DEMAND AND SUPPLY

LECTURE 3

LEARNING OUTCOME

- LO1. Describe demand and explain how it can change.
- LO2. Describe supply and explain how it can change.
- LO3. Relate how supply and demand interact to determine market equilibrium.
- LO4. Explain how changes in supply and demand affect equilibrium prices and quantities.
- LO5. Identify what government-set prices are and how they can cause product surpluses and shortages.

MARKETS AND COMPETITION

- A *market* is a group of buyers and sellers of a particular good or service.

- The terms supply and demand refer to the behavior of people . . . as they interact with one another in markets.

MARKETS

- Markets bring together buyers (“demanders”) and sellers (“suppliers”).
- The Pakistan State Oil petrol station, an e-commerce site, the local music store, a farmer’s roadside stand—all are familiar markets.
- The New York Stock Exchange and the Chicago Board of Trade are markets in which buyers and sellers from all over the world communicate with one another to buy and sell bonds, stocks, and commodities.
- In labor markets, new college graduates “sell” and employers “buy” specific labor services.

MARKETS

- Some markets are local; others are national or international.
- Some are highly personal, involving face-to-face contact between demander and supplier; others are faceless, with buyer and seller never seeing or knowing each other.
- To keep things simple, we will focus on markets in which large numbers of independently acting buyers and sellers come together to buy and sell standardized products.
- Markets with these characteristics are the economy's most highly competitive.
- A *competitive market* is a market in which there are many buyers and sellers so that each has a negligible impact on the market price.

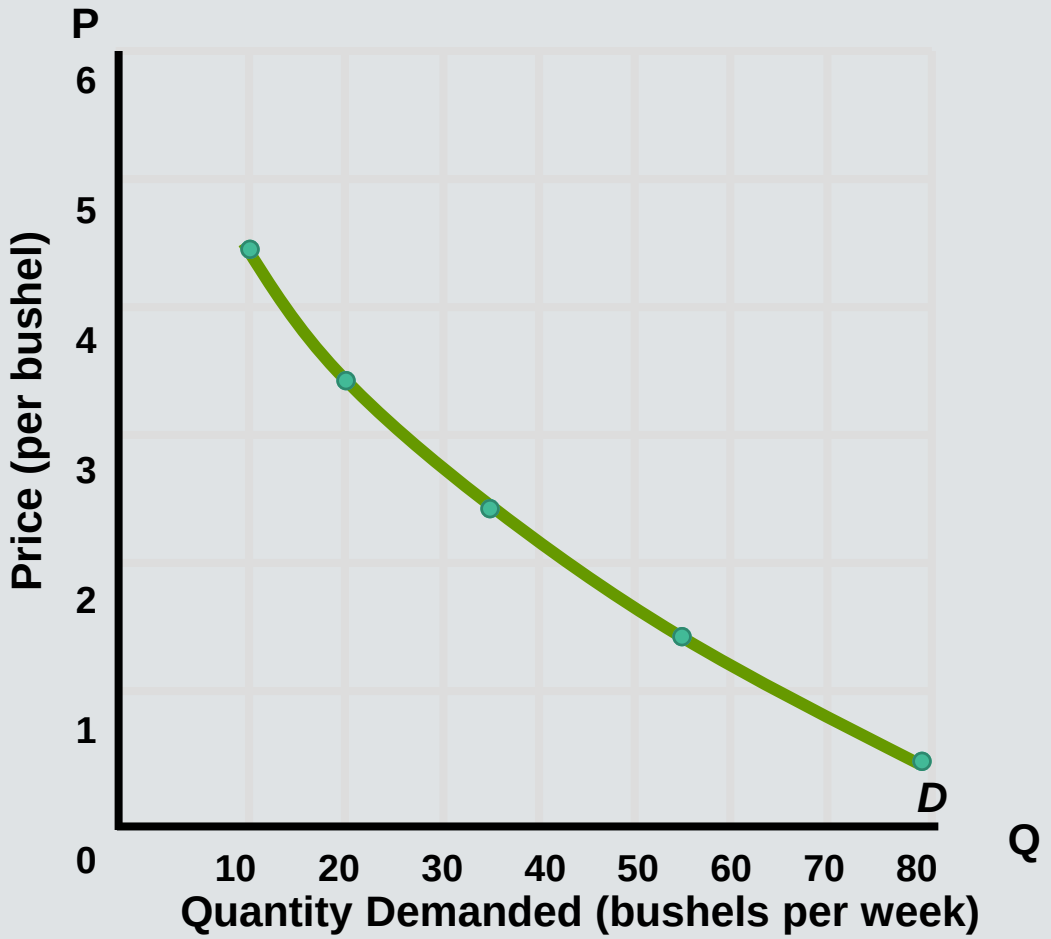
DEMAND

- 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*.
- We say “willing and able” because willingness alone is not effective in the market.
- You may be willing to buy a plasma television set, but if that willingness is not backed by the necessary dollars, it will not be effective and, therefore, will not be reflected in the market.

The Demand Curve

Individual Demand

P	Q_d
$5	10
4	20
3	35
2	55
1	80



An individual buyer's demand for corn. Because price and quantity demanded are inversely related, an individual's demand schedule graphs as a down sloping 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.

DEMAND

- The table reveals the relationship between the various prices of corn and the quantity of corn a particular consumer would be *willing* and *able to purchase* at each of these *prices*.
- The table does not tell us which of the five possible prices will actually exist in the corn market. That depends on the interaction between demand and supply.
- Demand is simply a statement of a buyer's plans, or intentions, with respect to the purchase of a product.
- To be meaningful, the quantities demanded at each price must relate to a *specific period*—a day, a week, or a month.
- Saying "A consumer will buy 10 bushels of corn at $5 per bushel" is meaningless.
- Saying "A consumer will buy 10 bushels of corn per week at $5 per bushel" is meaningful.
- Unless a specific time period is stated, we do not know whether the demand for a product is large or small.

LAW OF DEMAND

- Law of Demand

  The *law of demand* states that, other things equal, the quantity demanded of a good falls when the price of the good rises.

- In short, there is a negative or inverse relationship between price and quantity demanded.
- Economists call this inverse relationship the law of demand.

OTHER-THINGS-EQUAL ASSUMPTION

- The other-things-equal assumption is critical here.
- Many factors other than the price of the product being considered affect the amount purchased.
- For example, the quantity of Nikes purchased will depend not only on the price of Nikes but also on the prices of such substitutes as Reebok's, Adidas, etc.
- The law of demand in this case says that fewer Nikes will be purchased if the price of Nikes rises and if the prices of Reebok, Adidas, and New Balances all remain constant.
- In short, if the relative price of Nikes rises, fewer Nikes will be bought.
- However, if the price of Nikes and the prices of all other competing shoes increase by some amount— say, $5—consumers might buy more, fewer, or the same number of Nikes.

WHY THE INVERSE RELATIONSHIP BETWEEN PRICE AND QUANTITY DEMANDED?

- The main three reasons are;

1. The law of demand is consistent with common sense.

- People ordinarily ***do*** buy more of a product at a low price than at a high price.

2. Consumption is subject to diminishing marginal utility.

- In any specific time period, each buyer of a product will derive less satisfaction (or benefit, or utility) from each successive unit of the product consumed.

3. Law of demand in terms of income and substitution effects.

- The income effect indicates that a lower price increases the purchasing power of a buyer's money income, enabling the buyer to purchase more of the product than before.
- The substitution effect suggests that at a lower price buyers have the incentive to substitute what is now a less expensive product for other products that are now relatively more expensive. The product whose price has fallen is now "a better deal" relative to the other products.

SUBSTITUTE & COMPLEMENTS

- When a fall in the price of one good reduces the demand for another good, the two goods are called ***substitutes*.**

- When a fall in the price of one good increases the demand for another good, the two goods are called ***complements*.**

SUBSTITUTION EFFECT

- The substitution effect is the change in consumption patterns due to a change in the relative prices of goods. For example, if private universities increase their tuition by 10% and public universities increase their tuition by only 2%, then it is very likely that we would see a shift in attendance from private to public universities (at least amongst students accepted to both).
- The same can be said across brands, goods, and even categories of goods.
- Examples would be the relative price of Pepsi vs. Coke, Red Meat vs. Poultry and Clothes vs. Entertainment.

INCOME EFFECT

- The income effect is the change in consumption patterns due to the change in purchasing power. This can occur from income increases, price changes, or even currency fluctuations.
- The income and substitution effects combine to make consumers able and willing to buy more of a product at a low price than at higher prices.

For example, a decrease in the price of all cars allows you to buy either a cheaper car or a better car for the same price, thus increasing your utility.

- Goods typically fall into one of two categories: normal and inferior.

Normal goods increase in consumption as income increase while

- inferior goods decrease as income increases.

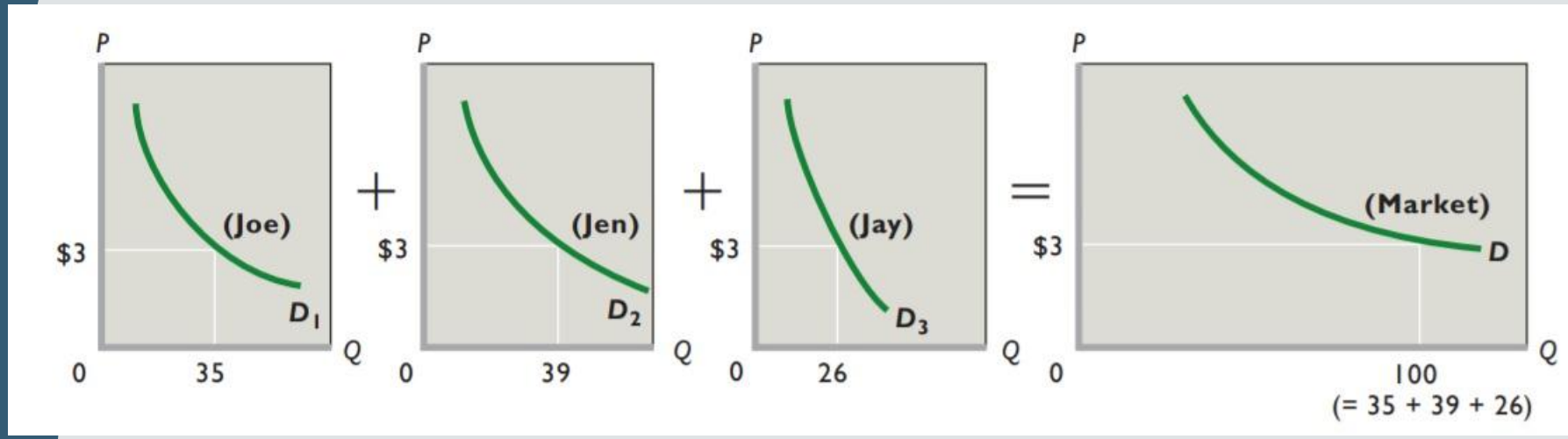
MARKET DEMAND

- Competition requires that more than one buyer be present in each market.
- By adding the quantities demanded by all consumers at each of the various possible prices, we can get from individual demand to market demand.
- If there are just three buyers in the market, as represented in the table and figure 3.2 , it is relatively easy to determine the total quantity demanded at each price.
- Figure 3.2 shows the graphical summing procedure: At each price we sum horizontally the quantities demanded by Joe, Jen, and Jay to obtain the total quantity demanded at that price; we then plot the price and the total quantity demanded as one point on the market demand curve.

MARKET DEMAND

Market Demand for Corn, Three Buyers

Price per Bushel	Quantity Demanded						Total Quantity Demanded per Week
	Joe		Jen		Jay		
$5	10	+	12	+	8	=	30
4	20	+	23	+	17	=	60
3	35	+	39	+	26	=	100
2	55	+	60	+	39	=	154
1	80	+	87	+	54	=	221



MARKET DEMAND

- Figure 3.2 Market demand for corn, three buyers.

  The market demand curve D is the horizontal summation of the individual demand curves (D1, D2, and D3) of all the consumers in the market.
- At the price of $3, for example, the three individual curves yield a total quantity demanded of 100 bushels (= 35 + 39 + 26).

DETERMINANTS/SHIFTERS OF DEMAND

- Factors other than Price that influence the demand is called determinants of demand.
- They are the "other things equal" in the relationship between price and quantity demanded.
- When any of these determinants changes, the demand curve will shift to the right or left.
- For this reason, determinants of demand are sometimes referred to as demand shifters.
- The basic determinants of demand are;

1. Consumers' tastes (preferences),
2. The number of buyers in the market,
3. Consumers' incomes,
4. The prices of related goods, and
5. Consumer expectations.

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 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.

CHANGES IN DEMAND

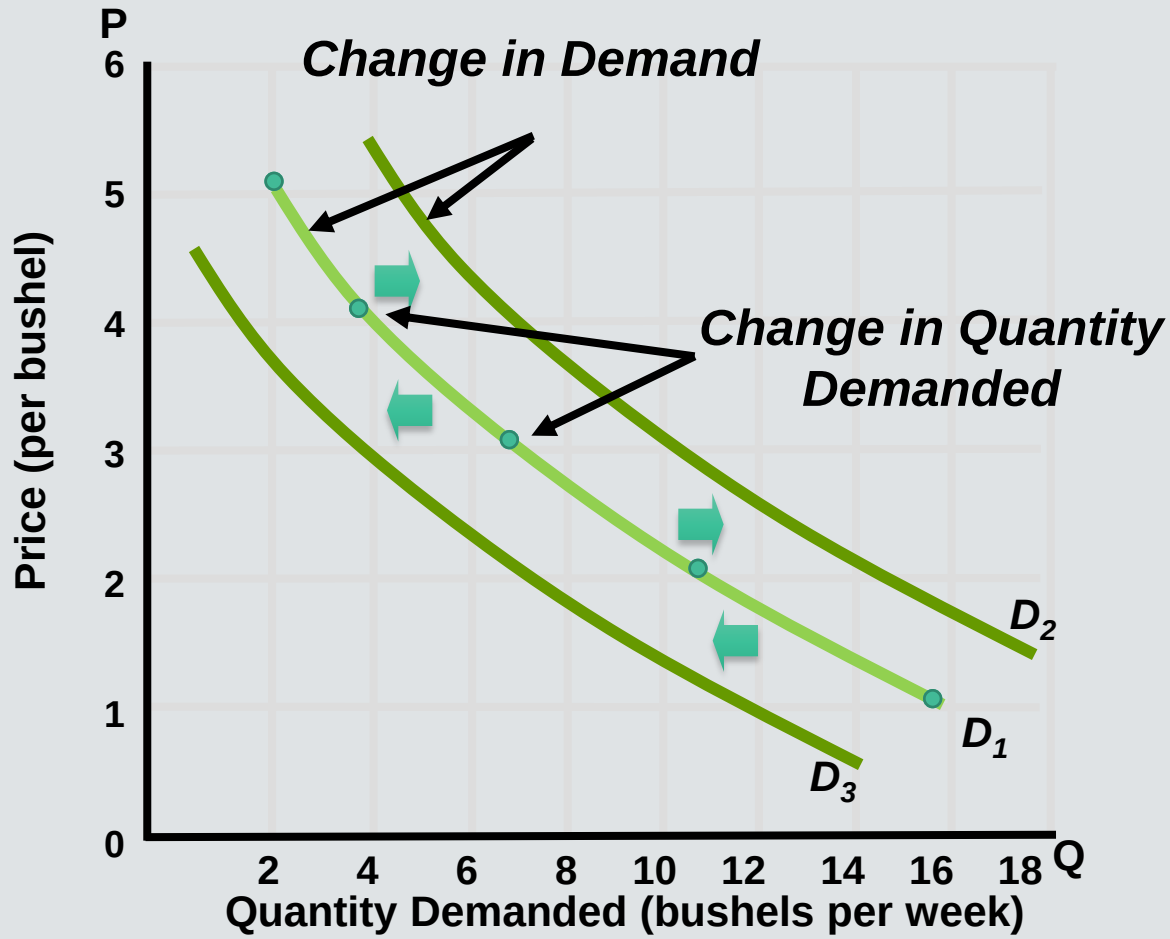


Figure 3.3

CHANGES IN QUANTITY DEMANDED

- A change in demand must not be confused with a change in quantity demanded.
- A change in demand is a shift of the demand curve to the right (an increase in demand) or to the left (a decrease in demand).
- It occurs because the consumer's state of mind about purchasing the product has been altered in response to a change in one or more of the determinants of demand.
- In contrast, a change in quantity demanded is a movement from one point to another point—from one price-quantity combination to another—on a fixed demand curve.
- The cause of such a change is an increase or decrease in the price of the product under consideration.

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.

1. Individual supply
2. Market supply

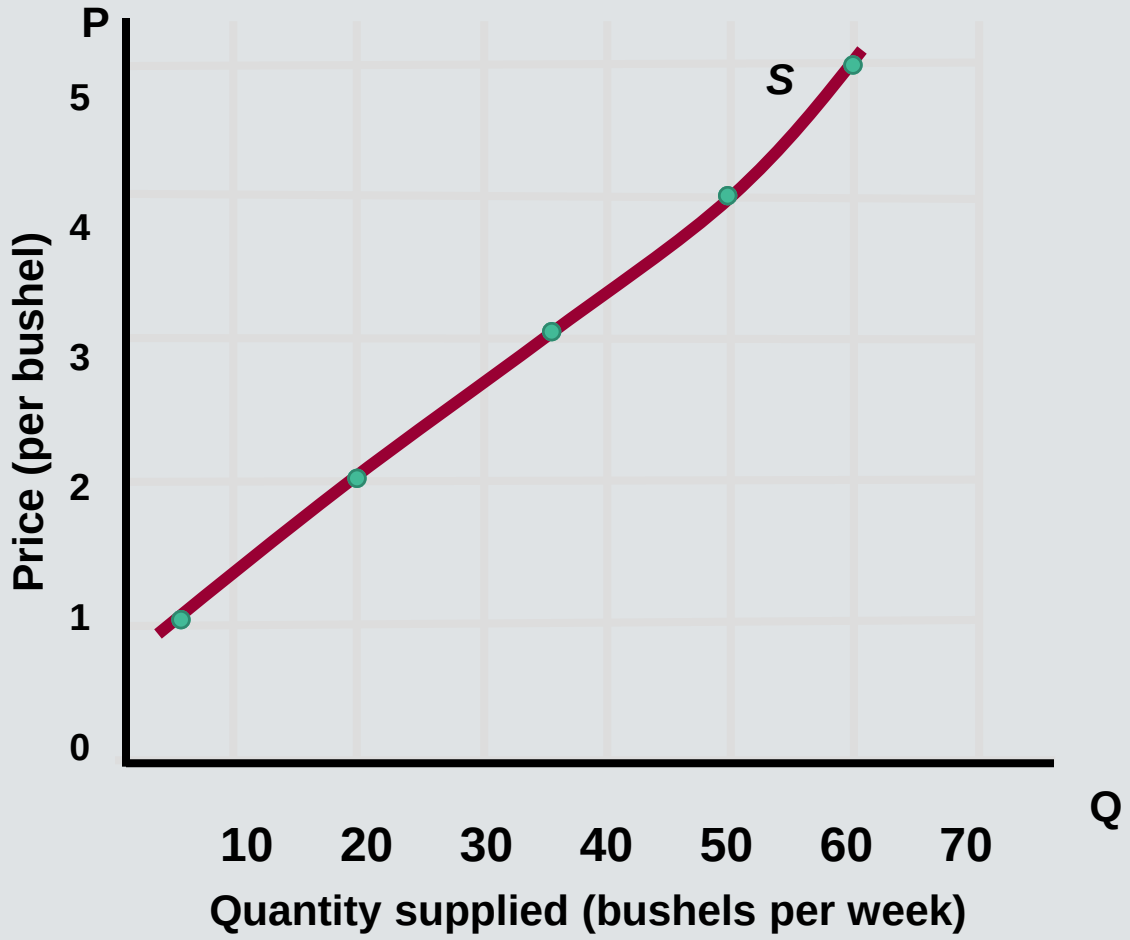
- Law of Supply

  The *law of supply* states that, other things equal, the quantity supplied of a good rises when the price of the good rises.

  The relationship between price and quantity supplied is positive, or direct.

THE SUPPLY CURVE

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



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 upward sloping 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.

LAW OF SUPPLY

- Other things equal, as the price rises the quantity supplied rises, and as the price falls the quantity supplied falls. This relationship is called the Law of Supply.
- **Reasons**

1. **Price acts as an incentive to producers**

- Price is an obstacle from the standpoint of the consumer, who is on the paying end. The higher the price, the less the consumer will buy.

- But the supplier is on the receiving end of the product's price. To a supplier, price represents *revenue*, which serves as an incentive to produce and sell a product. The higher the price, the greater this incentive and the greater the quantity supplied.

LAW OF SUPPLY

2. At some point, costs will rise

- Now consider a manufacturer. Beyond some quantity of production, manufacturers usually encounter increases in *marginal cost*—the added cost of producing one more unit of output.
- Certain productive resources—in particular, the firm's plant and machinery—cannot be expanded quickly, so the firm uses more of other resources such as labor to produce more output.
- But as labor becomes more abundant relative to the fixed plant and equipment, the additional workers have relatively less space and access to equipment.

MARKET SUPPLY

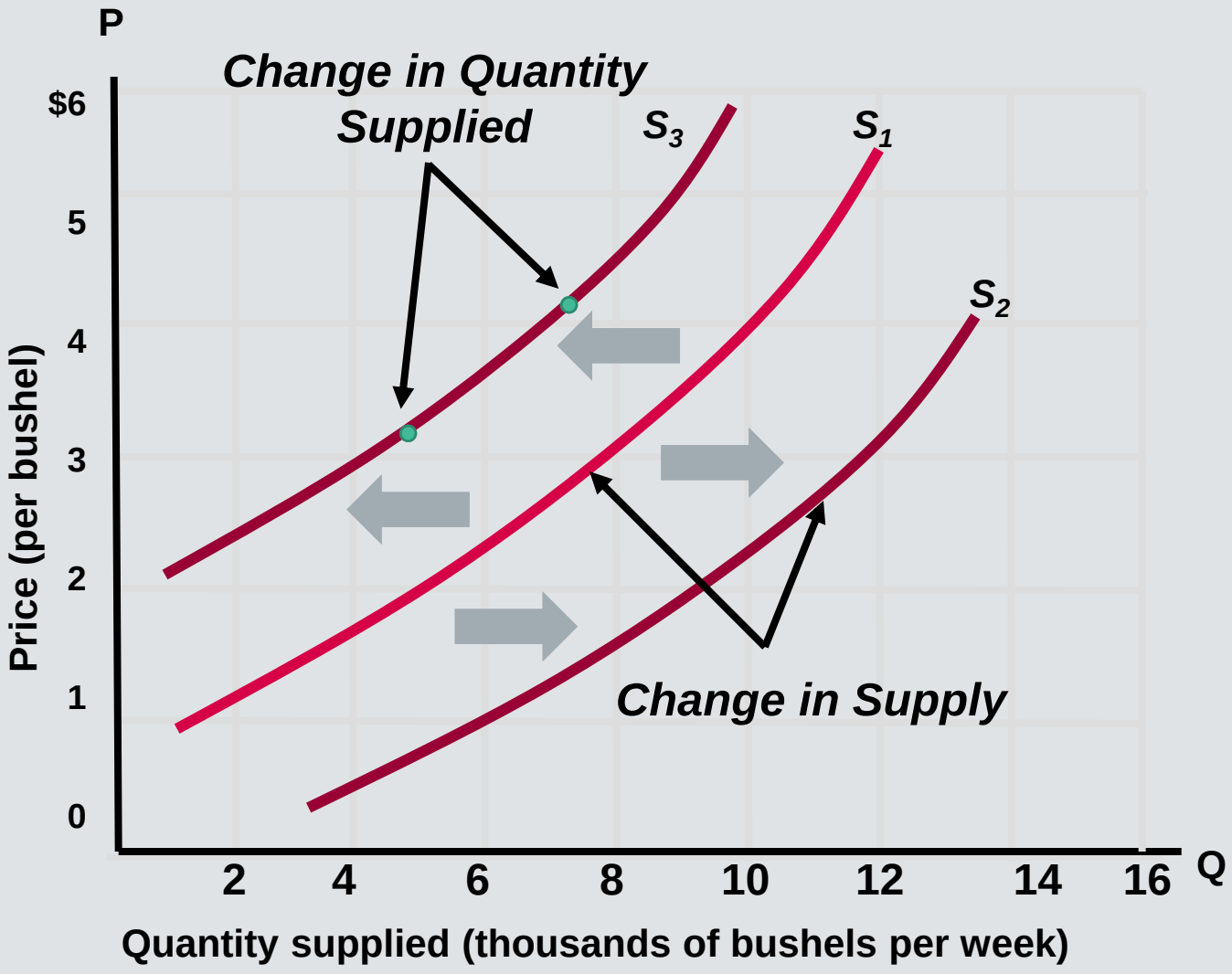
- Market supply is derived from individual supply in exactly the same way that market demand is derived from individual demand.
- We sum the quantities supplied by each producer at each price. That is, we obtain the market supply curve by “horizontally adding” the supply curves of the individual producers.

DETERMINANTS/SHIFTERS OF SUPPLY

- In constructing a supply curve, we assume that price is the most significant influence on the quantity supplied of any product. But other factors (the "other things equal") can and do affect supply.
- The supply curve is drawn on the assumption that these other things are fixed and do not change.
- If one of them does change, a *change in supply* will occur, meaning that the entire supply curve will shift.
- The basic determinants of supply are;

1. Resource prices,
2. Technology,
3. Taxes and subsidies,
4. Prices of other goods,
5. Producer expectations, and
6. The number of sellers in the market.

CHANGES IN SUPPLY



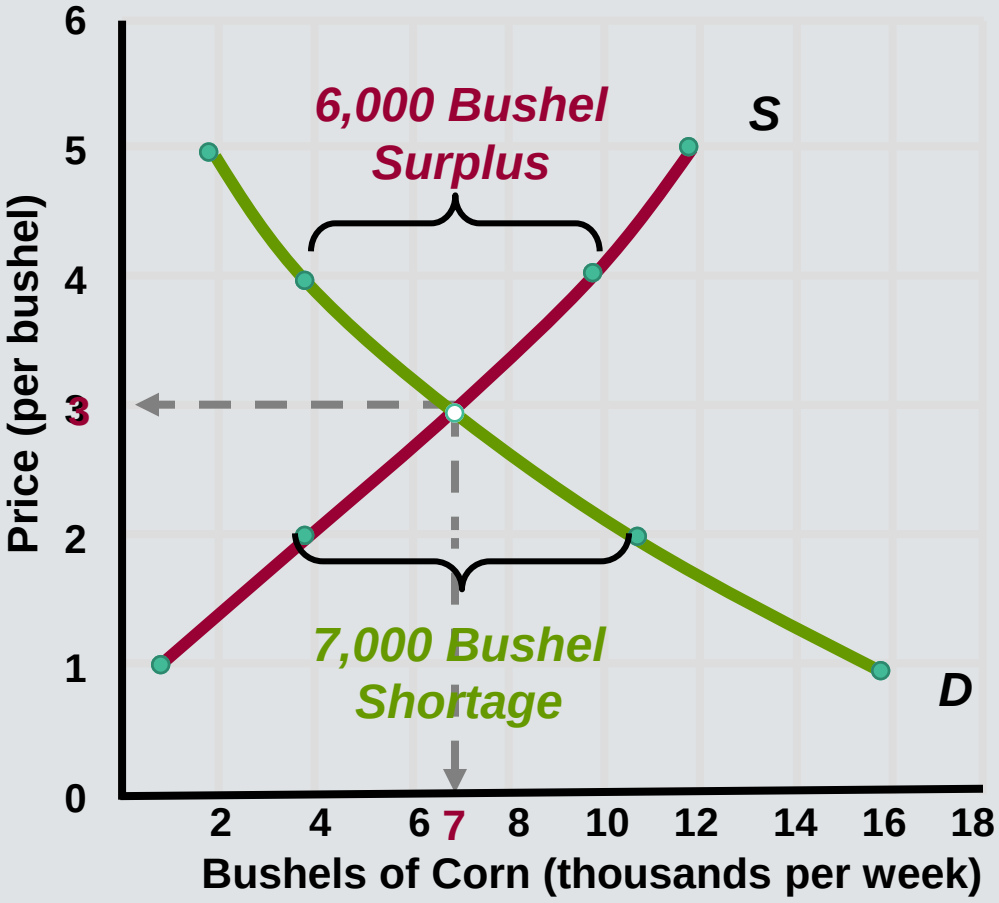
Determinants/shifters of Supply: Factors That Shift the Supply Curve	
Determinant	**Examples**
Change in resource prices	A decrease in the price of microchips increases the supply of computers; an increase in the price of crude oil reduces the supply of gasoline.
Change in technology	The development 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

- Equilibrium occurs where the demand curve and supply curve intersect.
- *Equilibrium* refers to a situation in which the price has reached the level where quantity supplied equals quantity demanded.
- The equilibrium price (or market-clearing price) is the price where the intentions of buyers and sellers match. It is the price where quantity demanded equals quantity supplied.
- *Equilibrium Price*
  - The price that balances quantity supplied and quantity demanded.
  - On a graph, it is the price at which the supply and demand curves intersect.
- *Equilibrium Quantity*
  - The quantity supplied and the quantity demanded at the equilibrium price.
  - On a graph it is the quantity at which the supply and demand curves intersect.

MARKET EQUILIBRIUM

P	Q_d
$5	2,000
4	4,000
3	7,000
2	11,000
1	16,000



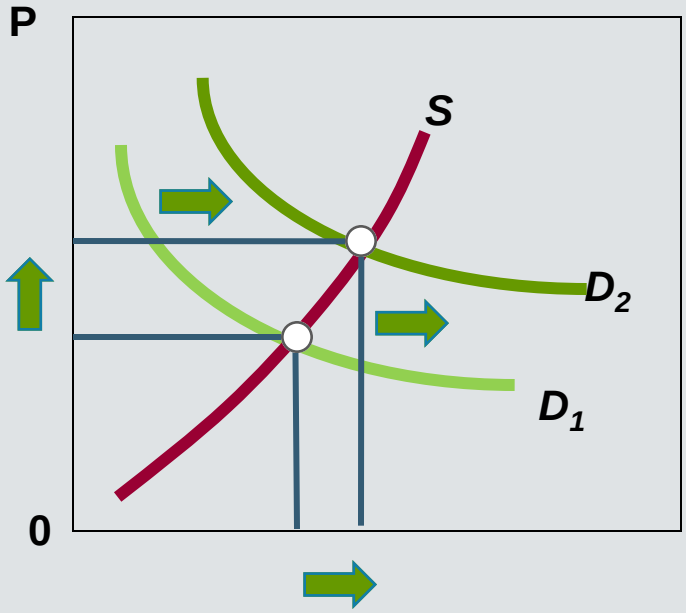
P	Q_s
$5	12,000
4	10,000
3	7,000
2	4,000
1	1,000

CHANGES IN SUPPLY, DEMAND, AND EQUILIBRIUM

- We know that demand might change because of fluctuations in consumer tastes or incomes, changes in consumer expectations, or variations in the prices of related goods.
- Supply might change in response to changes in resource prices, technology, or taxes.
- What effects will such changes in supply and demand have on equilibrium price and quantity?

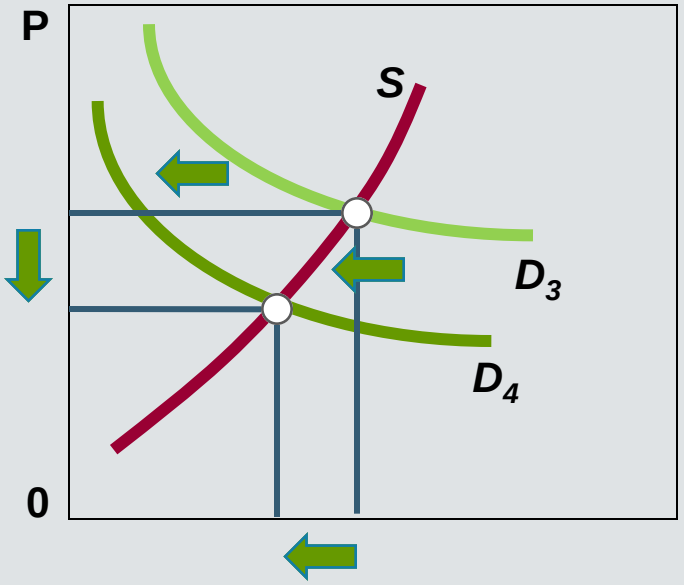
Changes in Demand and Equilibrium

D increase:
P↑, Q↑



Increase in demand

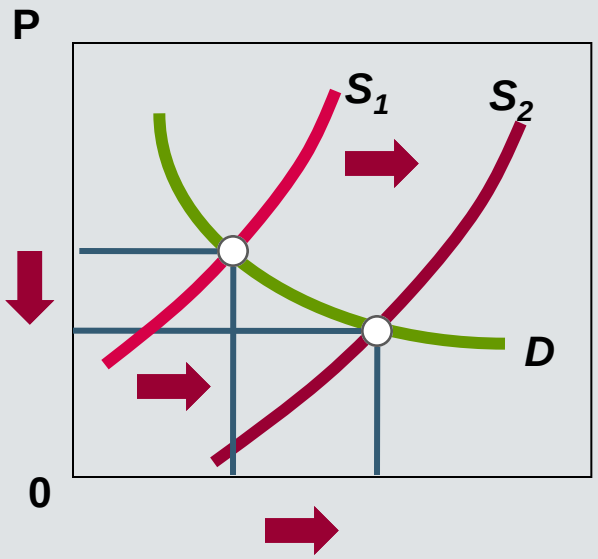
D decrease:
P↓, Q↓



Decrease in demand

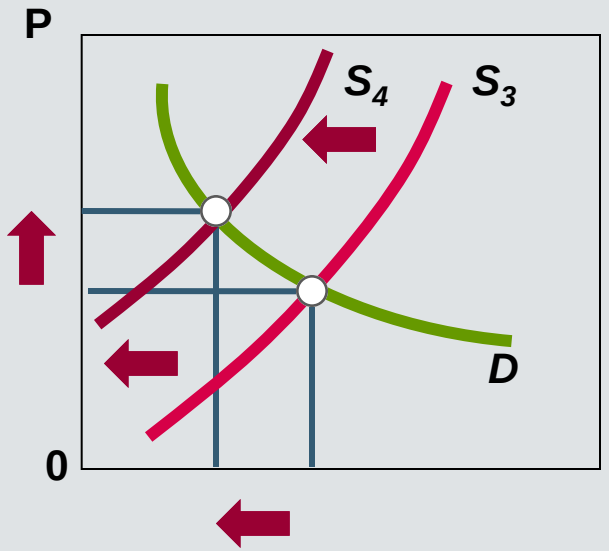
Changes in Supply and Equilibrium

S increase:
P↓, Q↑



Increase in supply

S decrease:
P↑, Q↓

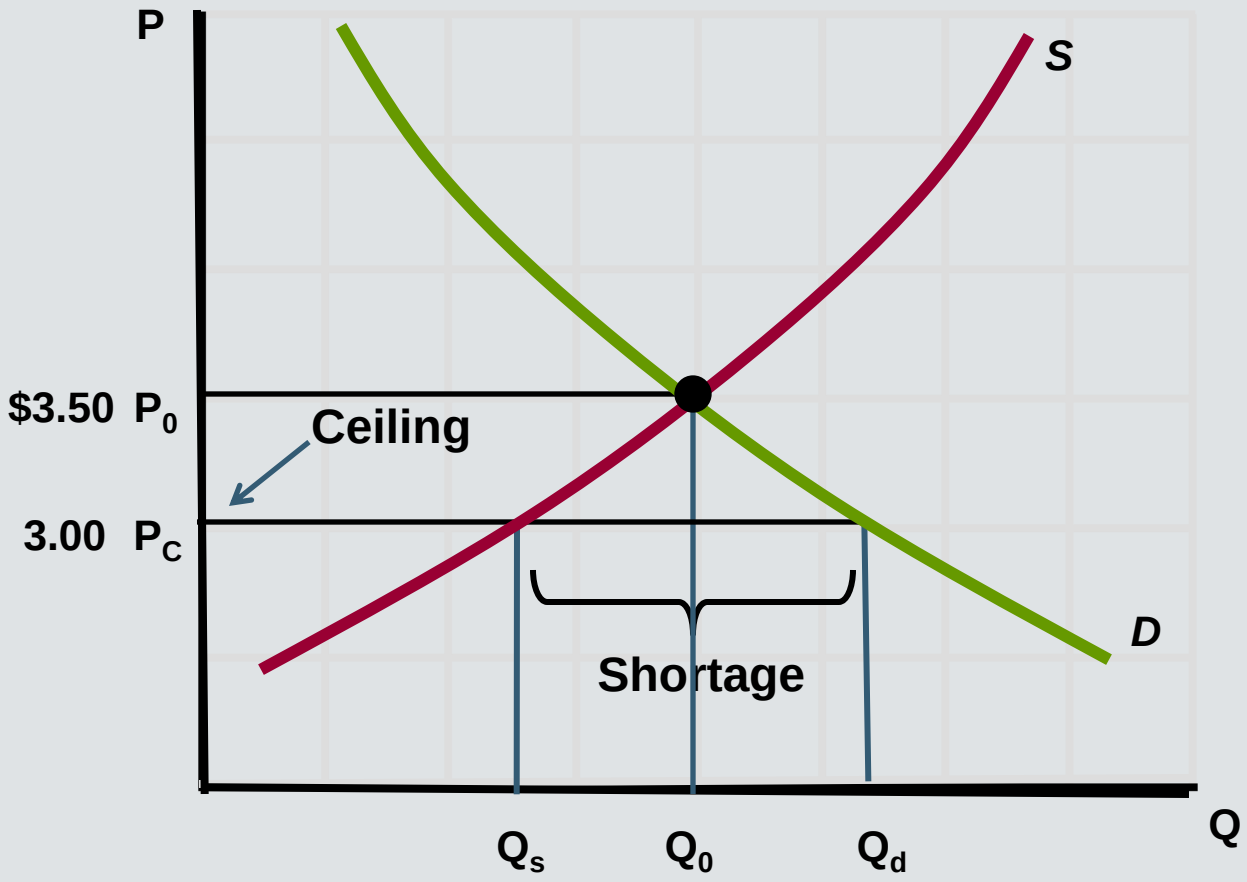


Decrease in supply

GOVERNMENT-SET PRICES

- **PRICE CEILINGS** - A price ceiling sets the maximum legal price a seller may charge for a product or service.
- A price at or *below* the ceiling is *legal*; a price above it is not.
- Examples are rent controls and usury laws, which specify maximum "prices" in the forms of rent and interest that can be charged to borrowers.

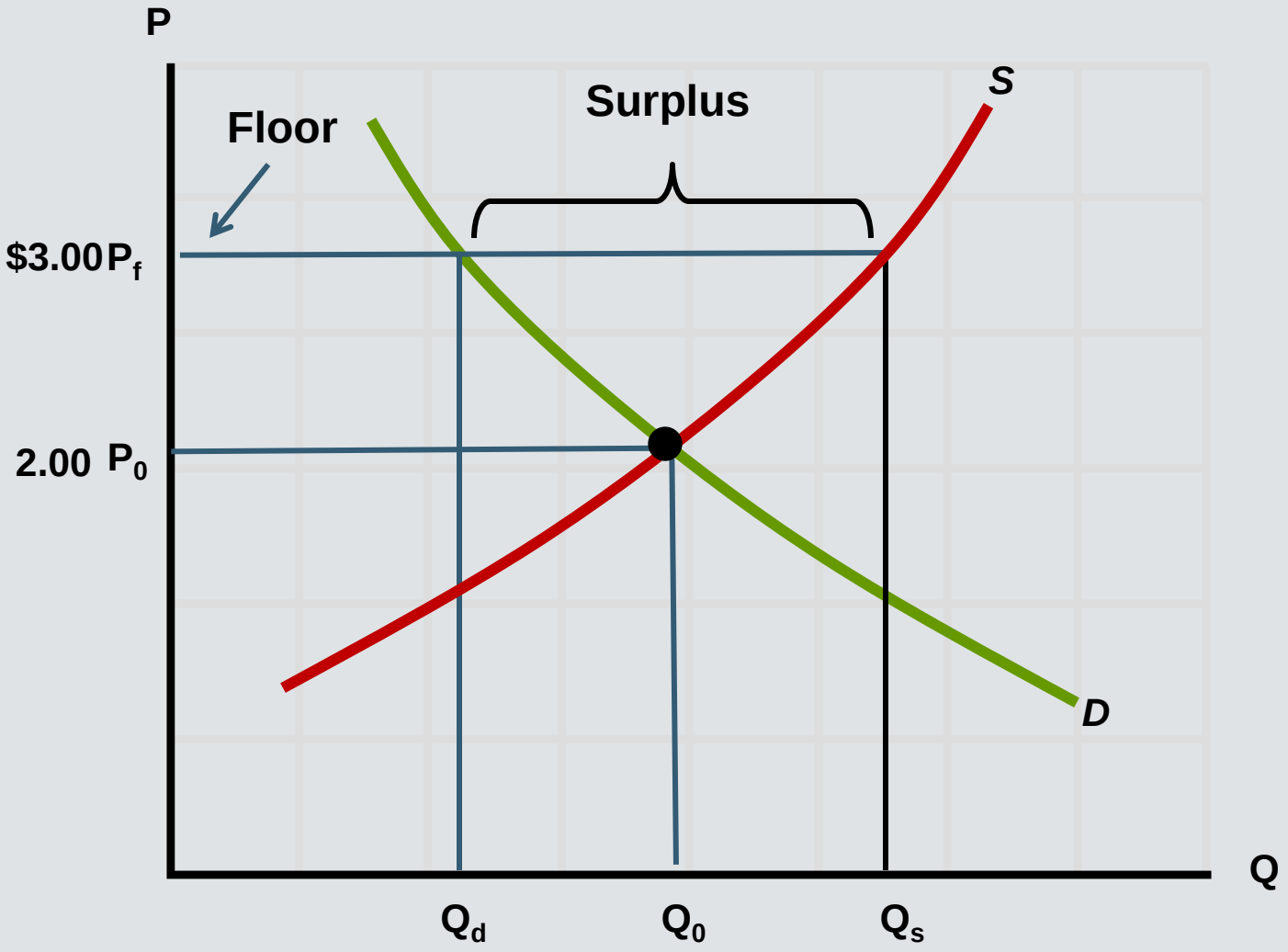
GOVERNMENT-SET PRICES



GOVERNMENT-SET PRICES

- **PRICE FLOORS** - A price floor is a minimum price fixed by the government.
- A price at or above the price floor is legal; a price below it is not.
- Supported prices for agricultural products and current minimum wages are two examples of price (or wage) floors. .

GOVERNMENT-SET PRICES



REFERENCES

- McConnell, Brue and Flynn (2012), Microeconomics Principles, Problems, and Policies, 19th edition, Mc-Graw Hill.

HOMEWORK

1. Does a change in consumers' tastes lead to a movement along the demand curve or a shift in the demand curve? Does a change in price lead to a movement along the demand curve or a shift in the demand curve? Explain your answers.

2. Does a change in producers' technology lead to a movement along the supply curve or a shift in the supply curve? Does a change in price lead to a movement along the supply curve or a shift in the supply curve?

3. The market for pizza has the following demand and supply schedules:

Price $	Demand	Supply
4	135	26
5	104	53
6	81	81
7	68	98
8	53	110
9	39	121

a. Graph the demand and supply curves. What is the equilibrium price and quantity in this market?

b. If the actual price in this market were *above* the equilibrium price, what would drive the market toward the equilibrium?

c. If the actual price in this market were *below* the equilibrium price, what would drive the market toward the equilibrium?