



'Gains From Trade', revisited

- Gains from trade
 - Compare the consumption status before and after the trade
- Absolute advantage, Comparative advantage
- Terms of trade, or exchange ratio
- Specialization
 - Complete vs. Partial specialization
 - On Labor vs. on Capital



Free Trade vs. Protectionism

- Infant Industry Argument

- Infant industries need to be protected until they can attain economies of scale.
- No major country has ever successfully industrialized without some form of protection
- Alexander Hamilton(US), Friedrich List(Germany)

- Protectionism

- Tariffs, Import quotas, Protection of technologies, patents
- Prevent foreign investors from taking control of domestic firms



Free Trade vs. Protectionism



David Ricardo, 1772~1823,
England



Friedrich List, 1789 ~ 1846,
Germany



“Kicking Away The Ladder”(2004)



Ha-Joon Chang(1963~) Prof. of Economics, University of Cambridge, UK

“Many countries have successfully industrialized behind tariff barriers. For example, from 1816 through 1945, tariffs in the United States were among the highest in the world”

“Almost all of today's rich countries used tariff protection and subsidies to develop their industries”

N. GREGORY MANKIW

PRINCIPLES OF
ECONOMICS

Eighth Edition

CHAPTER

4

The Market Forces
of Supply and Demand



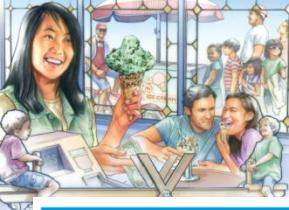
Look for the answers to these questions

- What factors affect buyers' demand for goods?
- What factors affect sellers' supply of goods?
- How do supply and demand determine the price of a good and the quantity sold?
- How do changes in the factors that affect demand or supply affect the market price and quantity of a good?
- How do markets allocate resources?



Markets and Competition

- Market
 - A group of buyers and sellers of a particular good or service
 - Buyers as a group
 - Determine the demand for the product
 - Sellers as a group
 - Determine the supply of the product



Markets and Competition

- Competitive market
 - Many buyers and many sellers, each has a negligible impact on market price
- Perfectly competitive market
 - All goods are exactly the same
 - Buyers and sellers are so numerous that no one can affect the market price, “Price takers”



Demand

- **Quantity demanded**
 - Amount of a good that buyers are willing and able to purchase
- **Law of demand**
 - Other things equal
 - When the price of a good rises, the quantity demanded of the good falls
 - When the price falls, the quantity demanded rises

Sam's Demand Schedule

Demand schedule:

- A table, shows the relationship between the price of a good and the quantity demanded
- Example: **Sam's demand for lattes**
- Notice that Sam's preferences obey the law of demand.

Price of lattes	Quantity of lattes demanded
\$0.00	16
1.00	14
2.00	12
3.00	10
4.00	8
5.00	6
6.00	4

Sam's Demand Schedule and Demand Curve

Price of Lattes

\$6.00

\$5.00

\$4.00

\$3.00

\$2.00

\$1.00

\$0.00

0

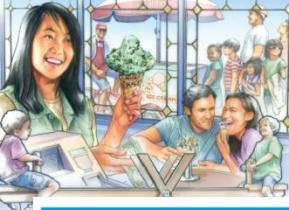
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Quantity of Lattes

Price of lattes	Quantity of lattes demanded
\$0.00	16
1.00	14
2.00	12
3.00	10
4.00	8
5.00	6
6.00	4



Demand

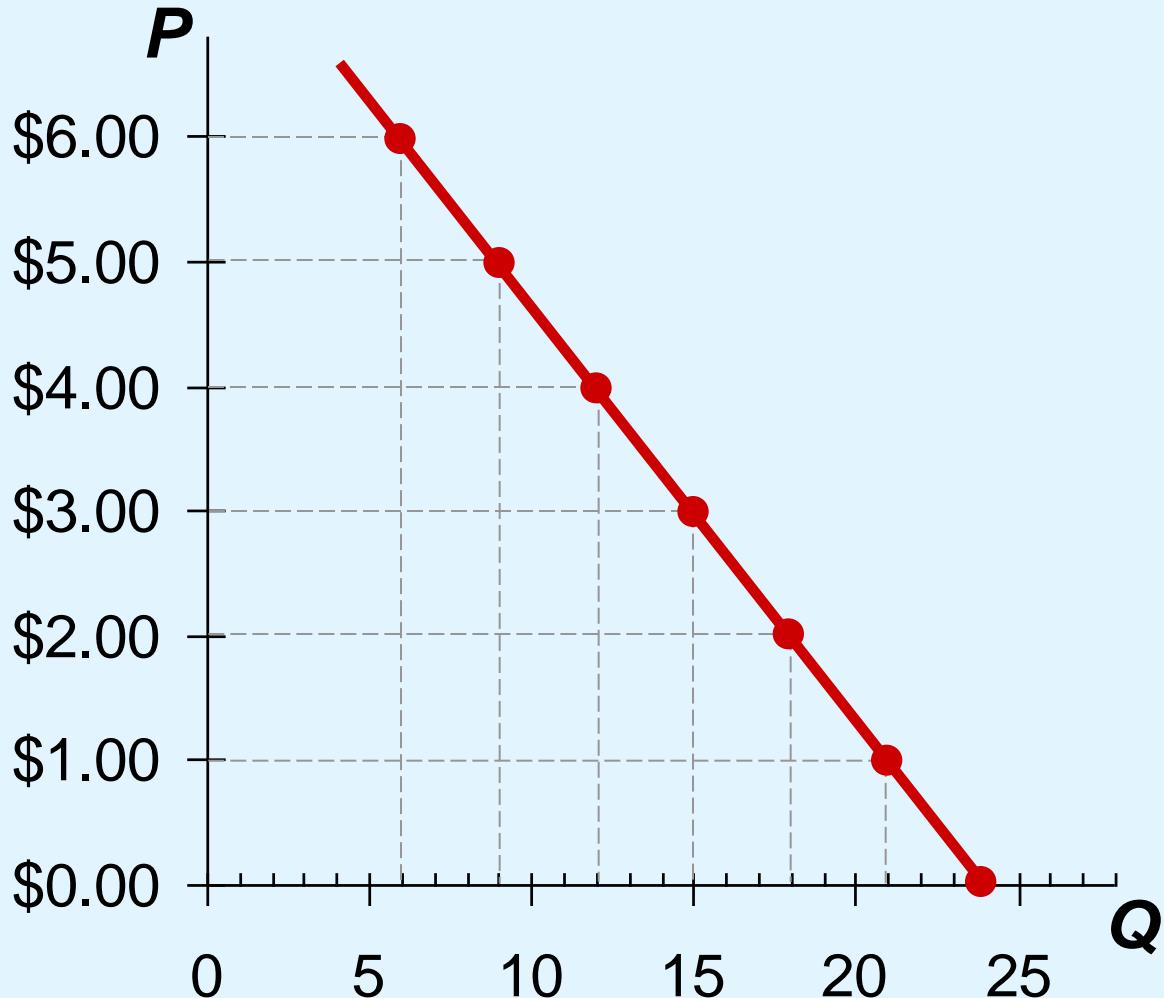
- Market demand
 - Sum of all individual demands for a good or service
 - Market demand curve: sum the individual demand curves horizontally
 - To find the total quantity demanded at any price, we add the individual quantities

Market Demand versus Individual Demand

Suppose Sam and Dean are the only two buyers in the market for lattes. (Q^d = quantity demanded)

Price	Sam's Q^d		Dean's Q^d	=	Market Q^d
\$0.00	16	+	8	=	24
1.00	14	+	7	=	21
2.00	12	+	6	=	18
3.00	10	+	5	=	15
4.00	8	+	4	=	12
5.00	6	+	3	=	9
6.00	4	+	2	=	6

The Market Demand Curve for Lattes





Demand Curve Shifters

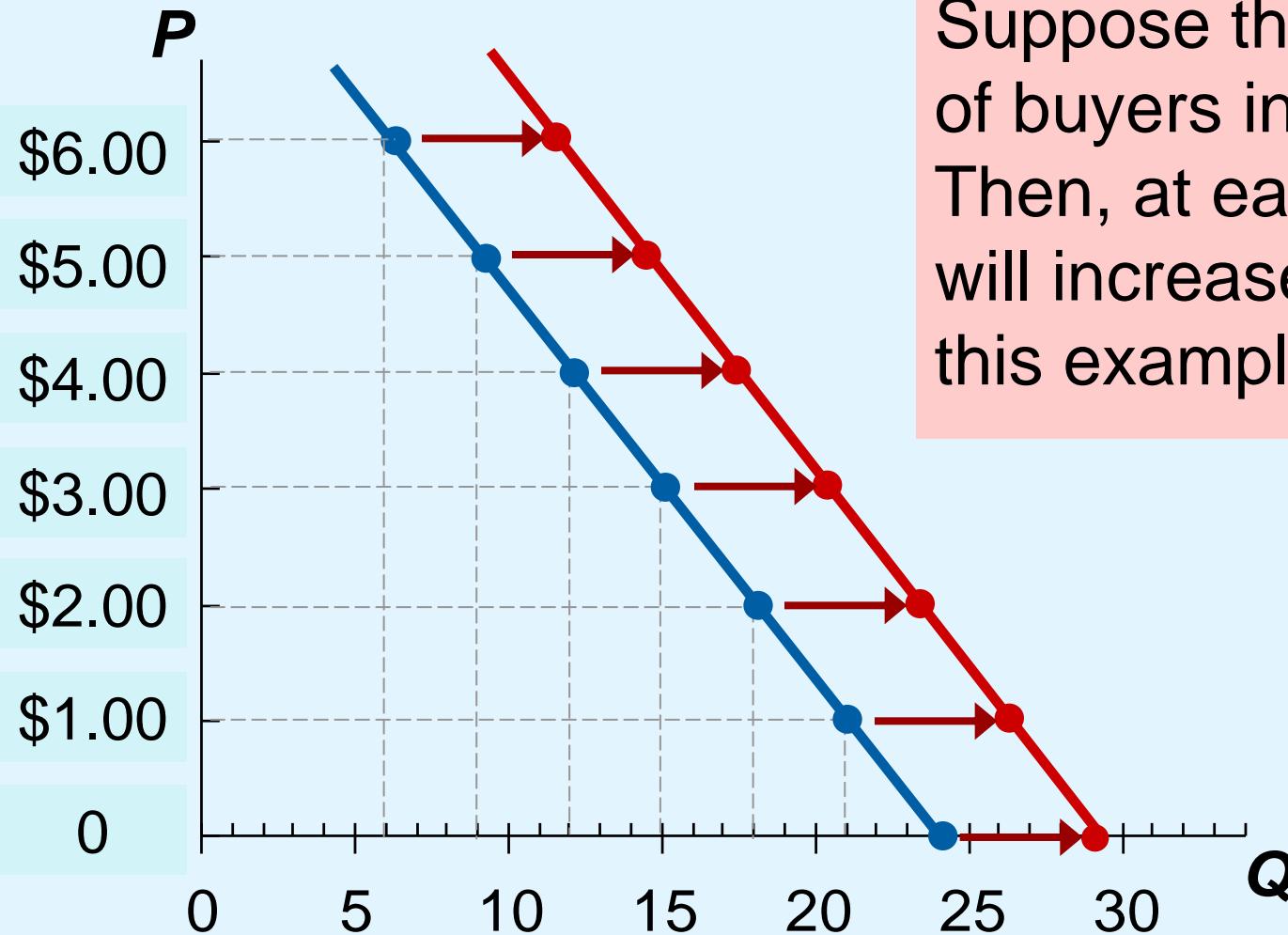
- The demand curve
 - Shows how price affects quantity demanded, other things being equal
- These “other things” are non-price determinants of demand
 - Things that determine buyers’ demand for a good, other than the good’s price
- Changes in them shift the D curve...



Demand Curve Shifters

- Number of buyers
 - Increase in # of buyers
 - Increases quantity demanded at each price
 - Shifts D curve to the right
 - Decrease in # of buyers
 - Decreases quantity demanded at each price
 - Shifts D curve to the left

Demand Curve Shifters: # of Buyers



Suppose the number of buyers increases. Then, at each P , Q^d will increase (by 5 in this example).



Demand Curve Shifters

- Income
 - Normal good, other things constant
 - An increase in income leads to an increase in demand: Shifts D curve to the right
 - Inferior good, other things constant
 - An increase in income leads to a decrease in demand: Shifts D curve to the left



Demand Curve Shifters

- Prices of related goods, substitutes
 - Two goods are substitutes if
 - An increase in the price of one leads to an increase in the demand for the other
 - Example: pizza and hamburgers
 - An increase in the price of pizza increases demand for hamburgers, shifting hamburger demand curve to the right
 - Other examples:
 - Coke and Pepsi, laptops and tablets, music CDs and music downloads, Nike and Under Armour



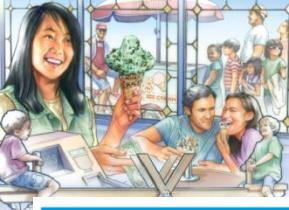
Demand Curve Shifters

- Prices of related goods, complements
 - Two goods are complements if
 - An increase in the price of one leads to a decrease in the demand for the other
 - Example: computers and software
 - If price of computers rises, people buy fewer computers, and therefore less software; Software demand curve shifts left
 - Other examples:
 - College tuition and textbooks, bagels and cream cheese, eggs and bacon



Demand Curve Shifters

- Tastes
 - Anything that causes a shift in tastes toward a good will increase demand for that good and shift its D curve to the right
 - Example:
 - Preference on SUV
 - Games, Movies, K-Pop, Foods, Fashion Style...etc.

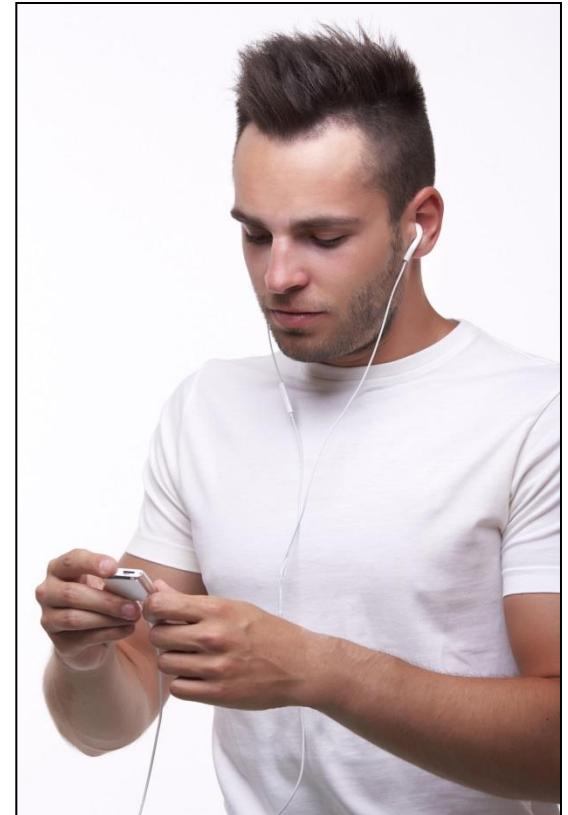


Demand Curve Shifters

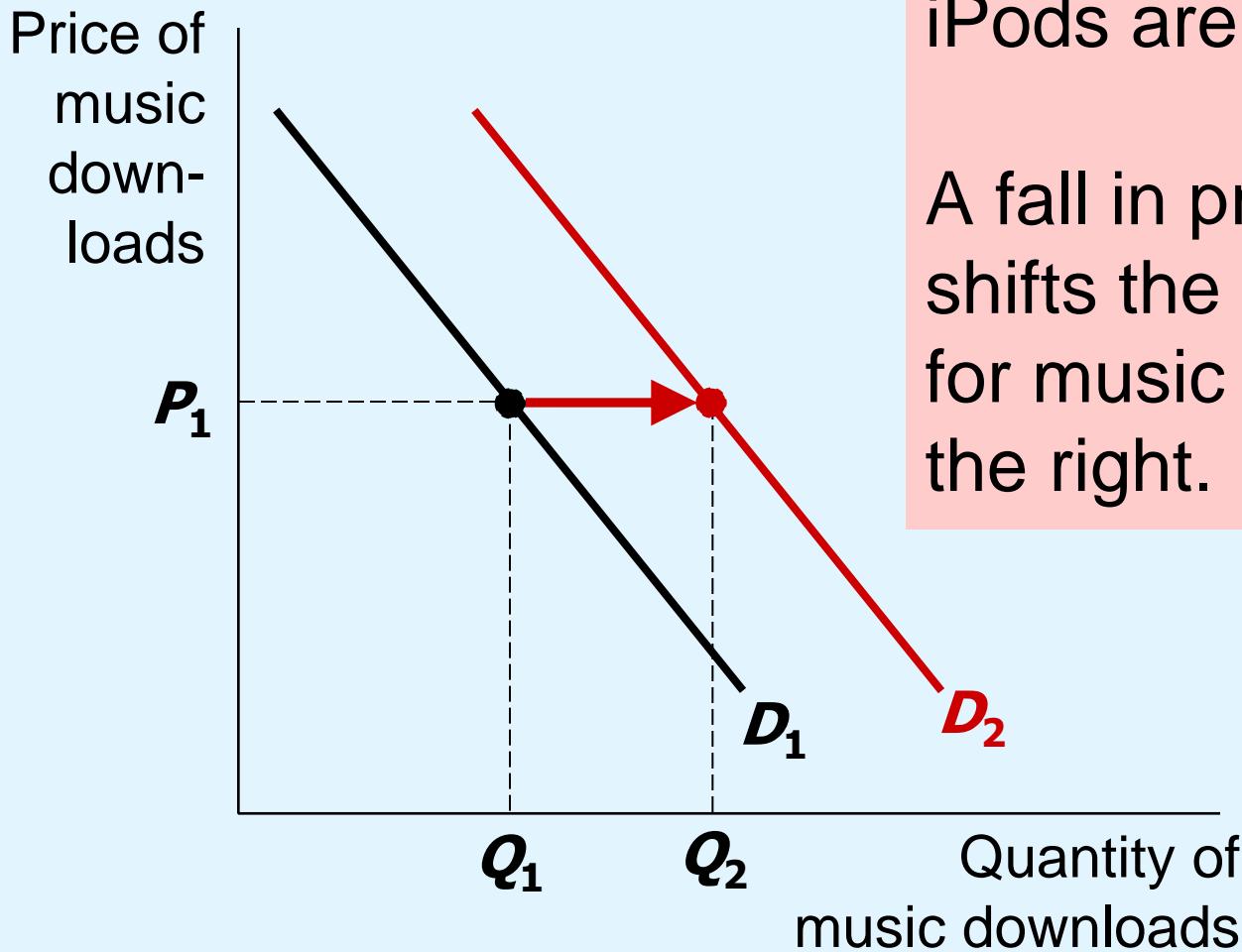
- Expectations about the future
 - Expect an increase in income, increase in current demand
 - Expect higher prices, increase in current demand
 - Example:
 - If people expect their incomes to rise, their D for meals at expensive restaurants may increase now

Demand curve

- Draw a demand curve for music downloads
 - What happens to it in each of the following scenarios?
 - Why?
- A. The price of iPods falls
- B. The price of music downloads falls
- C. The price of music CDs falls



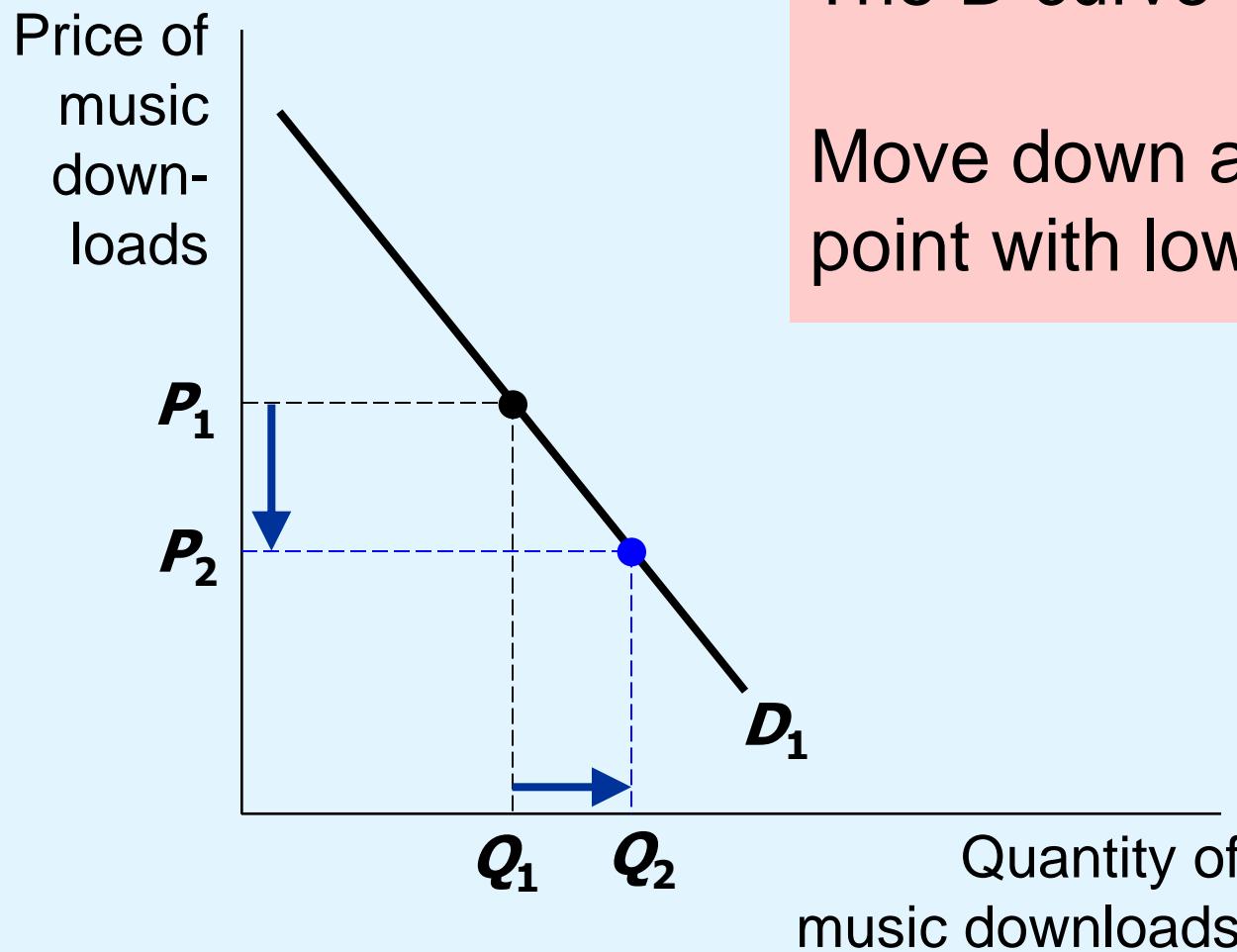
A. The price of iPods falls



Music downloads and iPods are complements.

A fall in price of iPods shifts the demand curve for music downloads to the right.

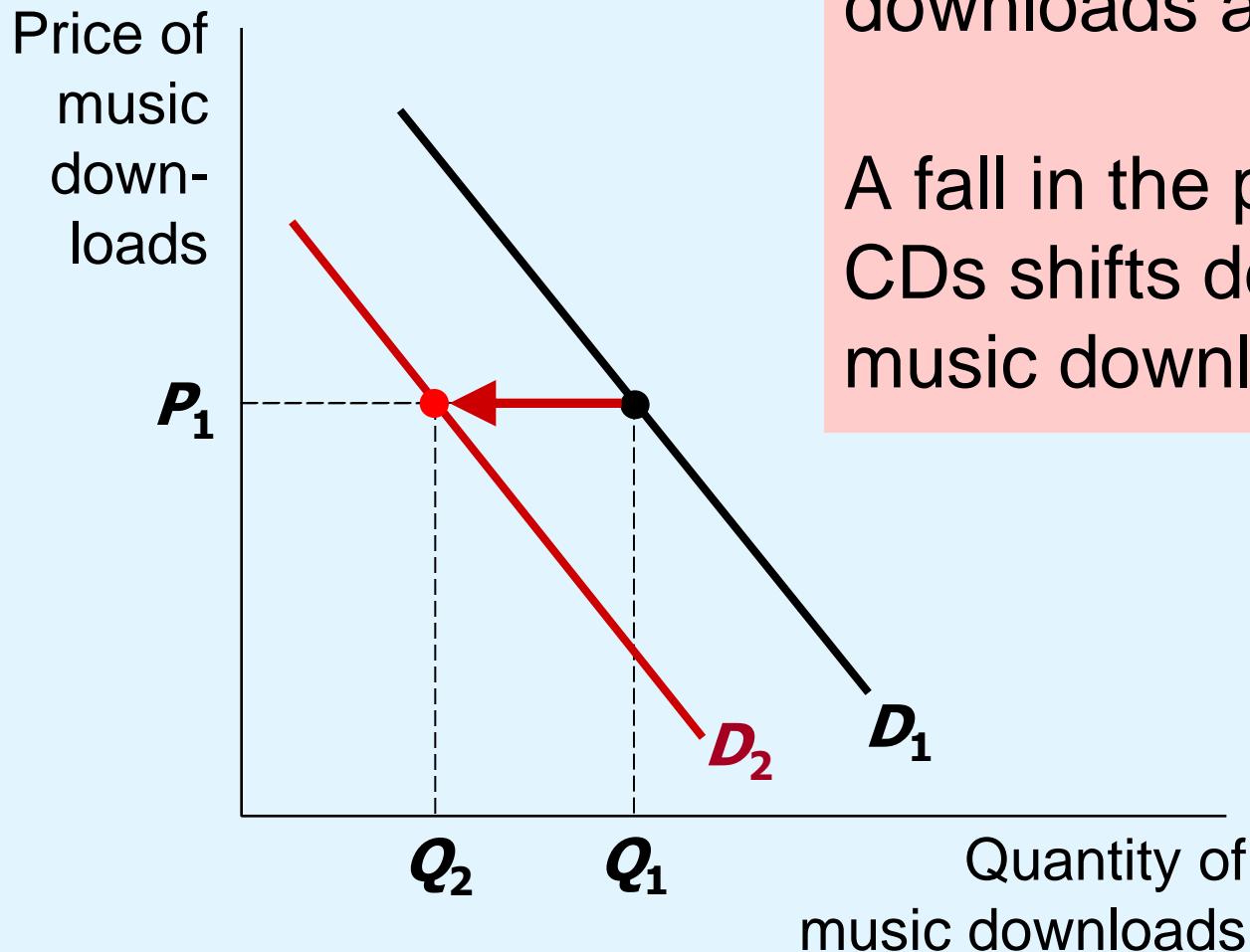
B. The price of music downloads falls



The D curve does not shift.

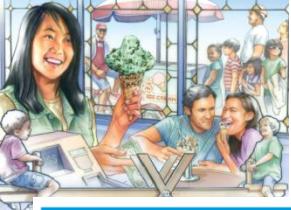
Move down along curve to a point with lower P, higher Q.

C. The price of music CDs falls



Music CDs and music downloads are substitutes.

A fall in the price of music CDs shifts demand for music downloads to the left.



Supply

- Quantity supplied
 - Amount of a good
 - Sellers are willing and able to sell
- Law of supply
 - Other things equal
 - When the price of a good rises, the quantity supplied of the good rises
 - When the price falls, the quantity supplied falls

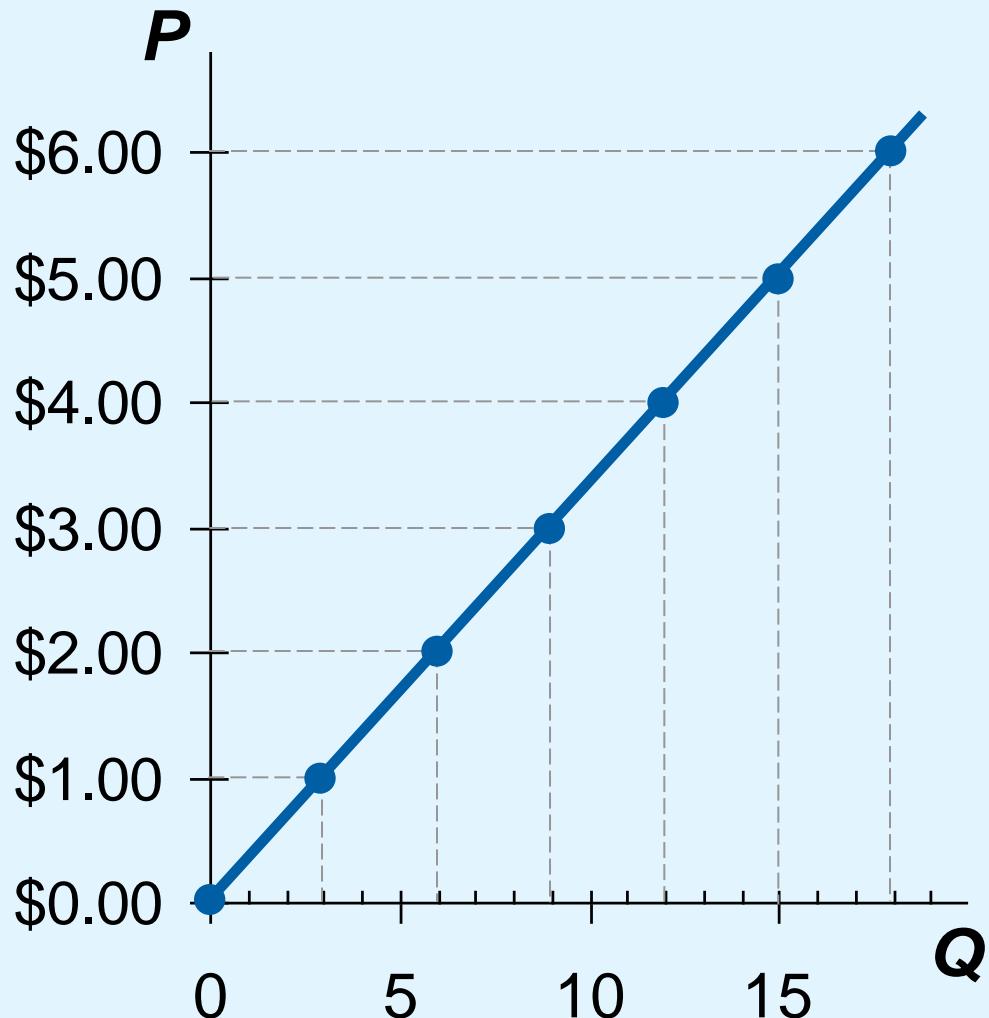
Starbucks' Supply Schedule

Supply schedule:

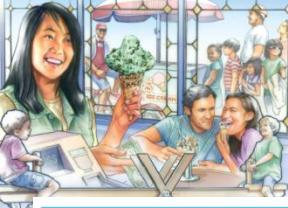
- A table, shows the relationship between the price of a good and the quantity supplied.
- Example: **Starbucks' supply of lattes**
- Notice that Starbucks' supply schedule obeys the law of supply

Price of lattes	Quantity of lattes supplied
\$0.00	0
1.00	3
2.00	6
3.00	9
4.00	12
5.00	15
6.00	18

Starbucks' Supply Schedule and Supply Curve



Price of lattes	Quantity of lattes supplied
\$0.00	0
1.00	3
2.00	6
3.00	9
4.00	12
5.00	15
6.00	18



Market Supply vs. Individual Supply

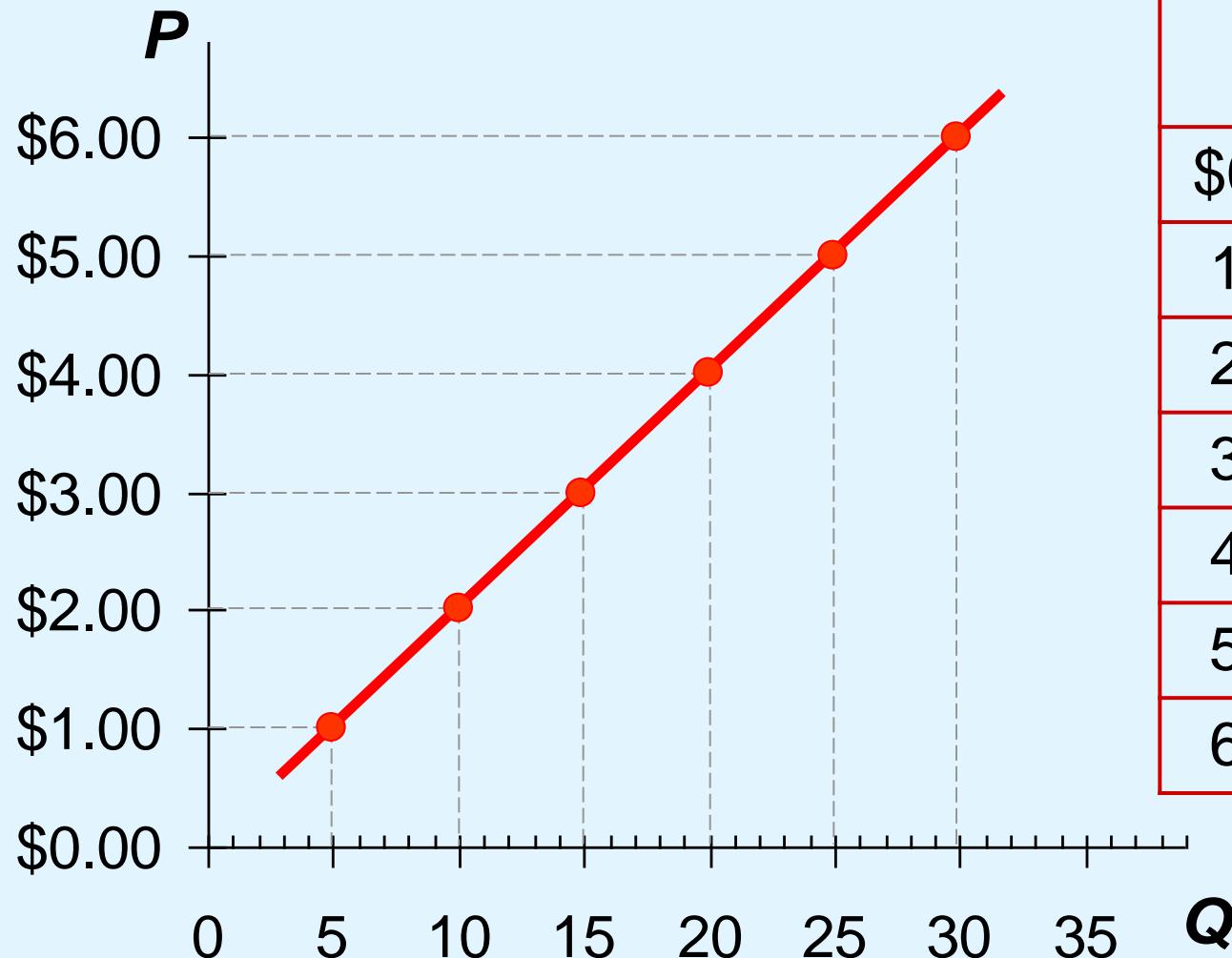
- Market supply
 - Sum of the supplies of all sellers of a good or service
 - Market supply curve: sum of individual supply curves horizontally
 - To find the total quantity supplied at any price, we add the individual quantities

Market Supply vs. Individual Supply

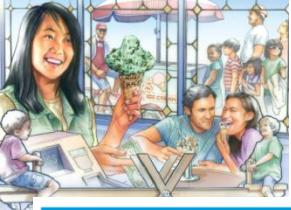
Suppose Starbucks and Coffee Bean are the only two sellers in this market. (Q^s = quantity supplied)

Price	Q^s Starbucks	Q^s CoffeeBean	Market Q^s
\$0.00	0	0	0
1.00	3	2	5
2.00	6	4	10
3.00	9	6	15
4.00	12	8	20
5.00	15	10	25
6.00	18	12	30

The Market Supply Curve



P	Q^S (Market)
\$0.00	0
1.00	5
2.00	10
3.00	15
4.00	20
5.00	25
6.00	30



Supply Curve Shifters

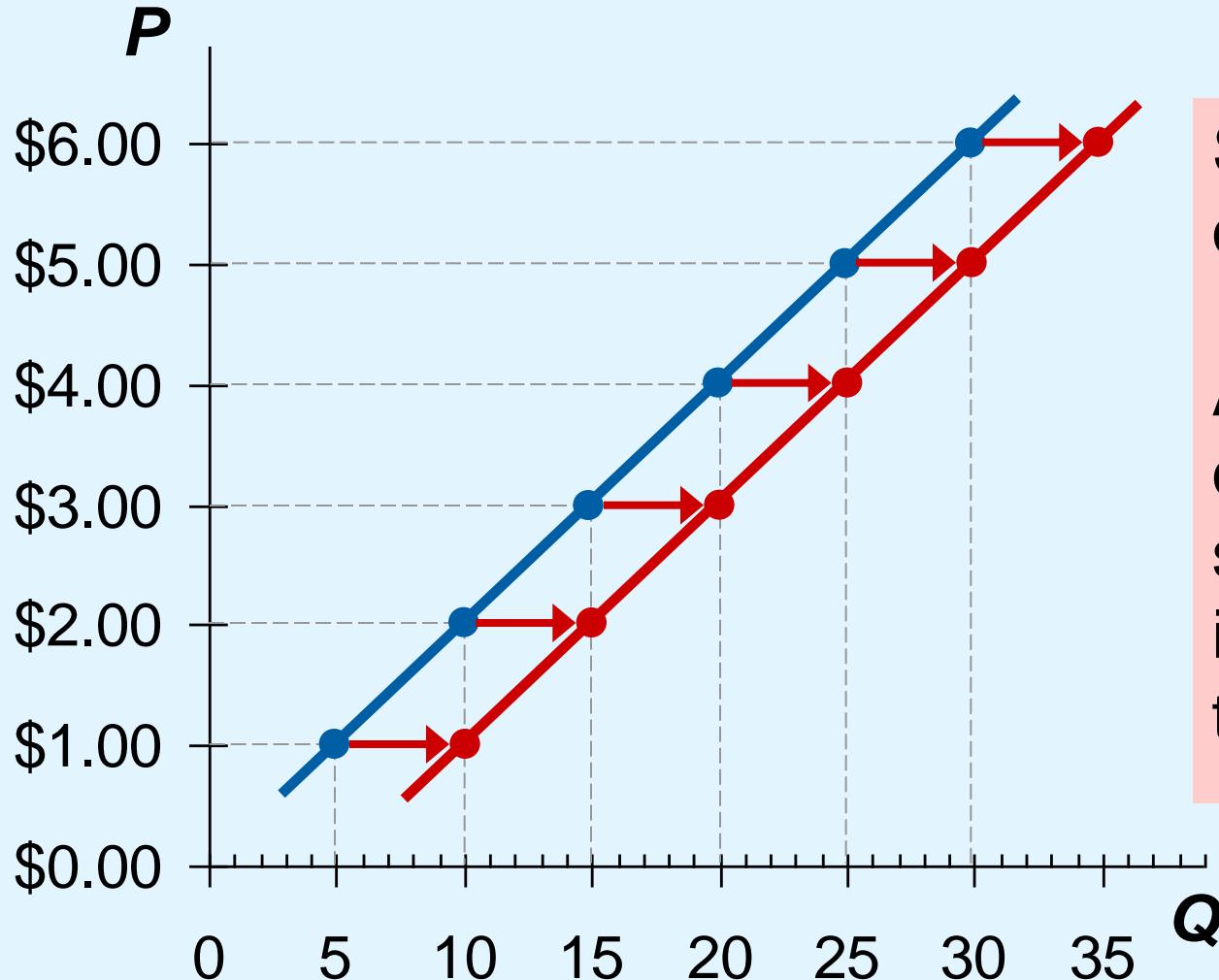
- The supply curve
 - Shows how price affects quantity supplied, other things being equal
- These “other things”
 - Are non-price determinants of supply
- Changes in them shift the S curve...



Supply Curve Shifters

- Input prices
 - Supply is negatively related to prices of inputs
 - Examples of input prices: wages, prices of raw materials
 - A fall in input prices makes production more profitable at each output price
 - Firms supply a larger quantity at each price
 - The S curve shifts to the right

Supply Curve Shifters: Input Prices



Suppose the price of milk falls.
At each price, the quantity of lattes supplied will increase (by 5 in this example).



Supply Curve Shifters

- Technology
 - Determines how much inputs are required to produce a unit of output
 - A cost-saving technological improvement has the same effect as a fall in input prices, shifts S curve to the right
- Number of sellers
 - An increase in the number of sellers
 - Increases the quantity supplied at each price
 - Shifts S curve to the right



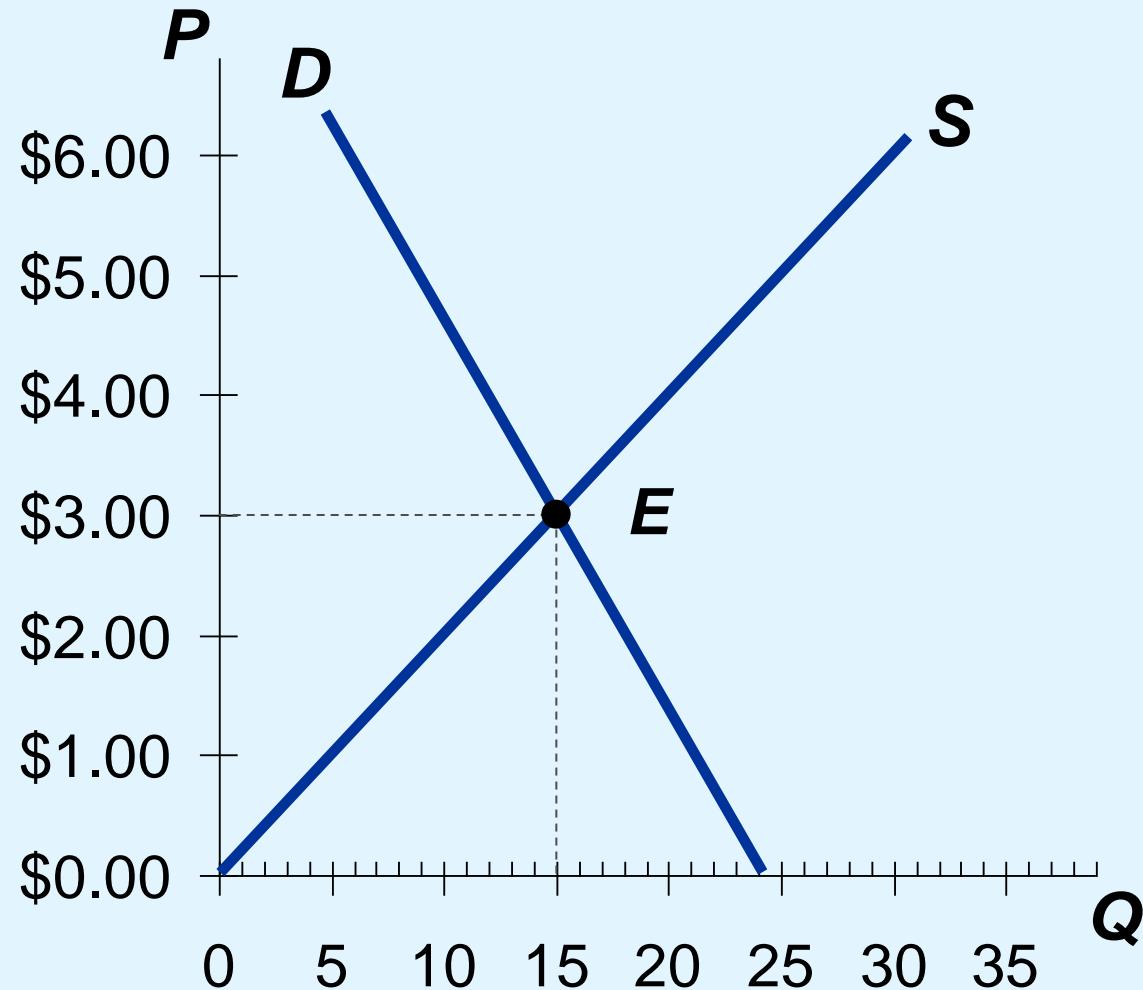
Supply Curve Shifters

- Expectations about future
 - Example: Events in the Middle East lead to expectations of higher oil prices
 - Owners of Texas oilfields reduce supply now, save some inventory to sell later at the higher price
 - S curve shifts left
 - Sellers may adjust supply* when their expectations of future prices change (*If good not perishable)

Supply and Demand Together

Equilibrium:

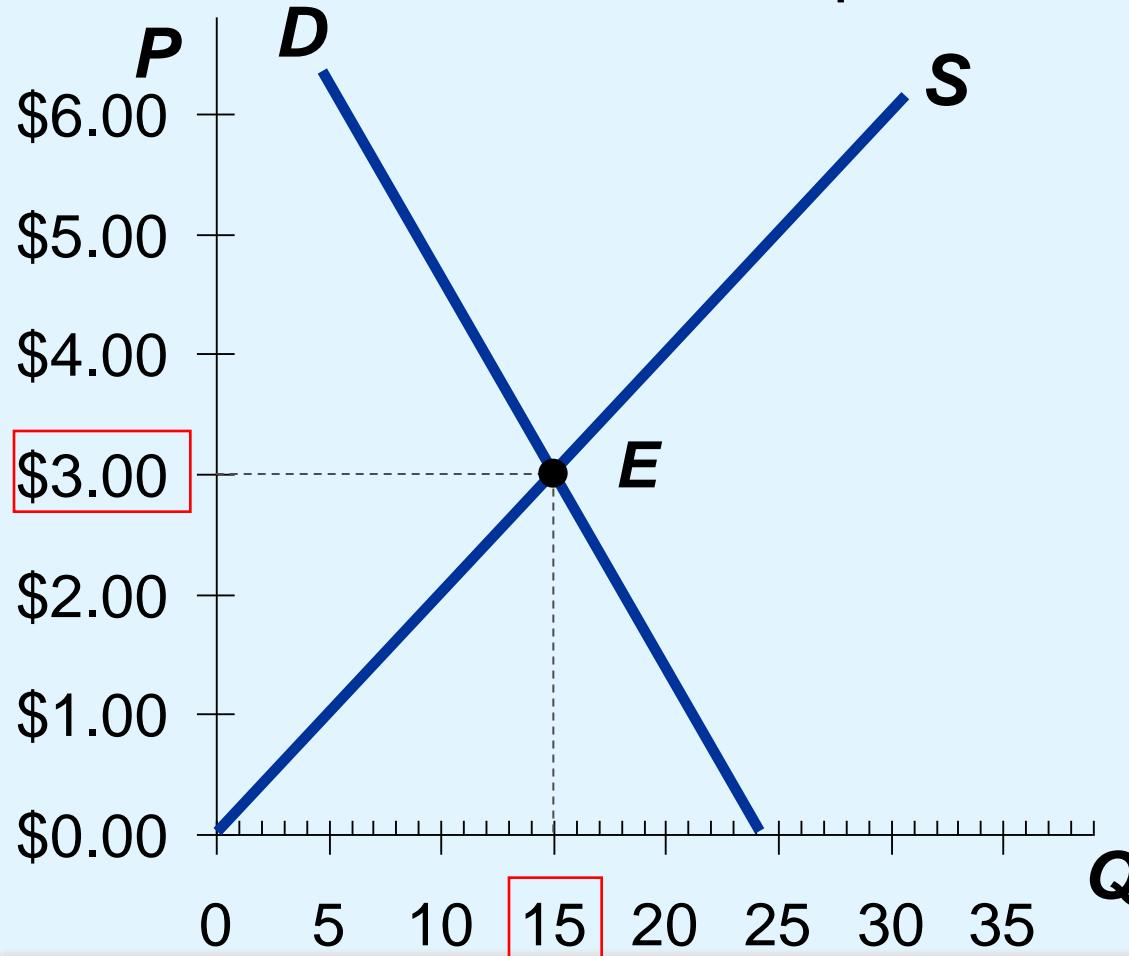
Price has reached the level where quantity supplied equals quantity demanded



Supply and Demand Together

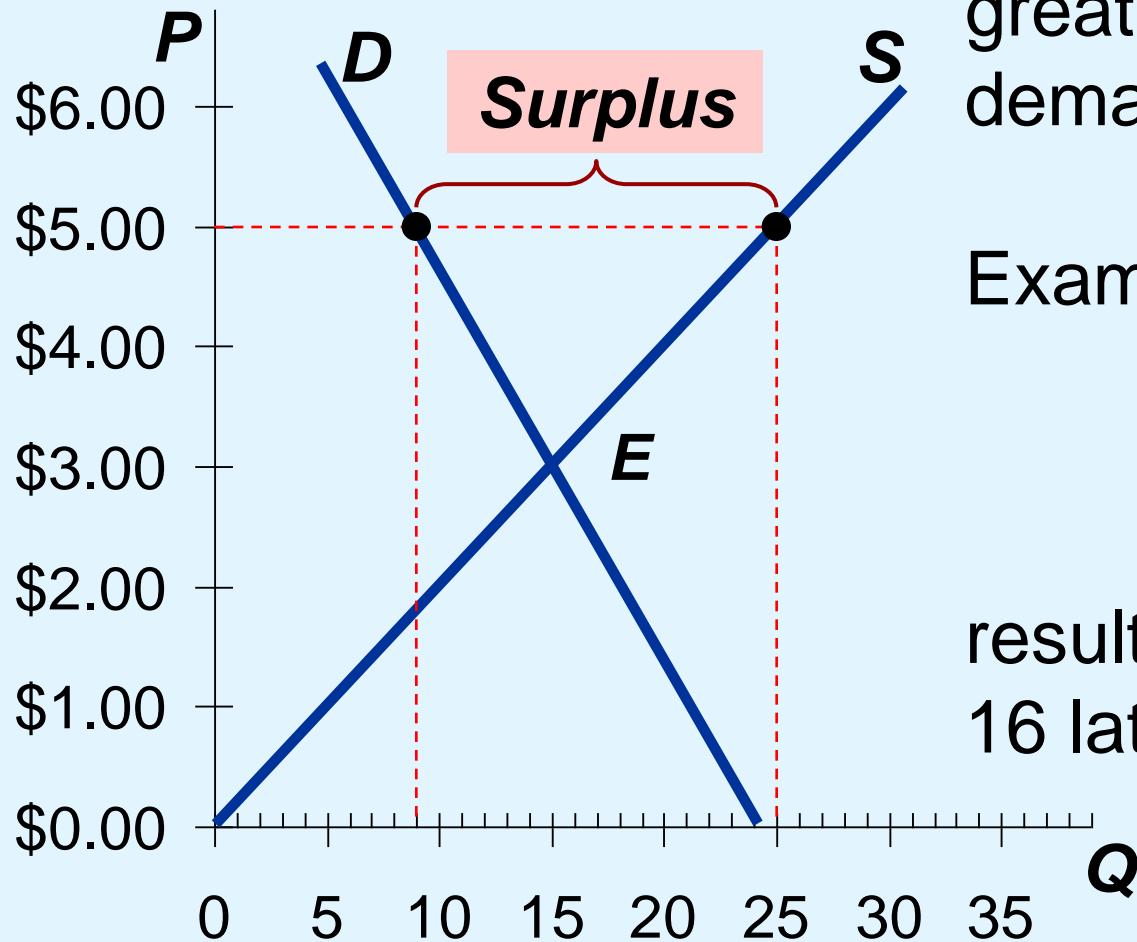
Equilibrium price: price where Q supplied = Q demanded

Equilibrium quantity: Q supplied and demanded at the equilibrium price



P	Q^D	Q^S
\$0	24	0
1	21	5
2	18	10
3	15	15
4	12	20
5	9	25
6	6	30

Markets Not in Equilibrium: Surplus

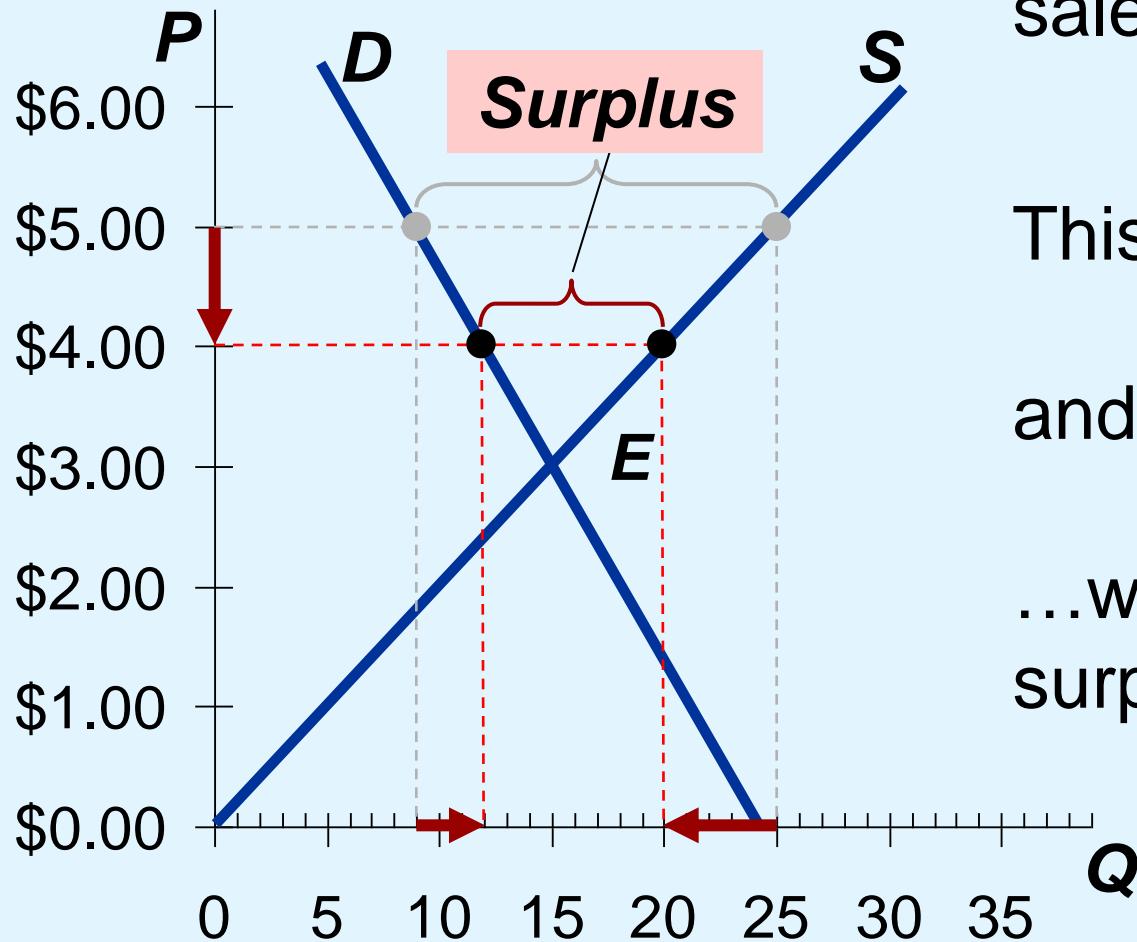


Surplus (excess supply):
quantity supplied is
greater than quantity
demanded

Example: if $P = \$5$,
then $Q^D = 9$ lattes
and $Q^S = 25$ lattes

resulting in a surplus of
16 lattes

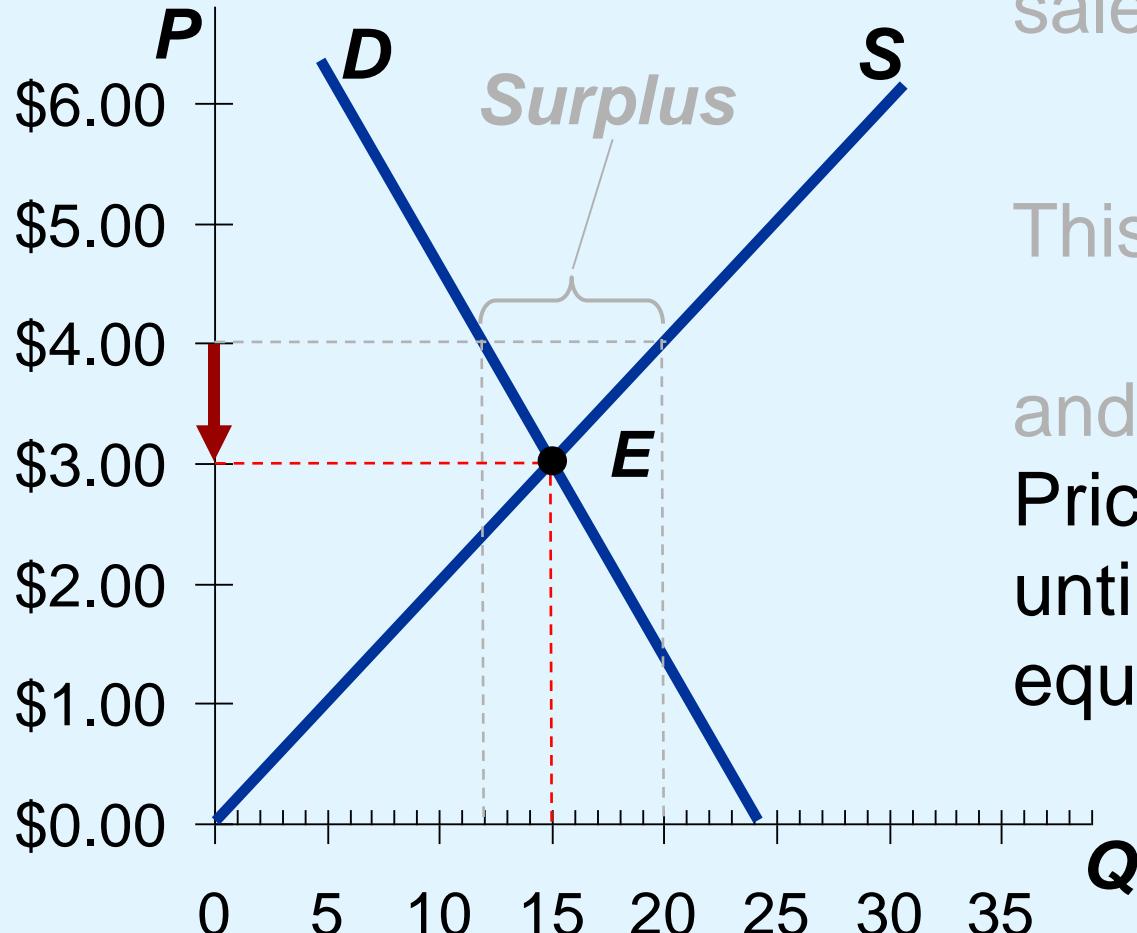
Markets Not in Equilibrium: Surplus



Facing a surplus,
sellers try to increase
sales by cutting price.

This causes Q^D to rise
and Q^S to fall...
...which reduces the
surplus.

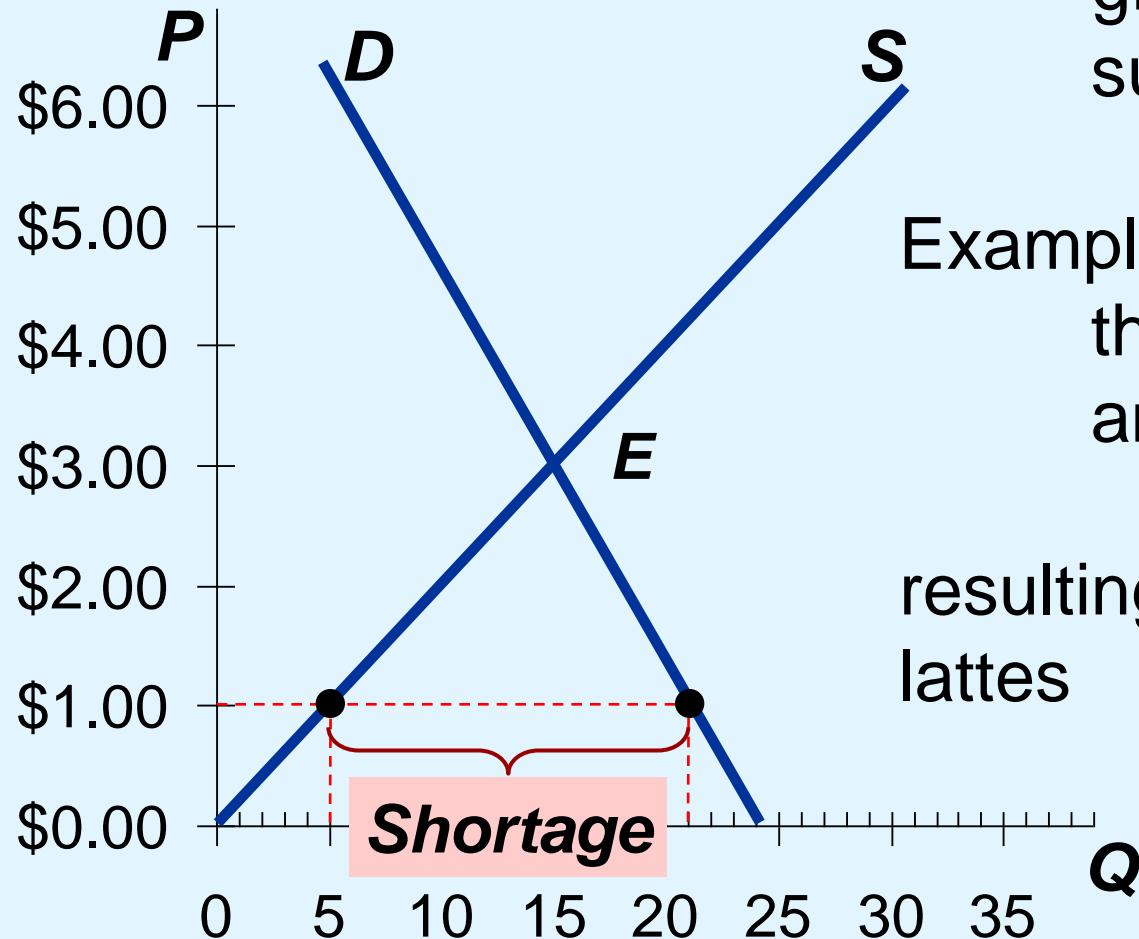
Markets Not in Equilibrium: Surplus



Facing a surplus,
sellers try to increase
sales by cutting price.

This causes Q^D to rise
and Q^S to fall...
Prices continue to fall
until market reaches
equilibrium.

Markets Not in Equilibrium: Shortage



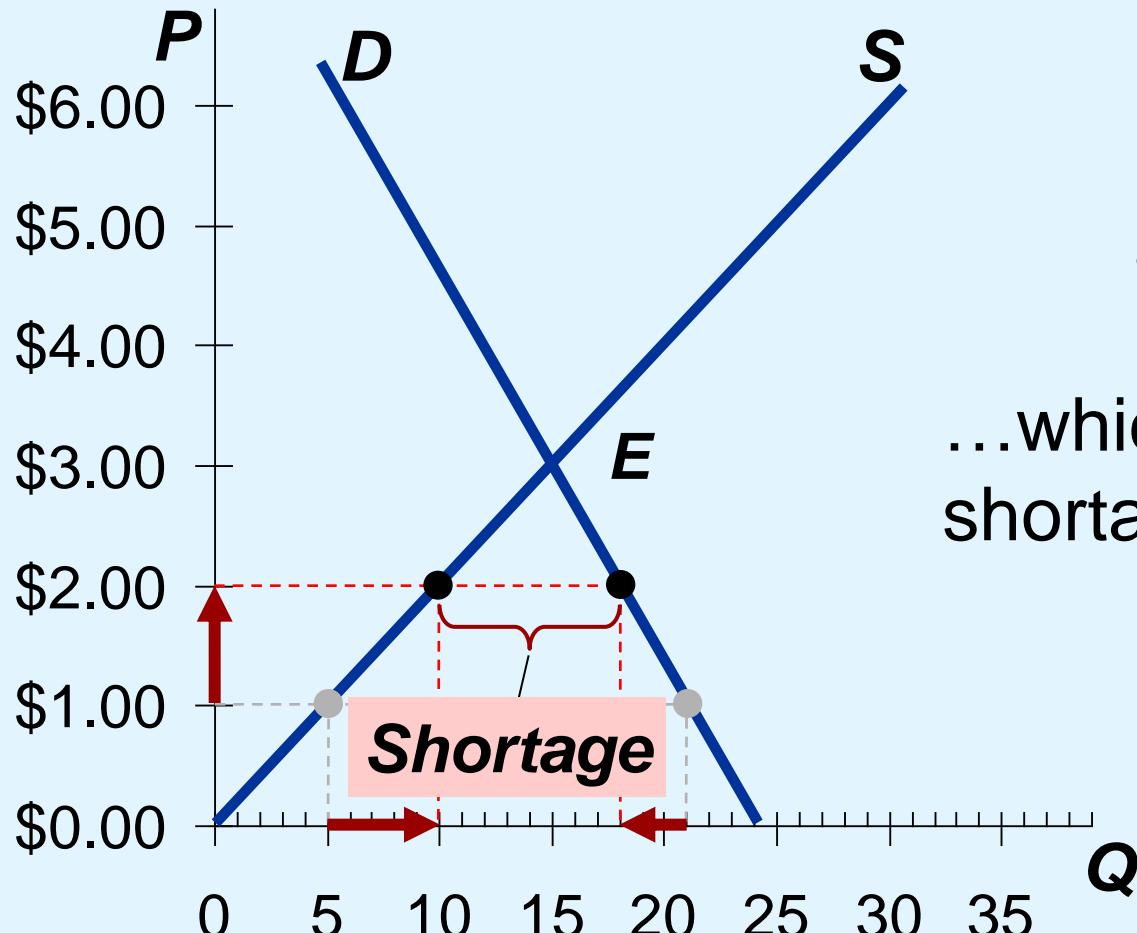
Shortage (excess demand):
quantity demanded is
greater than quantity
supplied

Example: if $P = \$1$,
then $Q^D = 21$ lattes
and $Q^S = 5$ lattes

resulting in a shortage of 16
lattes

Markets Not in Equilibrium: Shortage

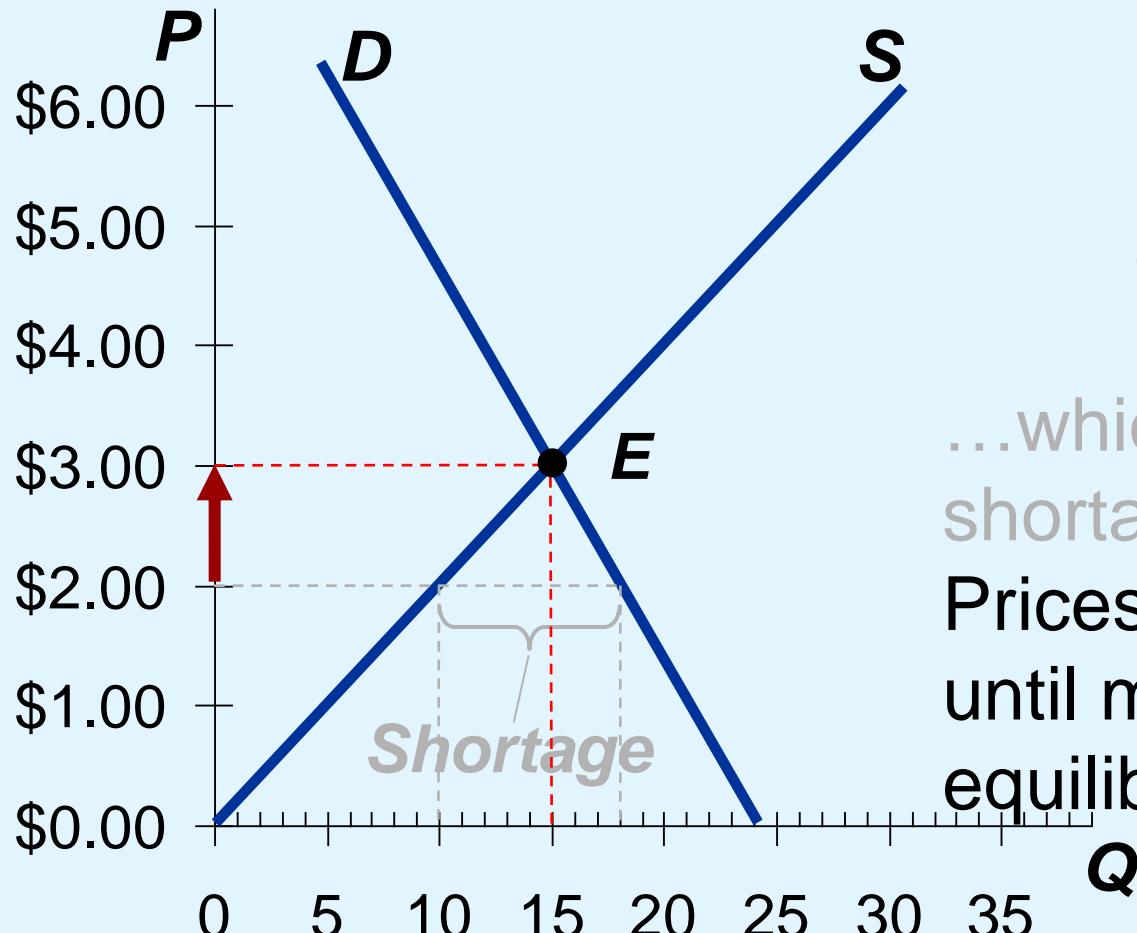
Facing a shortage,
sellers raise the price,



causing Q^D to fall
and Q^S to rise,
...which reduces the
shortage.

Markets Not in Equilibrium: Shortage

Facing a shortage,
sellers raise the price,



causing Q^D to fall
and Q^S to rise,

...which reduces the
shortage.

Prices continue to rise
until market reaches
equilibrium.

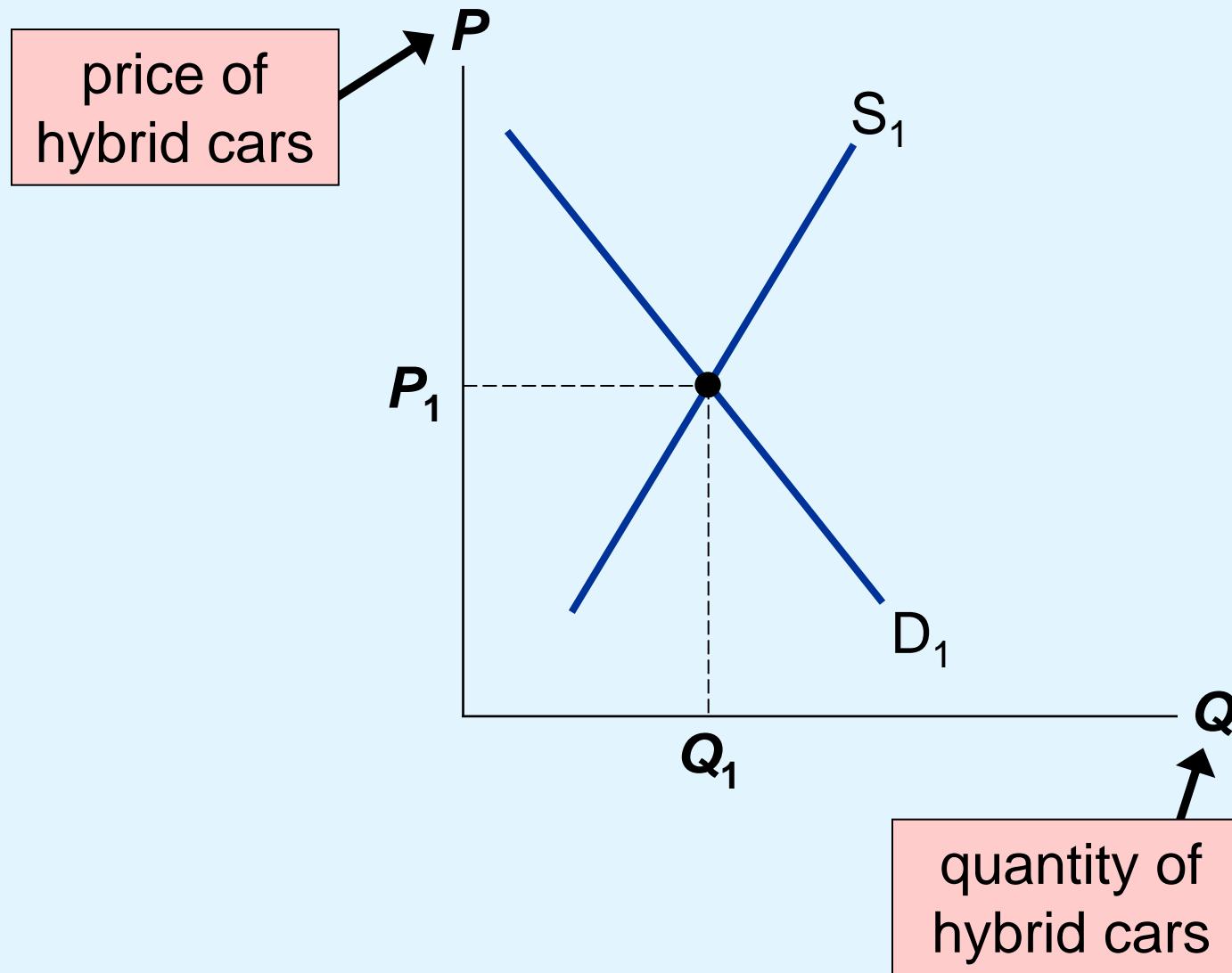


Supply and Demand Together

Three steps to analyzing changes in equilibrium

1. Decide whether the event shifts the supply curve, the demand curve, or, in some cases, both curves
2. Decide whether the curve shifts to the right or to the left
3. Use the supply-and-demand diagram
 - Compare the initial and the new equilibrium
 - Effects on equilibrium price and quantity

EXAMPLE: The Market for Hybrid Cars



EXAMPLE 1: A Shift in Demand

EVENT TO BE ANALYZED:

Increase in the price of gas.

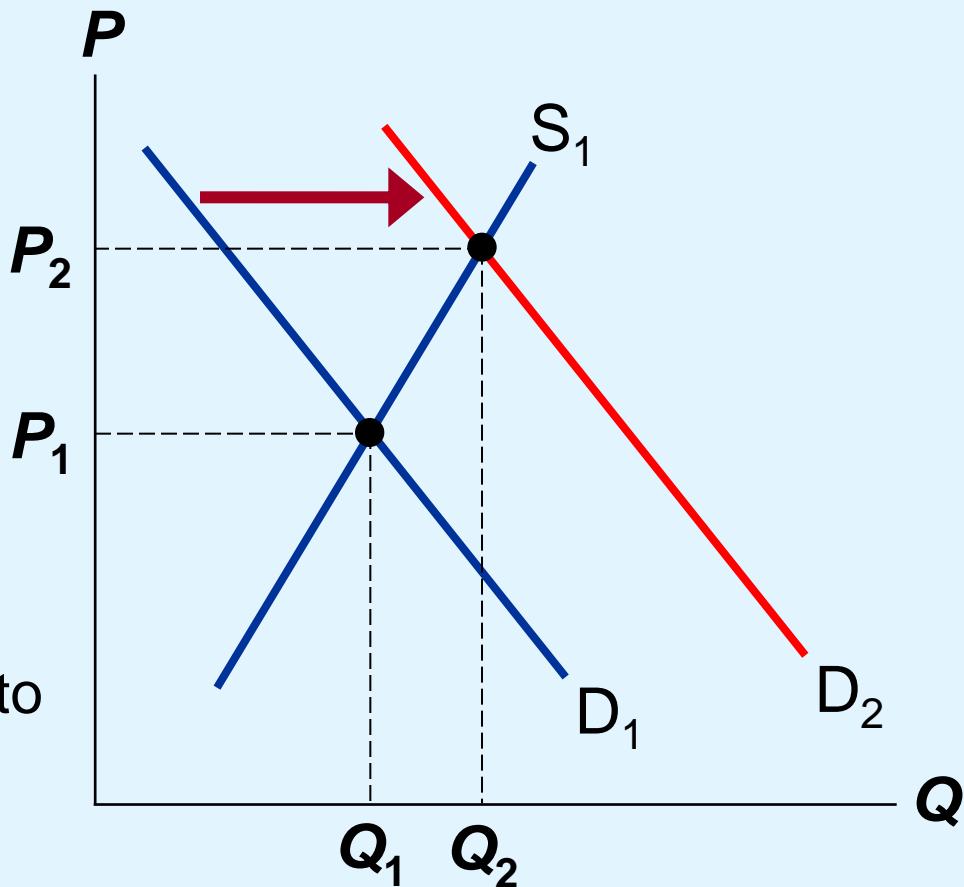
STEP 1: *D* curve shifts

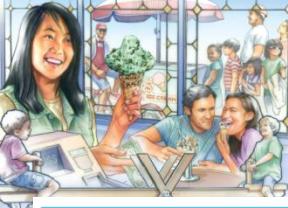
because price of gas affects demand for hybrids. (*S* curve does not shift, because price of gas does not affect cost of producing hybrids)

STEP 2: *D* shifts right

because high gas price makes hybrids more attractive relative to other cars.

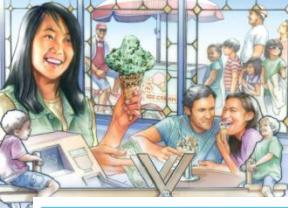
STEP 3: The shift causes an increase in price and quantity of hybrid cars.





Shift vs. Movement Along Curve

- Change in supply:
 - A shift in the S curve
 - Occurs when a non-price determinant of supply changes (like technology or costs)
- Change in the quantity supplied:
 - A movement along a fixed S curve
 - Occurs when P changes



Shift vs. Movement Along Curve

- Change in demand:
 - A shift in the D curve
 - Occurs when a non-price determinant of demand changes (like income or # of buyers)
- Change in the quantity demanded:
 - A movement along a fixed D curve
 - Occurs when P changes

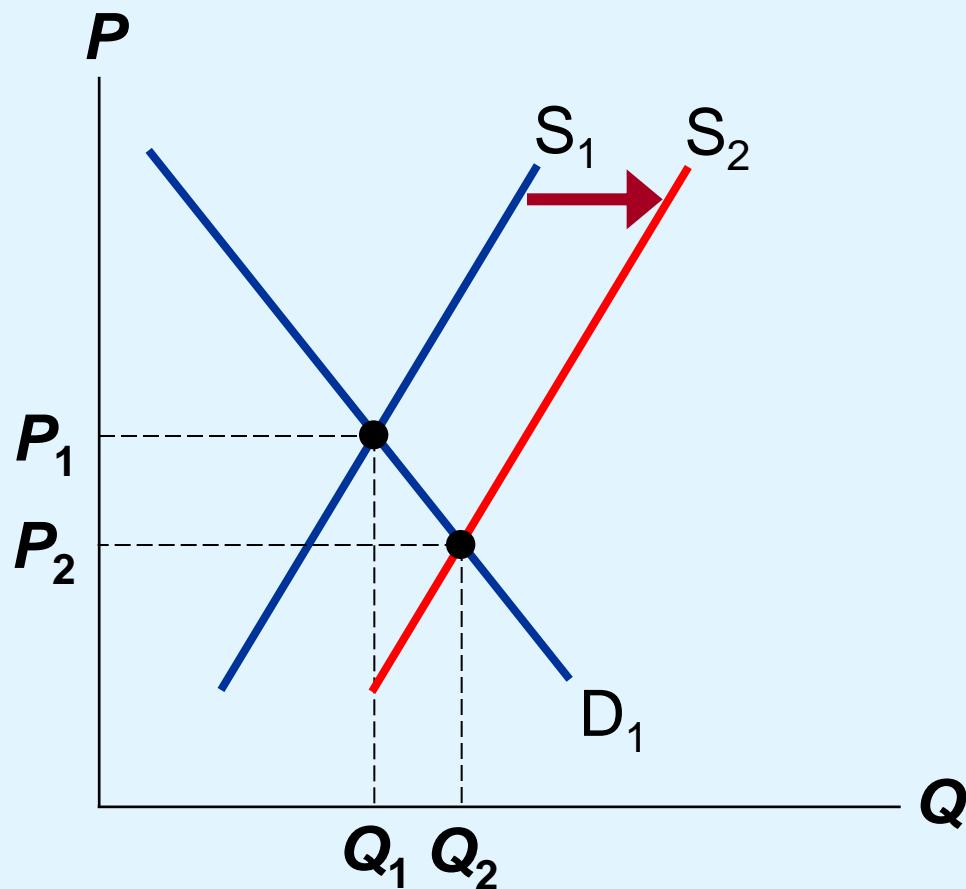
EXAMPLE 2: A Shift in Supply

EVENT: New technology reduces cost of producing hybrid cars.

STEP 1: S curve shifts because event affects cost of production. (D curve does not shift, because production technology is not one of the factors that affect demand)

STEP 2: S shifts right because event reduces cost, makes production more profitable at any given price.

STEP 3: The shift causes price to fall and quantity to rise.



EXAMPLE 3: A Shift in Both Supply and Demand

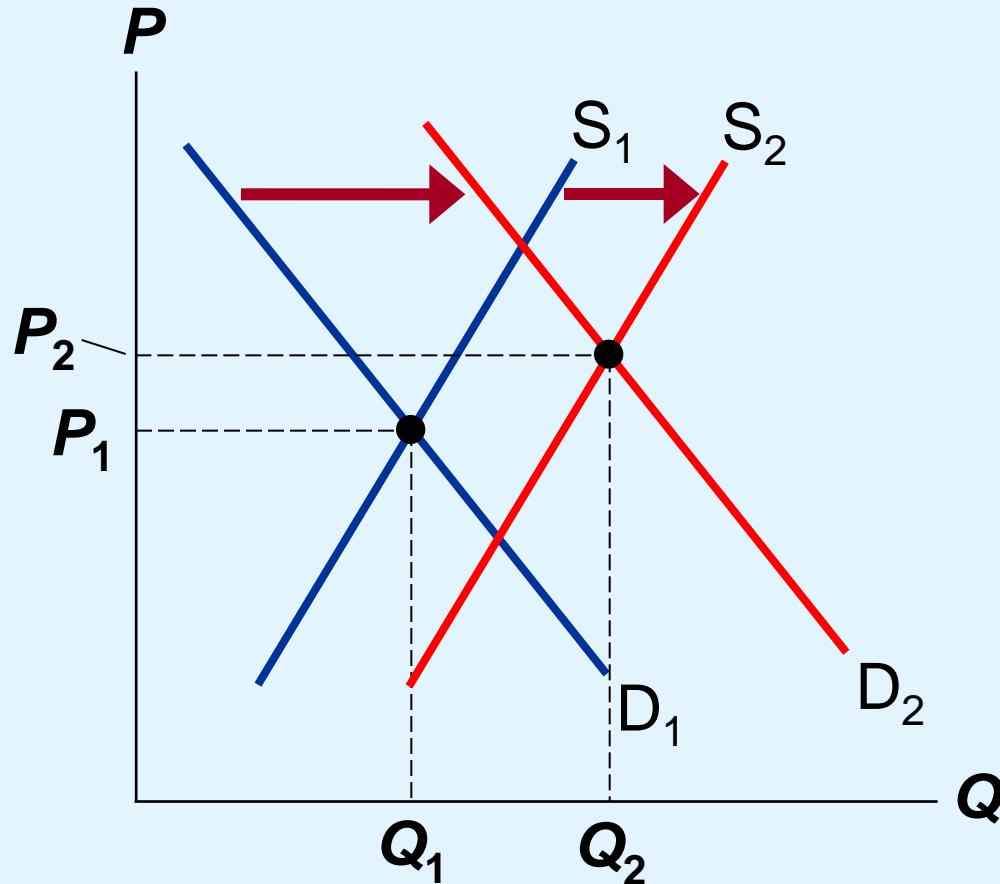
EVENTS: Price of gas rises AND new technology reduces production costs

STEP 1: Both curves shift.

STEP 2: Both shift to the right.

STEP 3: Q rises, but the effect on P is ambiguous:

If demand increases more than supply, P rises.

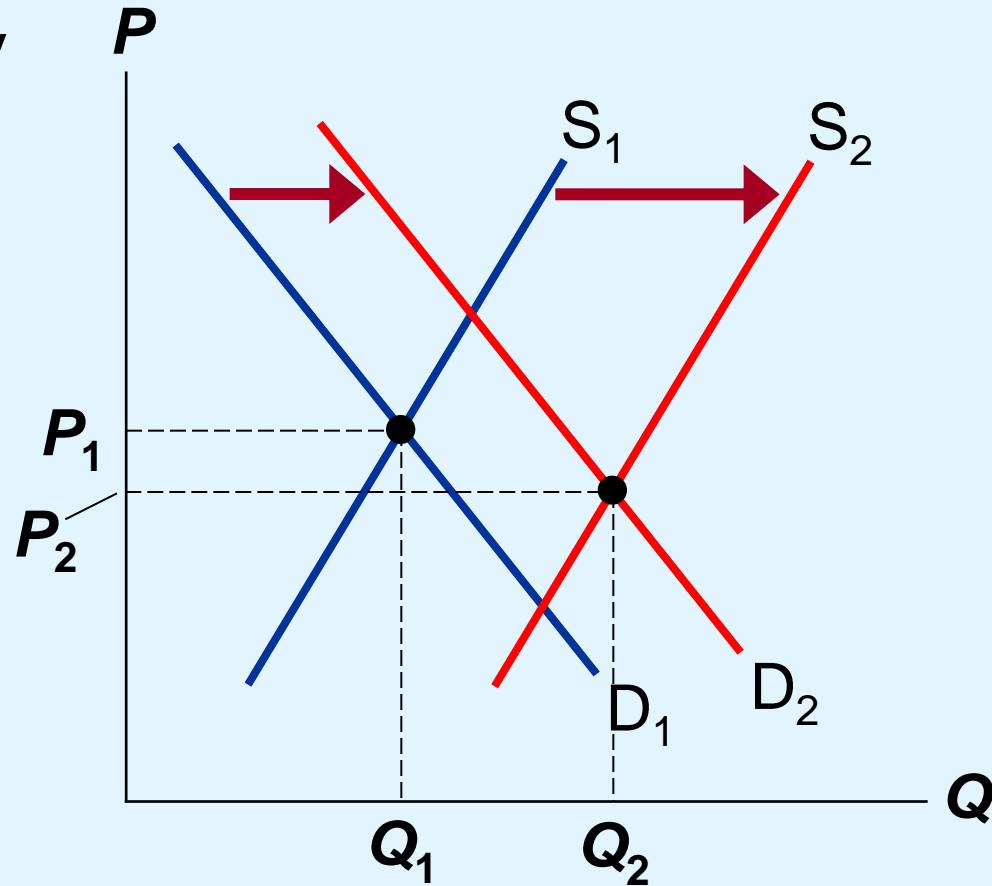


EXAMPLE 3: A Shift in Both Supply and Demand

EVENTS: Price of gas rises AND new technology reduces production costs

STEP 3: Q rises, but the effect on P is ambiguous:

But if supply increases more than demand, P falls.





How Prices Allocate Resources

- “Markets are usually a good way to organize economic activity”
- In market economies
 - Prices adjust to balance supply and demand
- These equilibrium prices
 - Are the signals that guide economic decisions and thereby allocate scarce resources

Summary

- Economists use the model of supply and demand to analyze competitive markets.
 - Many buyers and sellers, all are price takers
- The demand curve shows how the quantity of a good demanded depends on the price.
 - Law of demand: as the price of a good falls, the quantity demanded rises; the **D** curve slopes downward
 - Other determinants of demand: income, prices of substitutes and complements, tastes, expectations, and number of buyers.
 - If one of these factors changes, the **D** curve shifts

Summary

- The supply curve shows how the quantity of a good supplied depends on the price.
 - Law of supply: as the price of a good rises, the quantity supplied rises; the **S** curve slopes upward.
- Other determinants of supply: input prices, technology, expectations, and number of sellers.
 - If one of these factors changes, supply curve shifts.
- The intersection of the supply and demand curves determines the market equilibrium.
 - At the equilibrium price, quantity demanded = quantity supplied

Summary

- The behavior of buyers and sellers naturally drives markets toward their equilibrium.
 - When the market price is above the equilibrium price, there is a surplus of the good, which causes the market price to fall.
 - When the market price is below the equilibrium price, there is a shortage, which causes the market price to rise.

Summary

- To analyze how any event influences a market, we use the supply-and-demand diagram to examine how the event affects the equilibrium price and quantity.
 1. Decide whether the event shifts the supply curve or the demand curve (or both).
 2. Decide in which direction the curve shifts.
 3. Compare the new equilibrium with the initial one.
- In market economies, prices are the signals that guide economic decisions and thereby allocate scarce resources.