

Environmental Economics Lecture

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Supply in Product Markets

Quantity supplied: is the amount of a particular product that firms would be willing and able to offer for sale at a particular price during a given time period.

supply schedule A table showing how much of a product firms will sell at alternative prices..

Clarence Brown's Supply Schedule for Soybeans	
Price (per Bushel)	Quantity Supplied (Bushels per Year)
\$1.50	0
1.75	10,000
2.25	20,000
3.00	30,000
4.00	45,000
5.00	45,000

The Law of Supply

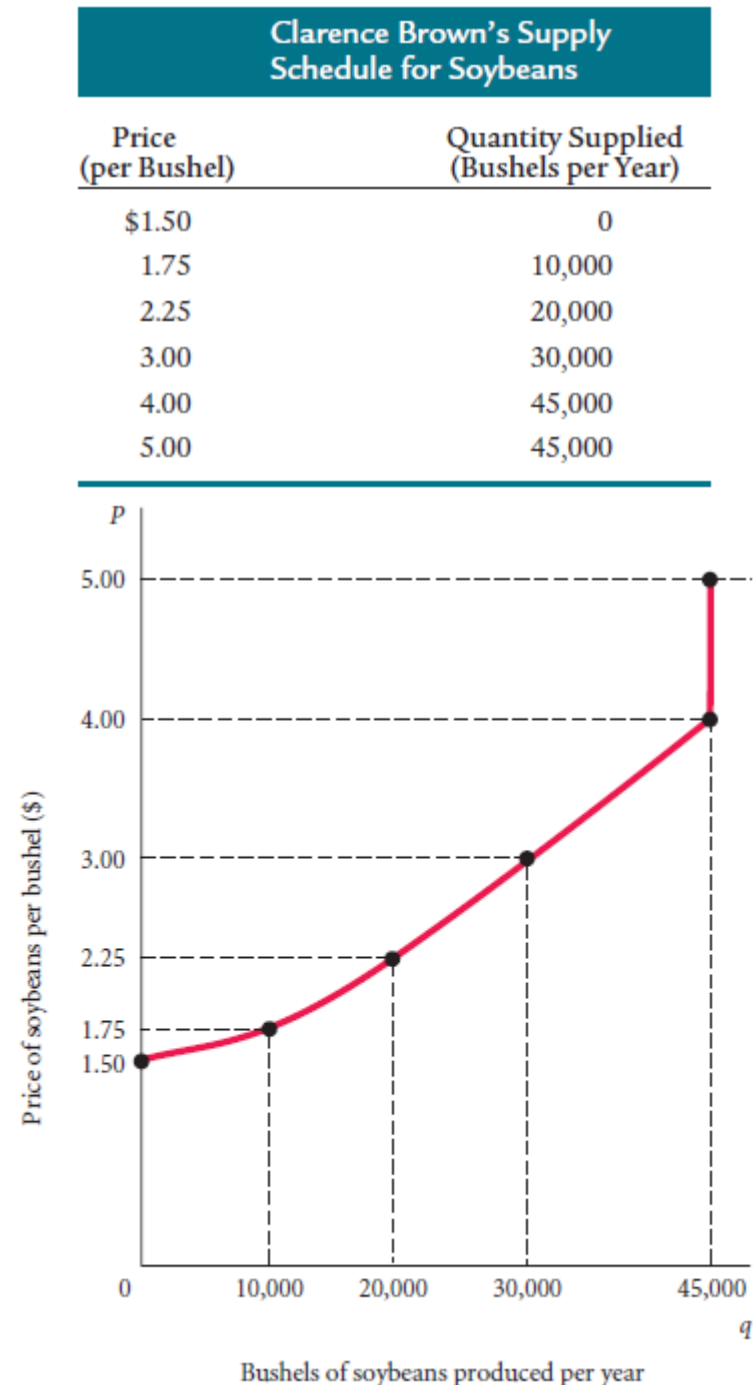
law of supply The positive relationship between price and quantity of a good supplied: An increase in market price will lead to an increase in quantity supplied, and a decrease in market price will lead to a decrease in quantity supplied.

supply curve

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

The information in a supply schedule may be presented graphically in a **supply curve**.

Supply curves slope upward. The upward, or positive, slope of Brown's curve in Figure reflects this positive relationship between price and quantity supplied.



Determinants of Supply

- Price of good
- The Cost of Production
- The Prices of Related Products
- Technology states
- Number of producers

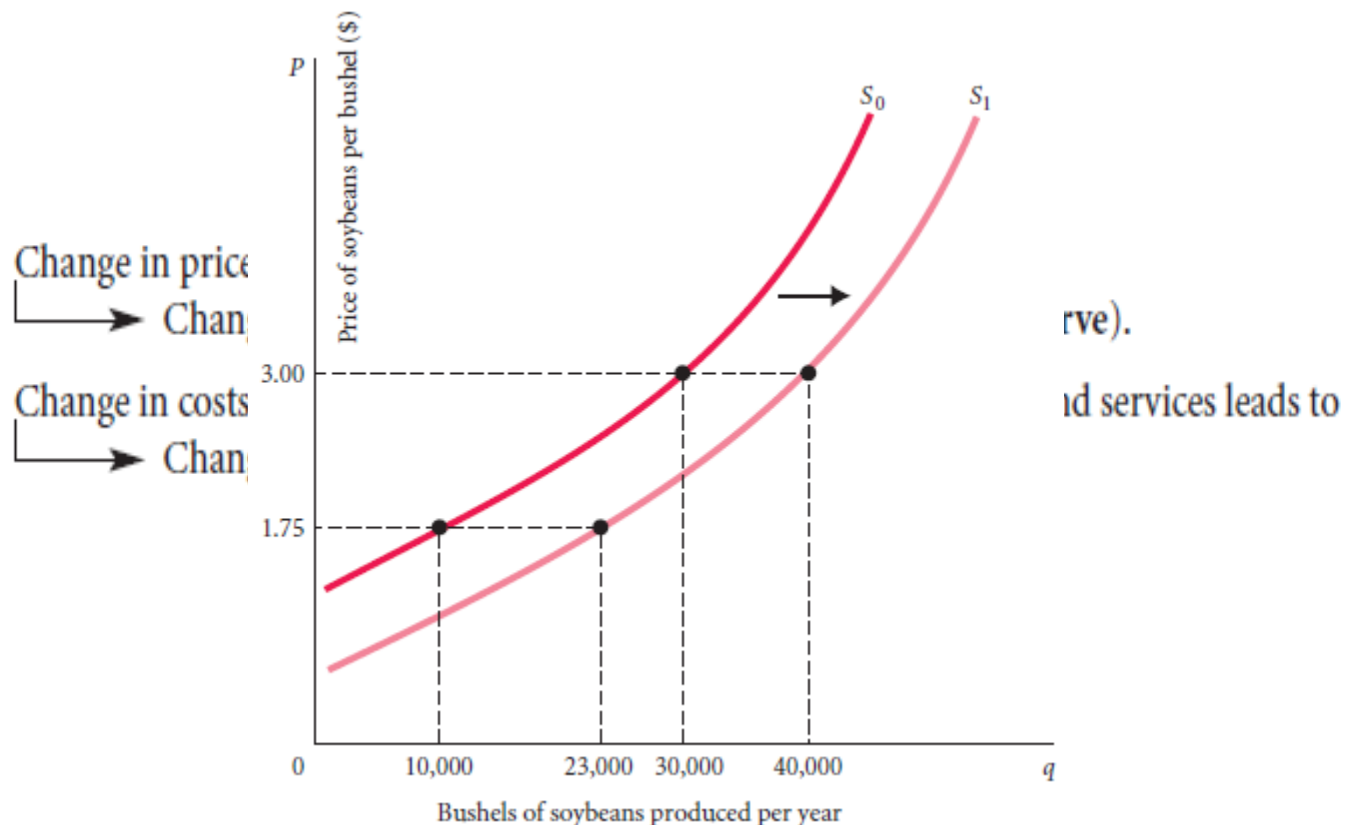
Shift of Supply vs. Movement Along a Supply Curve

movement along a supply curve The change in quantity supplied brought about by a change in price.

shift of a supply curve The change that takes place in a supply curve corresponding to a new relationship between quantity supplied of a good and the price of that good. The shift is brought about by a change in the original conditions.

Shift of Supply Schedule for Soybeans Following Development of a New Disease-Resistant Seed Strain

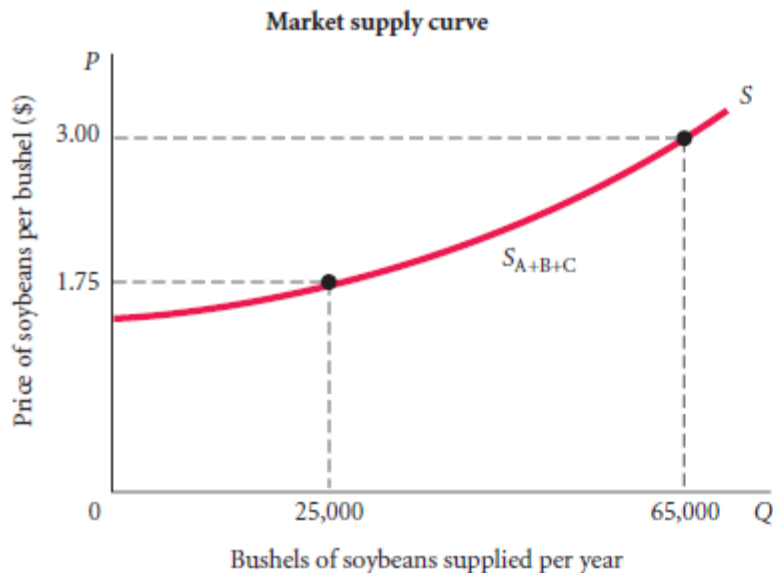
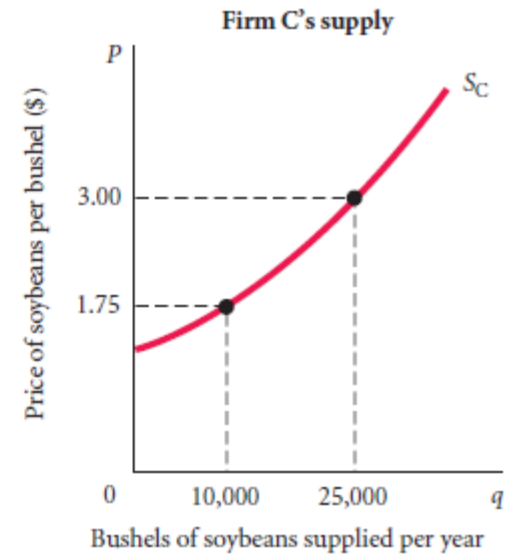
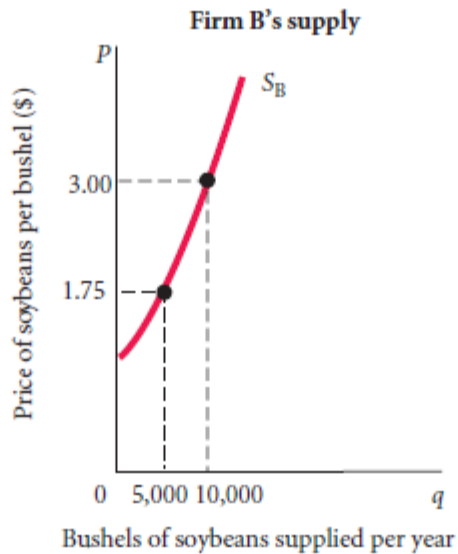
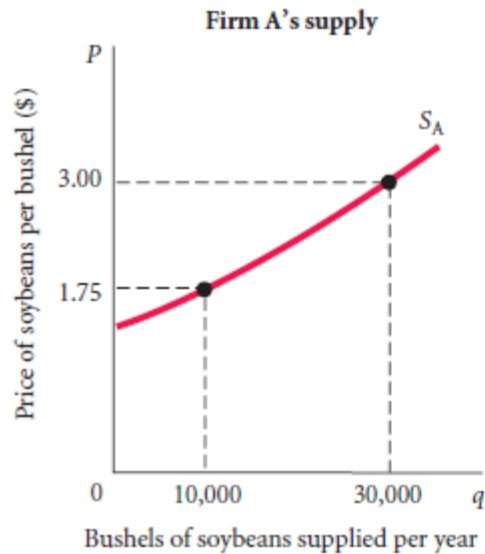
Price (per Bushel)	Schedule S_0	Schedule S_1
	Quantity Supplied (Bushels per Year Using Old Seed)	Quantity Supplied (Bushels per Year Using New Seed)
\$1.50	0	5,000
1.75	10,000	23,000
2.25	20,000	33,000
3.00	30,000	40,000
4.00	45,000	54,000
5.00	45,000	54,000



Market Supply

Market supply is determined in the same market demand. It is simply the sum of all that is supplied each period by all producers of a single product.

In a market with more firms, total market supply would be the sum of the amounts produced by each of the firms in that market.



Price	Quantity (q) Supplied by			Total Quantity Supplied in the Market (Q)
	A	B	C	
\$3.00	30,000	+ 10,000	+ 25,000	= 65,000
1.75	10,000	+ 5,000	+ 10,000	= 25,000

Figure derives a market supply curve from the supply curves of three individual firms.

Market Equilibrium

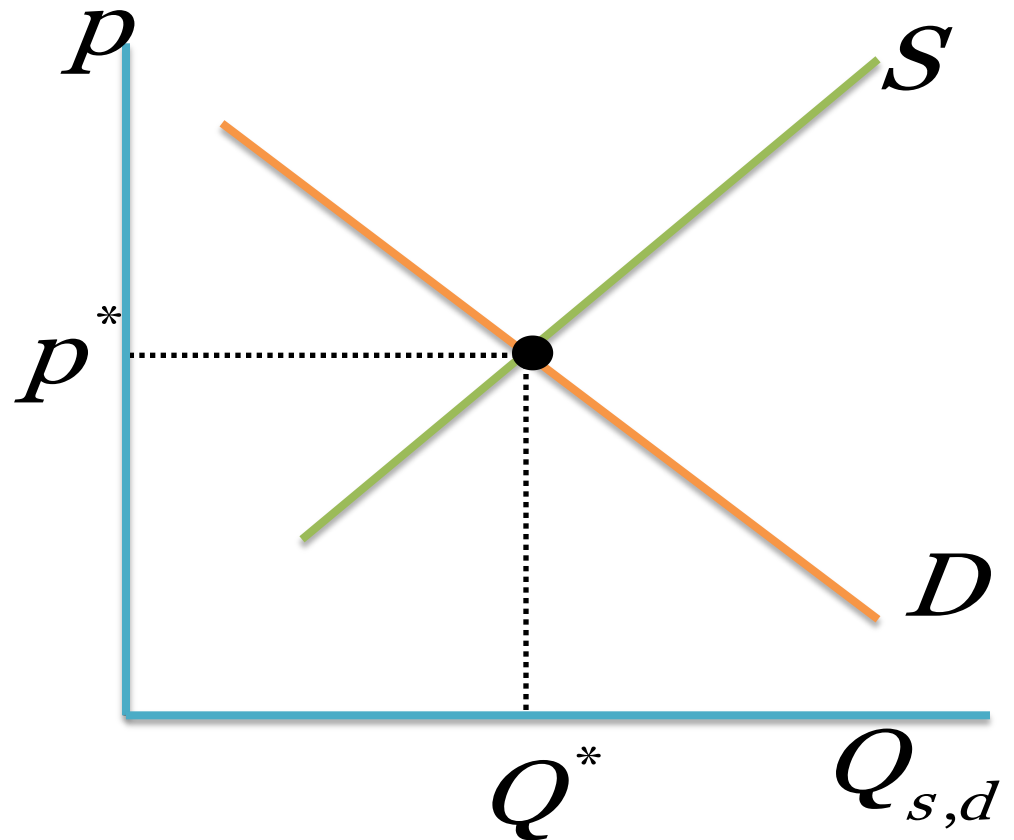
We have been very careful in our discussions thus far to separate household decisions about how much to demand from firm decisions about how much to supply. The operation of the market, however, clearly depends on the interaction between suppliers and demanders.

At any moment, one of three conditions prevails in every market:

- (1) The quantity demanded exceeds the quantity supplied at the current price, a situation called *excess demand*;
- (2) (2) the quantity supplied exceeds the quantity demanded at the current price, a situation called *excess supply*; or
- (3) (3) the quantity supplied equals the quantity demanded at the current price, a situation called **equilibrium**. At equilibrium, no tendency for price to change exists.

Equilibrium

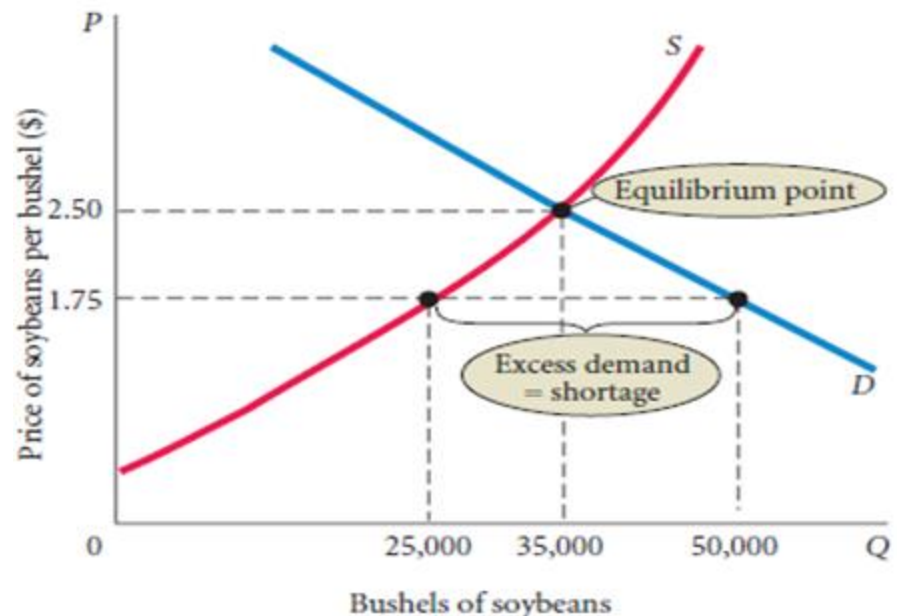
equilibrium The condition that exists when quantity supplied and quantity demanded are equal. At equilibrium, there is no tendency for price to change.



Excess Demand or a shortage

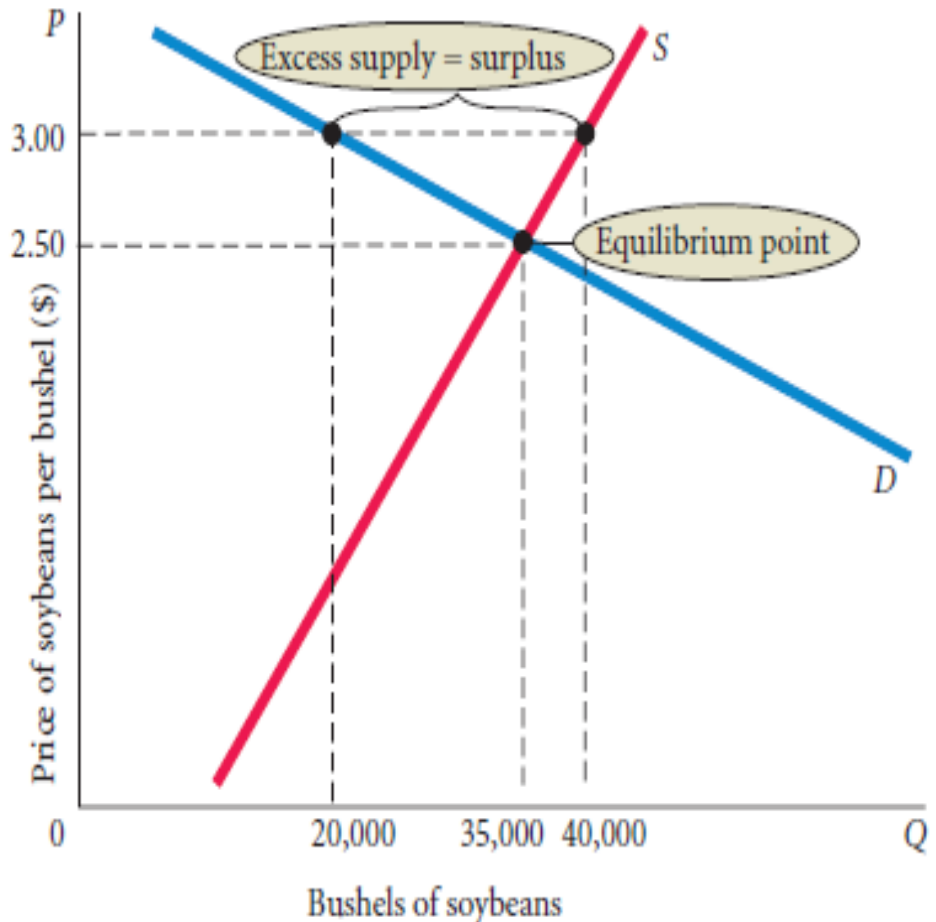
Excess demand, or a **shortage**, exists when quantity demanded is greater than quantity supplied at the current price.

When quantity demanded exceeds quantity supplied, price tends to rise. When the price in a market rises, quantity demanded falls and quantity supplied rises until an equilibrium is reached at which quantity demanded and quantity supplied are equal.



Excess Supply

Excess supply, or a **surplus**, exists when the quantity supplied exceeds the quantity demanded at the current price.



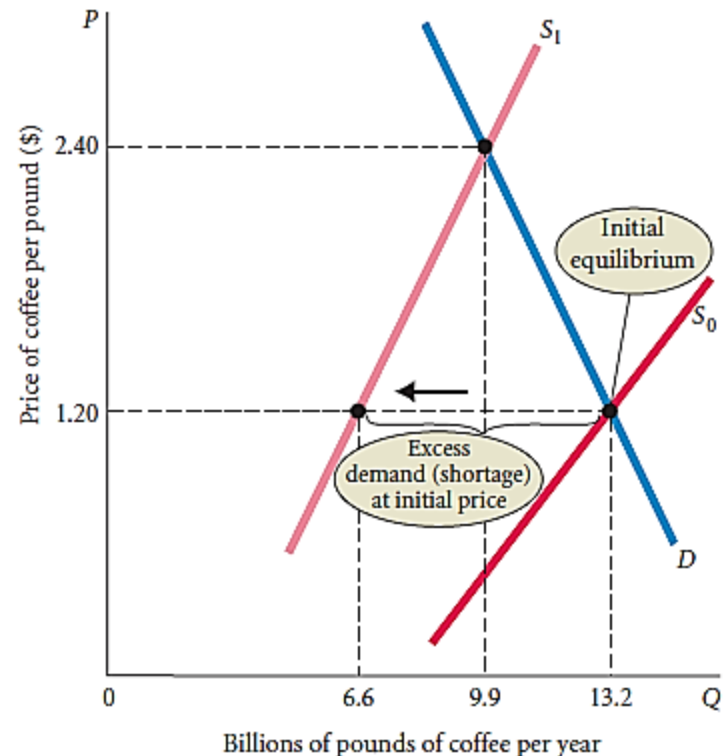
When quantity supplied exceeds quantity demanded at the current price, the price tends to fall. When price falls, quantity supplied is likely to decrease and quantity demanded is likely to increase until an equilibrium price is reached where quantity supplied and quantity demanded are equal.

Changes in Equilibrium

When supply and demand curves shift, the equilibrium price and quantity change.

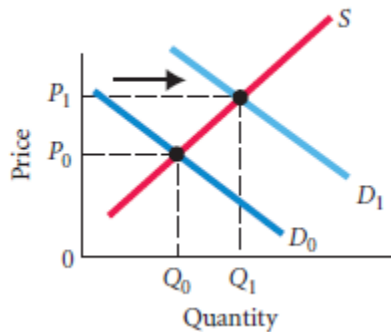
The Coffee Market: A Shift of Supply and Subsequent Price Adjustment

Before the freeze, the coffee market was in equilibrium at a price of \$1.20 per pound. At that price, quantity demanded equaled quantity supplied. The freeze shifted the supply curve to the left (from S_0 to S_1), increasing the equilibrium price to \$2.40.

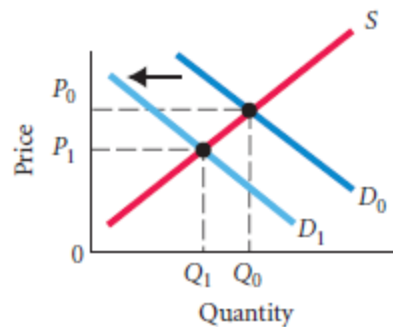


Demand shifts

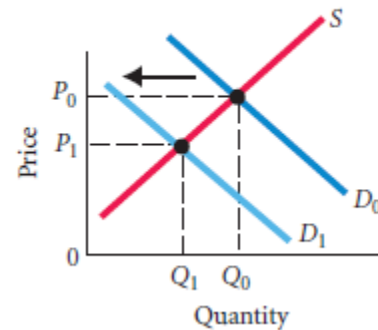
1. Increase in income:
X is a normal good



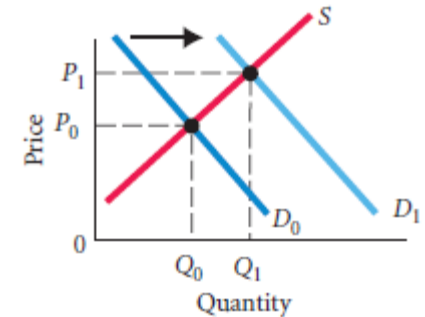
2. Increase in income:
X is an inferior good



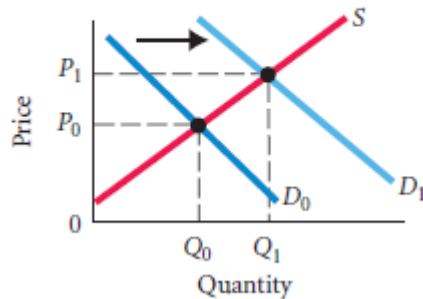
3. Decrease in income:
X is a normal good



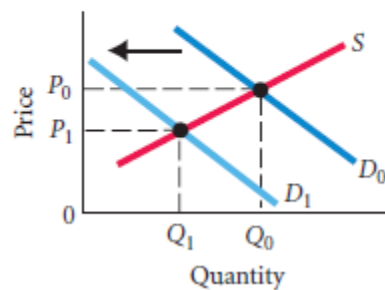
4. Decrease in income:
X is an inferior good



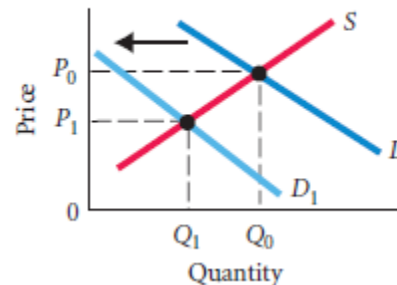
5. Increase in the price
of a substitute for X



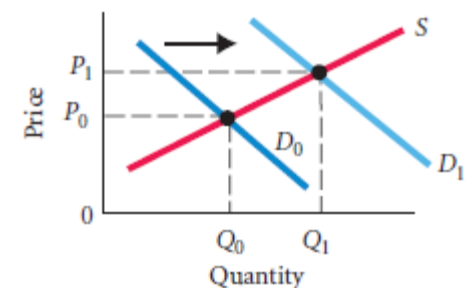
6. Increase in the price
of a complement for X



7. Decrease in the price
of a substitute for X

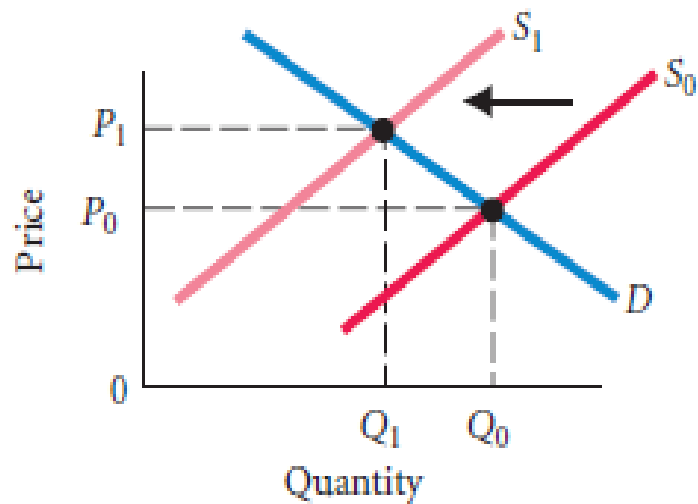


8. Decrease in the price
of a complement for X

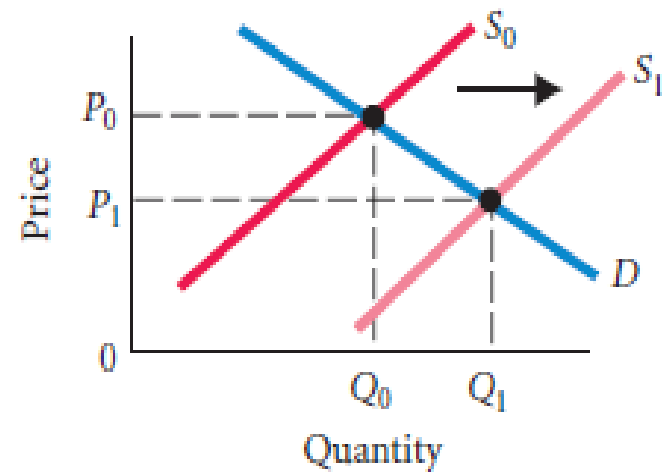


Supply shifts

9. Increase in the cost of production of X



10. Decrease in the cost of production of X

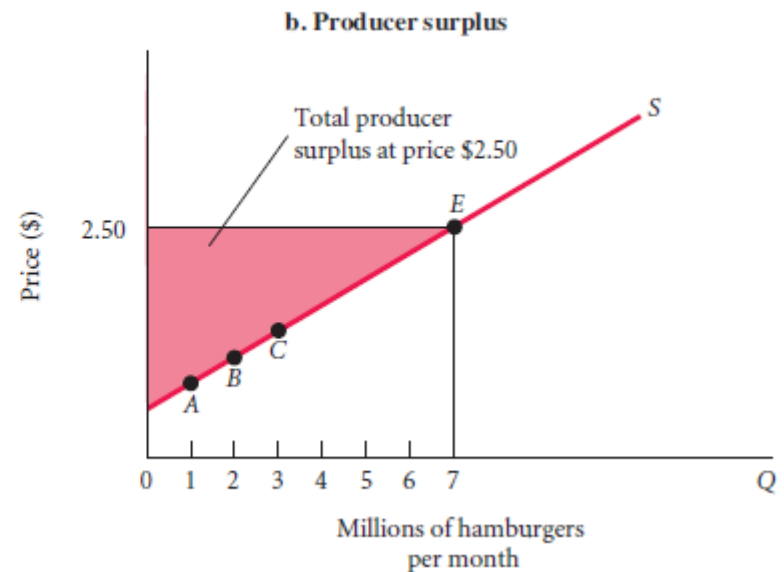
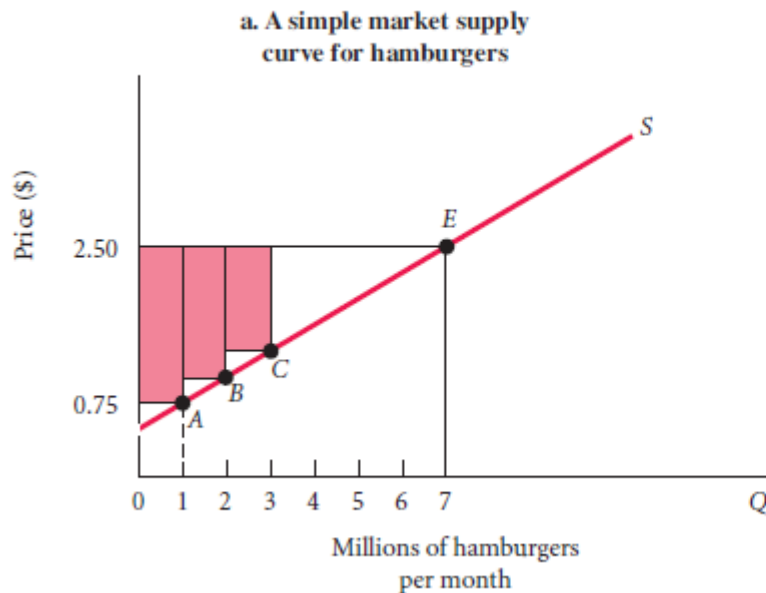


Supply and Demand and Market Efficiency

supply and demand curves help explain the way that markets and market prices work to allocate scarce resources. Supply and demand curves can also be used to illustrate the idea of market efficiency.

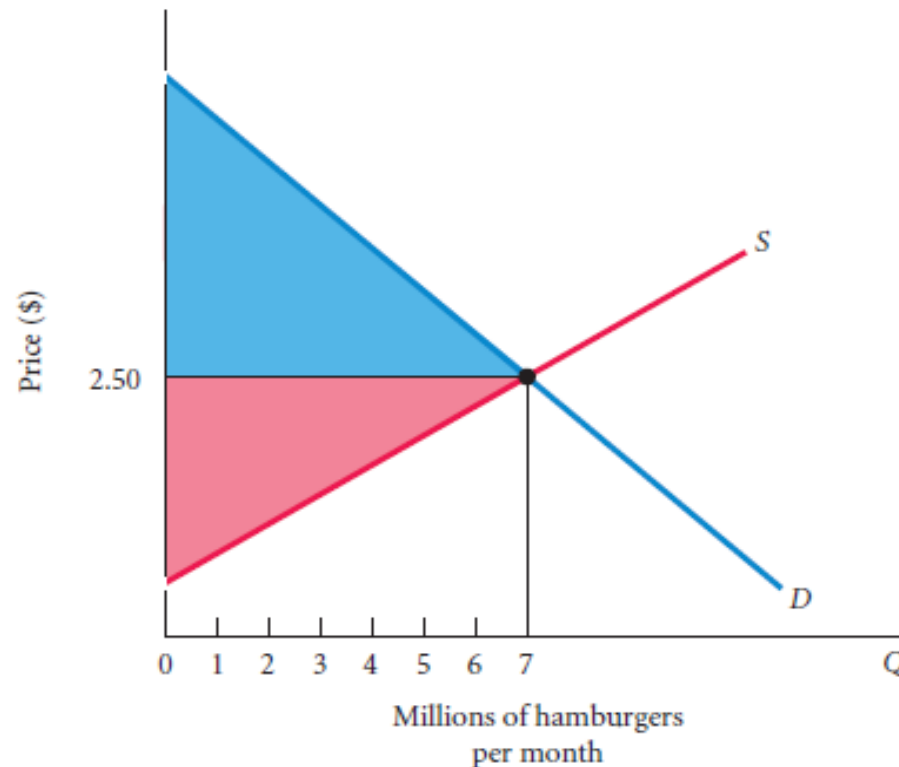
Producer Surplus

producer surplus The is difference between the current market price and the full cost of production for the firm.

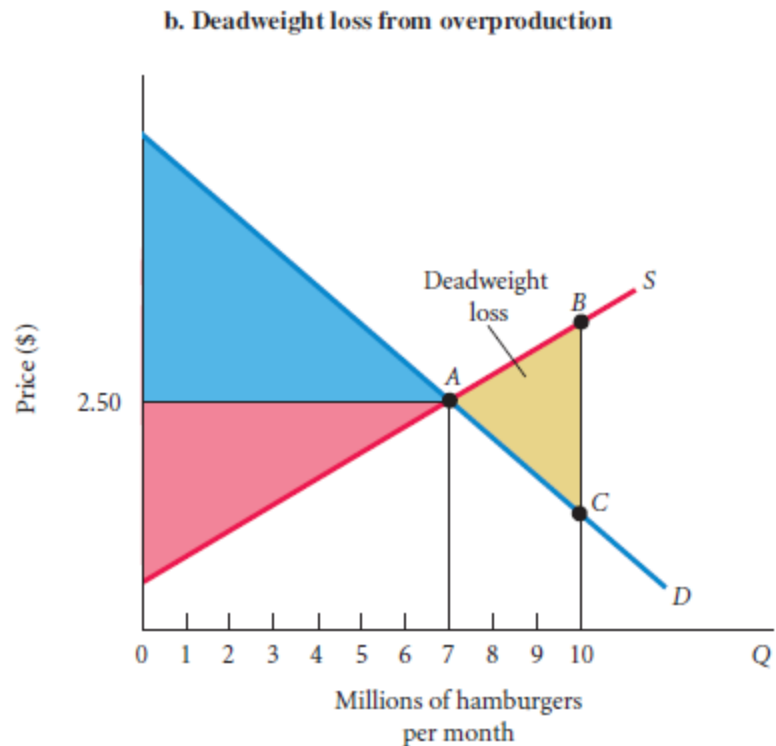
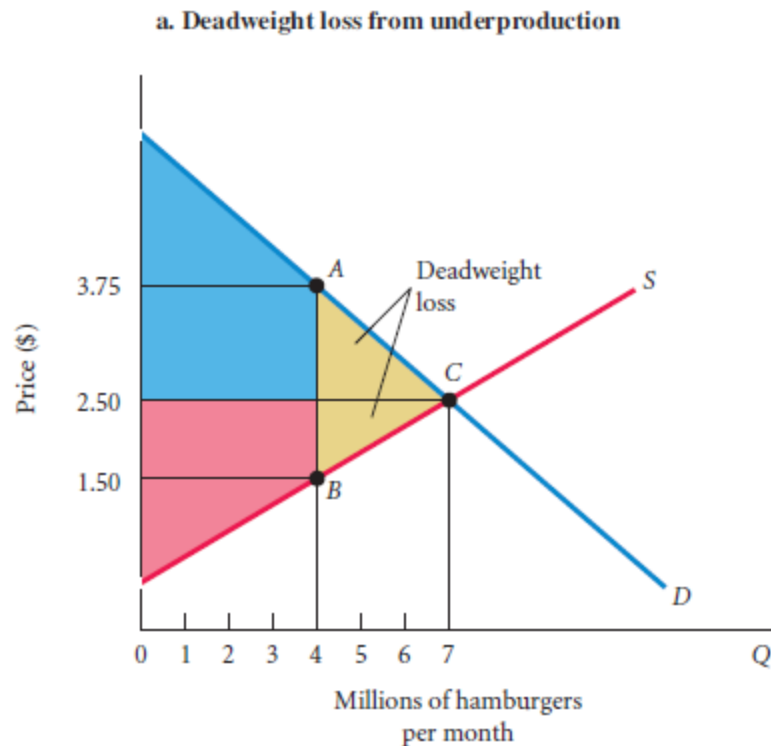


Maximize the Sum of Producer and Consumer Surplus

Total producer and consumer surplus is greatest where supply and demand curves intersect at equilibrium.



Deadweight Loss From Under- and Overproduction



- Figure (a) shows the consequences of producing 4 million hamburgers per month instead of 7 million hamburgers per month. Total producer and consumer surplus is reduced by the area of triangle ABC shaded in yellow. This is called the deadweight loss from underproduction.
- Figure (b) shows the consequences of producing 10 million hamburgers per month instead of 7 million hamburgers per month. As production increases from 7 million to 10 million hamburgers, the full cost of production rises above consumers' willingness to pay, resulting in a deadweight loss equal to the area of triangle ABC .

Questions Review

Define the following

- Quantity supplied
- supply schedule
- law of supply
- supply curve
- Determinants of Supply
- Market supply
- Market Equilibrium
- Excess Demand
- Excess supply
- producer surplus
- Deadweight Loss

Explain using graphs

- Demand shifts
- Supply shifts
- Excess Supply
- Excess Demand
- Equilibrium
- Deriving Market supply
- **Deadweight Loss**
- Producer surplus

True/false and correct

- Quantity supplied: is the amount of a particular product that firms would be willing to offer for sale at a particular price during a given time period.
- supply schedule A table showing how much of a product firms will sell at alternative prices.
- law of supply is the negative relationship between price and quantity of a good supplied.
- Supply curves slope downward.
- Price of good determines supply and demand.
- Price of good shifting Supply curve, while other determinates moving on the same line.
- When the quantity demanded exceeds the quantity supplied at the current price, a situation called *excess supply*.
- producer surplus The is difference between the current market price and the full cost of production for the firm

Complete

- The quantity demanded exceeds the quantity supplied at the current price, a situation called ...
- the quantity supplied exceeds the quantity demanded at the current price, a situation called ...
- the quantity supplied equals the quantity demanded at the current price, a situation called
- equilibrium The condition that exists when At this point there is no tendency for ... to change.
- When ... and ... curves shift, the equilibrium price and quantity change.
- Total producer and consumer surplus is greatest where ...