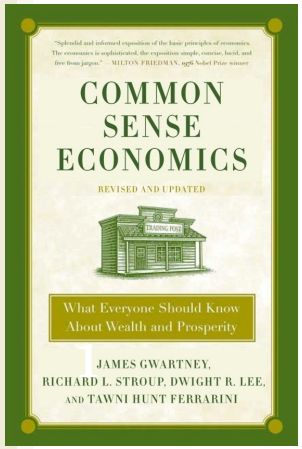
Module A: Demand, Supply, and Adjustments to Dynamic Change



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Module A: Demand, Supply, and Adjustments to Dynamic Change

- Concepts Covered:
  - Demand and supply
  - Changes in demand versus changes in quantity demanded
  - Changes in supply versus changes in quantity supplied
  - Price controls

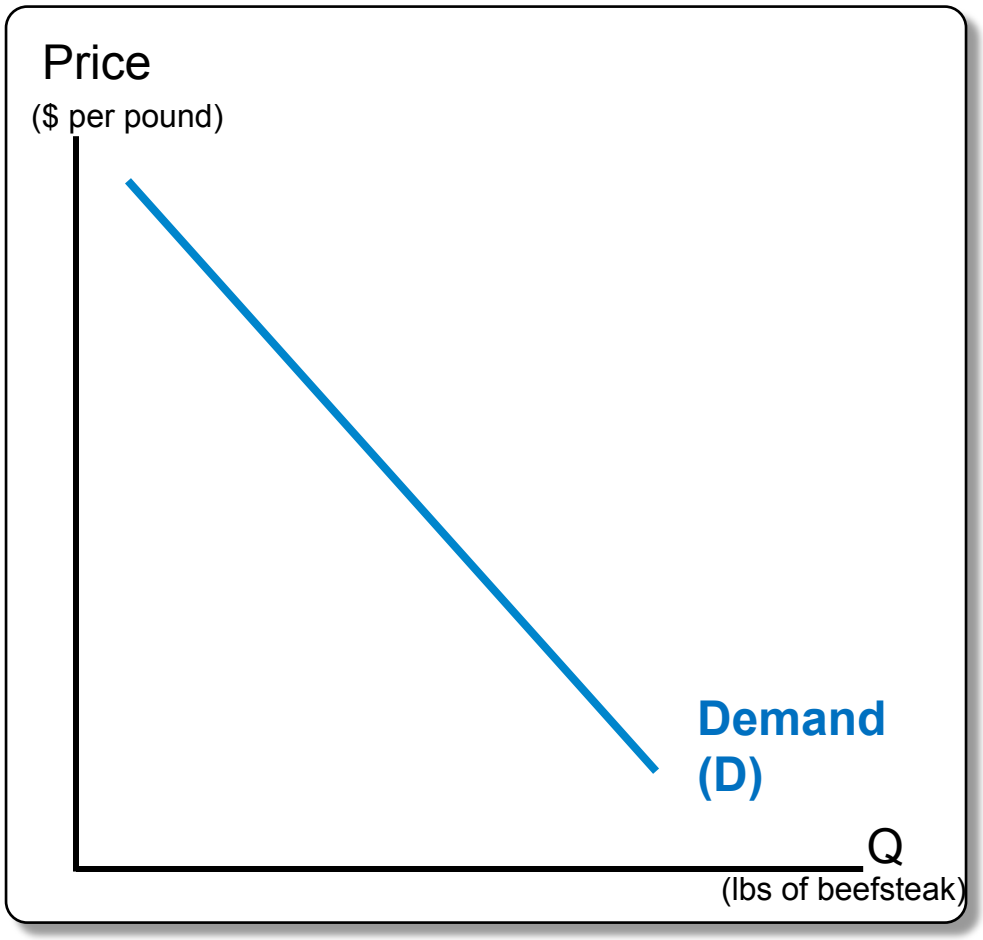
Law of Demand

- **Law of Demand:** the inverse relationship between the price of a good and the quantity consumers are willing to purchase.
  - As the price of a good rises, consumers buy less.
  - The availability of substitutes (goods that perform similar functions) explains this negative relationship.

Law of Demand

- The ***demand*** curve for beefsteak is illustrated here.
- The law of demand indicates there will be an inverse relationship between price and ***quantity demanded***.
- The ***demand*** curve isolates the impact of a change in price on ***quantity demanded***.

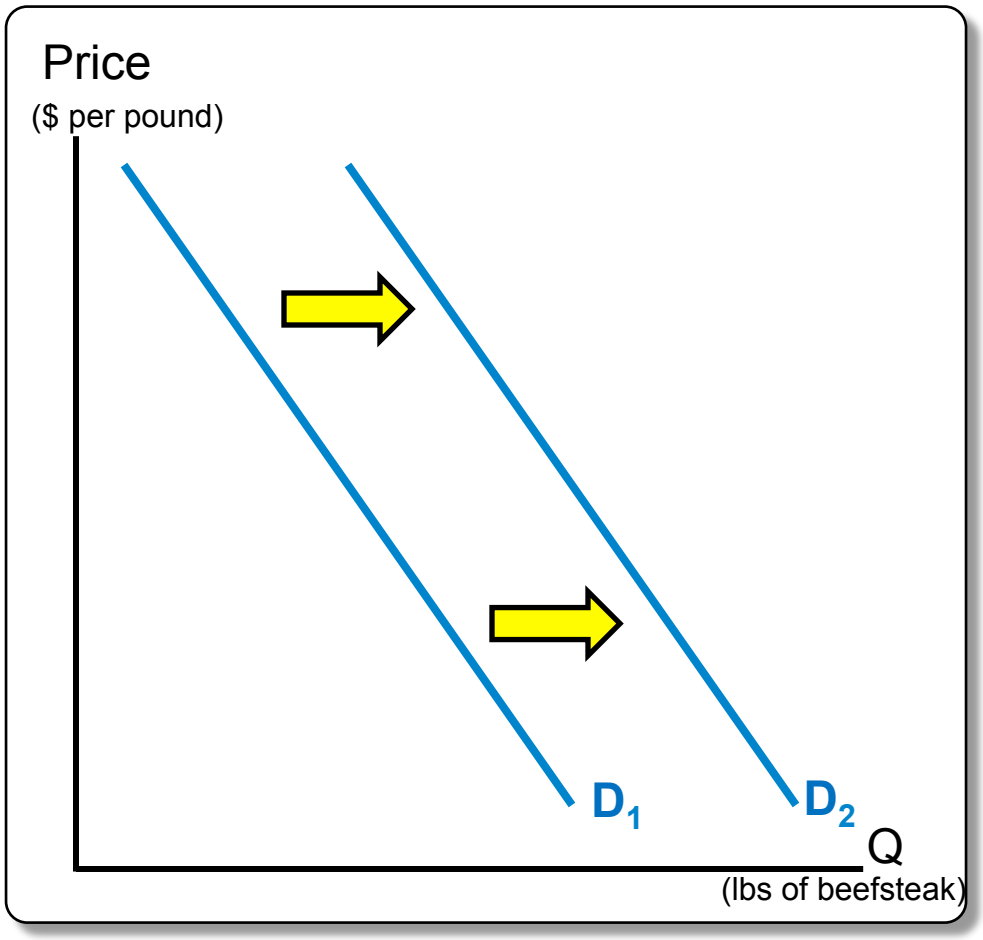
Exhibit 1: The Law of Demand



Increase in Demand

- A change in ***demand*** is a shift in the entire curve.
- An increase in ***demand*** for beefsteak from D_1 to D_2 is illustrated here.
- This increase in the ***demand*** for beefsteak would result from factors such as an increase in the price of substitutes (e.g. chicken or pork) or an increase in income.

Exhibit 2: Increase in Demand



Quantity Demanded and Demand

- **Change in Quantity Demanded:** a movement along the same demand curve in response to a change in its price. See exhibit 1.

- **Change in Demand:** a shift in the entire demand curve. See exhibit 2.
  - Changes in factors (e.g. increase in income or higher prices of substitutes) that increase the quantity that consumers will purchase at alternative prices will shift the demand curve to the right.
  - Changes in factors (e.g. decrease in income or lower prices of substitutes) that decrease the quantity that consumers will purchase at alternative prices will shift the demand curve to the left.

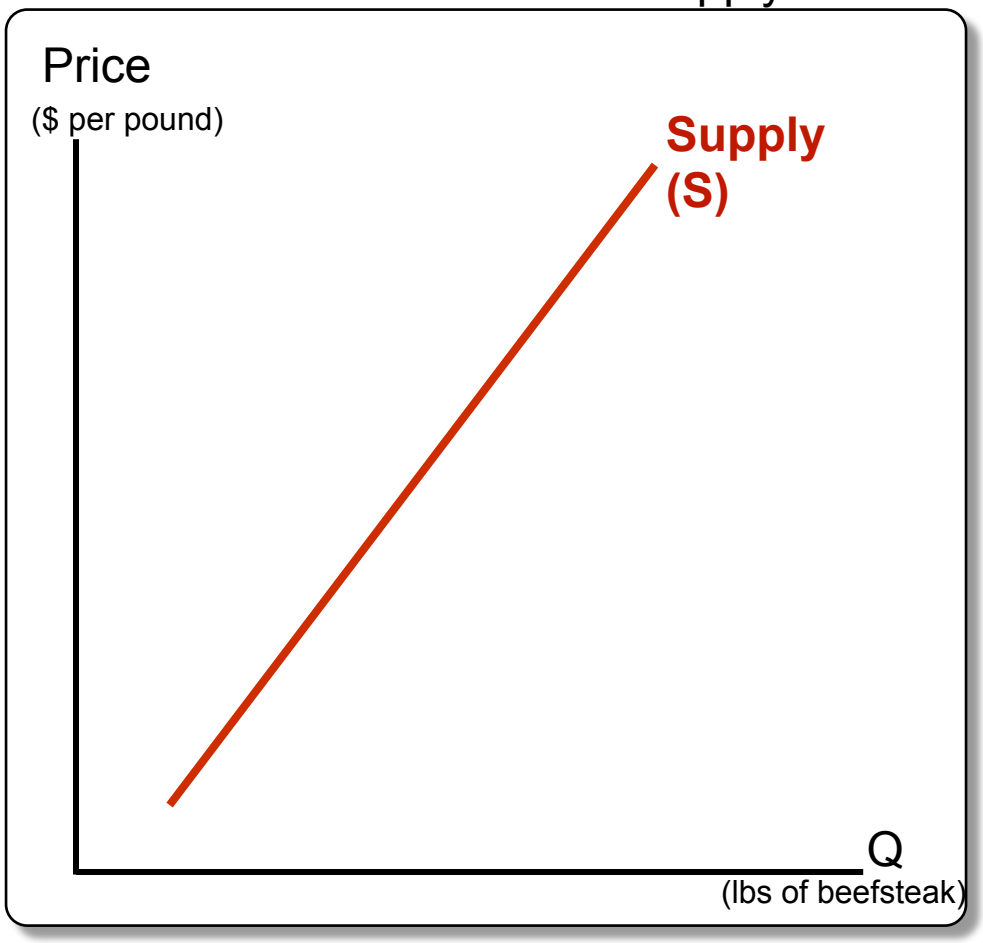
Law of Supply

- **Law of Supply:** there is a positive relationship between the price of a product and the amount of it that will be supplied.
  - As the price of a product rises, producers will be willing to supply a larger quantity.
  - Resources will be required to produce goods and services. Producers will have to pay resource owners a price sufficient to attract them from other potential users.
  - As the price of a product increases, producers will have an incentive to supply larger quantities.

Law of Supply

- The ***supply*** curve for beefsteak is illustrated here.
- The law of supply indicates there will be a positive relationship between price and ***quantity supplied***.
- The ***supply*** curve isolates the impact of a change in price on ***quantity supplied***.

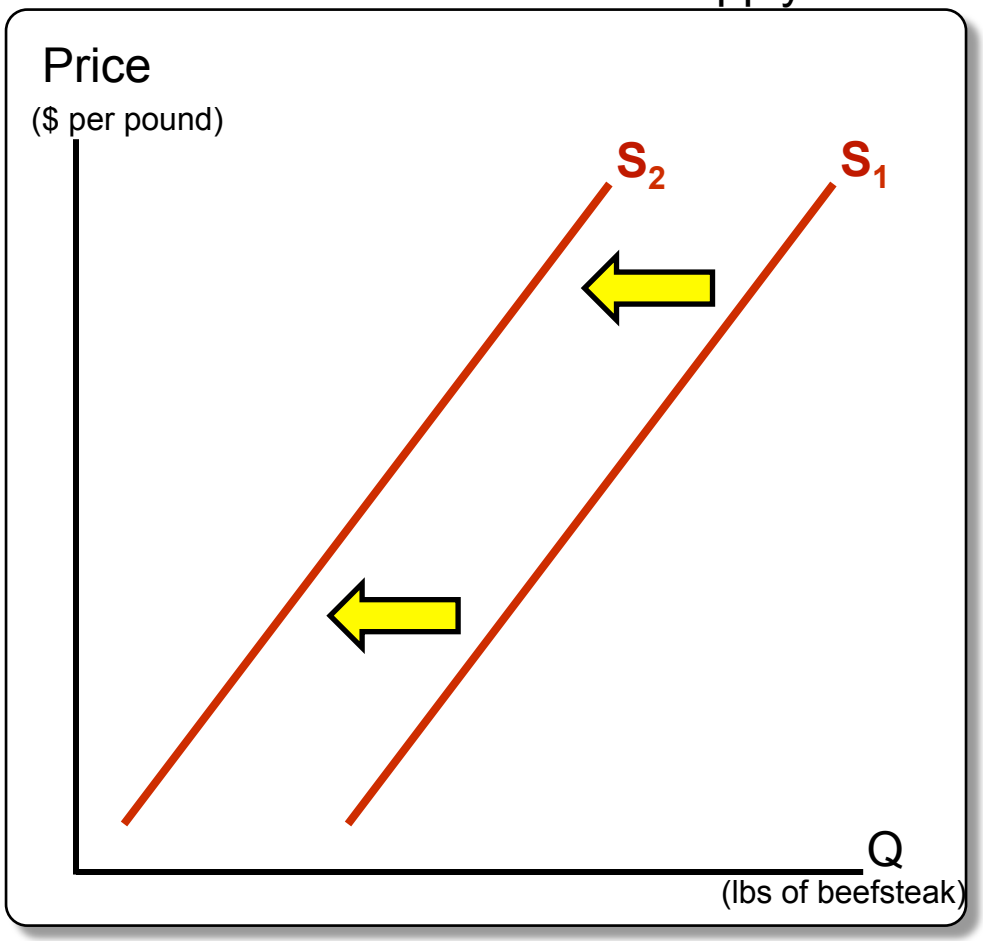
Exhibit 3: The Law of Supply



Decrease in Supply

- A change in ***supply*** is a shift in the entire curve.
- A decrease in ***supply*** for beefsteak from S_1 to S_2 is illustrated here.
- This decrease in the ***supply*** for beefsteak would result from factors that increase the per unit cost of producing the product. For example, higher resource prices or taxes would increase the cost of producing a product.

Exhibit 4: Decrease in Supply



Quantity Supplied and Supply

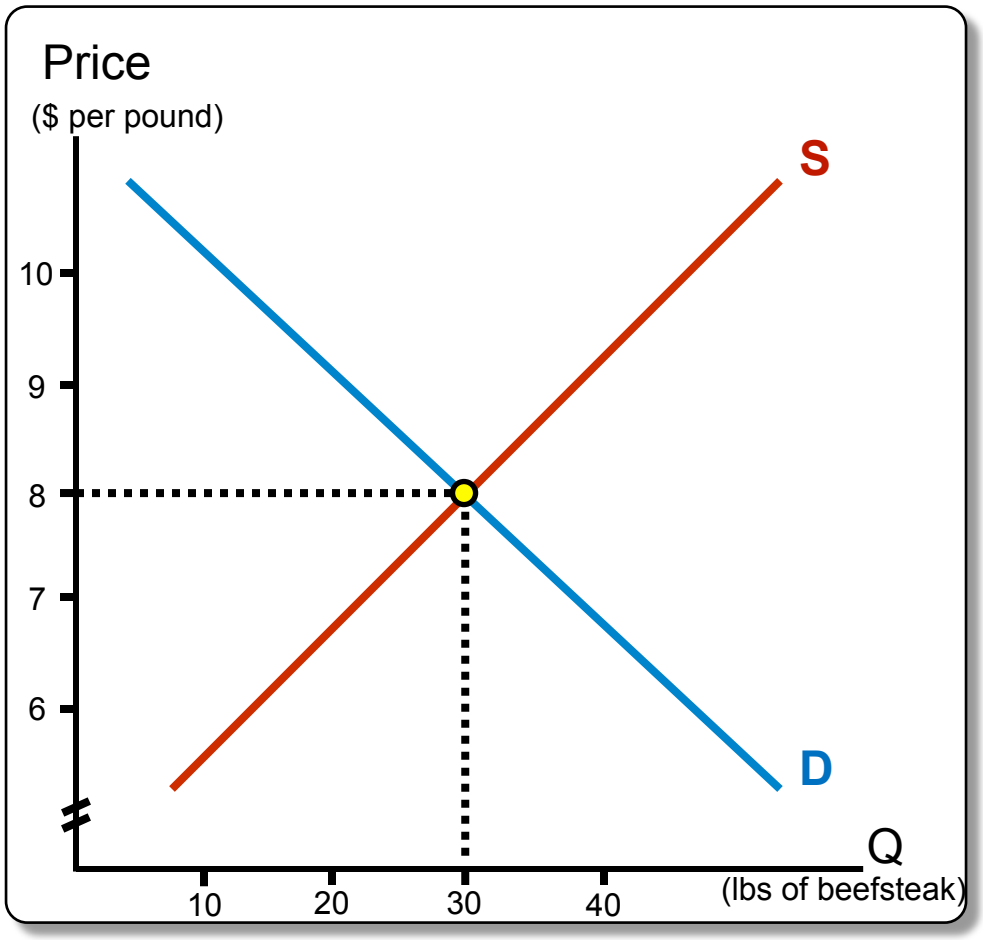
- **Change in Quantity Supplied:** a movement along the same supply curve in response to a change in its price. See exhibit 3.

- **Change in Supply:** a shift in the entire supply curve. See exhibit 4.
  - Changes in factors that increase the cost of producing a good will shift the supply curve to the left.
  - Changes in factors that decrease the cost of producing a good will shift the supply curve to the right.

Equilibrium

- Price will tend to move toward an equilibrium, where the ***quantity demanded*** is equal to the ***quantity supplied***. Here this occurs when the price of beefsteak is $8.
- If price is above the $8 equilibrium, producers will want to ***supply*** a larger quantity of beefsteak than consumers are willing to purchase. This would cause the price to decline.
- If price is below the $8 equilibrium, consumers will want to purchase a larger quantity of beefsteak than producers are willing to ***supply***, which will place upward pressure on price.
- At the $8 equilibrium price, the quantity of beefsteak demanded by consumers will just equal the quantity supplied by producers.

Exhibit 5: Supply, Demand and Equilibrium Price



Impact of a Change in Demand

- **When demand increases:** the equilibrium price and quantity will rise.

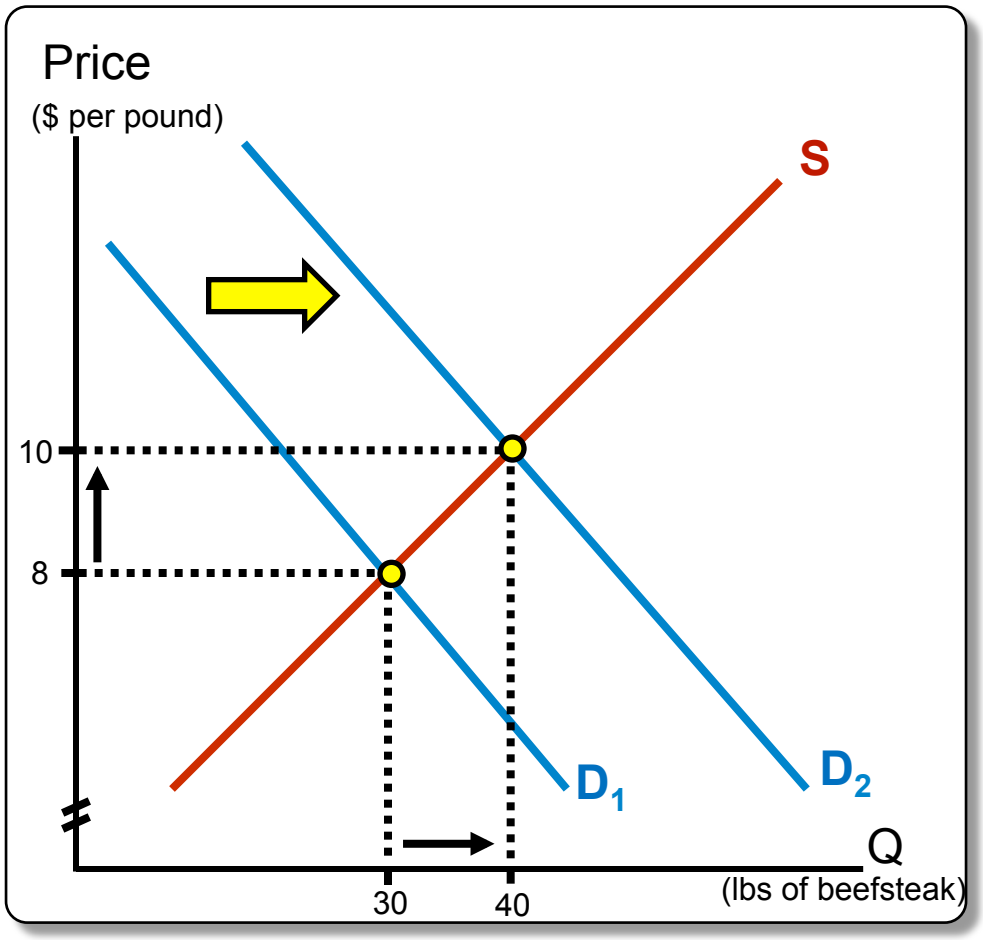
- **When demand decreases:** the equilibrium price and quantity will fall.

Impact of an Increase in Demand

- The impact of an increase in ***demand*** is illustrated here. Suppose that an increase in income causes the ***demand*** for beefsteak to increase, shifting the ***demand*** curve to the right from D_1 to D_2. The stronger ***demand*** will increase the price from $8 per pound to $10 per pound.

- As the price increases, beef producers will expand their output. And a new equilibrium will occur at a higher price and larger ***quantity supplied***.

Exhibit 6: Impact of an Increase in Demand

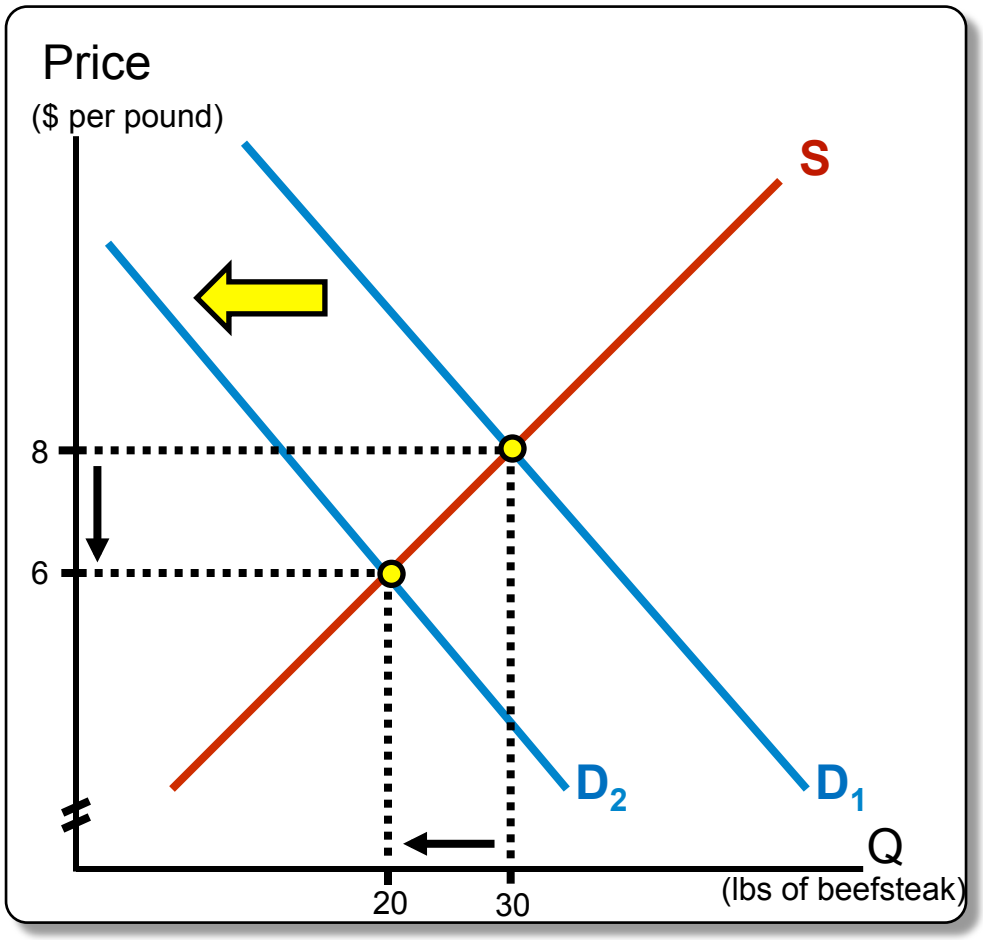


Impact of a Decrease in Demand

- Here we illustrate the impact of a reduction in ***demand*** for beefsteak (shift from D_1 to D_2), such as might occur if the income of consumers fell or the price of a substitute, such as chicken decreased.

- The reduction in ***demand*** will lead to a lower equilibrium price ($6) and a smaller ***quantity supplied***.

Exhibit 7: Impact of a Decrease in Demand



Impact of a Change in Supply

- **When supply decreases:** the equilibrium price will rise and the quantity will increase.

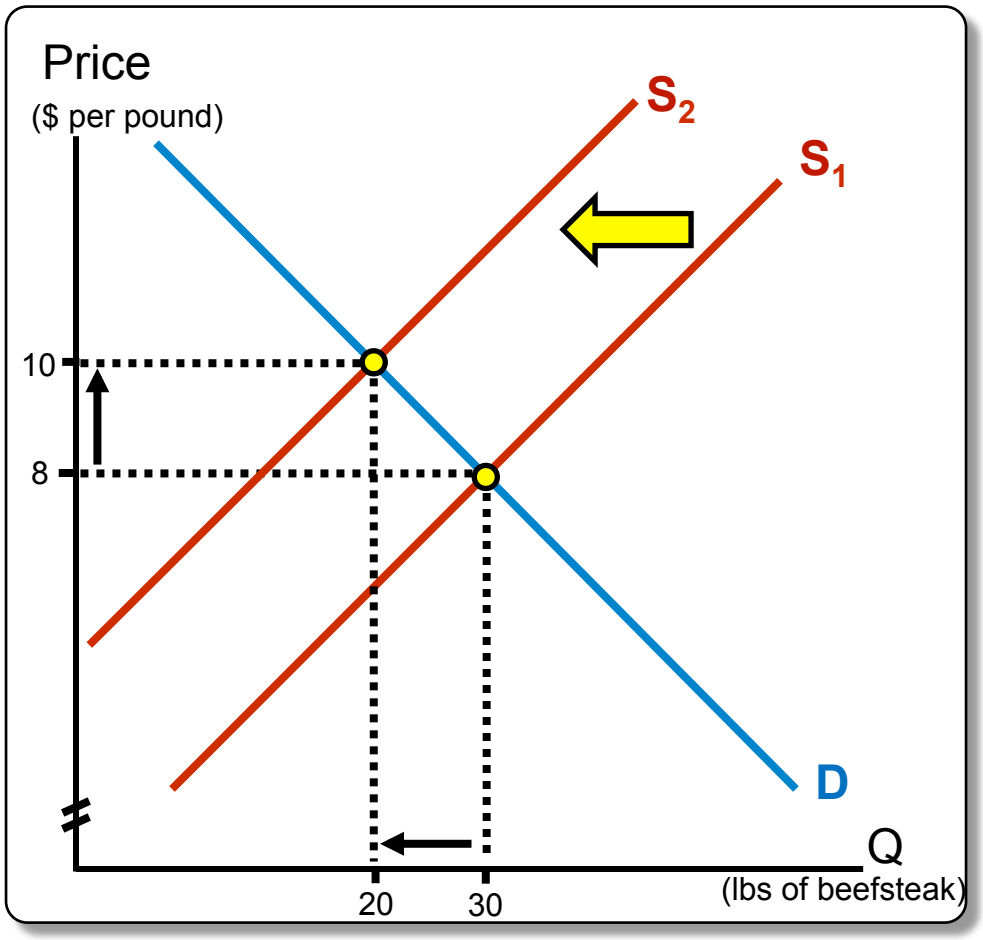
- **When supply increases:** the equilibrium price will fall and quantity will increase.

Impact of a Decrease in Supply

- Here we illustrate the market adjustment in response to a change that increases the cost of producing a product.

- Suppose that higher corn prices increase the cost of raising cattle, causing the ***supply*** curve for beefsteak to shift to the left from S_1 to S_2. This reduction in ***supply*** would increase the price of beefsteak, leading to a new equilibrium at a higher price ($10) and a smaller output.

Exhibit 8: Impact of a Decrease in Supply



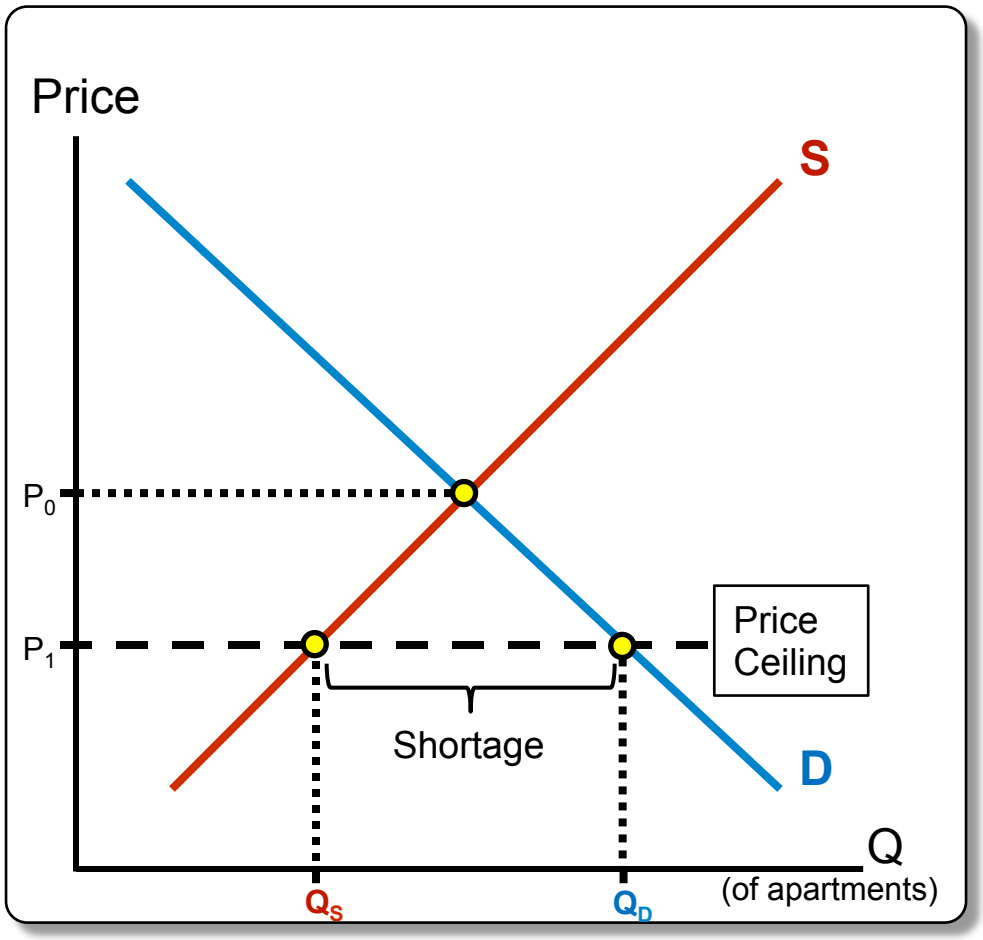
Price Ceilings

- A **price ceiling** establishes a maximum price that sellers are legally permitted to charge.
  - Example: rent control
- When a price ceiling keeps the price of a good below market equilibrium, there will be both direct and indirect effects.
  - (Direct effect) **Shortage**: the quantity demanded will exceed the quantity supplied. Waiting lines may develop.
  - (Indirect effects) Quality deterioration and changes in other non-price factors favorable to sellers and unfavorable to buyers are likely to occur.
- The quantity exchanged will fall and the gains from trade will be less than if the good were allocated by markets.

Impact of a Price Ceiling

- Consider the rental housing market where the price (rent) P_0 would bring the quantity of rental units ***demanded*** into balance with the quantity ***supplied***.
- A price ceiling like P_1 imposes a price below market equilibrium causing ***quantity demanded Q_D*** to exceed ***quantity supplied Q_S*** resulting in a **shortage**.
- Because prices are not allowed to direct the market to equilibrium, non-price elements will become more important in determining where the scarce goods go.

Exhibit 9: Price Ceiling



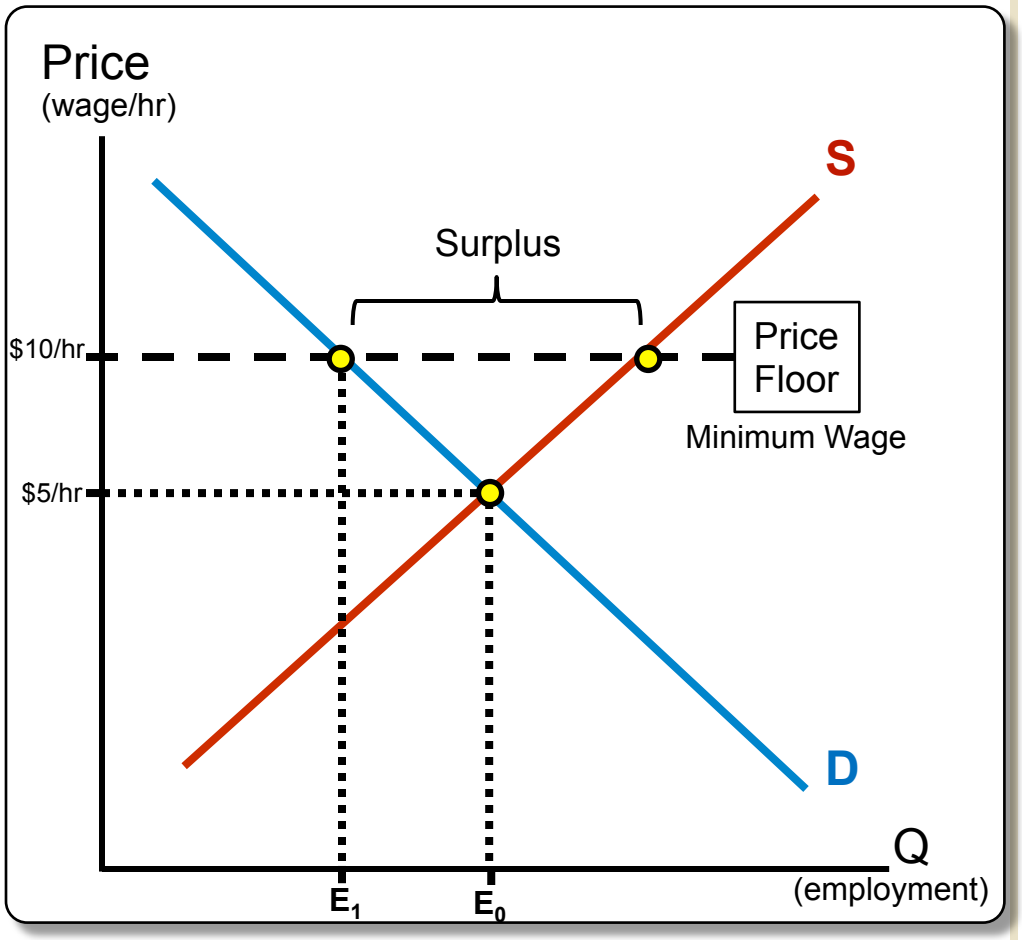
Price Floor

- A **price floor** establishes a minimum legal price for the good or service.
  - Example: minimum wage
- When a price floor keeps the price of a good above market equilibrium, it will lead to both direct and indirect effects.
  - (Direct effect) **Surplus**: sellers will want to supply a larger quantity than buyers are willing to purchase.
  - (Indirect effects) changes in non-price factors favorable to buyers and unfavorable to sellers
- The quantity exchanged will fall and the gains from trade will be less than if the good were allocated by markets.

Impact of a Price Floor

- A price floor imposes a price above market equilibrium causing ***quantity supplied*** to exceed ***quantity demanded*** resulting in a **surplus**.
- Consider the market for low-skill labor where a price (wage) of $5 could bring the quantity of labor ***demanded*** into balance with the ***quantity supplied***.
- A minimum wage (price floor) of $10 would increase the wages of low-skill labor, but employment will decline from E_0 to E_1.
- Because the price floor does not allow the price to decline to equilibrium, non-price elements of exchange will become more important in determining where scarce goods go.

Exhibit 10: Price Floor



Module A: Questions for Thought

1. Which of the following do you think would lead to an increase in the demand for beef?
   a) Higher pork prices
   b) Higher incomes
   c) Higher grain prices used to feed cows
   d) A scientific study linking high beef consumption with cancer
   e) an increase in the price of beef?

2. How have technological advances in miniature batteries and lower computer chip prices affected the market for cellular phones? Use the tools of demand and supply to illustrate.

Module A: Questions for Thought

3. Which of the following can be expected to result from a price ceiling that keeps the price of a product below the market equilibrium?
   a) A surplus of the product will result.
   b) A shortage of the product will result.
   c) Changes in non-price factors that will be favorable to buyers and unfavorable to sellers will occur.
   d) Changes in non-price factors that will be favorable to sellers and unfavorable to buyers will occur.

   (**Note: More than one option may be correct**.)

Module A: Questions for Thought

4. How will an increase in the minimum wage from the current level to $15 per hour affect:
   a) employment in skill categories previously earning less than $15 per hour?
   b) the unemployment rate of teenagers?
   c) availability of on-the-job training for low-skill workers?
   d) the demand for high-skill workers who provide good substitutes for the labor offered by low-skill workers who are paid higher wage rates due to the increase in the minimum wage?