ECO2011 Basic Microeconomics

Mankiw Chapter 4 (Demand and Supply)

2023

Motivation

- Have you noticed that prices of many goods fluctuate? Any example in mind?
- Why?

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

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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"

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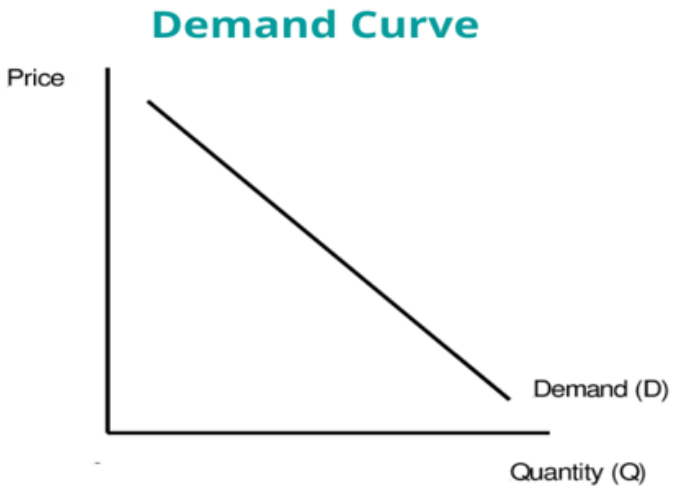
Demand

- Demand comes from the behavior of buyers.
- The quantity demanded of any good is the amount of the good that buyers are willing and able to purchase.
- Determined by the marginal benefit
- **Law of demand**: the claim that the quantity demanded of a good falls when the price of the good rises, other things equal
- How would Zhang San respond if price of dumplings increases?

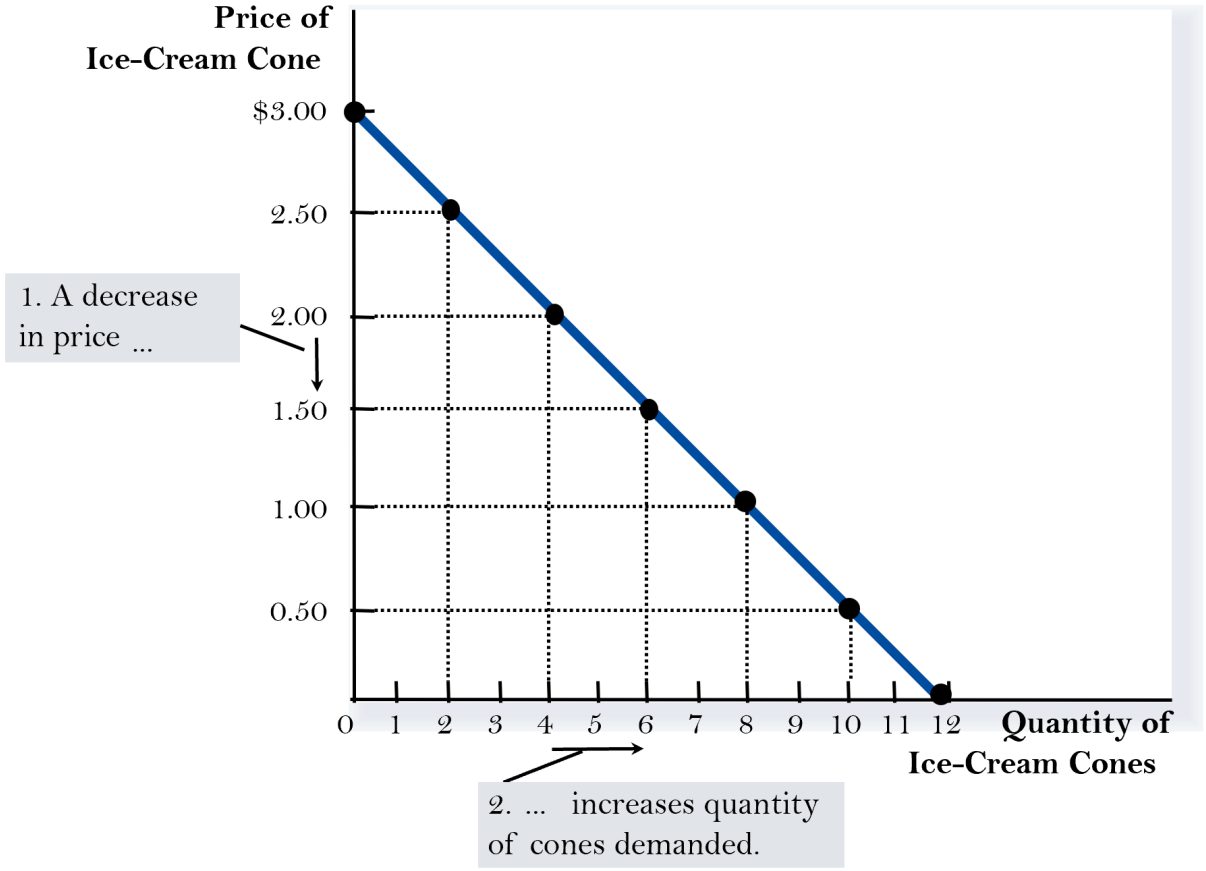


Demand Schedule

- Demand schedule:
  - A table, shows the relationship between the price of a good and the quantity demanded
  - Example: Sijia's demand for ice-cream cones.
- Does Sijia's preferences obey the Law of Demand?

Price of Ice-Cream Cone	Quantity of cones demanded
$0.00	12
0.50	10
1.00	8
1.50	6
2.00	4
2.50	2
3.00	0

Demand Schedule and Demand Curve



Price of Ice-Cream Cone	Quantity of cones demanded
$0.00	12
0.50	10
1.00	8
1.50	6
2.00	4
2.50	2
3.00	0

Market Demand versus Individual 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

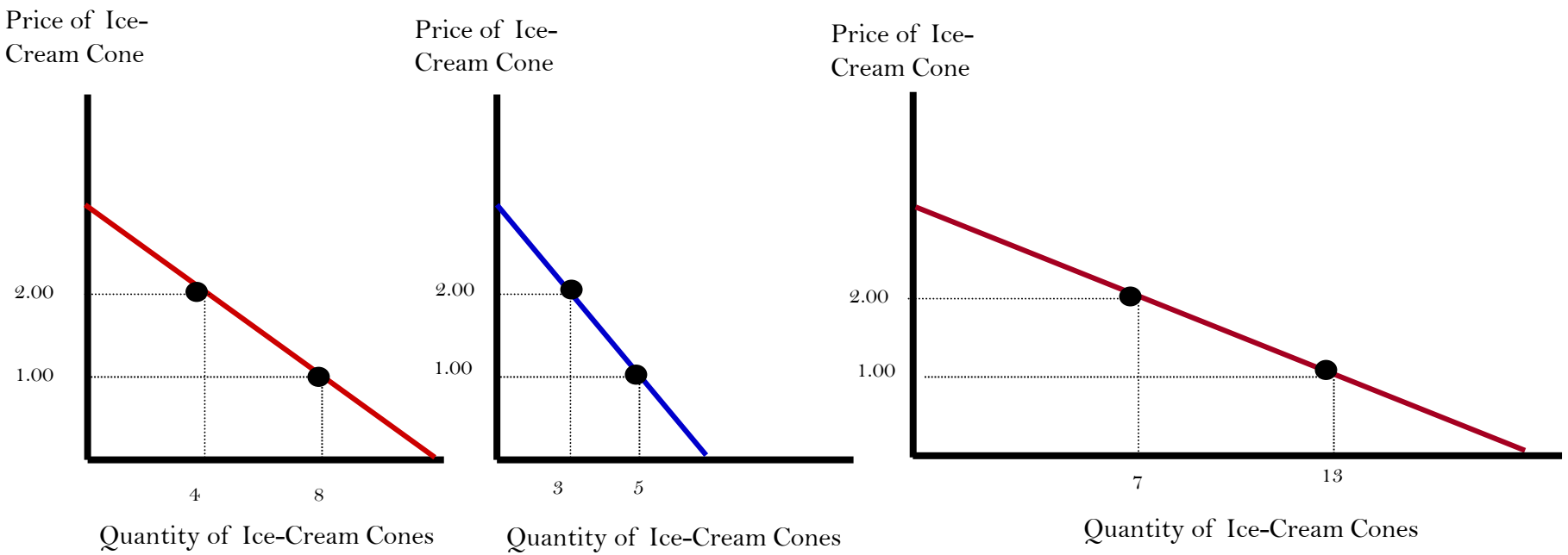
The Market Demand Curve

When the price is $2.00, Sijia will demand 4 ice-cream cones.

When the price is $2.00, Meiling will demand 3 ice-cream cones.

The market demand at $2.00 will be 7 ice-cream cones.

Sijia's Demand + Meiling's Demand = Market Demand



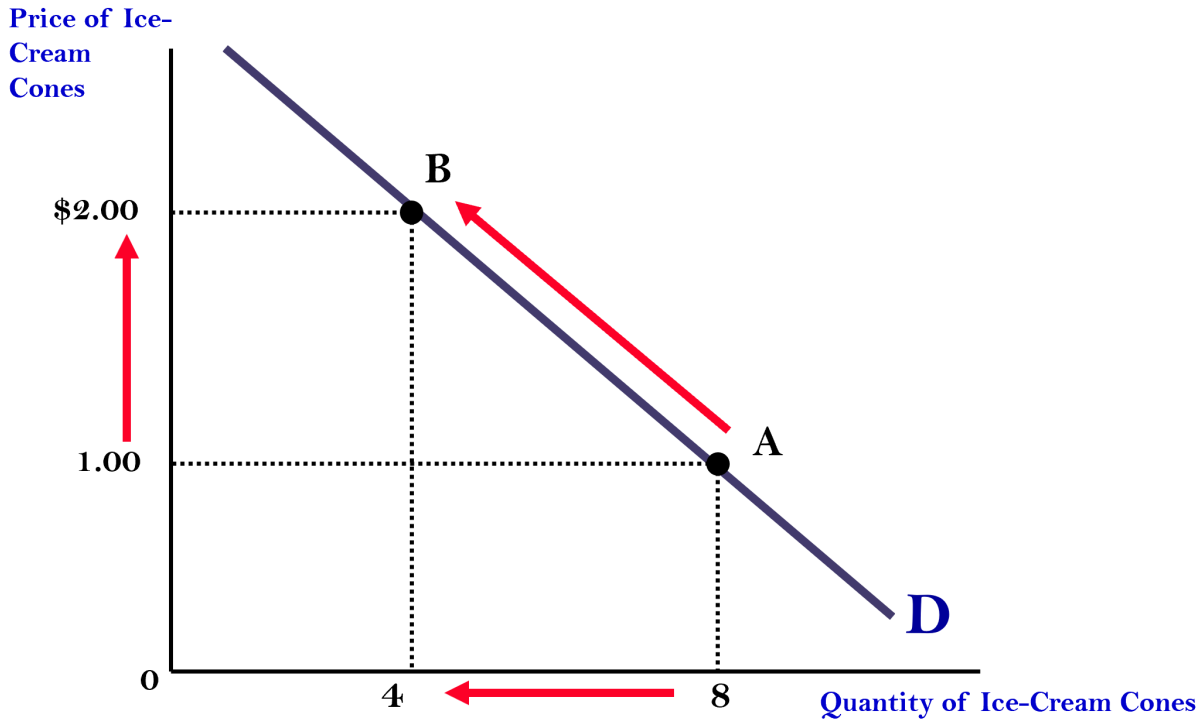
When the price is $1.00, Sijia will demand 8 ice-cream cones.

When the price is $1.00, Meiling will demand 5 ice-cream cones.

The market demand at $1.00, will be 13 ice-cream cones.

Change in Quantity Demanded

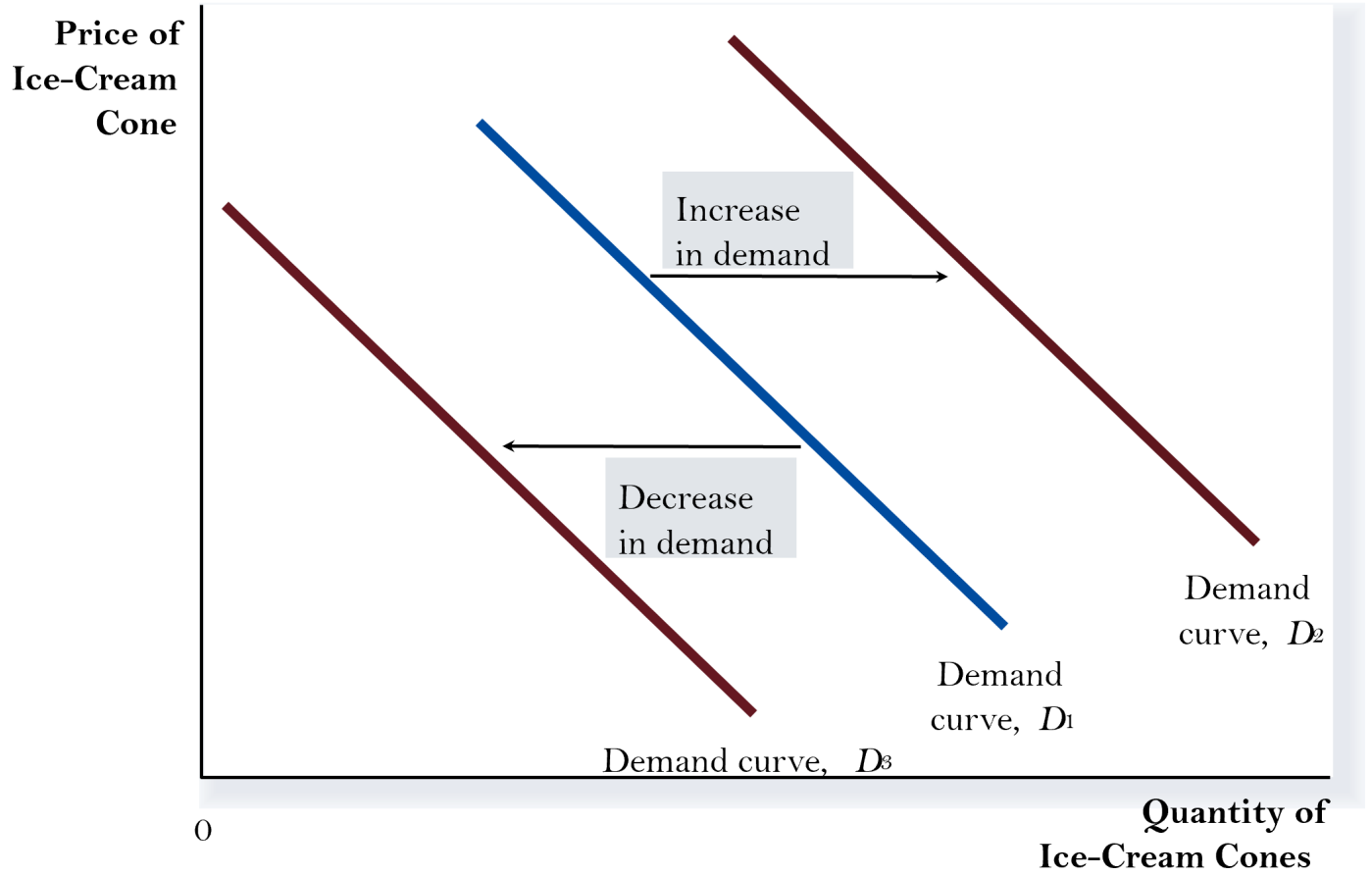
- Movement along the demand curve.
- Caused by a change in the price of the product.



Change in Demand

- 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…

Change in Demand



Demand Curve Shifters: Income

- 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
  - Examples of normal and inferior goods?
  - Example of goods that does not obey the law of demand?

Demand Curve Shifters: # of Buyers

- 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: Prices of Related Goods

- 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?

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Demand Curve Shifters: Prices of Related Goods

- 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?

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Demand Curve Shifters: Tastes

- 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:
    - The Atkins diet became popular in the ’90s, caused an increase in demand for eggs, shifted the egg demand curve to the right
  - Any other examples?

Demand Curve Shifters: Expectations

- 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
  - Any other examples?

Summary: Variables That Influence Buyers

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

Active Learning 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

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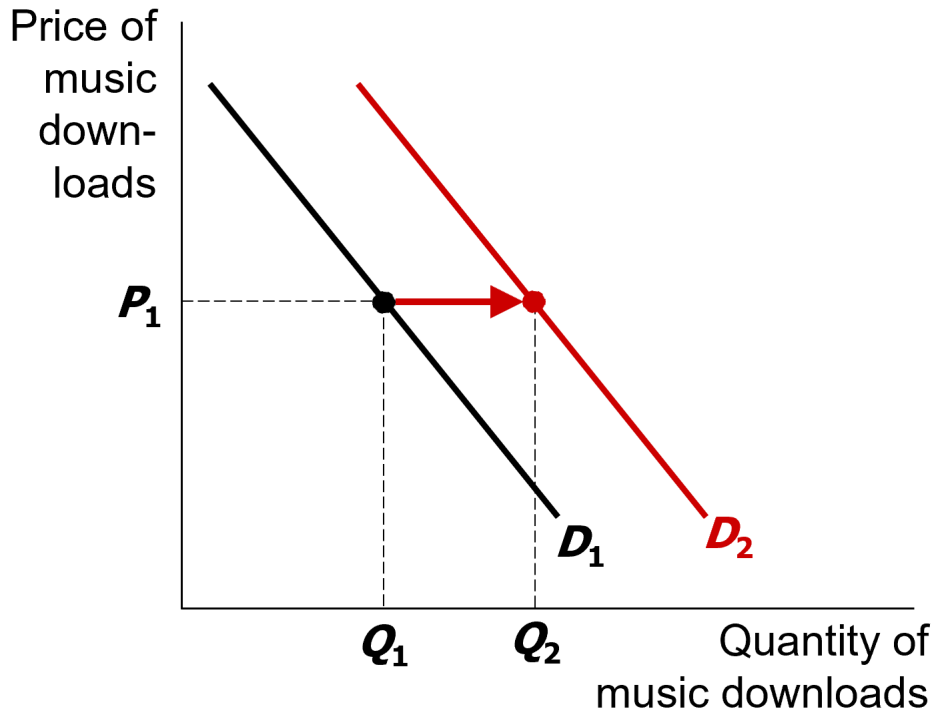
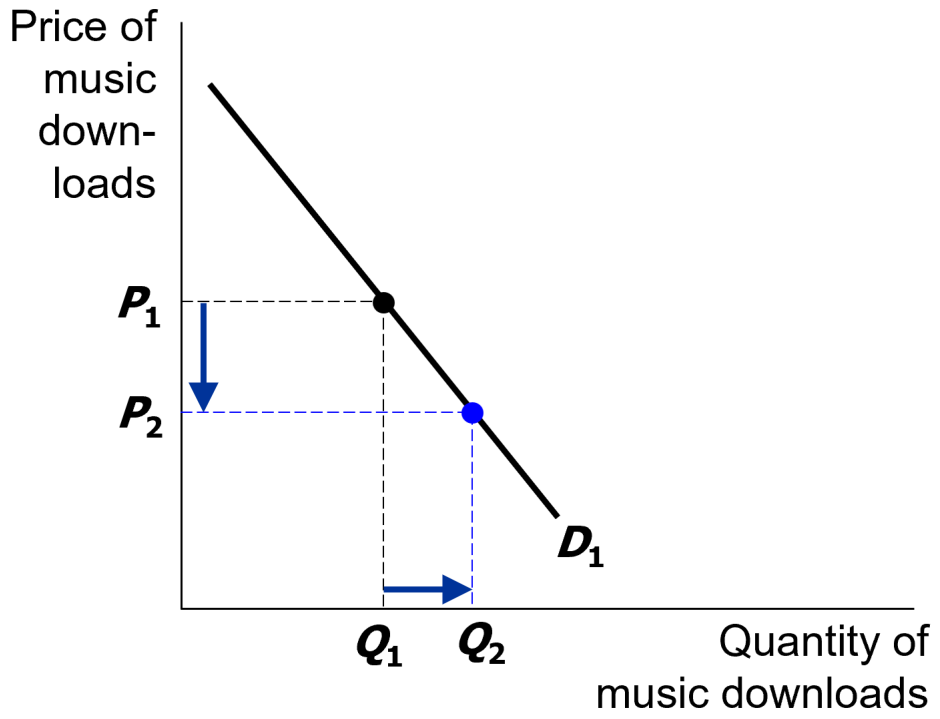
Active Learning The price of iPods falls

- Music downloads and iPods are complements.
- A fall in price of iPods shifts the demand curve for music downloads to the right.



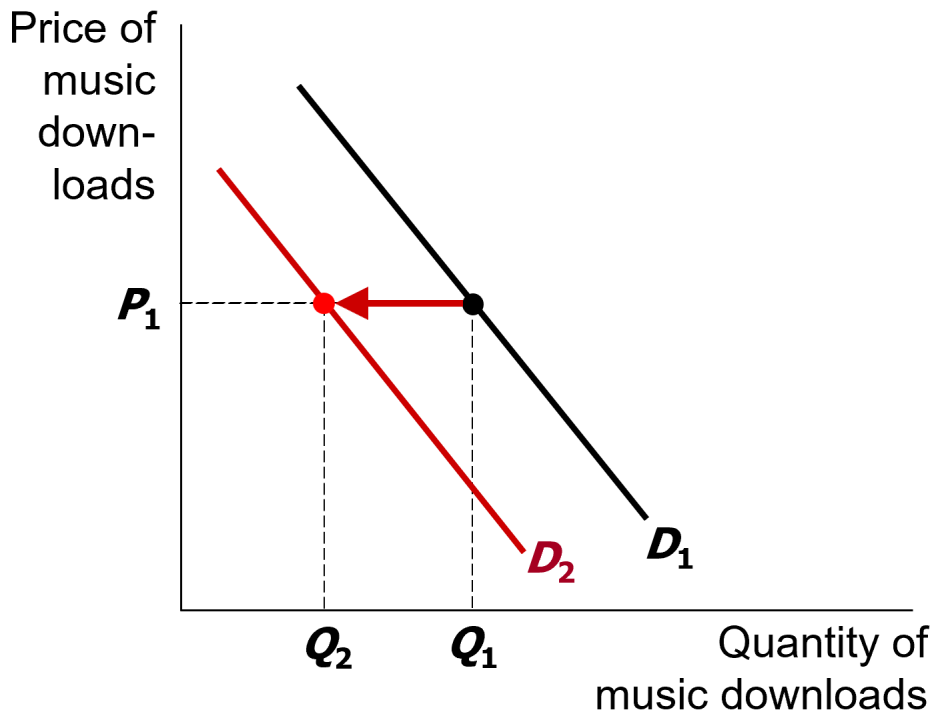
Active Learning The price of music downloads falls

- The D curve does not shift.
- Move down along curve to a point with lower P, higher Q.



Active Learning 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.



Case Study: Two Ways to Reduce Smoking?

- Because smoking can harm you and those around you, policy makers often want to reduce the amount that people smoke.
- Can you think of two ways for achieving this goal based on what we just learned?

Supply

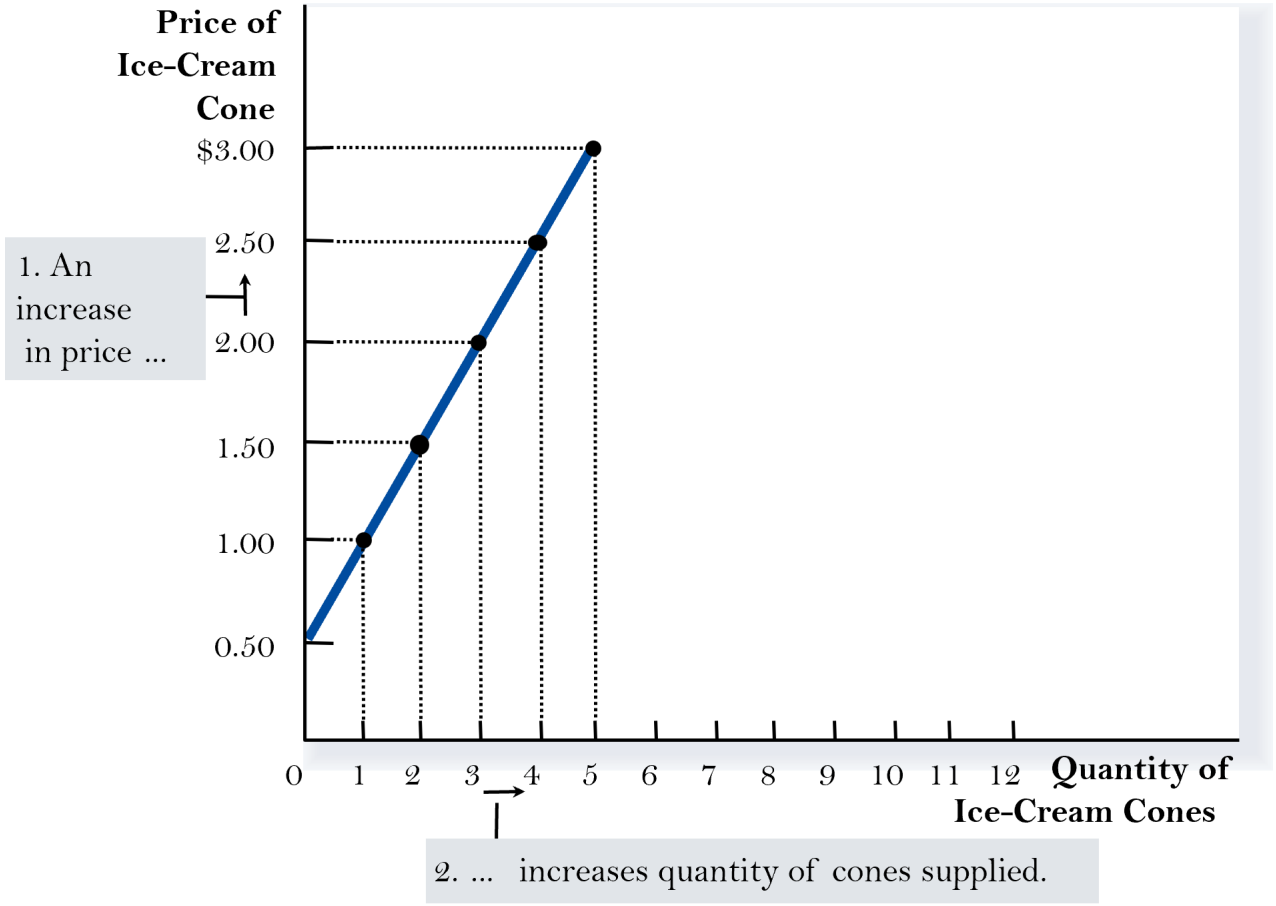
- Supply comes from the behavior of sellers.
- The quantity supplied of any good is the amount that sellers are willing and able to sell.
- Determined by the marginal cost
- **Law of supply**: the claim that the quantity supplied of a good rises when the price of the good rises, other things equal

Supply Schedule

- Supply schedule:
  - A table, shows the relationship between the price of a good and the quantity supplied.
  - Example: Yue's supply of ice-cream cones
- Does Yue's supply schedule obey the Law of Supply?

Price of Ice-Cream Cone	Quantity of cones supplied
$0.00	0
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5

Supply Schedule and Supply Curve

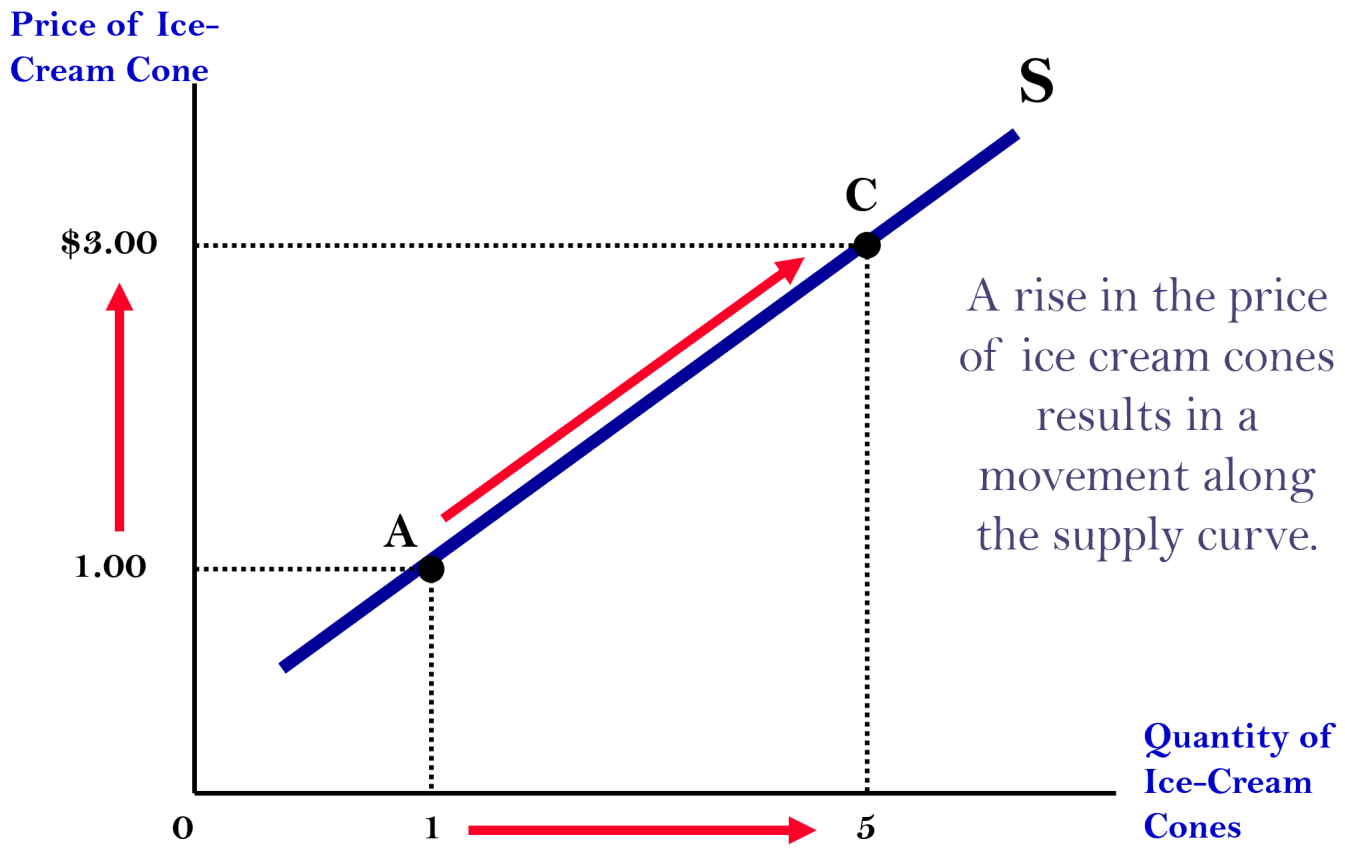


Price of Ice-Cream Cone	Quantity of cones supplied
$0.00	0
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5

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

Change in Quantity Supplied

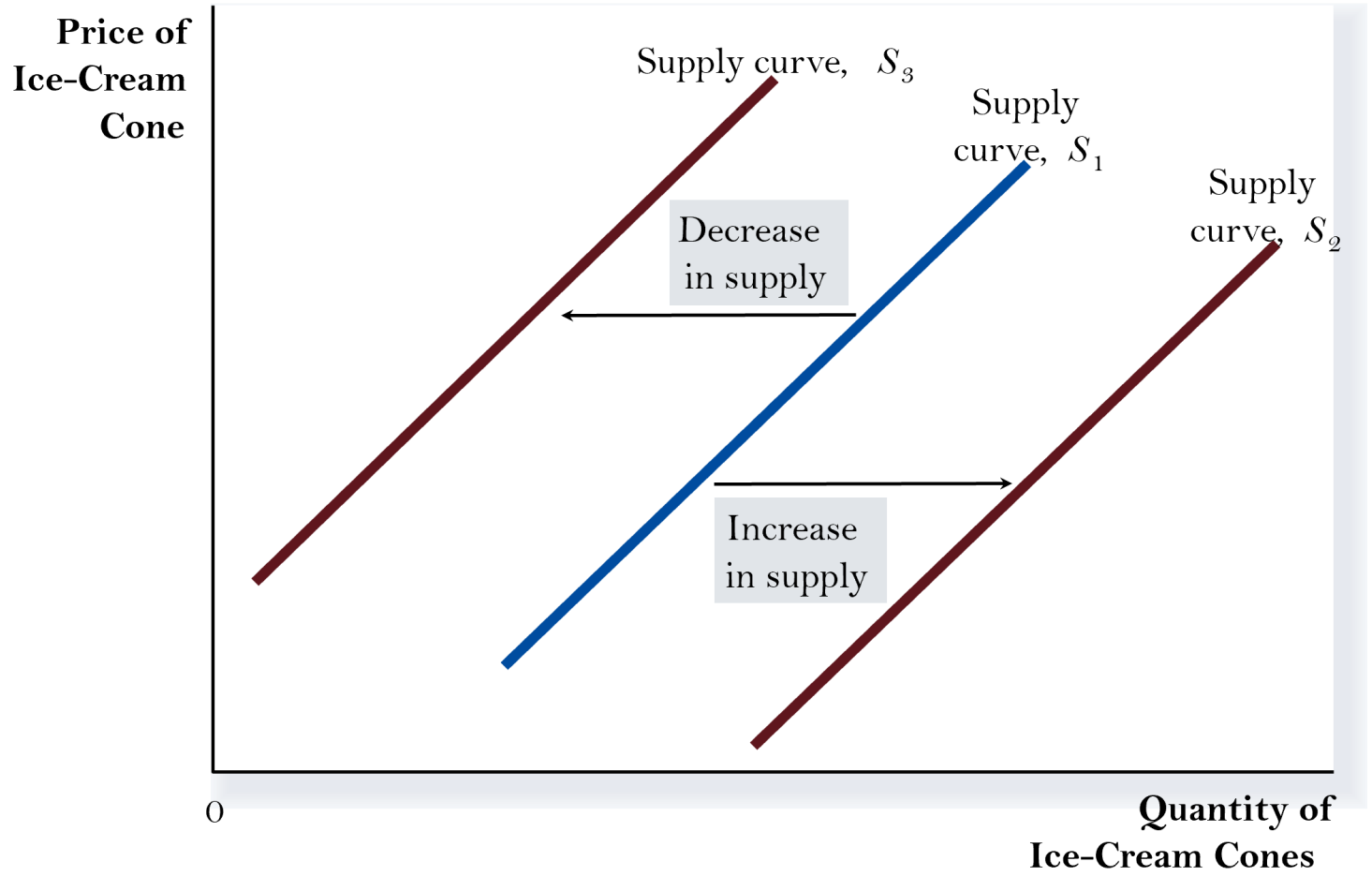


A rise in the price of ice cream cones results in a movement along the supply curve.

Change in Supply

- 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…

Change in Supply

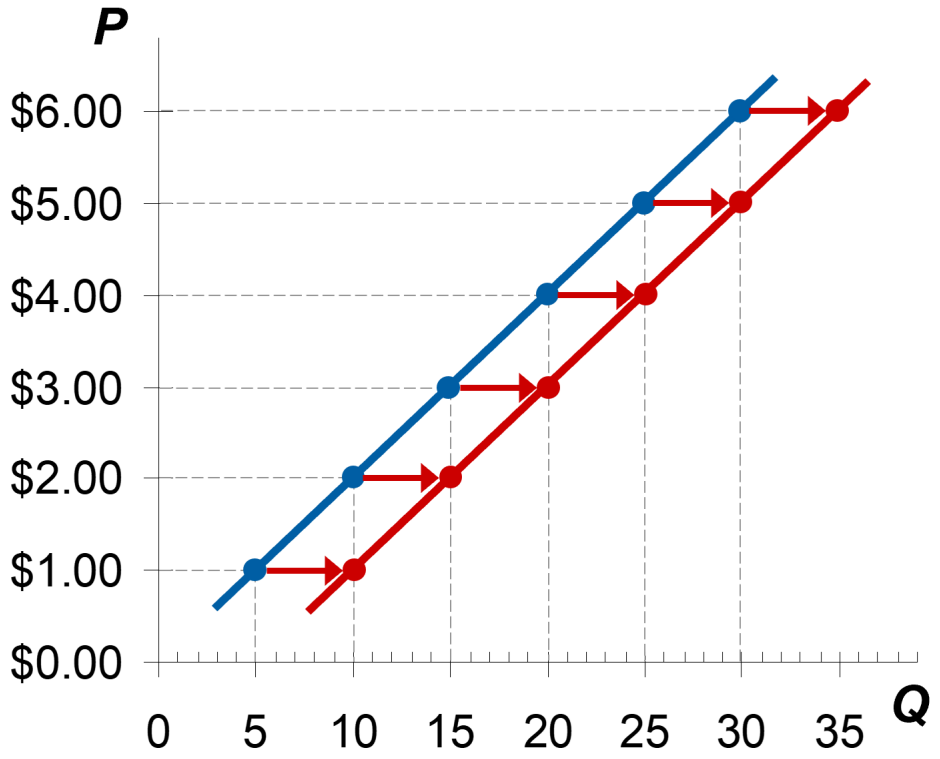


Supply Curve Shifters: Input Prices

- Input prices
  - Examples of input prices?
  - 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

- 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

Supply Curve Shifters: Number of sellers

- 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

- 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)

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Summary: Variables That Influence Sellers

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

Active Learning Supply curve

Draw a supply curve for tax return preparation software. What happens to it in each of the following scenarios?

A. Retailers cut the price of the software.

B. A technological advance allows the software to be produced at lower cost.

C. Professional tax return preparers raise the price of the services they provide.

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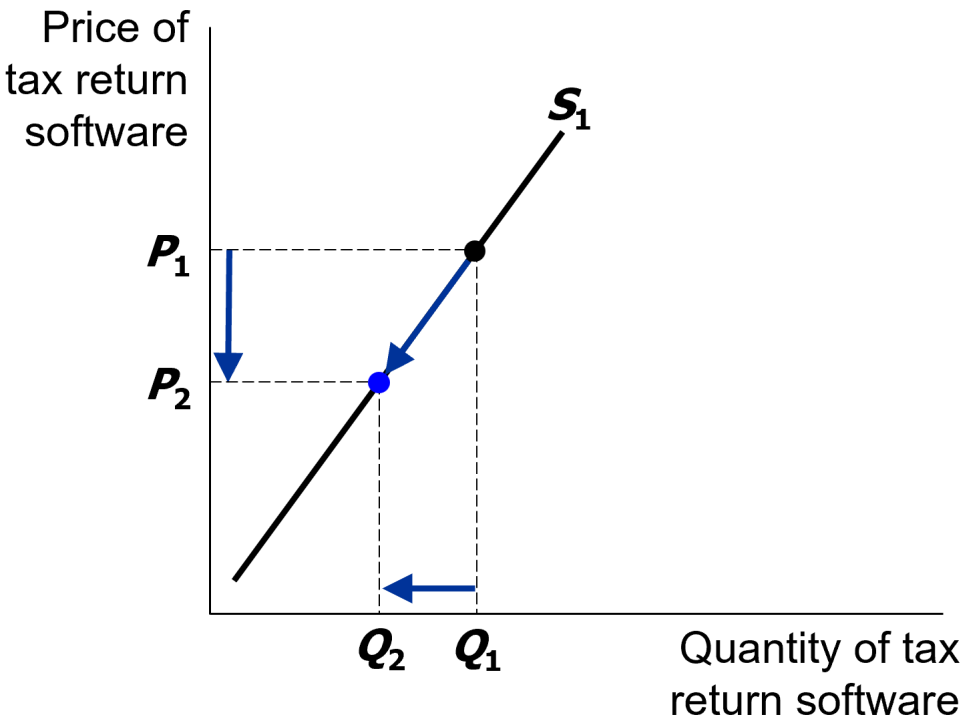
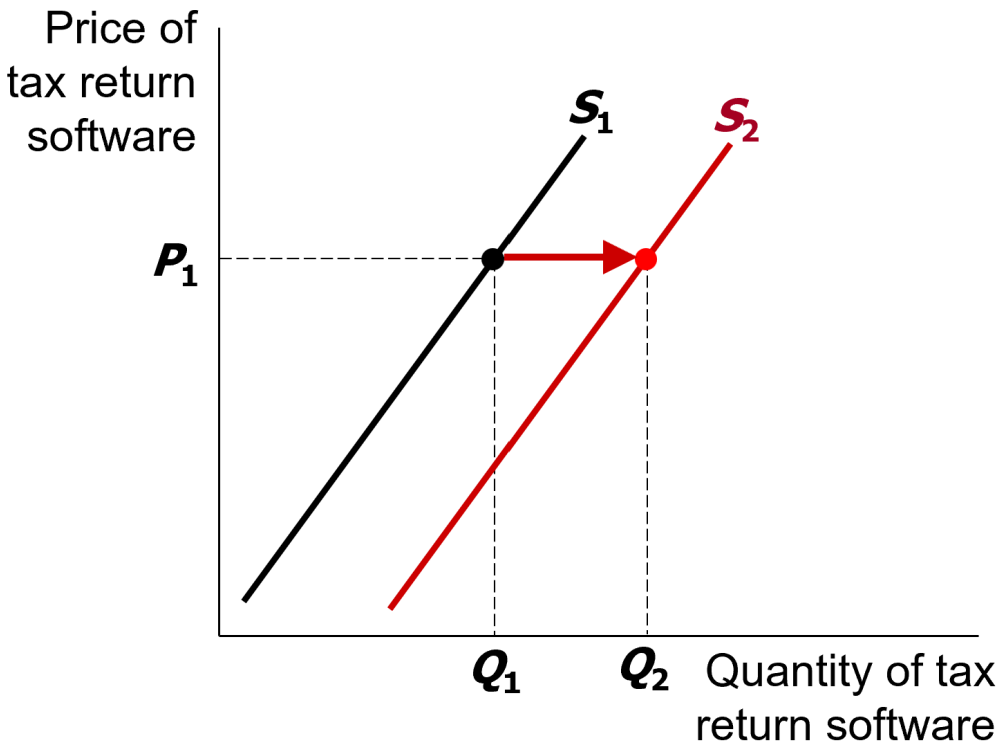
Active Learning Fall in price of tax return software

- S curve does not shift.
- Move down along the curve to a lower P and lower Q.



Active Learning Fall in cost of producing software

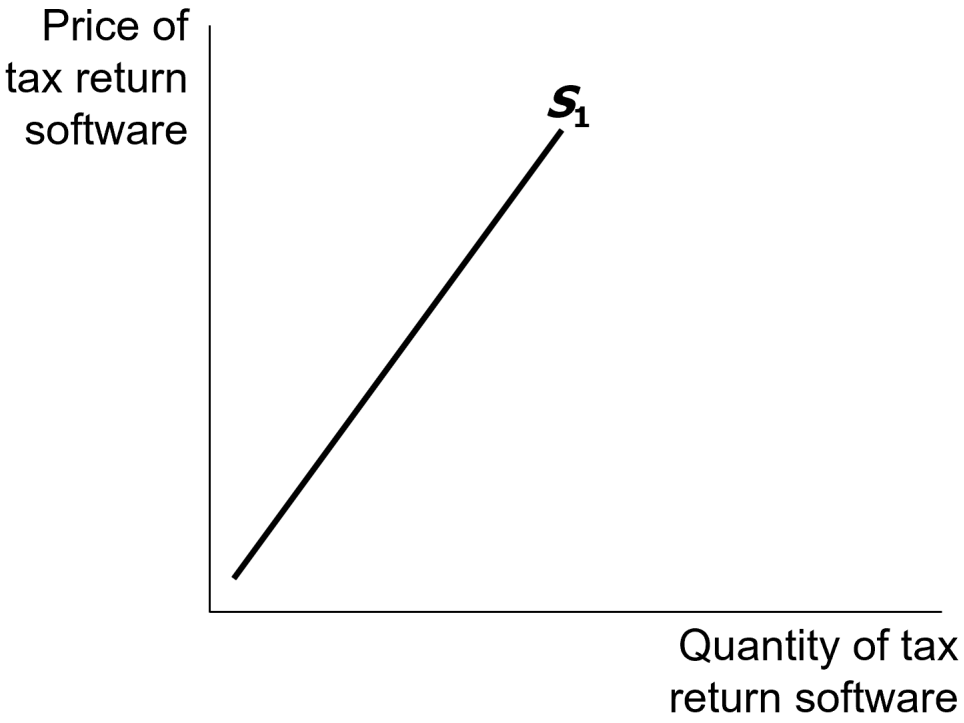
- S curve shifts to the right:
- at each price, Q increases.



Active Learning Professional preparers raise their price

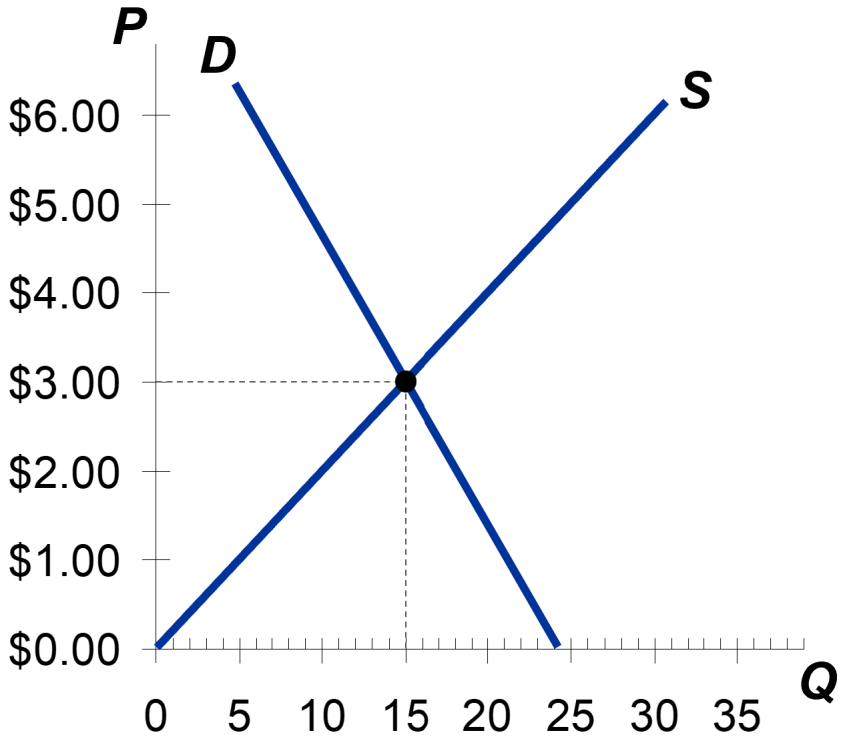
- Trick question:

- This shifts the demand curve for tax preparation software, not the supply curve.



Supply and Demand Together

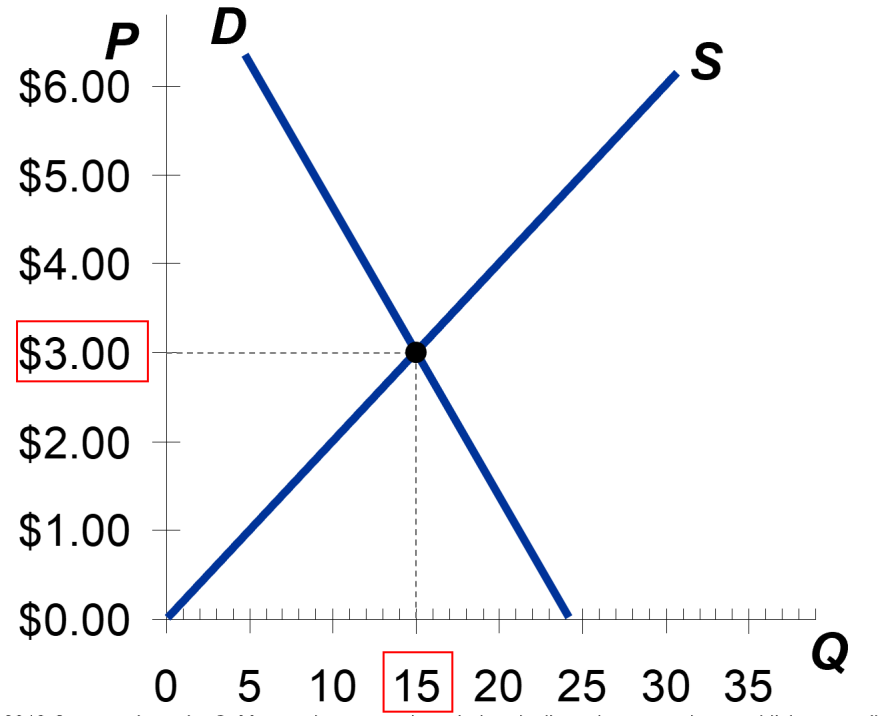
- Equilibrium: Price has reached the level where quantity supplied equals quantity demanded



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

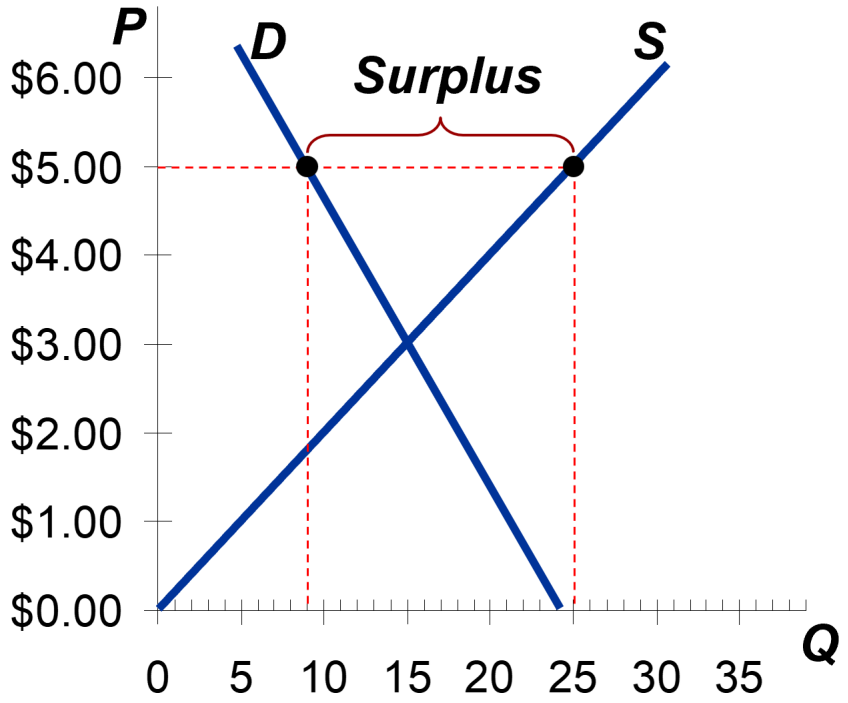


Markets Not in Equilibrium: Surplus

- **Surplus** (excess supply):
- quantity supplied is greater than quantity demanded
- Example: if $P = \$5$,

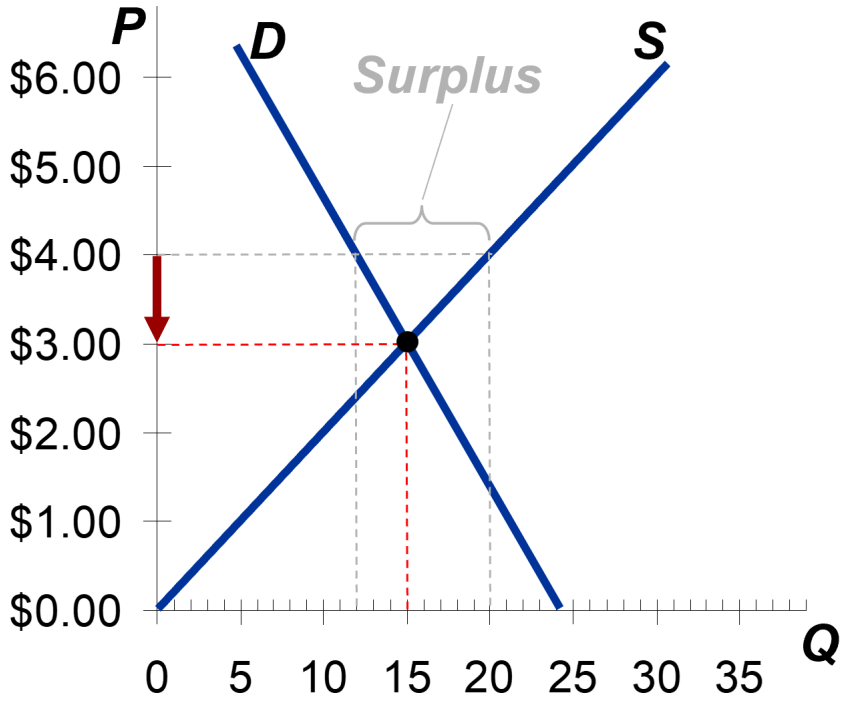
  then $Q^D = 9$ lattes

  and $Q^S = 25$ lattes
- resulting in a surplus of 16 lattes



Markets Not in Equilibrium: Surplus

- Prices continue to fall until market reaches equilibrium.

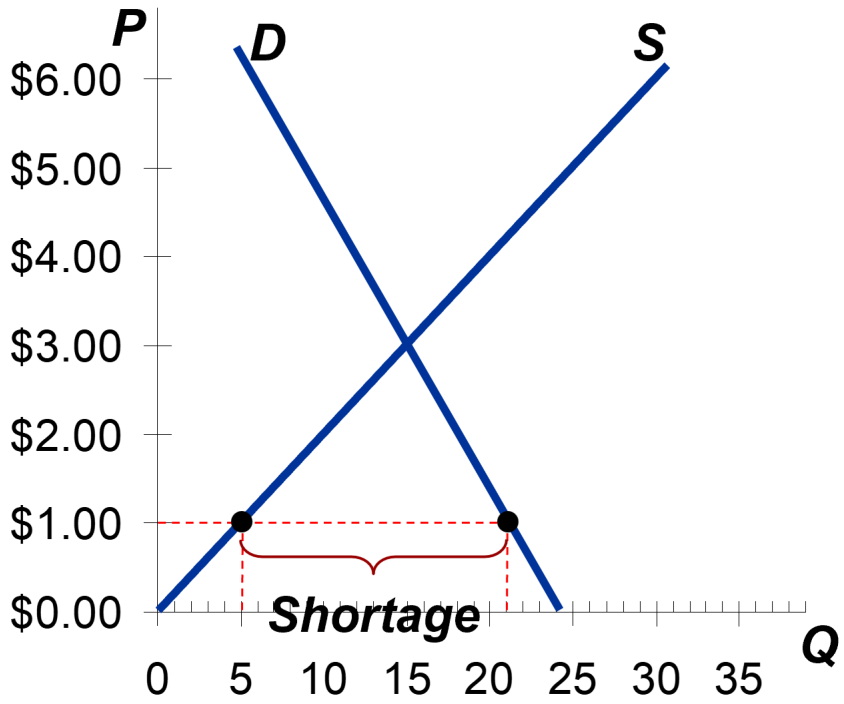


Markets Not in Equilibrium: Shortage

- **Shortage** (excess demand):
- quantity demanded is greater than quantity supplied
- Example: if $P = \$1$,

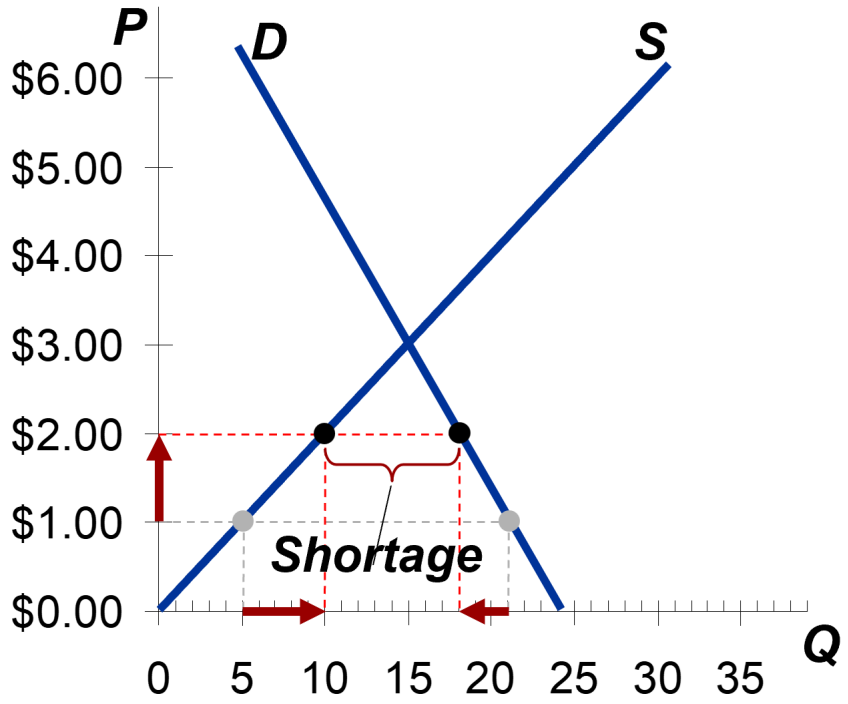
  then $Q^D = 21$ lattes

  and $Q^S = 5$ lattes
- resulting in a shortage of 16 lattes



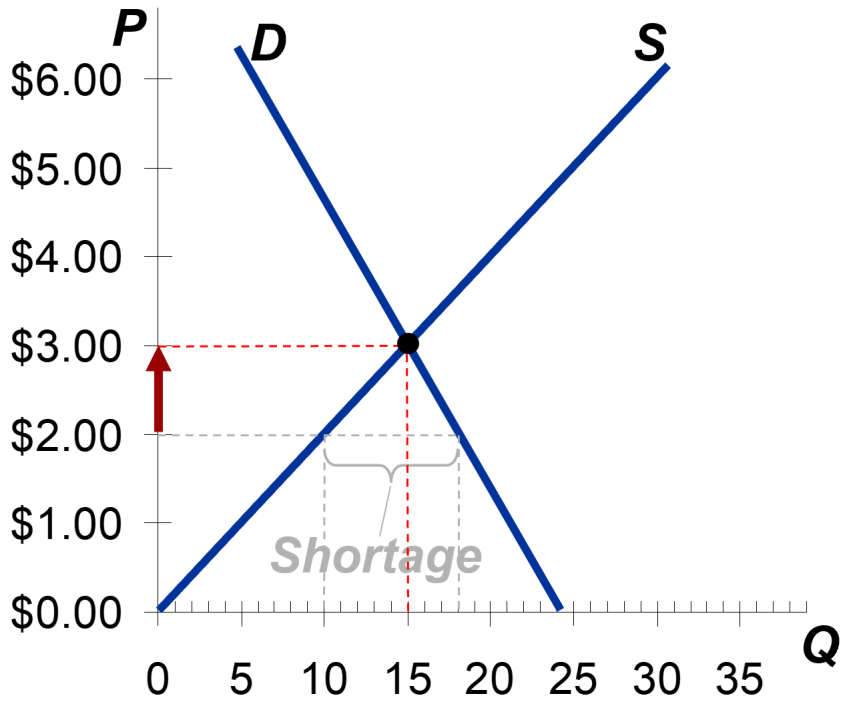
Markets Not in Equilibrium: Shortage

- 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

- Prices continue to rise until market reaches equilibrium.

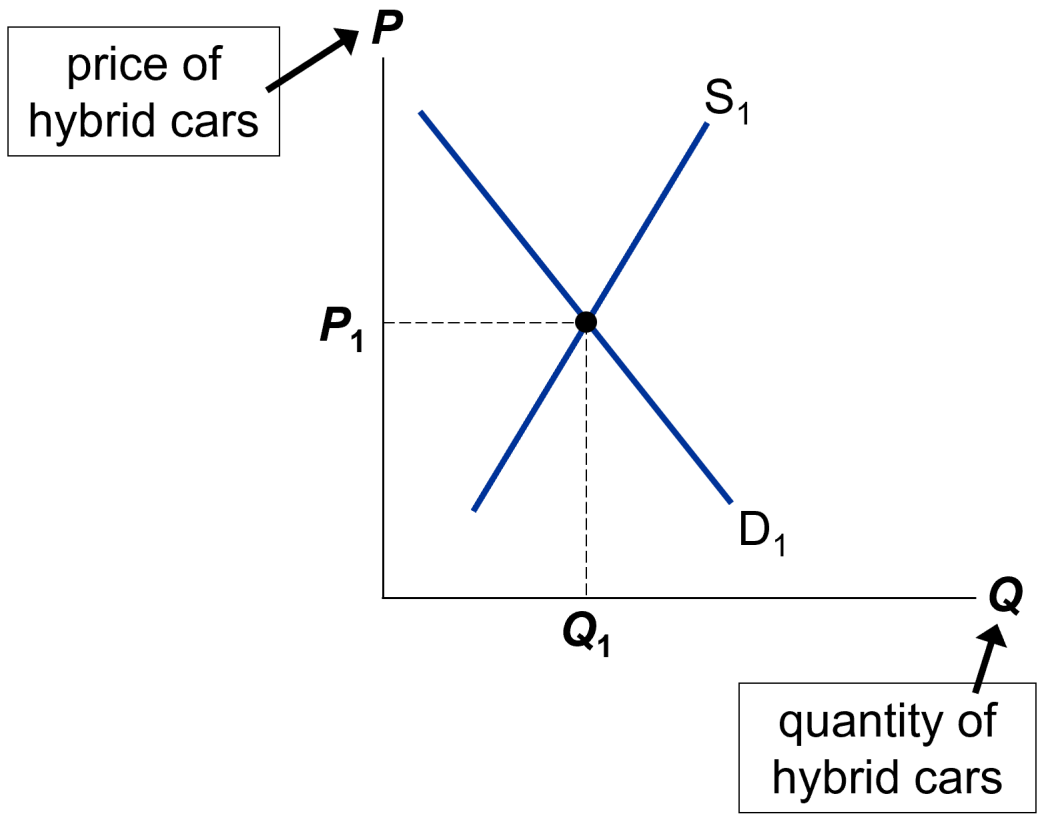


Supply and Demand Together

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



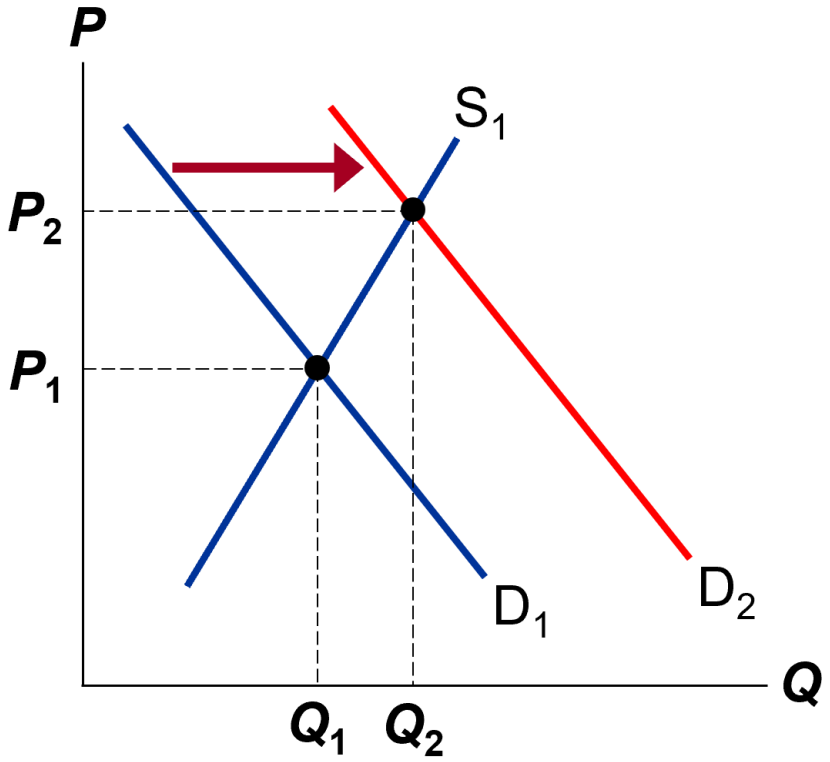
Example: A Shift in Demand

- **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

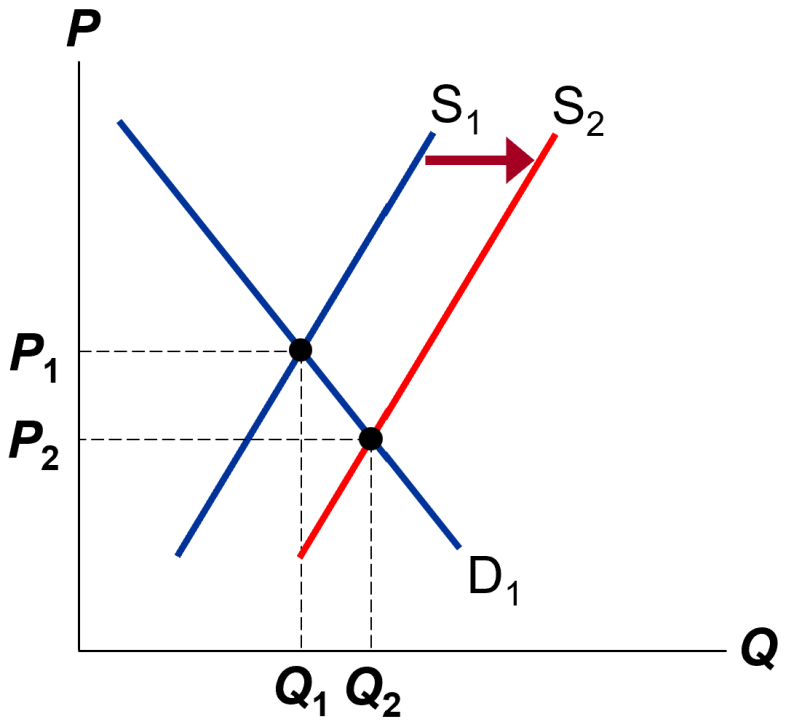
Example: A Shift in Supply

- **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: A Shift in Both Supply and Demand

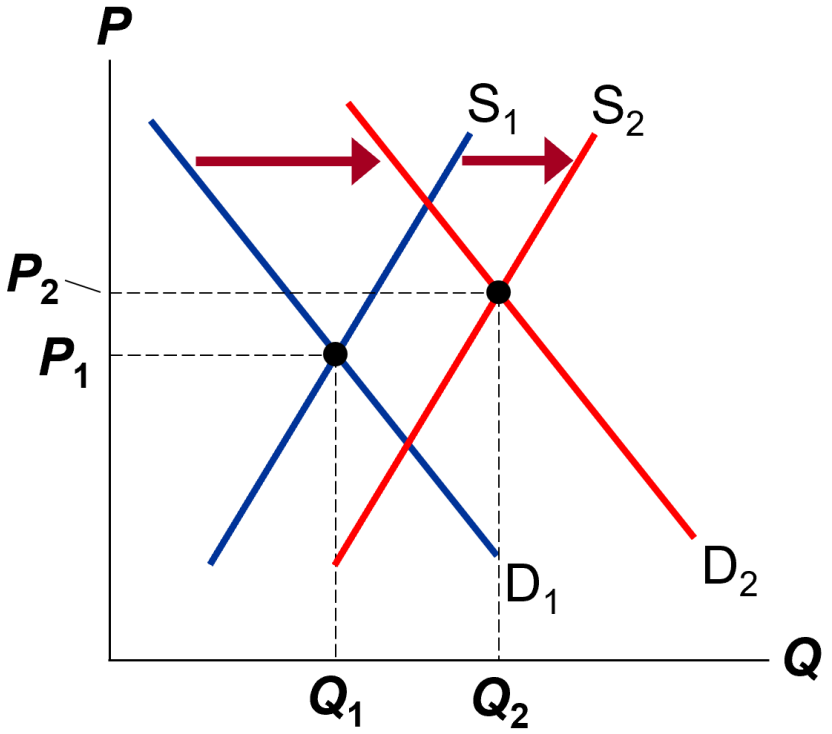
- **EVENTS:** Price of gas rises AND new technology reduces production costs

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.

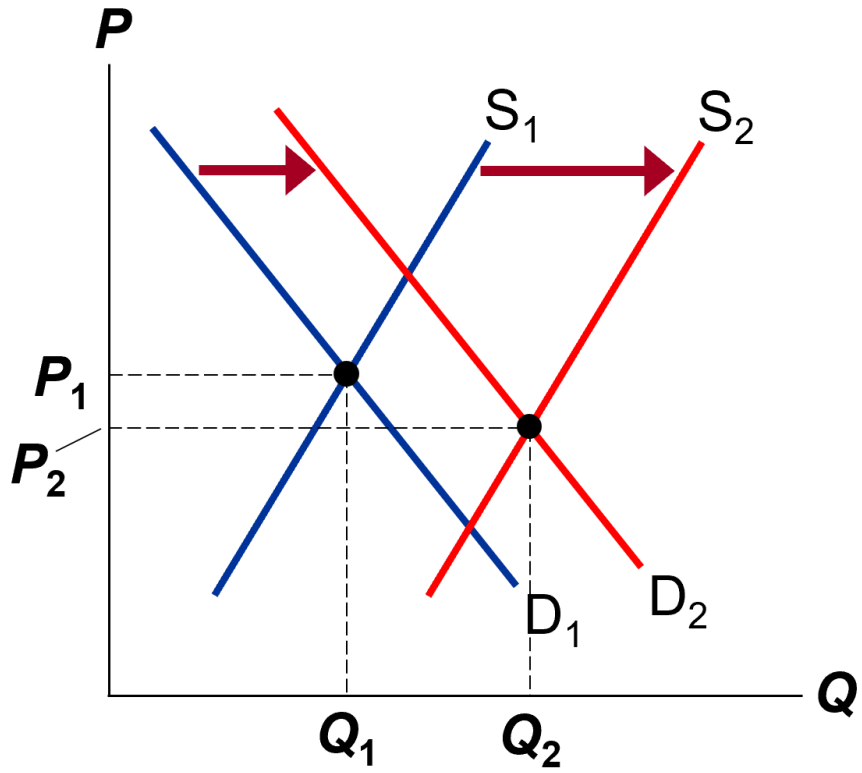


Example: A Shift in Both Supply and Demand

- **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.



Active Learning Shifts in supply and demand

Use the three-step method to analyze the effects of each event on the equilibrium price and quantity of music downloads.

Event A: A fall in the price of music CDs

Event B: Sellers of music downloads negotiate a reduction in the royalties they must pay for each song they sell.

Event C: Events A and B both occur.

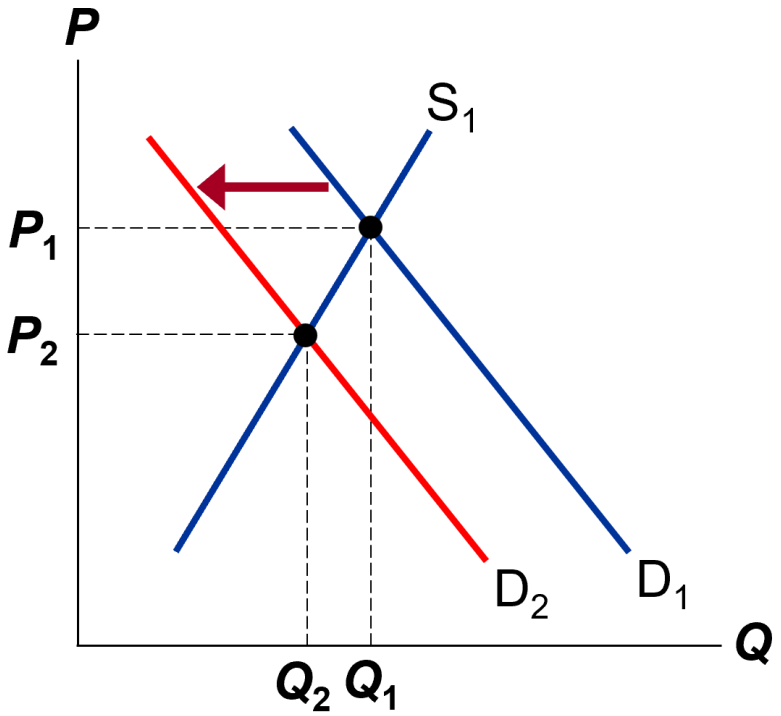
Active Learning A fall in the price of music CDs

- **STEPS:**

- 1. *D* curve shifts

- 2. *D* curve shifts left

- 3. *P* and *Q* both fall



Active Learning Fall in cost of royalties

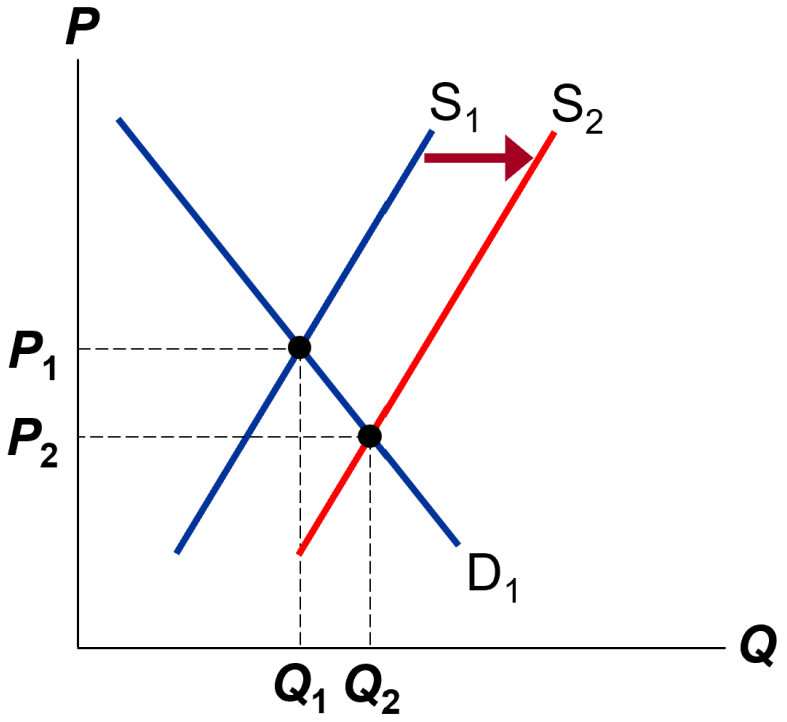
- **STEPS:**

1. ***S*** curve shifts

- (Royalties are part of sellers' costs)

- 2. ***S*** curve shifts right

- 3. ***P*** falls, ***Q*** rises



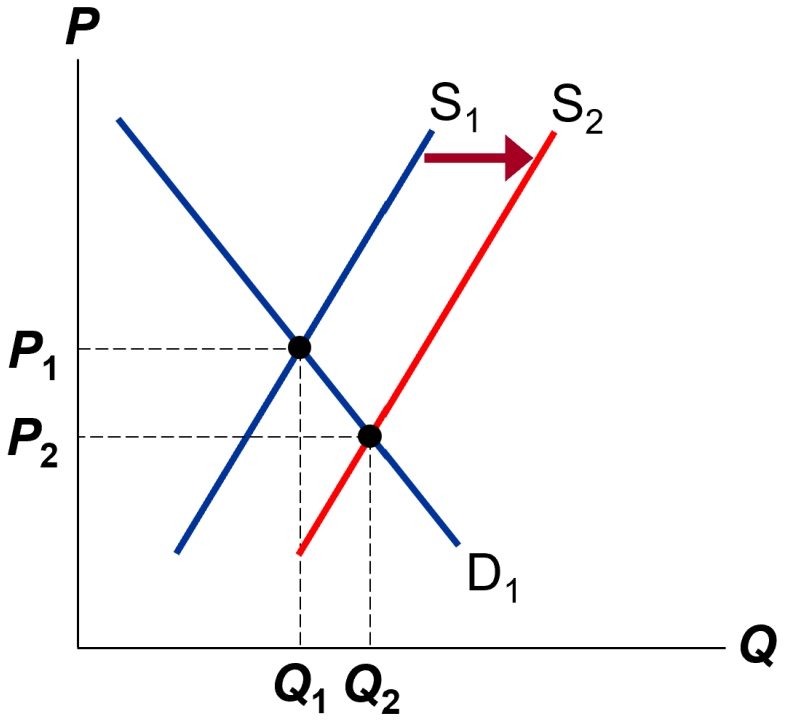
Active Learning Fall in cost of royalties

- **STEPS:**

1. ***S*** curve shifts
- (Royalties are part of sellers' costs)

- 2. ***S*** curve shifts right

- 3. ***P*** falls, ***Q*** rises



Active Learning — Fall in price of music CDs and fall in cost of royalties

- STEPS:

1. Both curves shift (see parts A & B)

2. D shifts left, S shifts right

3. P falls.

- Effect on Q is ambiguous:
  - the fall in demand reduces Q,
  - the increase in supply increases Q.

Summary

	No Change in Supply	An Increase in Supply	A Decrease in Supply
No Change in Demand	*P* same *Q* same	*P* down *Q* up	*P* up *Q* down
An Increase in Demand	*P* up *Q* up	*P* ambiguous *Q* up	*P* up *Q* ambiguous
A Decrease in Demand	*P* down *Q* down	*P* down *Q* ambiguous	*P* ambiguous *Q* down

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

Can You Answer the Following 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?

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End