From the demand equation, we know that the y-intercept (on the price axis) for demand is \$100. To see this, note that when Q is 0, the price would be \$100. Similarly, in this example, the supply curve starts at the origin, as the y-intercept of the supply equation is 0. Note that this won't always be the case, but is here since there is nothing added to $0.5Q$ in the supply equation.



To find the equilibrium price and quantity, we set supply and demand equal to each other and solve. Begin by solving for Q :

$$100 - 2Q = 0.5Q$$

$$100 = 2.5Q$$

$$Q = 100/2.5$$

$$\mathbf{Q = 40}$$

To find the price, we substitute the equilibrium quantity into either the demand or supply equation:

Either:

$$P = 100 - 2(40) = \mathbf{\$20}$$

Or:

$$P = 0.5(40) = \mathbf{\$20}$$

Making sure you get the same answer using either equation is a good way to check your work.