



Demand and Supply Analysis

Demand

- ❖ **Demand indicates how much of a good consumers are willing and able to buy at each possible price during a given time period, other things constant**
 - ❖ **Planned rate of purchase per period at each possible price**
 - ❖ **Willing and able to buy is critical to demand**
 - ❖ **Different than wants and needs**

Law of Demand

- ❖ Says that quantity demanded varies inversely with price, other things constant
- ❖ The higher the price, the smaller the quantity demanded
- ❖ The lower the price, the larger the quantity demanded

Explanations for Law of Demand

- ❖ Degree of scarcity of one good relative to another helps determine each good's relative price
- ❖ Definition of demand includes the “other things constant” assumption
 - ❖ Among the “other things” are the prices of other goods

Substitution Effect

- ❖ When the price of a good *falls*, its relative price makes consumers more willing to purchase this good
- ❖ When the price of a good *increases*, its relative price makes consumers less willing to purchase this good
- ❖ Changes in the relative prices – the price of one good compared to the prices of other goods – causes the substitution effect

Income Effect

- ❖ **Money income**

- ❖ Number of dollars received per period of time

- ❖ **Real income**

- ❖ Income measured in terms of the goods and services it can buy

- ❖ **When the price of a good decreases, real income increases**

- ❖ **When the price of a good increases, real income declines**

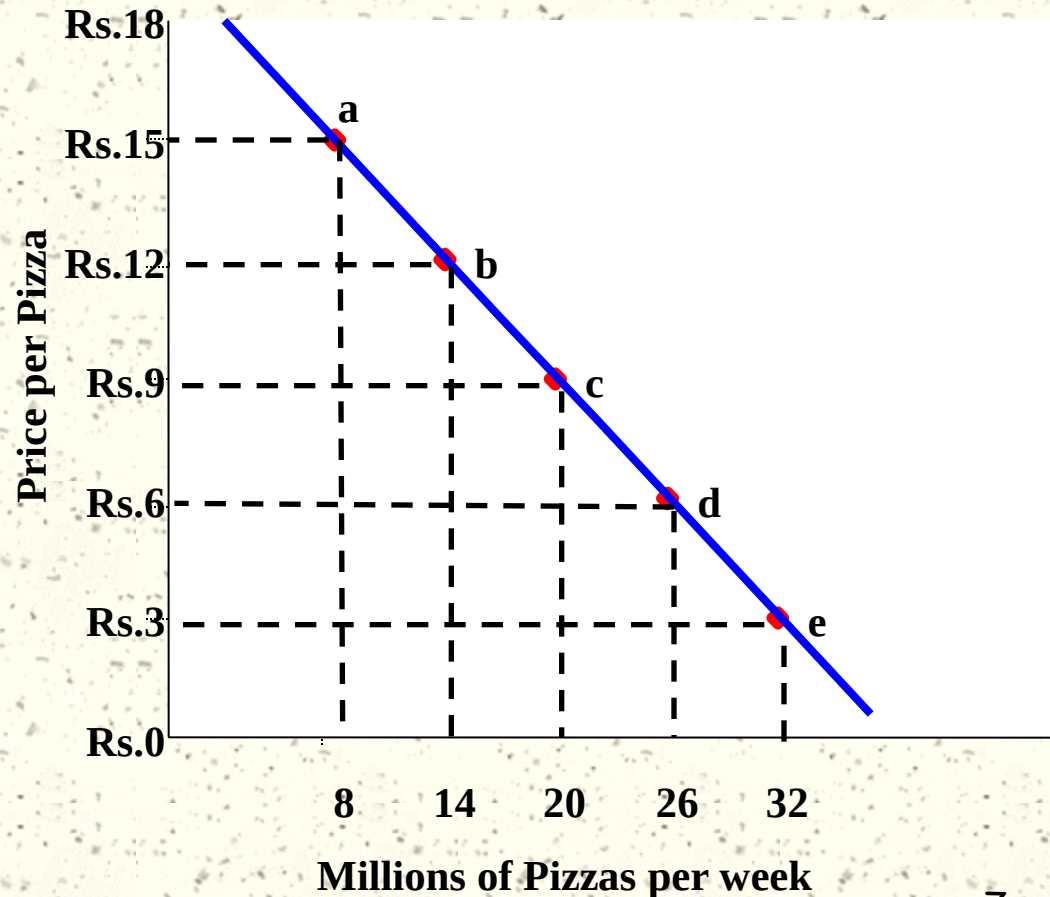
Exhibit 1: Demand Schedule & Demand Curve for Pizza

(a) Demand Schedule

Price per Pizza	Quantity Demanded per Week (millions)
a) Rs.15	8
b) Rs.12	14
c) Rs.9	20
d) Rs. 6	26
e) Rs.3	32

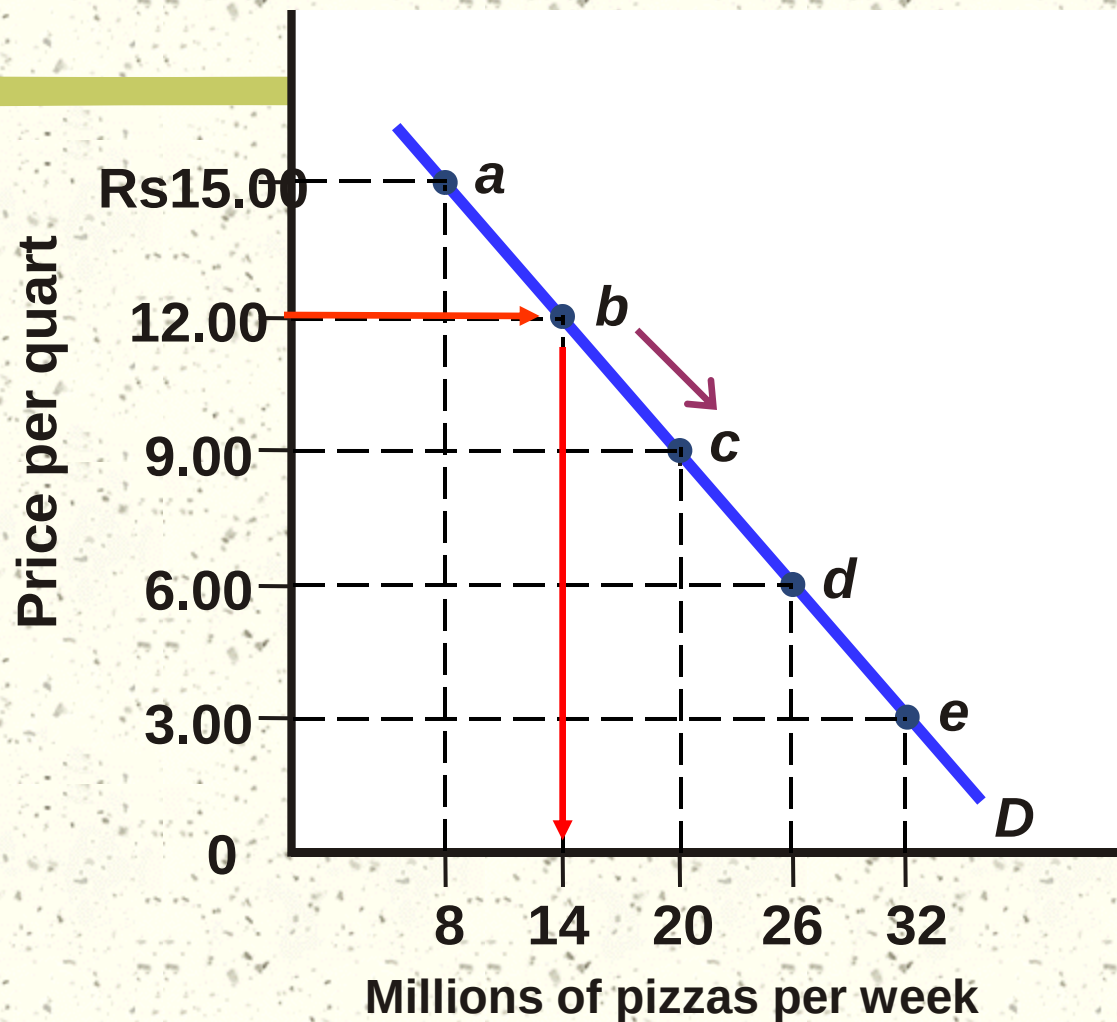
The demand schedule lists possible prices, along with quantity demanded at each price. The demand curve at the right shows each price / quantity combination listed in the demand schedule as a point on the demand curve.

(b) Demand Curve



Demand and Quantity Demanded

- ❖ Demand for pizza is not a specific quantity, but rather the entire relation between price and quantity demanded, and is represented by the entire demand curve
- ❖ An individual point on the demand curve shows the *quantity demanded at a particular price*.
- ❖ The movement from say, b to c, is a *change in quantity demanded* and is represented by a movement along the demand curve and can only be caused by a *change in price*



Individual Demand Market Demand

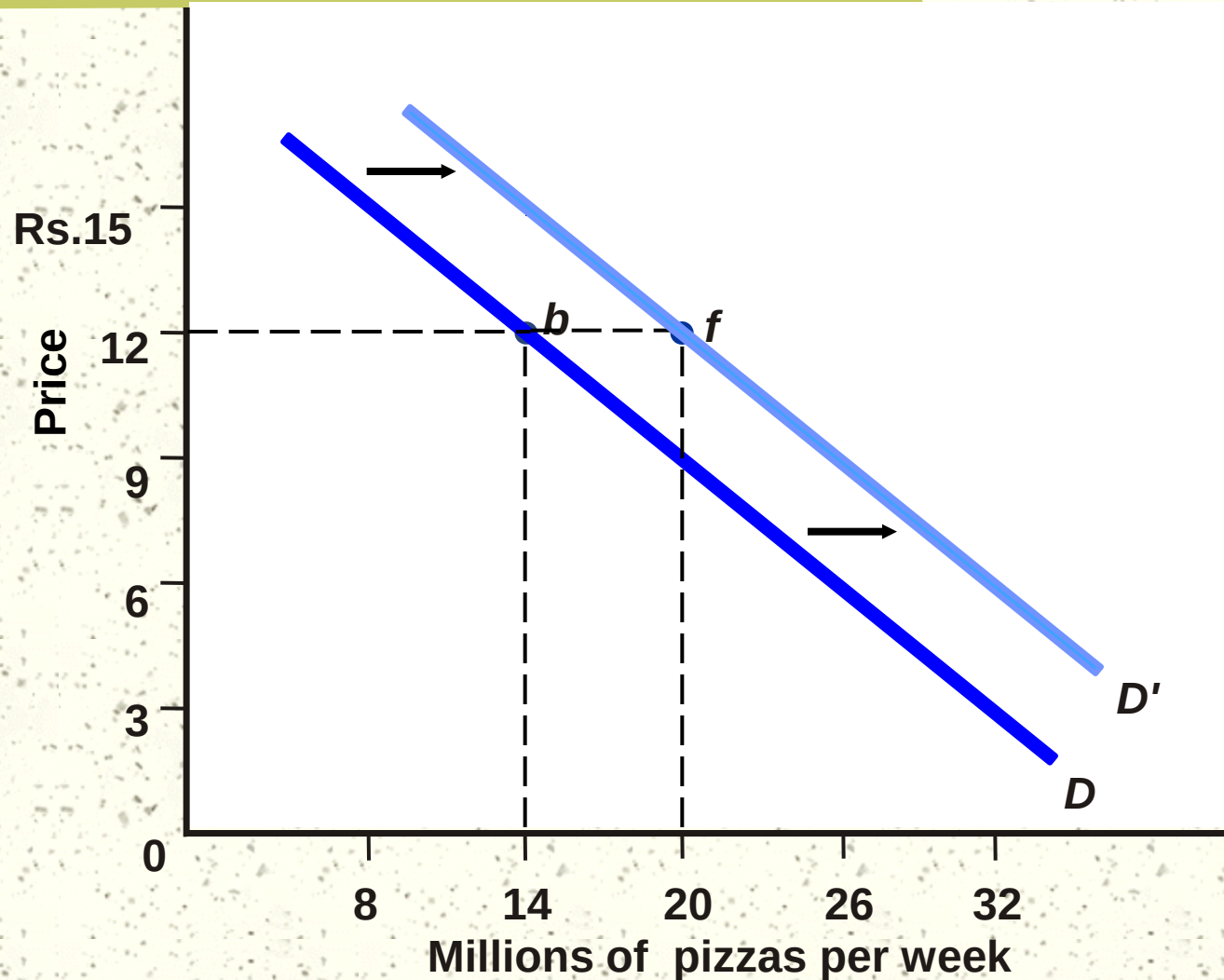
- ❖ **Individual demand refers to the demand of an individual consumer**
- ❖ **Market demand is the sum of the individual demands of all consumers in the market**
- ❖ **Important: Unless otherwise noted, we will be referring to market demand**

Shifts of the Demand Curve

- ❖ **Demand curve focuses on the relationship between the price of a good and the quantity demanded when other factors that could affect demand remain unchanged**
 - ❖ **Money income of consumers**
 - ❖ **Prices of related goods**
 - ❖ **Consumer expectations**
 - ❖ **Number and composition of consumers in the market**
 - ❖ **Consumer tastes**

Exhibit 2: Increase in the Market Demand

- ❖ Suppose income increases: some consumers will now be able to buy more pizza at each price → market demand increases → demand shifts to the right from D to D'
- ❖ A decrease in demand will mean demand shifts to the left from D' to D .



Changes in Consumer Income

- ❖ Goods can be classified into two broad categories:
 - ❖ **Normal goods:** the demand increases when income increases and decreases when income decreases
 - ❖ **Inferior goods:** the demand decreases when income increases and increases when income decreases

Changes in the Prices of Related Goods

- ❖ Prices of other goods are another of the factors assumed constant along a given demand curve
- ❖ Two general relationships
 - ❖ Two goods are **substitutes** if an increase in the price of one shifts the demand for the other rightward and, conversely, if a decrease in the price of one shifts the demand for the other good leftward
 - ❖ Two goods are **complements** if an increase in the price of one shifts the demand for the other leftward and a decrease in the price of one shifts the demand for the other rightward

Changes in Consumer Expectations

- ❖ **If individuals expect income to increase in the future, current demand increases and vice versa**
- ❖ **If individuals expect prices to increase in the future, current demand increases and decreases if future prices are expected to decrease**

Supply

- ❖ ***Supply*** indicates how much of a good producers are willing and able to offer for sale per period at each possible price, other things constant
- ❖ ***Law of supply*** states that the quantity supplied is usually directly related to its price, other things constant
 - ❖ The lower the price, the smaller the quantity supplied
 - ❖ The higher the price, the greater the quantity supplied

Law of Supply

- ❖ **As price increases, other things constant, a producer becomes more willing to supply the good**
 - ❖ **higher prices attract resources from lower-valued uses**
 - ❖ **Higher prices also increase producer's ability to supply the good**
 - ❖ **Since the marginal cost of production increases as output increases, producers must receive a higher price for the output in order to be able to increase the quantity supplied**

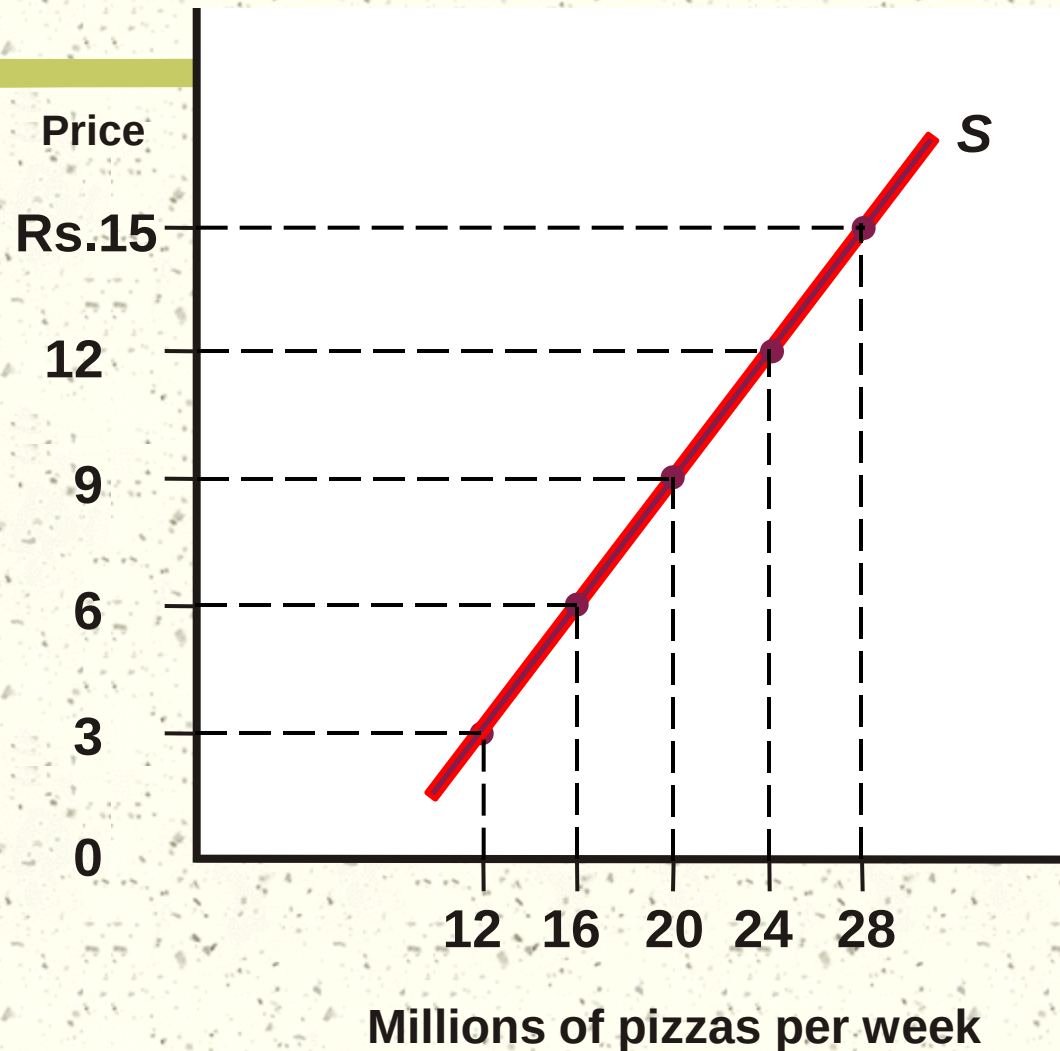
Exhibit 3: Supply Schedule and Curve for Pizzas

Supply Schedule

Price per Pizza	Quantity Supplied per Week (millions)
Rs.15	28
12	24
9	20
6	16
3	12

❖ The supply curve and the supply schedule both show quantities of pizza supplied per week at various prices by all the pizza makers in the market

❖ Price and quantity supplied are directly, or positively, related: producers offer more for sale at higher prices than at lower ones: Supply curve slopes upward



Supply and Quantity Supplied

- ❖ **Supply** refers to the relation between the price and quantity supplied as reflected by the supply schedule or the supply curve
- ❖ **Quantity supplied** refers to a particular amount offered for sale at a particular price, a particular point on a given supply curve

Individual Supply and Market Supply

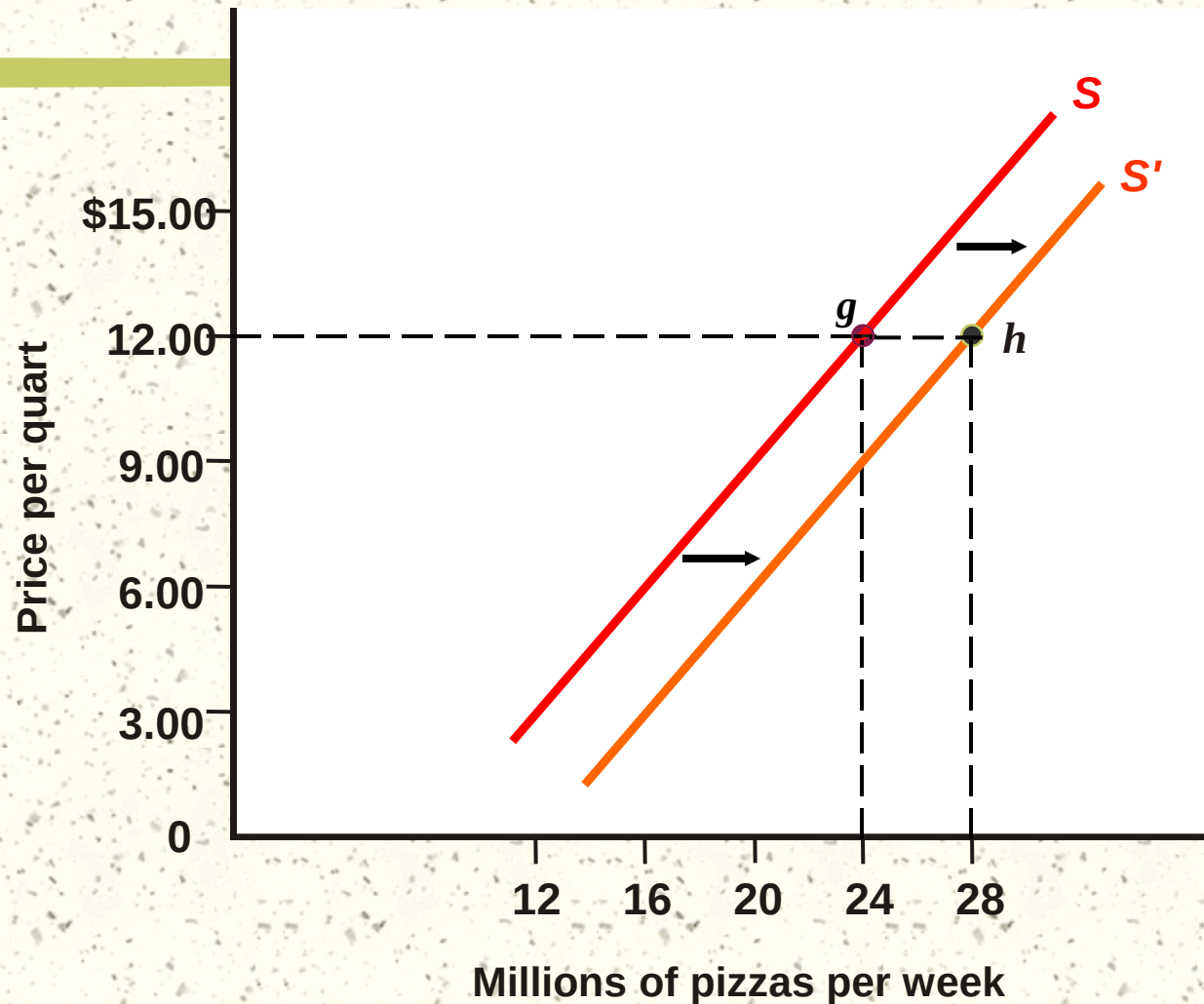
- ❖ *Individual supply* refers to the supply of an individual producer
- ❖ *Market supply* is the sum of individual supplies of all producers in the market
- ❖ Unless otherwise noted, we will be referring to market supply

Shifts of the Supply Curve

- ❖ **Determinants of supply other than the price of the good**
 - ❖ **State of technology**
 - ❖ **Prices of relevant resources**
 - ❖ **Prices of alternative goods**
 - ❖ **Producer expectations**
 - ❖ **Number of producers in the market**

Exhibit 4: Change in Technology Can Mean an Increase in Supply

- ❖ A more efficient technology, a high-tech oven, is invented
- ❖ Production costs fall → suppliers will be more willing and more able to supply the good → rightward shift of the supply curve from S to S' .
- ❖ Result: more is supplied at each possible price



Changes in the Prices of Relevant Resources

- ❖ **Resources that are employed in the production of the good in question**
 - ❖ **For example, if the price of mozzarella cheese falls, the cost of pizza production declines**
 - ❖ **Conversely, if the price of some relevant resource increases, supply decreases**

Prices of Alternative Goods

- ❖ **Alternative goods are those that use some of the same resources employed to produce the good under consideration**
 - ❖ **For example, as the price of bread increases, so does the opportunity cost of producing pizza and the supply of pizza declines**
 - ❖ **Conversely, a fall in the price of an alternative good makes pizza production more profitable and supply increases**

Changes in Producer Expectations

- ❖ When a good can be easily stored, expecting future prices to be higher may reduce current supply
- ❖ More generally, any change expected to affect future profitability could shift the supply curve

Number of Producers

- ❖ **Since market supply sums the amounts supplied at each price by all producers, the market supply depends on the number of producers in the market**
 - ❖ **If that number increases, supply increases**
 - ❖ **If the number of producers decreases, supply decreases**

Demand and Supply Create a Market

- ❖ **Demanders and suppliers have different views of price**
 - ❖ **Demanders, consumers, pay the price**
 - ❖ **Suppliers, sellers, receive the price**
- ❖ **As price rises, consumers reduce their quantity demanded along the demand curve, and producers increase their quantity supplied along the supply curve**

Markets

- ❖ **Sort out the conflicting price perspectives of individual participants – buyers and sellers**
- ❖ **Represent all arrangements used to buy and sell a particular good or service**
- ❖ **Reduce transaction costs of exchange – costs of time and information required for exchange**
- ❖ **Adam Smith's invisible hand**

Exhibit 5: The Market for Pizzas

(b) Market curves

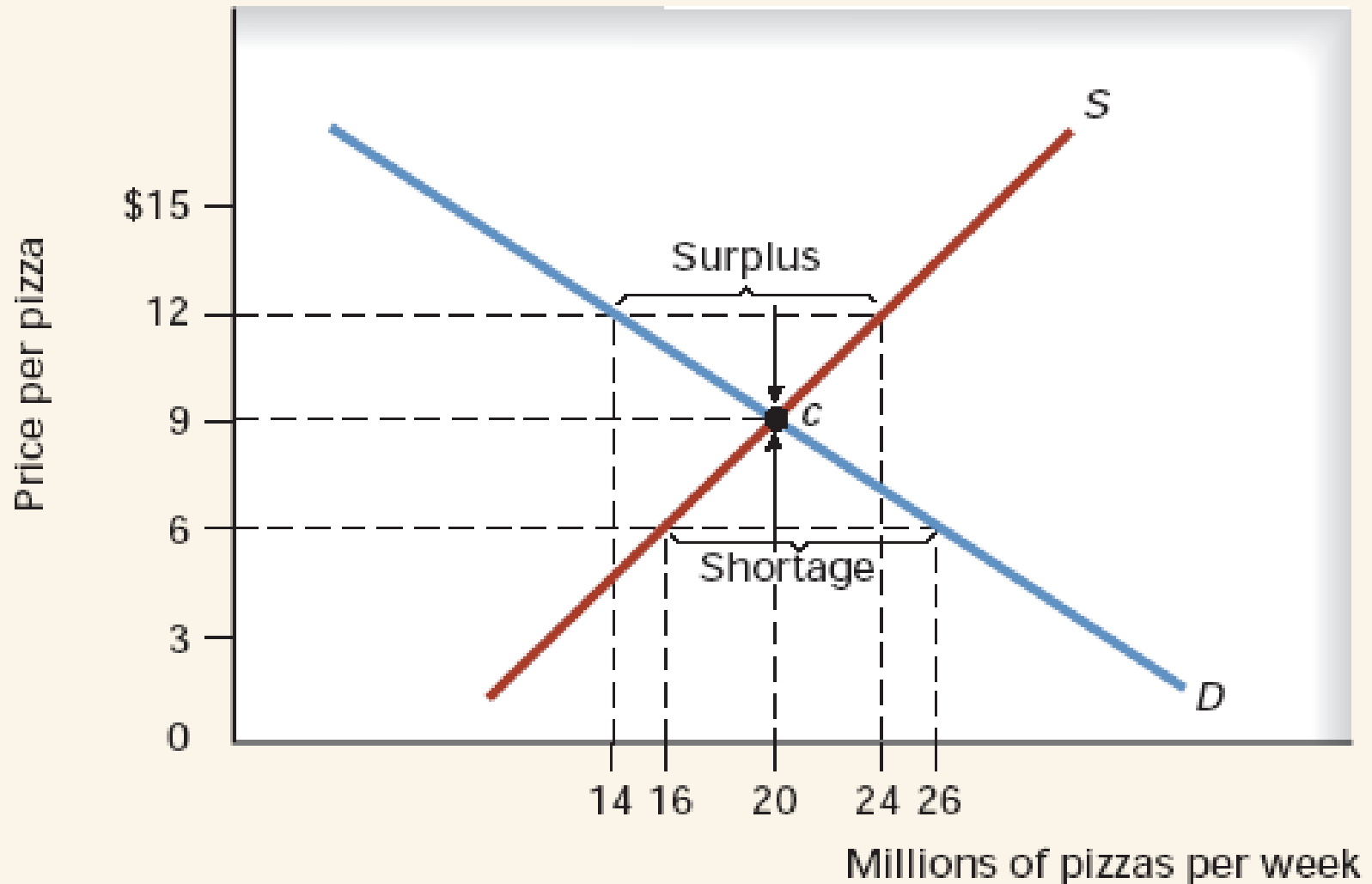


Exhibit 5: The Market for Pizzas

- ❖ At initial price \$12, producers supply 24 million pizzas per week (supply curve) while consumers demand only 14 million: excess quantity supplied (or surplus) of 10 million pizzas per week
- ❖ To eliminate this surplus, suppliers put downward pressure on prices
- ❖ As prices fall, quantity supplied declines and quantity demanded increases: market moves towards equilibrium at point *c*

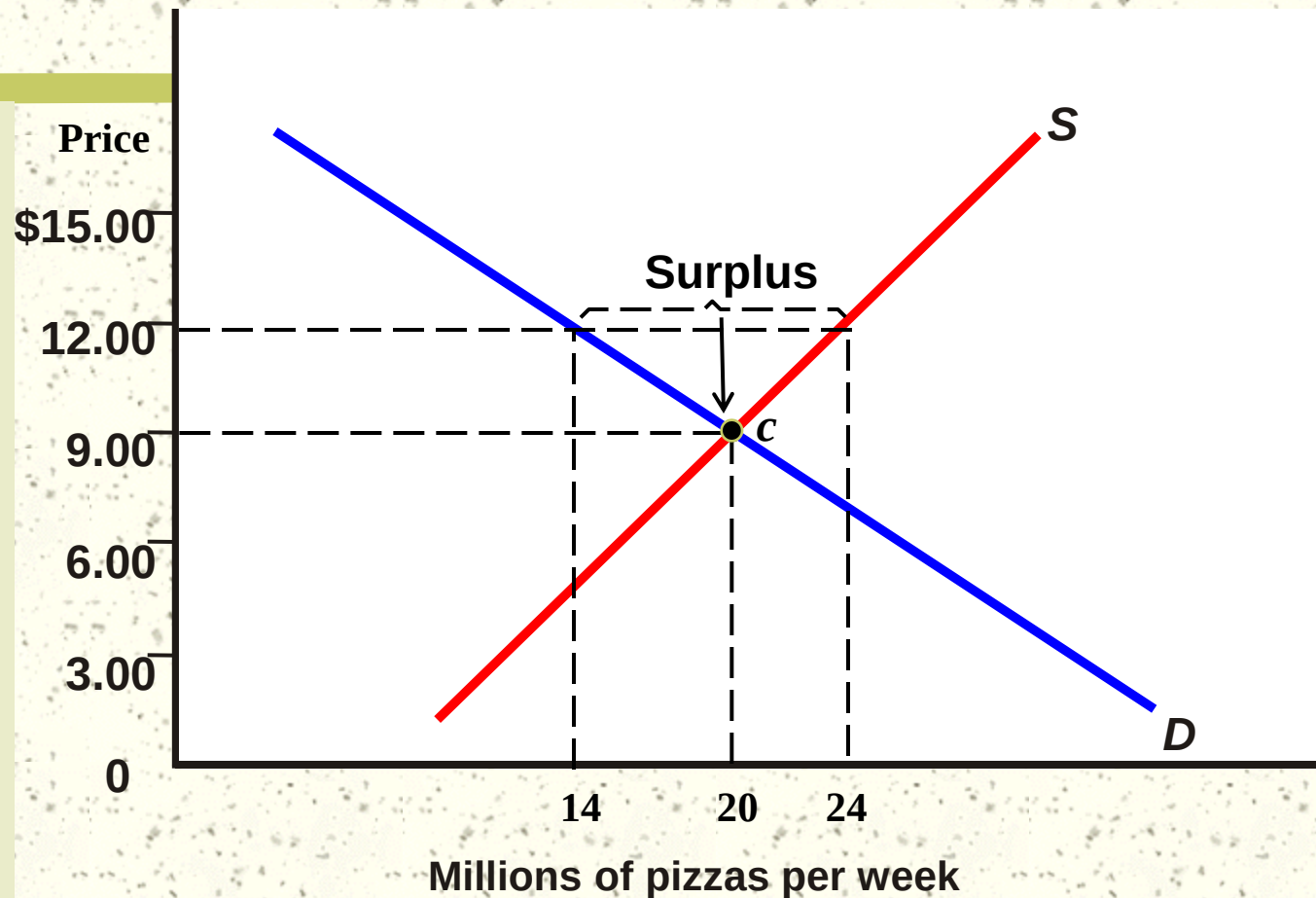
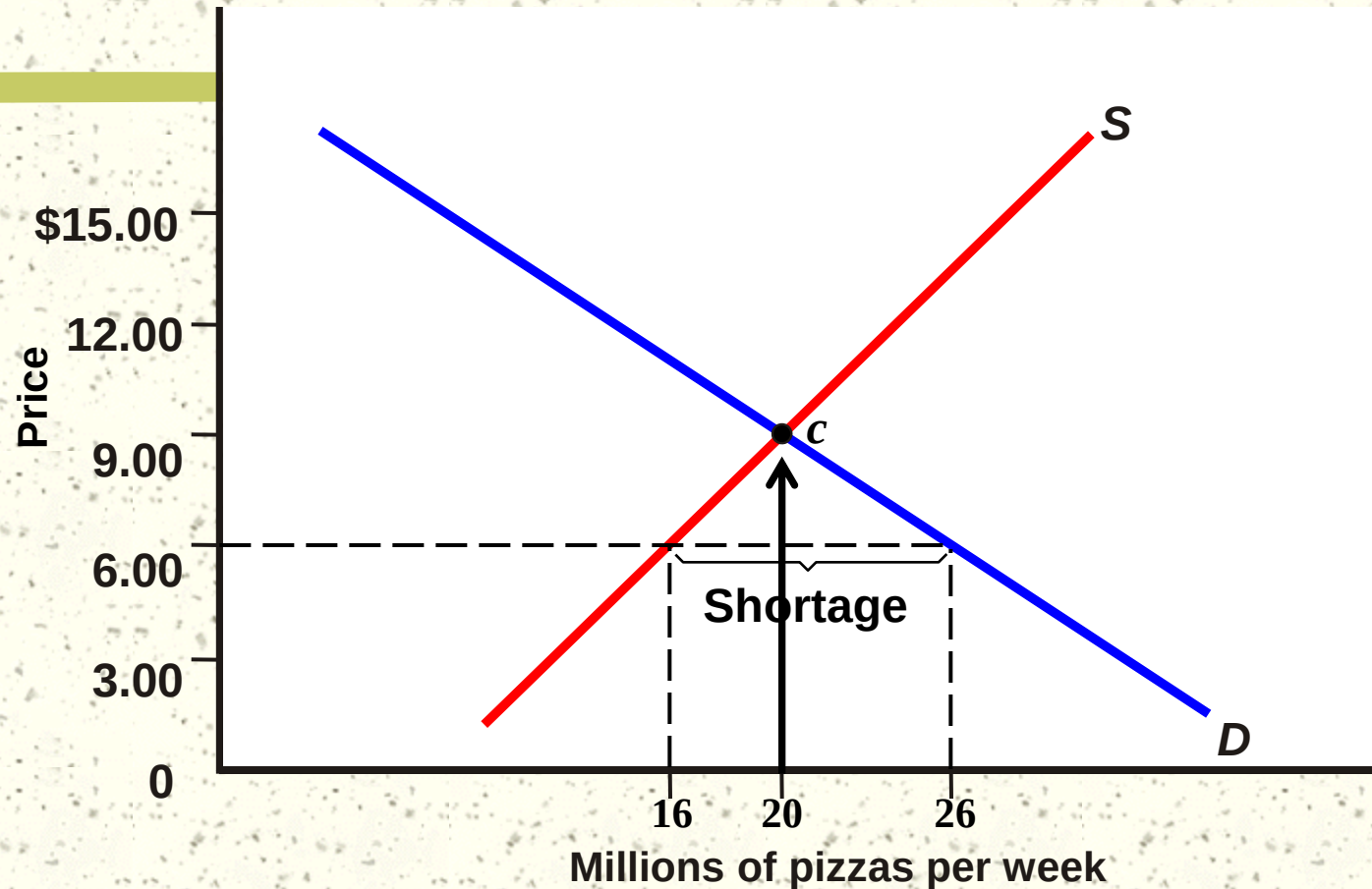


Exhibit 5: The Market for Pizzas

- ❖ Initial price is \$6 per pizza, 26 million are demanded, but producers supply only 16 million: an excess quantity demanded (or shortage) of 10 million pizzas per week
- ❖ As prices increase, producers increase quantity supplied and consumers reduce their quantity demanded, moving towards equilibrium at point *c*



Equilibrium

- ❖ **When the quantity consumers are willing and able to pay equals the quantity producers are willing and able to sell, the market reaches equilibrium**
 - ❖ **Independent plans of both buyers and sellers exactly match**
 - ❖ **Market forces exert no pressure to change price or quantity**

Equilibrium

- ❖ Market is personal: each consumer and each producer makes a personal decision about how much to buy or sell at a given price
- ❖ Market is impersonal: it requires no conscious coordination among consumers or producers
- ❖ Market forces synchronize the personal and independent decisions of many individual buyers and sellers

Changes in Equilibrium

- ❖ **Once a market reaches equilibrium, that price and quantity will prevail until one of the determinants of demand or supply changes**
- ❖ **A change in any one of these determinants will usually change equilibrium price and quantity in a predictable way**

Exhibit 6: Effects of an Increase in Demand

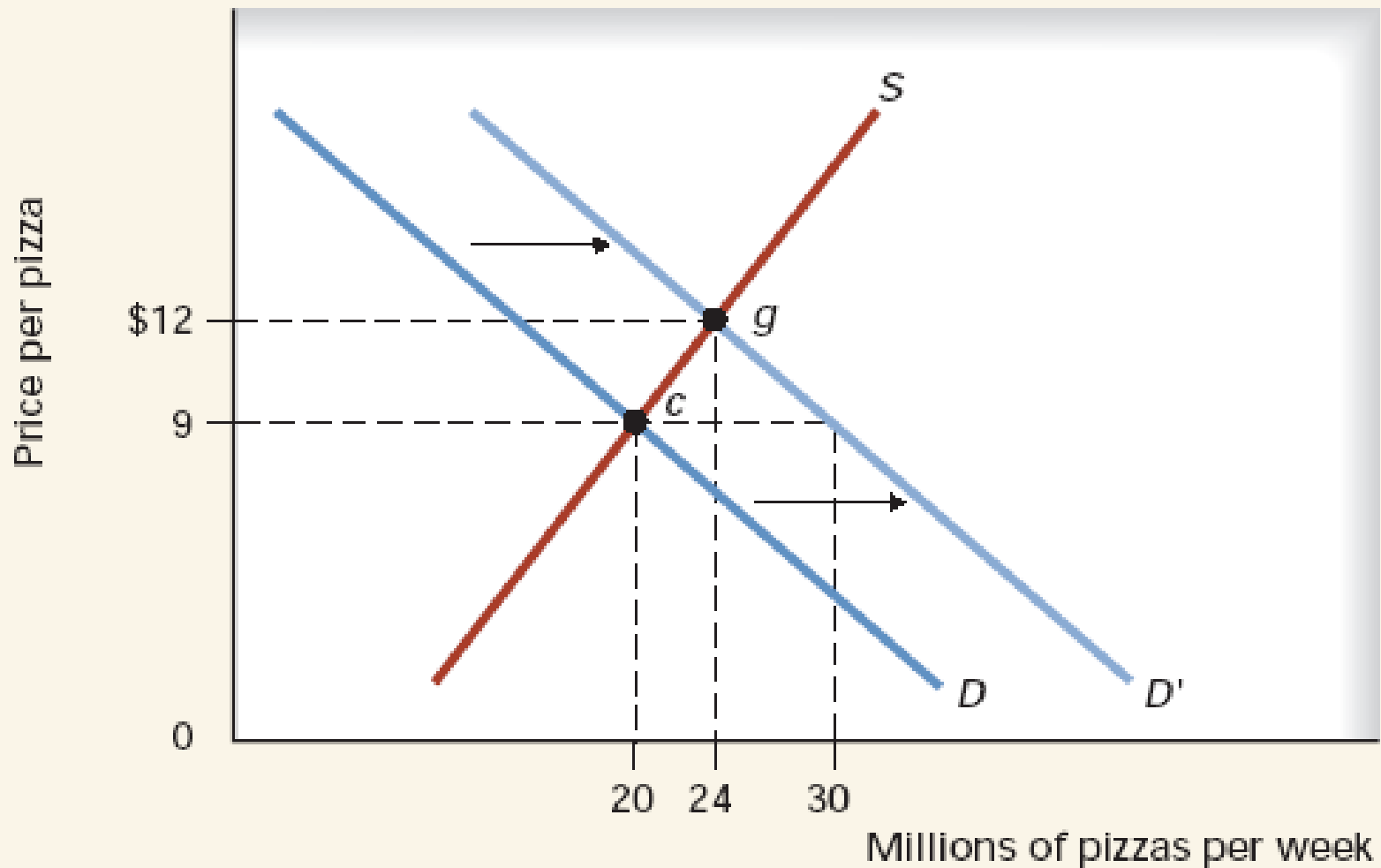
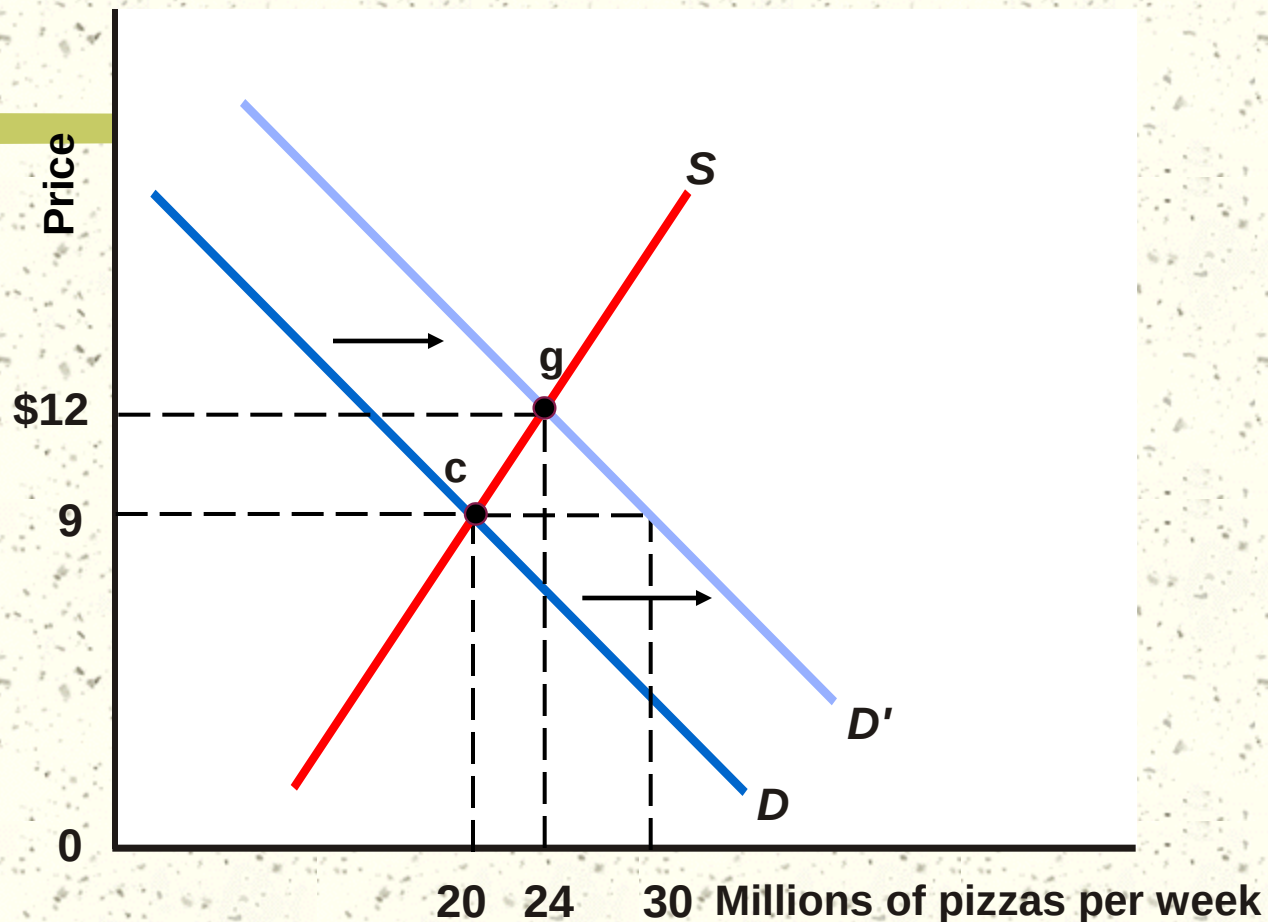


Exhibit 6: Effects of an Increase in Demand

- ❖ Assume one of the determinants of demand changes so that demand increases from D to D'
- ❖ After the increase, the amount demanded at \$9 is 30 million – which exceeds the amount supplied of 20 million pizzas: shortage and upward pressure on price
- ❖ As price increases, quantity demanded decreases along the new demand curve, D' . The quantity supplied increases along the existing supply curve, S , until the two quantities are in equilibrium.



Shifts of the Demand Curve

- ❖ **Given an upward-sloping demand curve, an increase in demand leads to a rightward shift of the demand curve, increasing both the equilibrium price and quantity**
- ❖ **Alternatively, a decrease in demand leads to a leftward shift of the demand curve, reducing both the equilibrium price and quantity**

Exhibit 7: Effects of an Increase in Supply

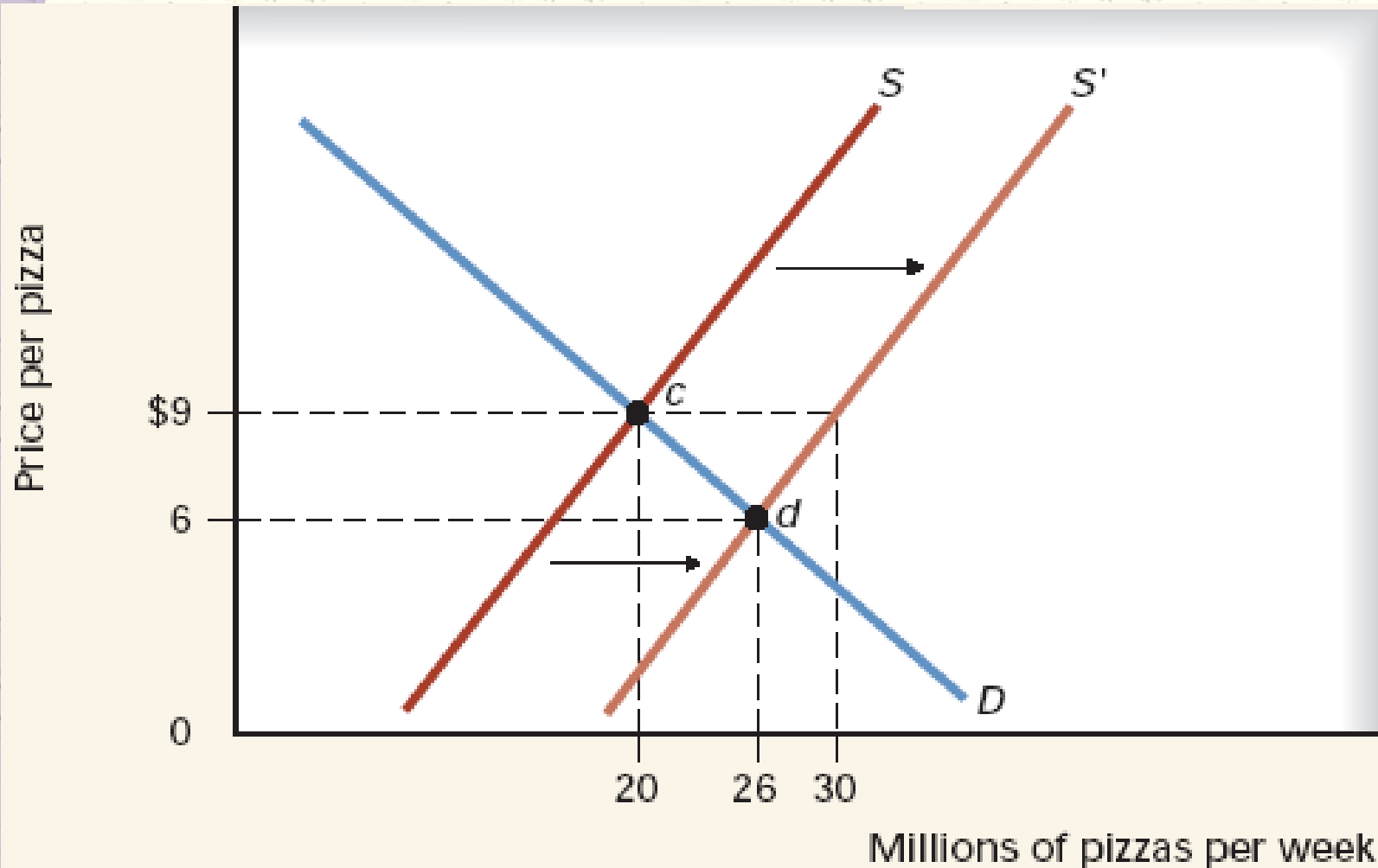
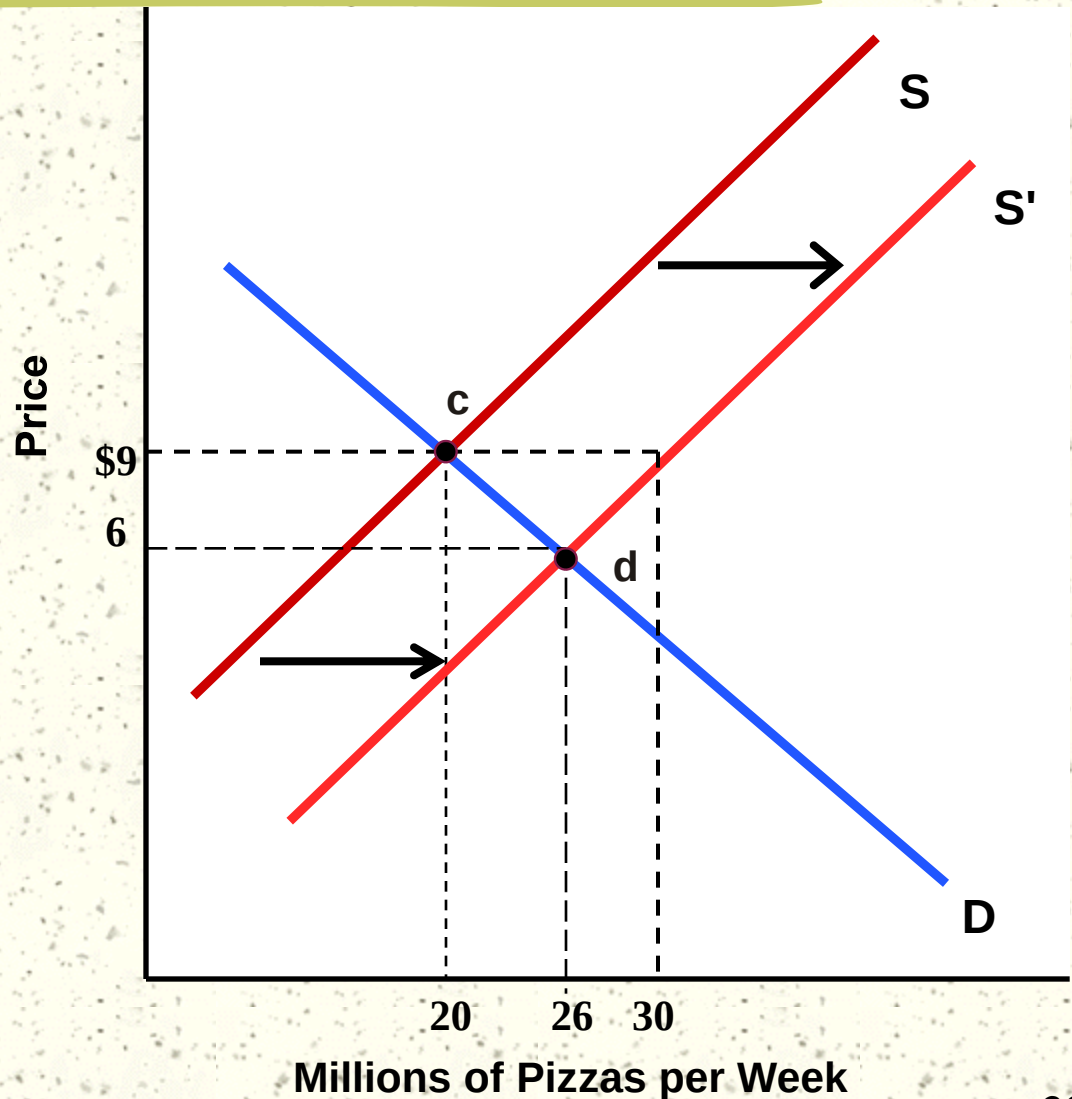


Exhibit 7: Effects of an Increase in Supply

- ❖ Suppose supply shifts from S to S' → increases
- ❖ After supply increases, the amount supplied at the initial price of \$9 increases from 20 to 30 million pizzas per week → a surplus exists
- ❖ Surplus puts downward pressure on price → quantity demanded increases along the existing demand curve until a new equilibrium is reached.



Shifts of the Supply Curve

- ❖ **An increase in supply: a rightward shift of the supply curve reduces equilibrium price but increases equilibrium quantity**
- ❖ **A decrease in supply: a leftward shift of the supply curve increases equilibrium price but decreases equilibrium quantity**
- ❖ **Given a downward-sloping demand curve, a rightward shift of the supply curve decreases price, but increases quantity**
 - ❖ **A leftward shift increases price, but decreases quantity**

Simultaneous Shifts in Demand and Supply

- ❖ **As long as only one curve shifts, we can say for sure what will happen to equilibrium price and quantity**
- ❖ **If both curves shift, however, the outcome is less obvious**

Exhibit 8: Indeterminate Effect of an Increase in Both Supply and Demand

- ❖ Suppose supply and demand both increase and that demand increases more than supply as shown by D' and S'
- ❖ Here both price and quantity increase
- ❖ If both demand and supply were to decrease, for example from D' S' to D and S , both equilibrium price and quantity would decline.

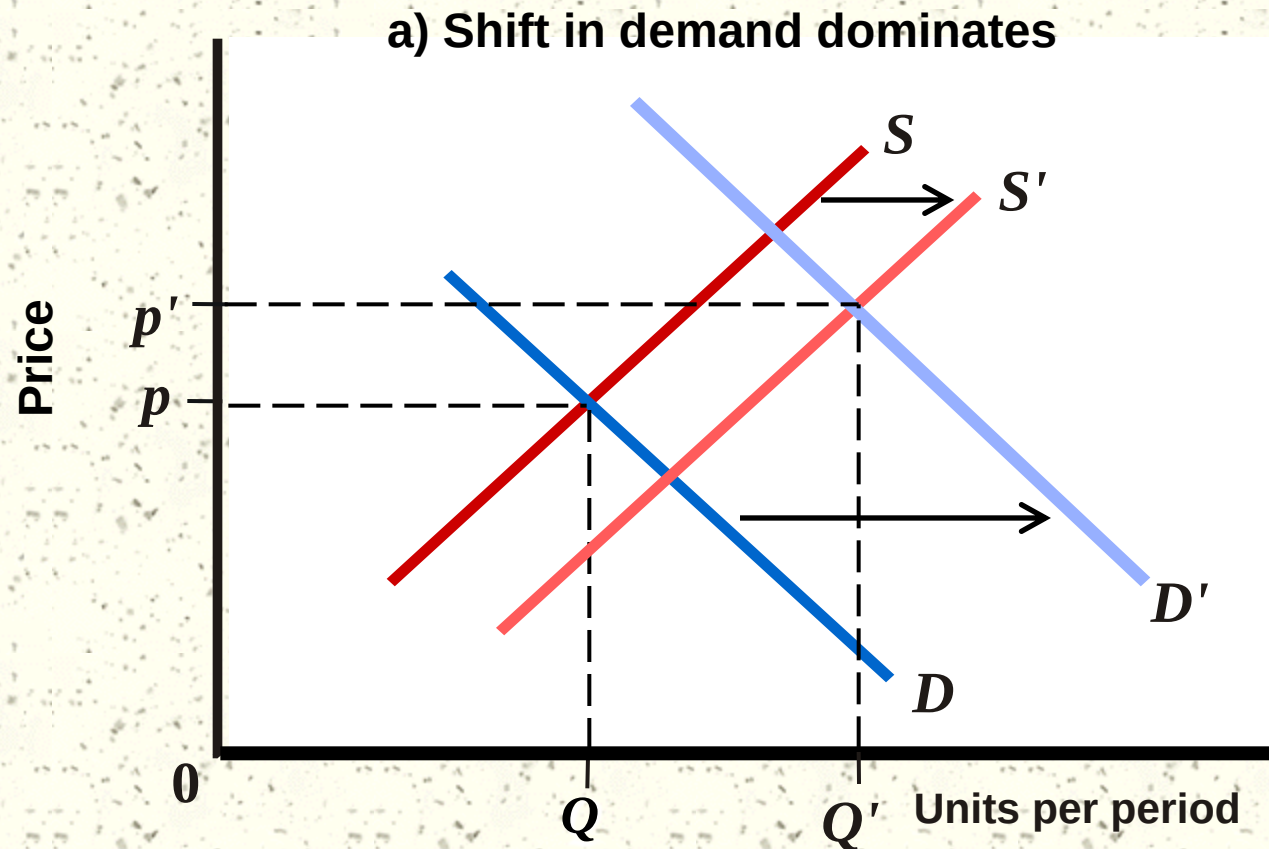


Exhibit 8: Indeterminate Effect of an Increase in Both Supply and Demand

❖ Again, suppose both supply and demand increase but supply shifts by more than demand: price decreases from p to p'' and quantity increases

❖ Conversely, if both supply and demand decrease with the shift in supply dominating, price will increase and quantity will decrease.

b) Shift in supply dominates

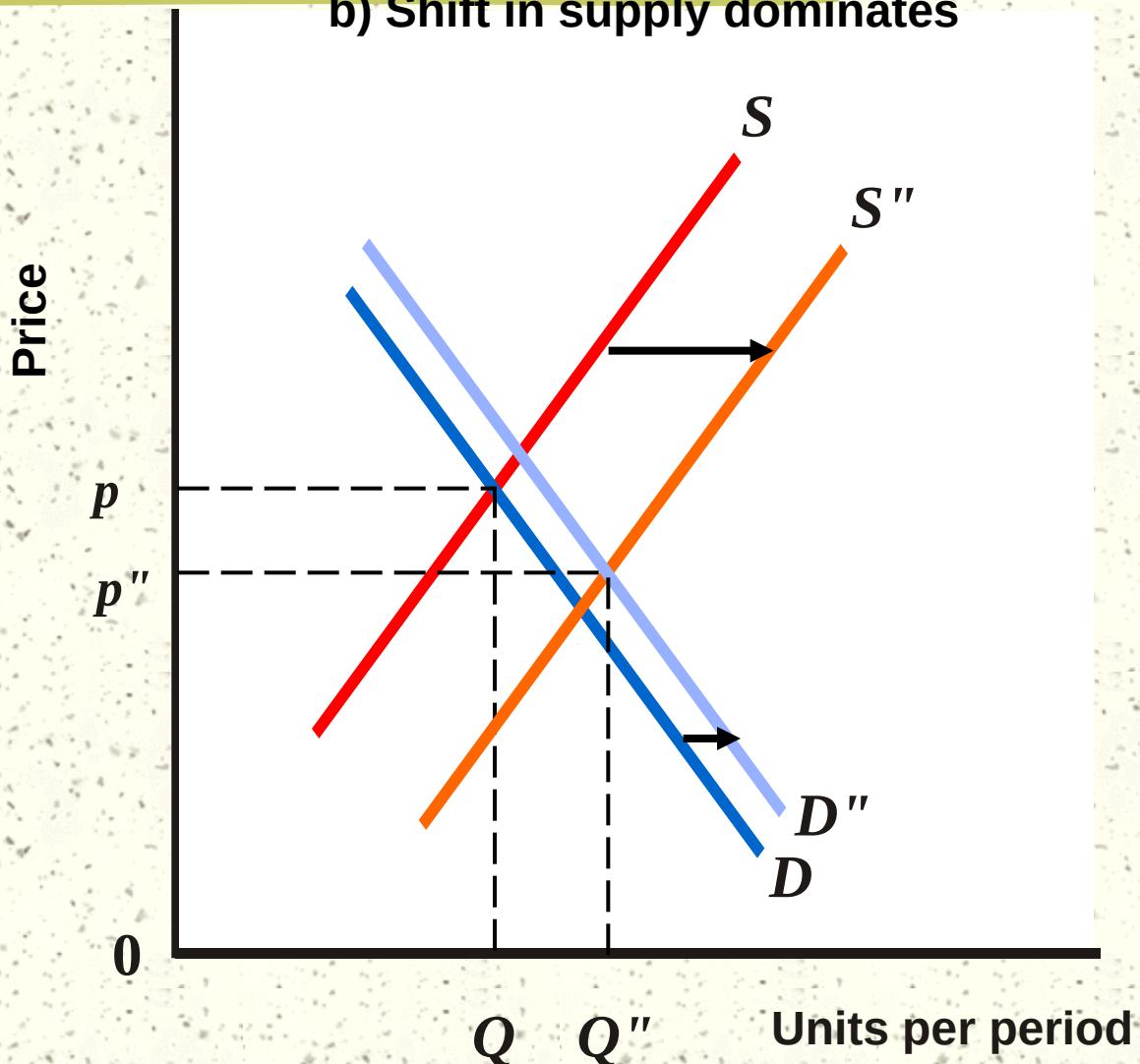
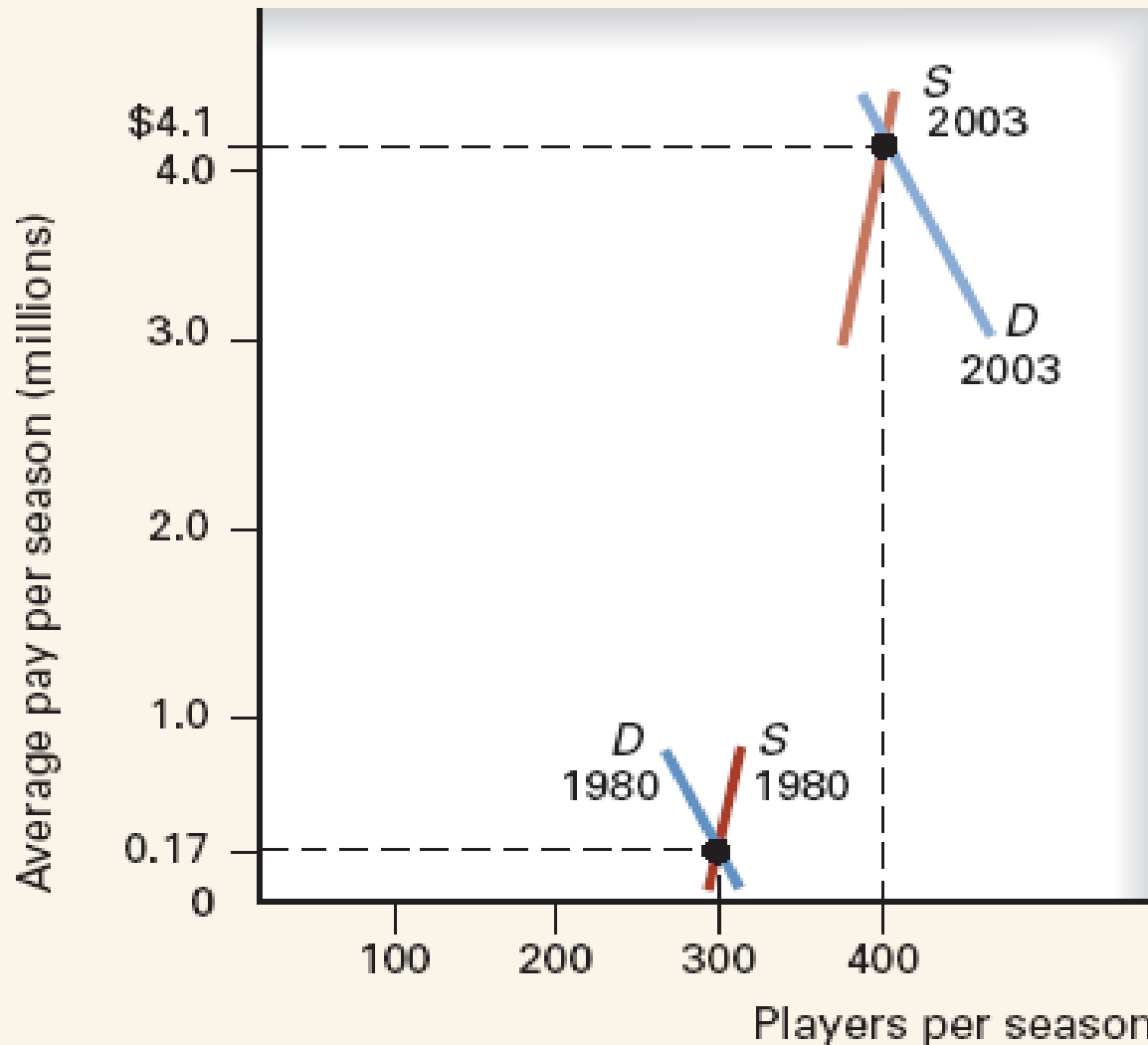


Exhibit 9: Effects of Changes in Both Supply and Demand

		Change in Demand	
		Demand increases	Demand decreases
Change in Supply	Supply increases	Equilibrium price change is indeterminate. Equilibrium quantity increases.	Equilibrium price falls. Equilibrium quantity change is indeterminate.
	Supply decreases	Equilibrium price rises. Equilibrium quantity change is indeterminate.	Equilibrium price change is indeterminate. Equilibrium quantity decreases.

Exhibit 10 Change in the Market for NBA Players

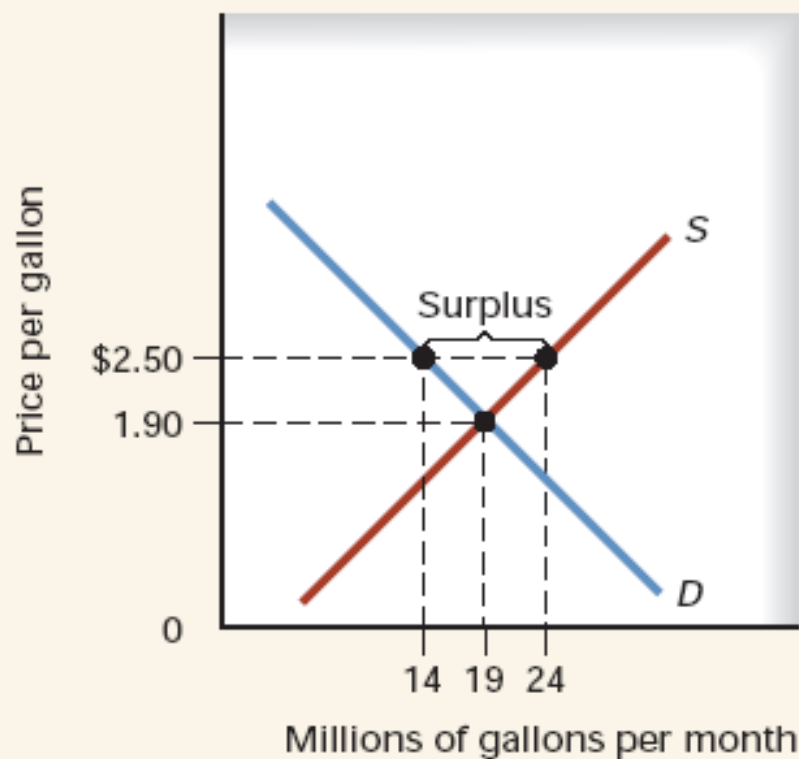


Disequilibrium Prices

- ❖ *Disequilibrium* is the condition in the market when plans of buyers do not match plans of sellers
- ❖ Usually temporary as the market gropes for equilibrium

Exhibit 11: Price Floors and Price Ceilings

(a) Price floor for milk



(b) Price ceiling for rent

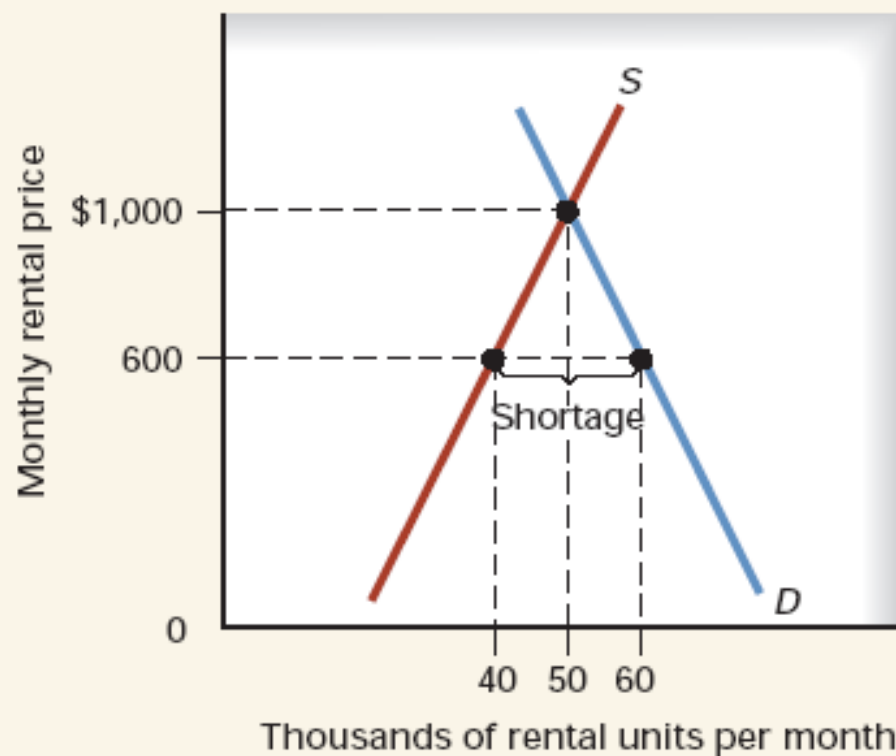


Exhibit 11a: Effects of a Price Floor

- ❖ To achieve higher prices, the federal government sets a price floor, a minimum selling price that is above the equilibrium price
- ❖ Suppose it places a \$2.50 per gallon price floor for milk
- ❖ At this price, farmers supply 24 million gallons per week
- ❖ Consumers demand only 14 million gallons → a surplus of 10 million gallons

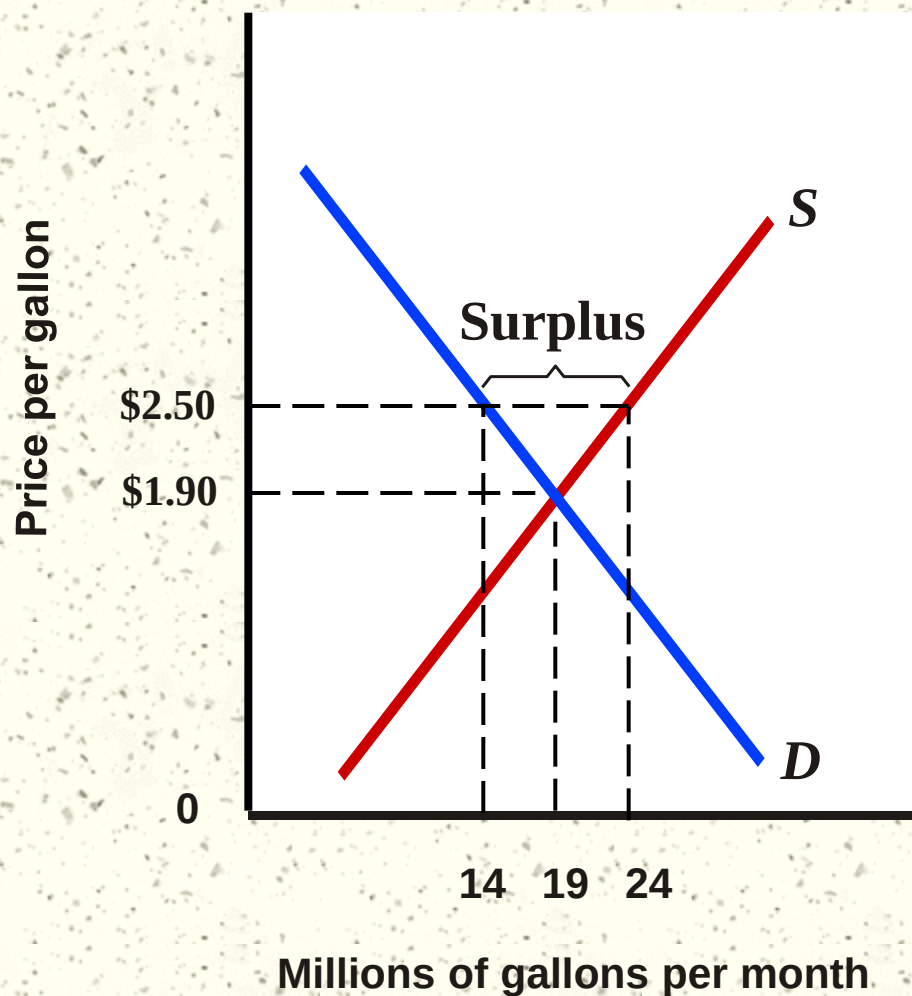
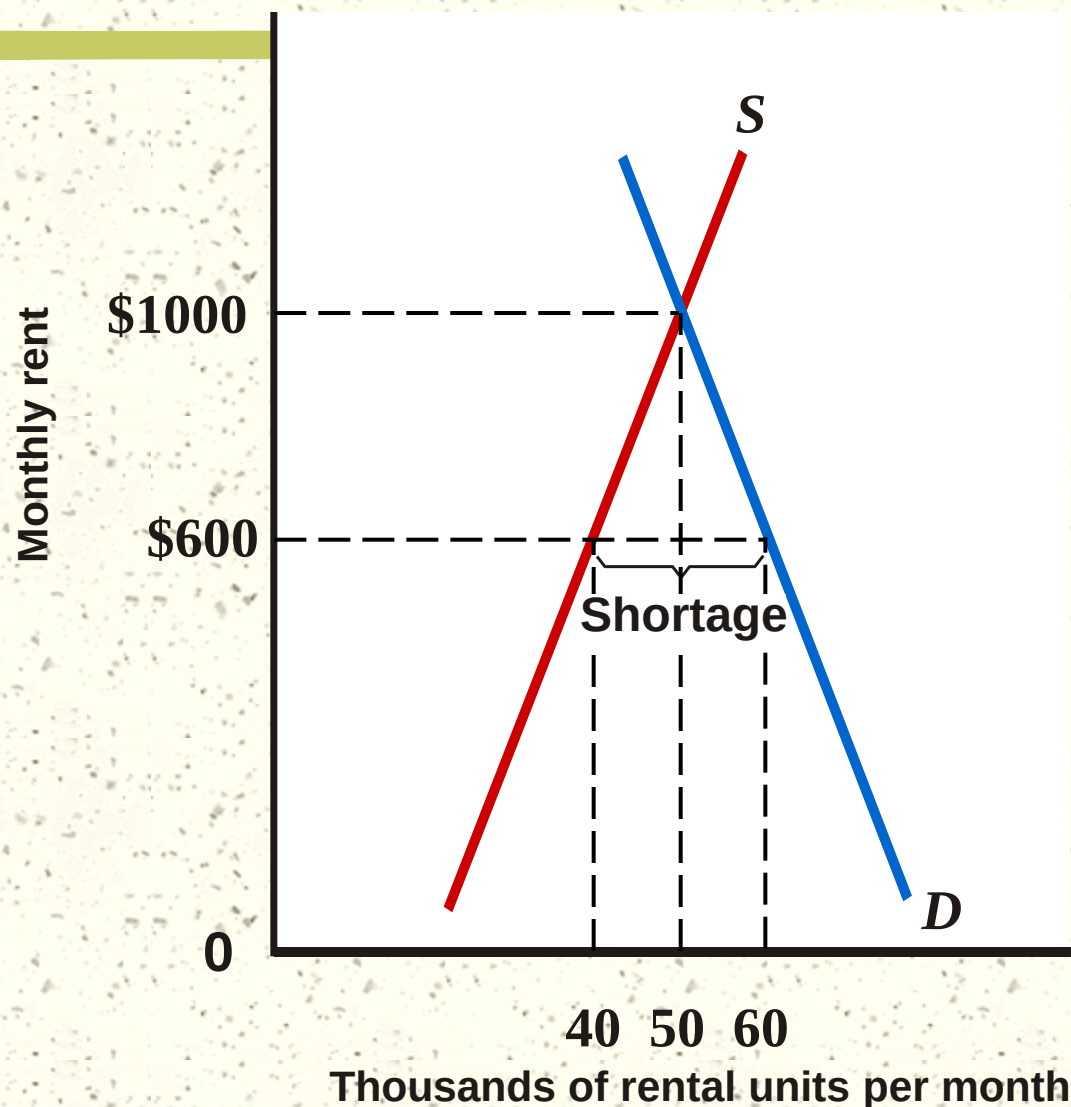


Exhibit 11b: Effects of a Price Ceiling

- ❖ A common example of a price ceiling is rent control in some cities
- ❖ Suppose the market-clearing rent is \$1,000 per month with 50,000 apartments being rented
- ❖ Now suppose the government decides to set a maximum rent of \$600
- ❖ At this ceiling price, 60,000 rental units are demanded
- ❖ However, only 40,000 are supplied, a shortage



Summary

- ❖ **To have an impact, a price floor must be set above the equilibrium price and a price ceiling must be set below the equilibrium price**
- ❖ **Effective price floors and ceilings distort markets in that they create a surplus and a shortage, respectively**
- ❖ **In these situations, various nonprice allocation devices emerge to cope with the disequilibrium resulting from the intervention**