Demand, Supply, and Market Equilibrium

From:

Book 1: Chapter 3

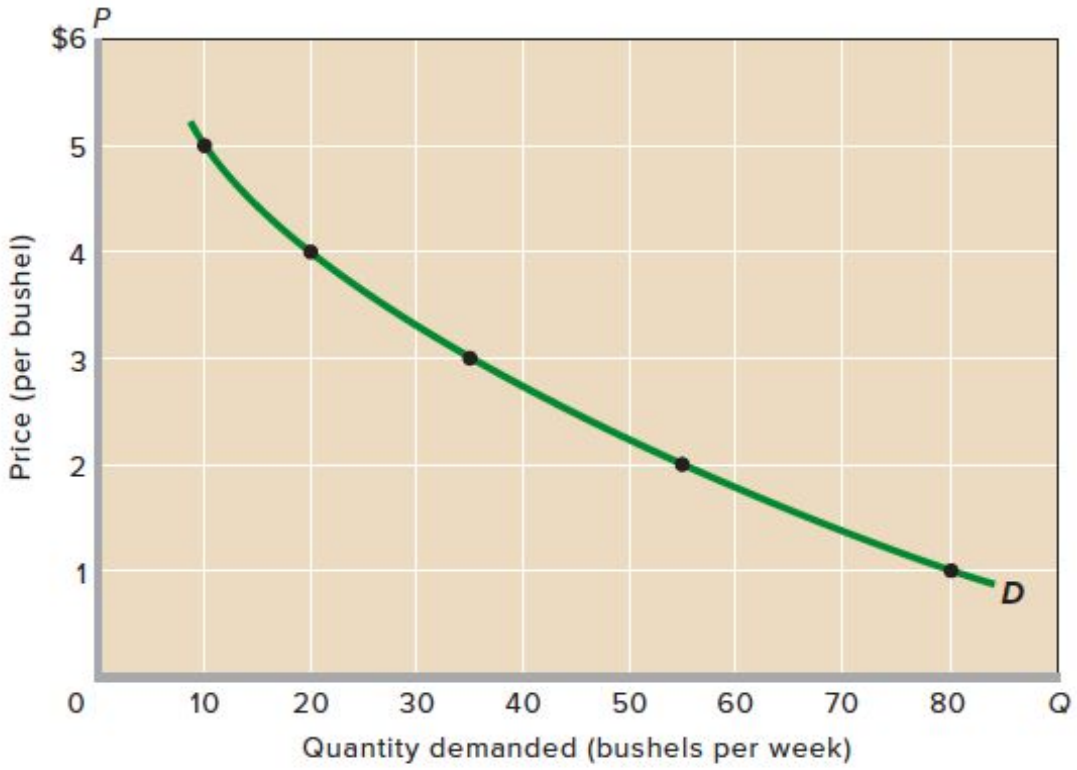
Demand

- **Demand** is a schedule or a curve that shows the various amounts of a product that consumers are willing and able to purchase at each of a series of possible prices during a specified period of time.
- Demand shows the quantities of a product that will be purchased at various possible prices, *other things equal*.

The Demand Curve

FIGURE 3.1 An individual buyer's demand for corn. Because price and quantity demanded are inversely related, an individual's demand schedule graphs as a downsloping curve such as *D*. Other things equal, consumers will buy more of a product as its price declines and less of the product as its price rises. (Here and in later figures, *P* stands for price and *Q* stands for quantity demanded or supplied.)

Demand for Corn	
Price per Bushel	Quantity Demanded per Week
$5	10
4	20
3	35
2	55
1	80



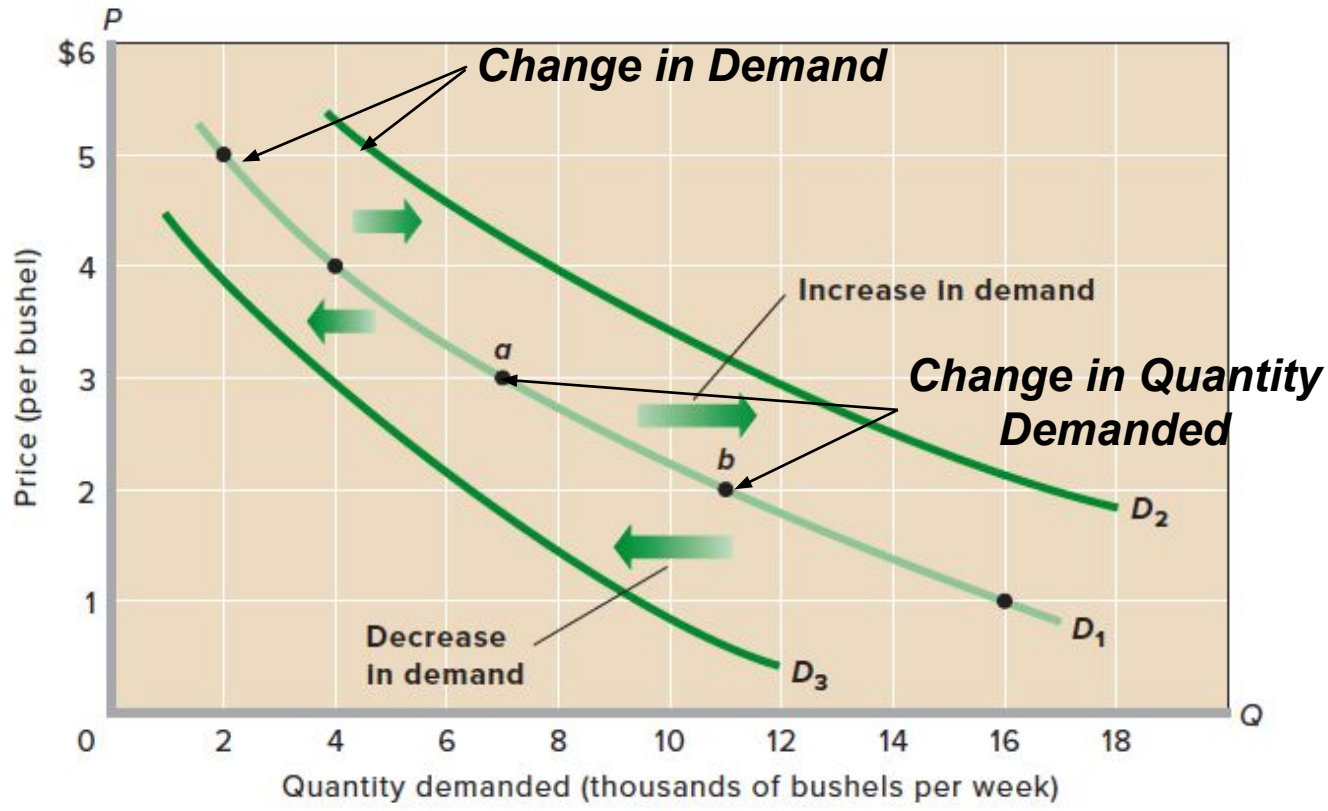
Law of Demand

- Other things equal, as price falls, the quantity demanded rises, and as price rises, the quantity demanded falls.
  - A negative or inverse relationship between price and quantity demanded.
- Reasons:
  - Common sense: Price is an obstacle that deters consumers from buying.
  - Law of **diminishing marginal utility**
  - **Income effect** and **substitution effect**

Determinants of Demand

- Other factors that can and do affect purchases. i.e. **"other things equal".**
- When any of these determinants changes, the demand curve will shift to the right or left, - **Demand Shifters**
  - Consumers' tastes (preferences),
  - The number of buyers in the market,
  - Consumers' incomes,
  - The prices of related goods, and
  - Consumer expectations.

Changes in Demand



Market Demand for Corn, 200 Buyers, (D_1)	
(1) Price per Bushel	(2) Total Quantity Demanded per Week
$5	2,000
4	4,000
3	7,000
2	11,000
1	16,000

Changes in Demand

- **Tastes:** A favorable change in consumer tastes (preferences) for a product –
  - Demand will increase; the demand curve will shift rightward. And vice versa
- **Number of Buyers**: An increase in the number of buyers in a market is likely to increase demand and vice versa
- **Income**: How changes in income affect demand is a more complex matter.
  - **Superior** or **normal** goods VS **inferior** goods

Changes in Demand (Cont'd)

- **Prices of Related Goods**: A change in the price of a related good may either increase or decrease the demand for a product, depending on whether the related good is a **substitute** or a **complement**
- **Consumer Expectations**: Changes in consumer expectations may shift demand. Expectation of higher future prices may result in increasing current demand.

Table 3.1. Determinants of Demand: Factors That Shift the Demand Curve

Determinant	Examples
Change in buyers' tastes	Physical fitness rises in popularity, increasing the demand for jogging shoes and bicycles; cell phone popularity rises, reducing the demand for land-line phones.
Change in the number of buyers	A decline in the birthrate reduces the demand for children's toys.
Change in income	A rise in incomes increases the demand for normal goods such as restaurant meals, sports tickets, and necklaces while reducing the demand for inferior goods such as cabbage, turnips, and inexpensive wine.
Change in the prices of related goods	A reduction in airfares reduces the demand for bus transportation (substitute goods); a decline in the price of DVD players increases the demand for DVD movies (complementary goods).
Change in consumer expectations	Inclement weather in South America creates an expectation of higher future coffee bean prices, thereby increasing today's demand for coffee beans.

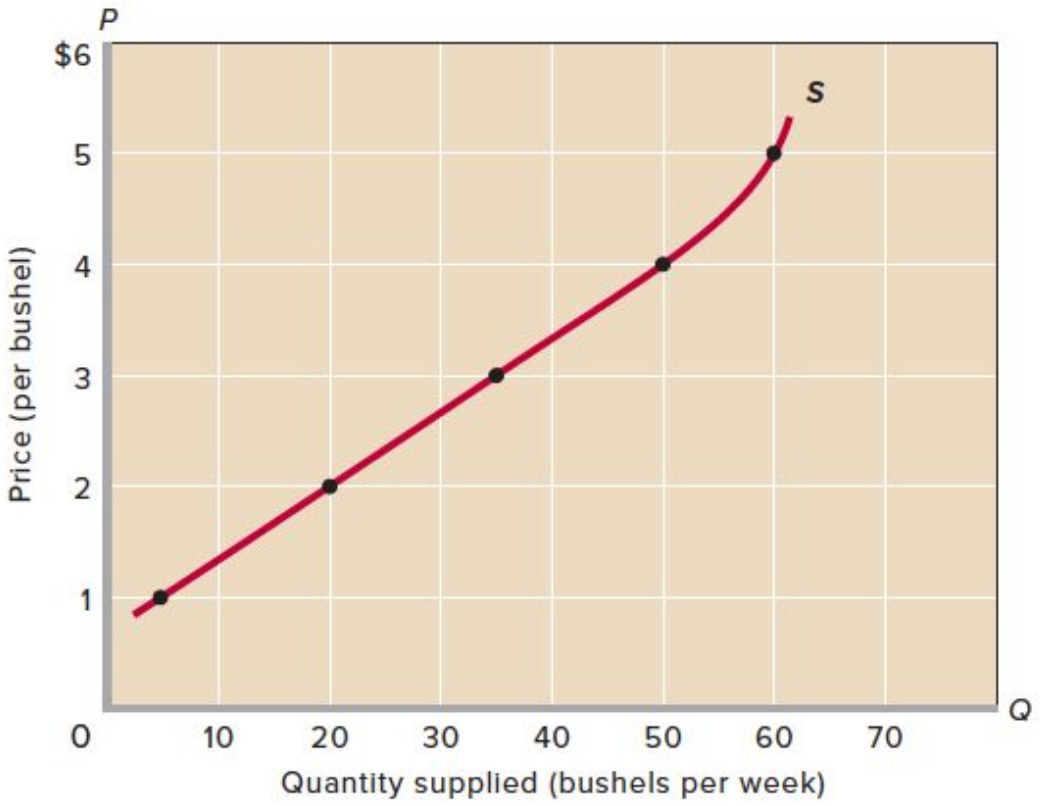
Supply

- **Supply** is a schedule or curve showing the various amounts of a product that producers are willing and able to make available for sale at each of a series of possible prices during a specific period.
- Supply shows the quantities a product that will be supplied at various prices, *other things equal*.

The Supply Curve

FIGURE 3.4 An individual producer's supply of corn. Because price and quantity supplied are directly related, the supply curve for an individual producer graphs as an upsloping curve. Other things equal, producers will offer more of a product for sale as its price rises and less of the product for sale as its price falls.

Supply of Corn	
Price per Bushel	Quantity Supplied per Week
$5	60
4	50
3	35
2	20
1	5



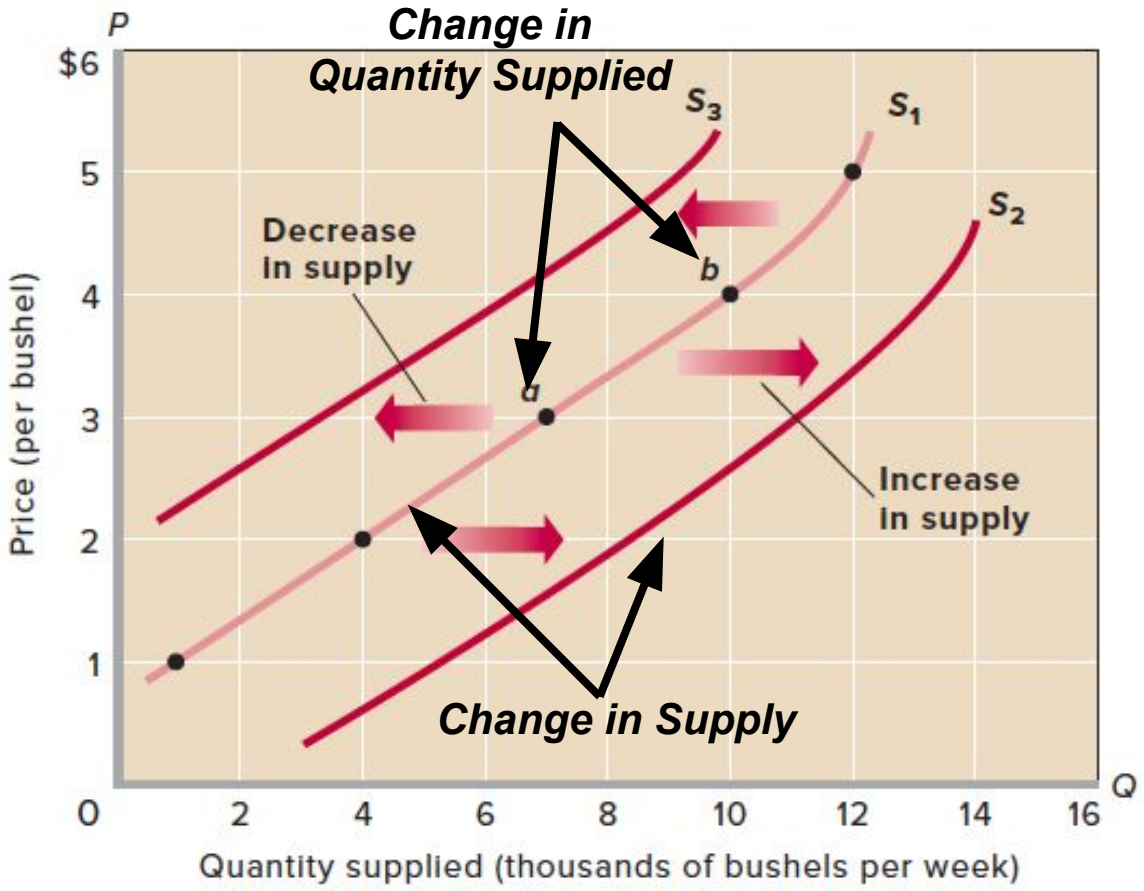
Law of Supply

- As price rises, the quantity supplied rises; as price falls, the quantity supplied falls. This relationship is called the **law of supply**.
- Reason:
  - Price is an obstacle for consumer but **revenue** for supplier
  - It serves as an **incentive** to produce and sell a product

Determinants of Supply

- The basic determinants of supply, the **supply shifters**, are:
  - resource prices,
  - technology,
  - taxes and subsidies,
  - prices of other goods,
  - producer expectations, and
  - the number of sellers in the market.
- The key idea is that **costs are a major factor underlying supply curves**;
  - anything that affects costs (other than changes in output itself) usually shifts the supply curve.

Changes in Supply



Market Supply of Corn, 200 Producers, (S_1)	
(1) Price per Bushel	(2) Total Quantity Supplied per Week
$5	12,000
4	10,000
3	7,000
2	4,000
1	1,000

Changes in Supply

- **Resource Prices:** Higher resource prices raise production costs and, assuming a particular product price, squeeze profits.
- **Technology:** Improvements in technology (techniques of production) enable firms to produce units of output with fewer resources.
- **Taxes and Subsidies**: Businesses treat most taxes as costs. An increase in sales or property taxes will increase production costs and reduce supply.
  - In contrast, **subsidies** are "taxes in reverse." If the government subsidizes the production of a good, it in effect lowers the producers' costs and increases supply.

Changes in Supply (Cont'd)

- **Prices of Other Goods:** Firms that produce a particular product can sometimes use their plant and equipment to produce alternative goods.
- **Producer Expectations**: Changes in expectations about the future price of a product may affect the producer's current willingness to supply that product.
  - It is difficult, however, to generalize about how a new expectation of higher prices affects the present supply of a product.
- **Number of Sellers**: Other things equal, the larger the number of suppliers, the greater the market supply.

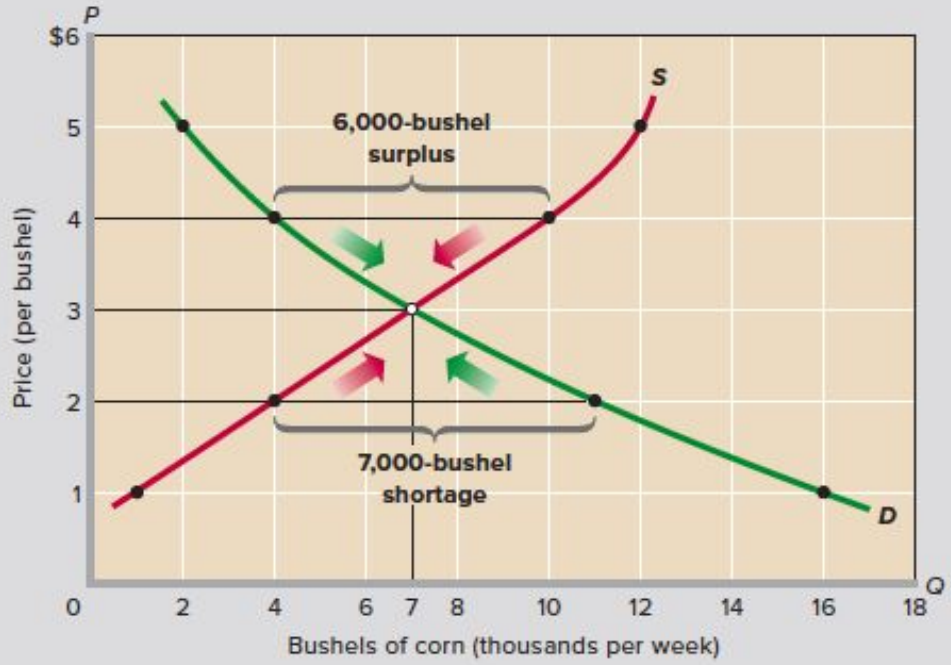
Determinants of Supply: Factors That Shift the Supply Curve

Determinant	Examples
Change in resource prices	A decrease in the price of microchips increases the supply of computers; an increase in the price of crude oil reduces the supply of gasoline.
Change in technology	The development of more effective wireless technology increases the supply of cell phones.
Change in taxes and subsidies	An increase in the excise tax on cigarettes reduces the supply of cigarettes; a decline in subsidies to state universities reduces the supply of higher education.
Change in prices of other goods	An increase in the price of cucumbers decreases the supply of watermelons.
Change in producer expectations	An expectation of a substantial rise in future log prices decreases the supply of logs today.
Change in the number of suppliers	An increase in the number of tattoo parlors increases the supply of tattoos; the formation of women's professional basketball leagues increases the supply of women's professional basketball games.

Market Equilibrium

- With neither a shortage nor a surplus, the market is in equilibrium, i.e. “in balance” or “at rest.”
- **Equilibrium Price:** The price where the intentions of buyers and sellers match.
- **Equilibrium Quantity:** The quantity at which the intentions of buyers and sellers match.
- Graphically, the equilibrium price and quantity are indicated by the intersection of the supply curve and the demand curve

Market Equilibrium (Cont'd)



Market Supply of and Demand for Corn

(1) Total Quantity Supplied per Week	(2) Price per Bushel	(3) Total Quantity Demanded per Week	(4) Surplus (+) or Shortage (−)*
12,000	$5	2,000	+10,000 ↓
10,000	4	4,000	+6,000 ↓
7,000	**3**	**7,000**	**0**
4,000	2	11,000	−7,000 ↑
1,000	1	16,000	−15,000 ↑

*Arrows indicate the effect on price.

Market Equilibrium (Cont'd)

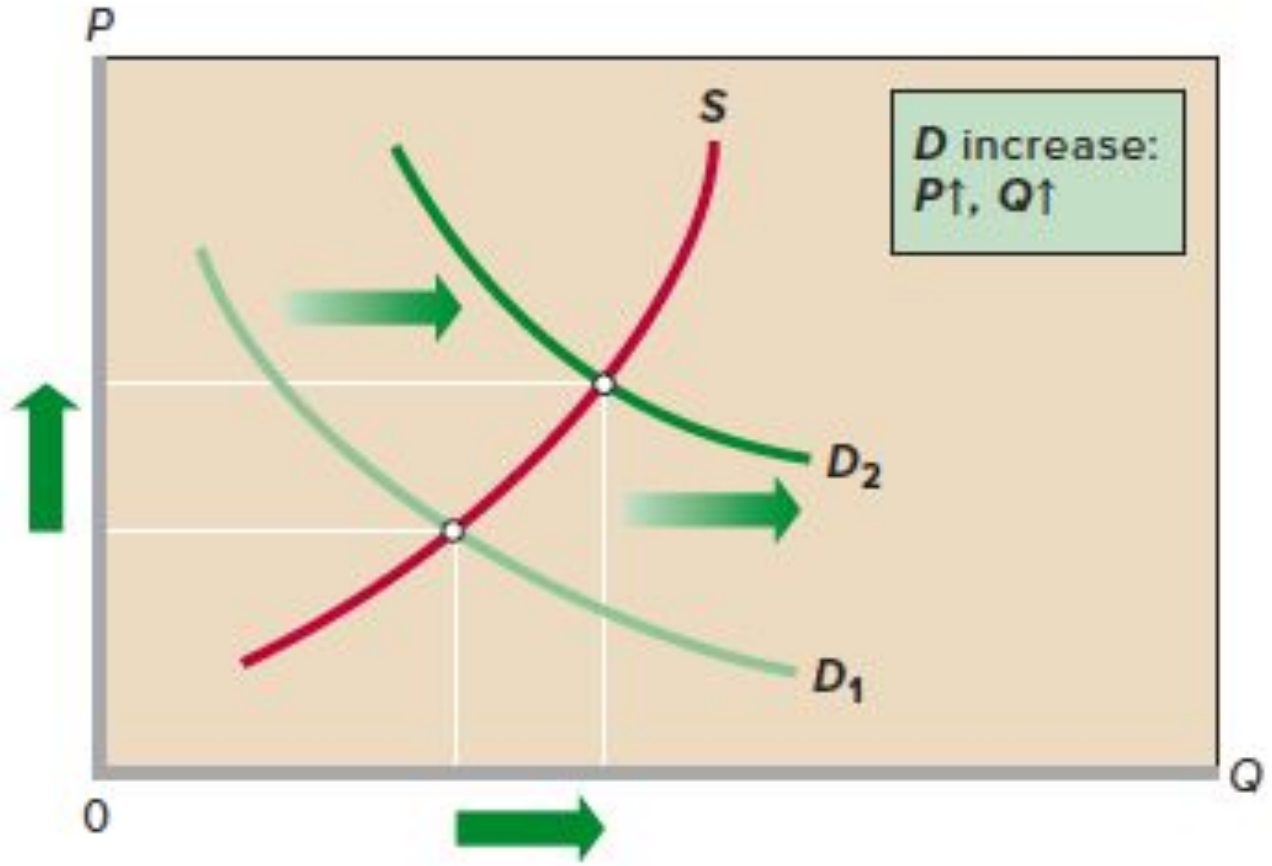
Surplus and Shortage

- At any above-equilibrium price, quantity supplied exceeds quantity demanded.
  - The result is a **surplus** (or excess supply)
- Any price below the equilibrium price, quantity demanded would exceed quantity supplied.
  - The result is a **shortage** (or excess demand)

Uber and Dynamic Pricing

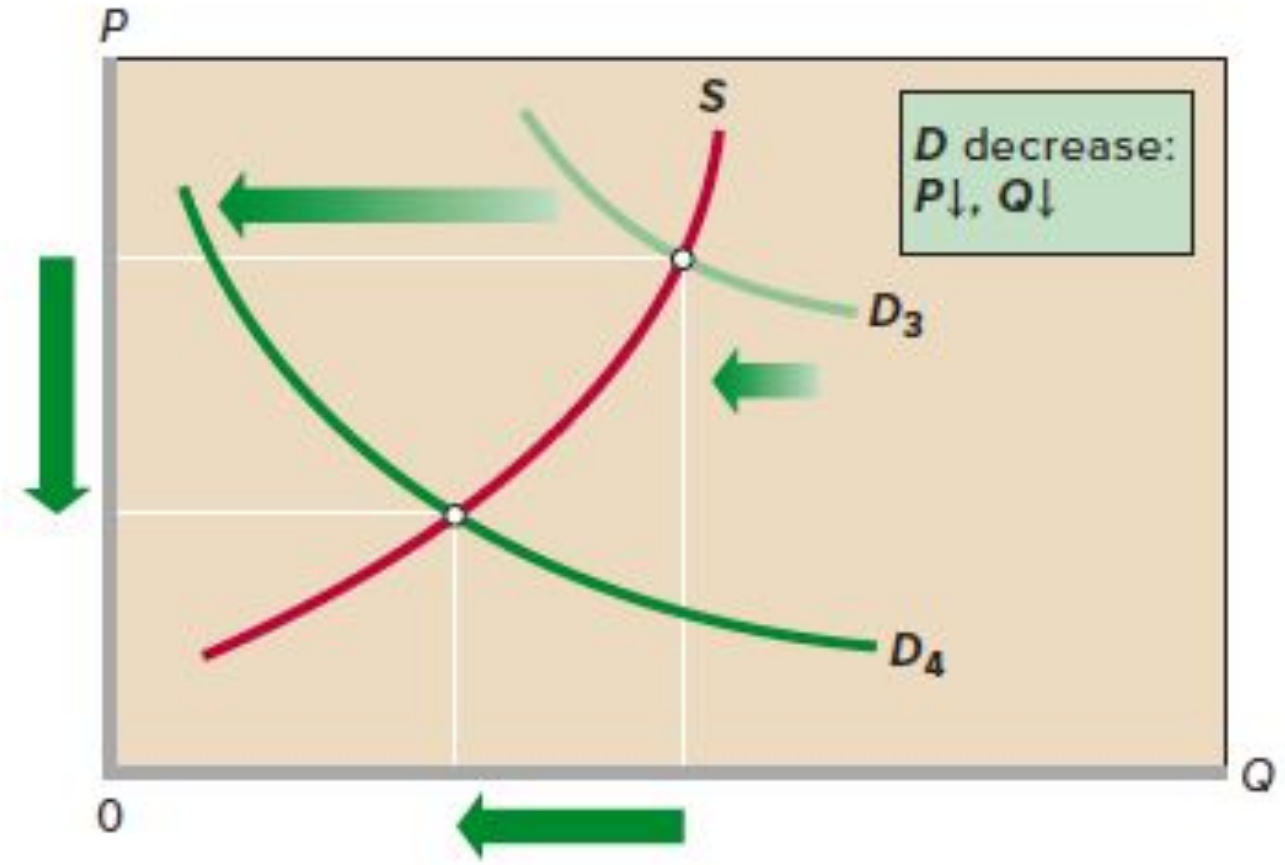
- A short reading on Page 58

Changes in Demand and Equilibrium



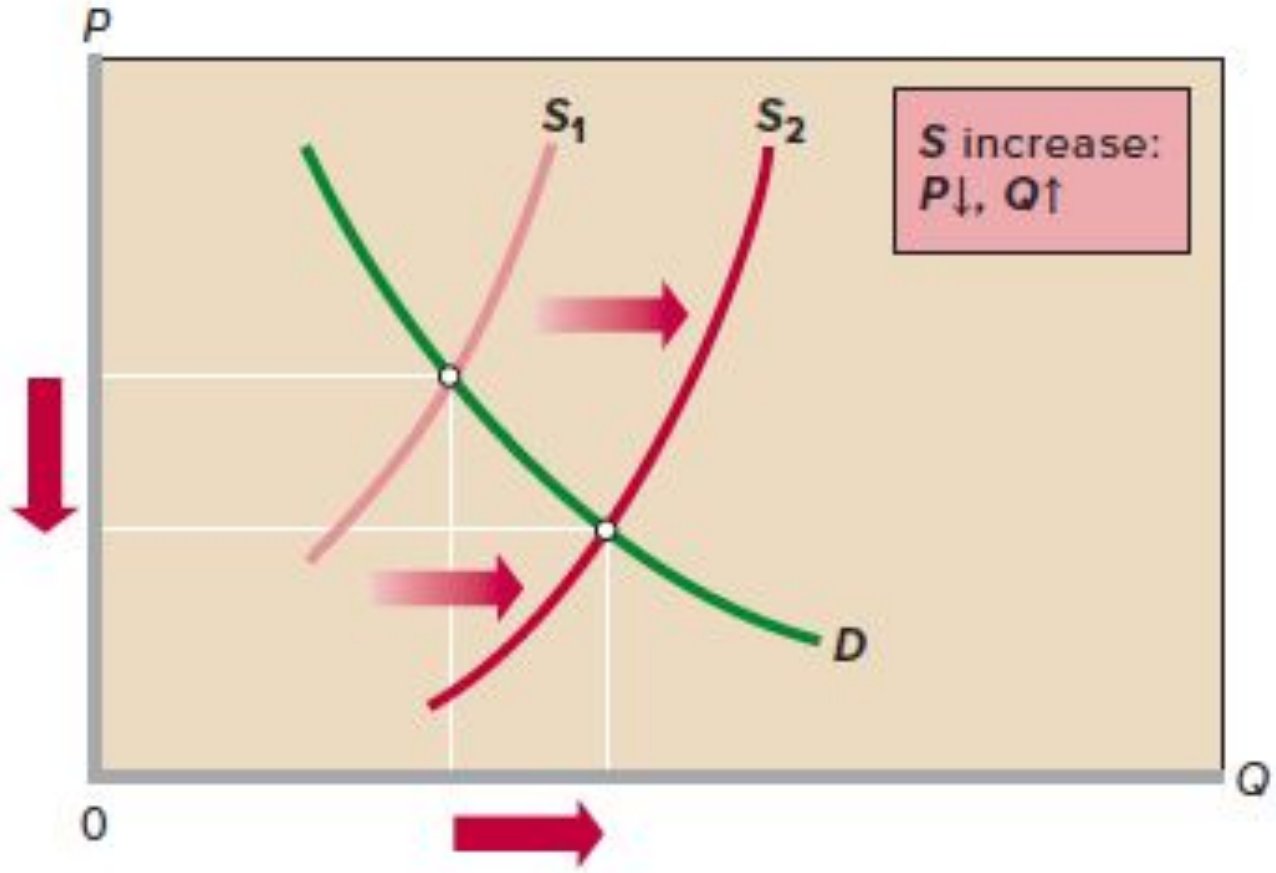
(a)
Increase in demand

Changes in Demand and Equilibrium



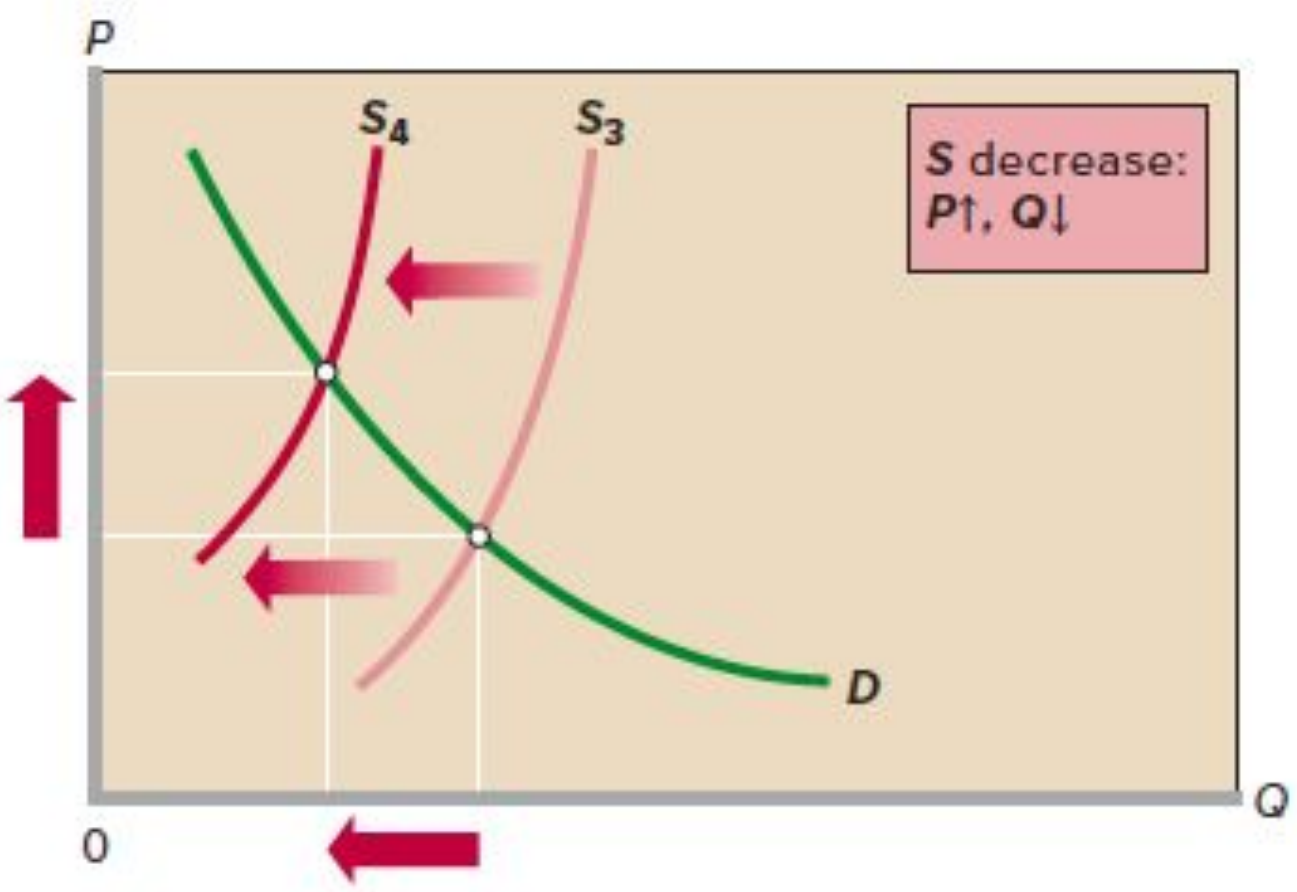
(b)
Decrease in demand

Changes in Supply and Equilibrium



(c)
Increase in supply

Changes in Supply and Equilibrium



(d)
Decrease in supply

Complex Cases

What effects will be there on equilibrium **price** and equilibrium **quantity**? In case of:

- **Supply Increase; Demand Decrease**
- **Supply Decrease; Demand Increase**
- **Supply Increase; Demand Increase**
- **Supply Decrease; Demand Decrease**

Complex Cases (Cont'd)

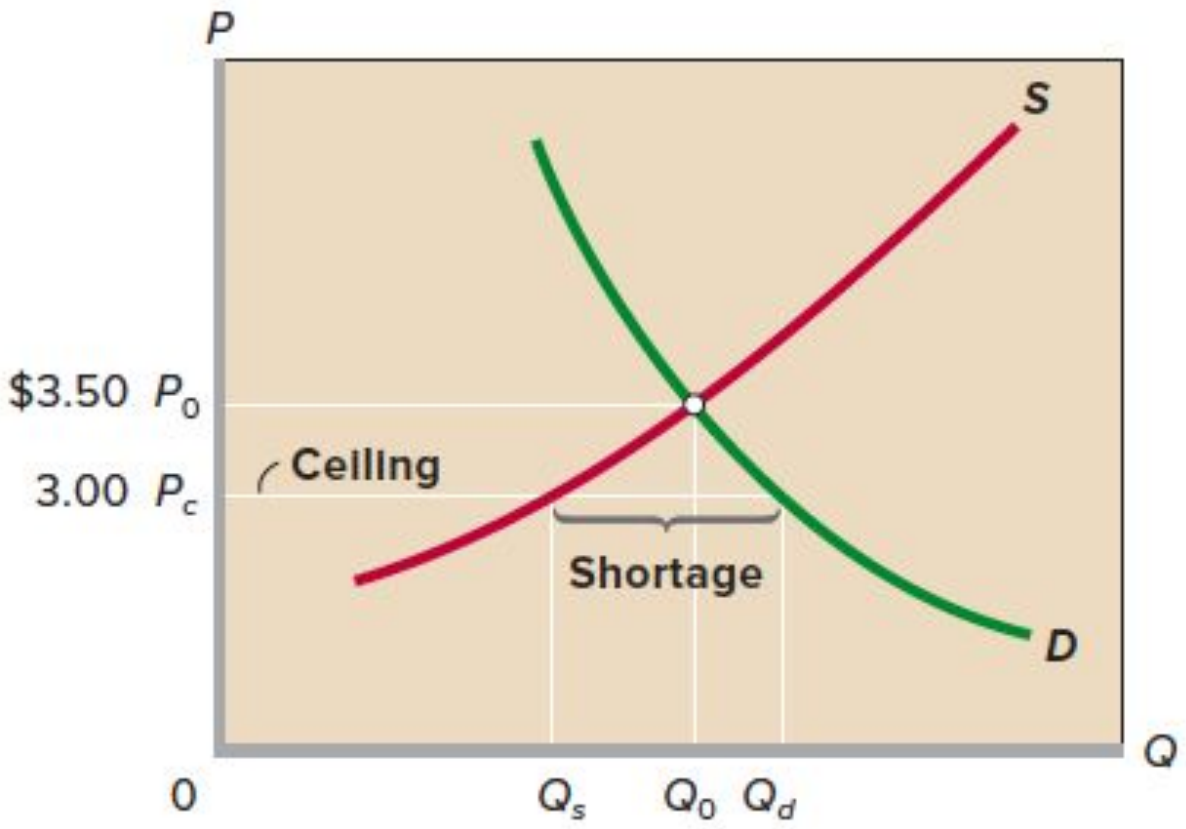
TABLE 3.3 Effects of Changes in Both Supply and Demand

Change in Supply	Change in Demand	Effect on Equilibrium Price	Effect on Equilibrium Quantity
1. Increase	Decrease	Decrease	Indeterminate
2. Decrease	Increase	Increase	Indeterminate
3. Increase	Increase	Indeterminate	Increase
4. Decrease	Decrease	Indeterminate	Decrease

Application: Government-Set Prices

- **Price Ceiling**
  - The maximum legal price a seller may charge for a product or service.
  - Set below equilibrium price
  - Examples: price ceiling on gasoline, rent controls
  - Results in shortage
- Rationing Problem
- Black Markets

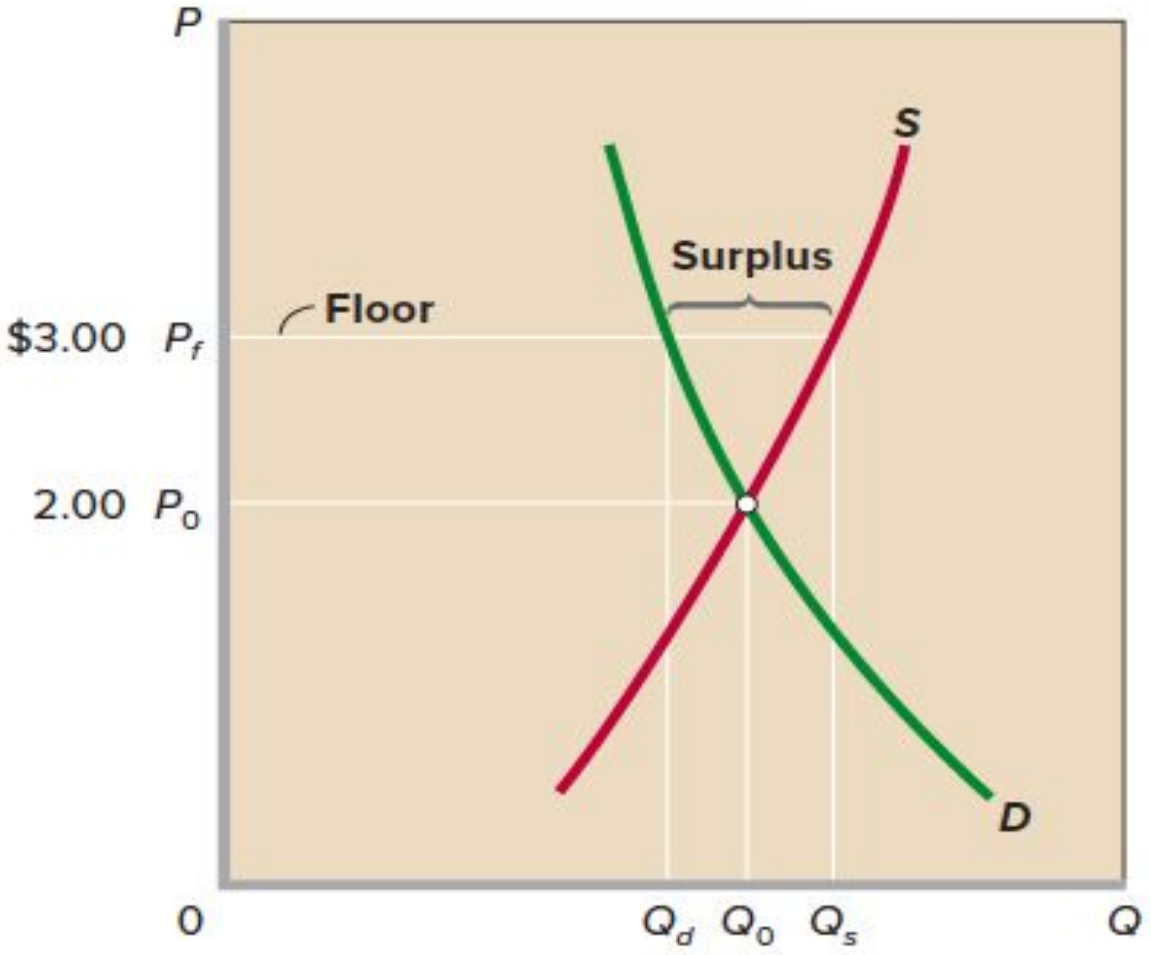
Price Ceiling



Application: Government-Set Prices

- **Price Floor**
  - A minimum price fixed by the government.
  - Above equilibrium price
  - Examples: Supported prices for agricultural products and current minimum wages
  - Results in surplus
- Consequences?

Price Floor



Problem

Thousands of Bushels Demanded	Price per Bushel	Thousands of Bushels Supplied	Surplus (+) or Shortage (–)
85	$3.40	72	_____
80	3.70	73	_____
75	4.00	75	_____
70	4.30	77	_____
65	4.60	79	_____
60	4.90	81	_____

- What is the equilibrium price?
- Graph the demand for wheat and the supply of wheat. Label equilibrium price P and equilibrium quantity Q.
- Suppose that the government establishes a price ceiling of $3.70 for wheat. What might prompt the government to establish this price ceiling? Explain carefully the main effects. Demonstrate your answer graphically.