

Markets = Supply and Demand

- Supply and demand are the two words that economists use most often.
- Supply and demand are the forces that make market economies work.
- Modern microeconomics is about S & D and market equilibrium.

What is a Market?

- Buyers & Sellers
- specific product
- property rights
- information
- competition
- voluntary trades
- ↑ well-being



Markets & Competition

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

Buyers
Demand



&



Sellers
Supply

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

Markets & Competition

- Buyers and sellers determine price and quantity through interacting and exchanging information.
- The competitive process determines P & Q.

Buyers
Demand



&



Sellers
Supply

Competitive Markets

- 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.

Buyers
Demand



&



Sellers
Supply

Competition: Perfect or Not

- Perfect Competition
 - Product is the same across sellers
 - Many buyers and many sellers
 - Perfect information and resource mobility
 - Numerous buyers and sellers so that each has no influence over price (price takers)
- Monopoly
 - One seller, unique product.....seller controls price

What Do Markets Look Like?

- People do things that make them better off.
- For a buyer, the benefit is the satisfaction from consuming the good.
- For a buyer, the cost is the price paid for the good (what is given up).

$$\mathbf{MB} > \mathbf{MC}$$

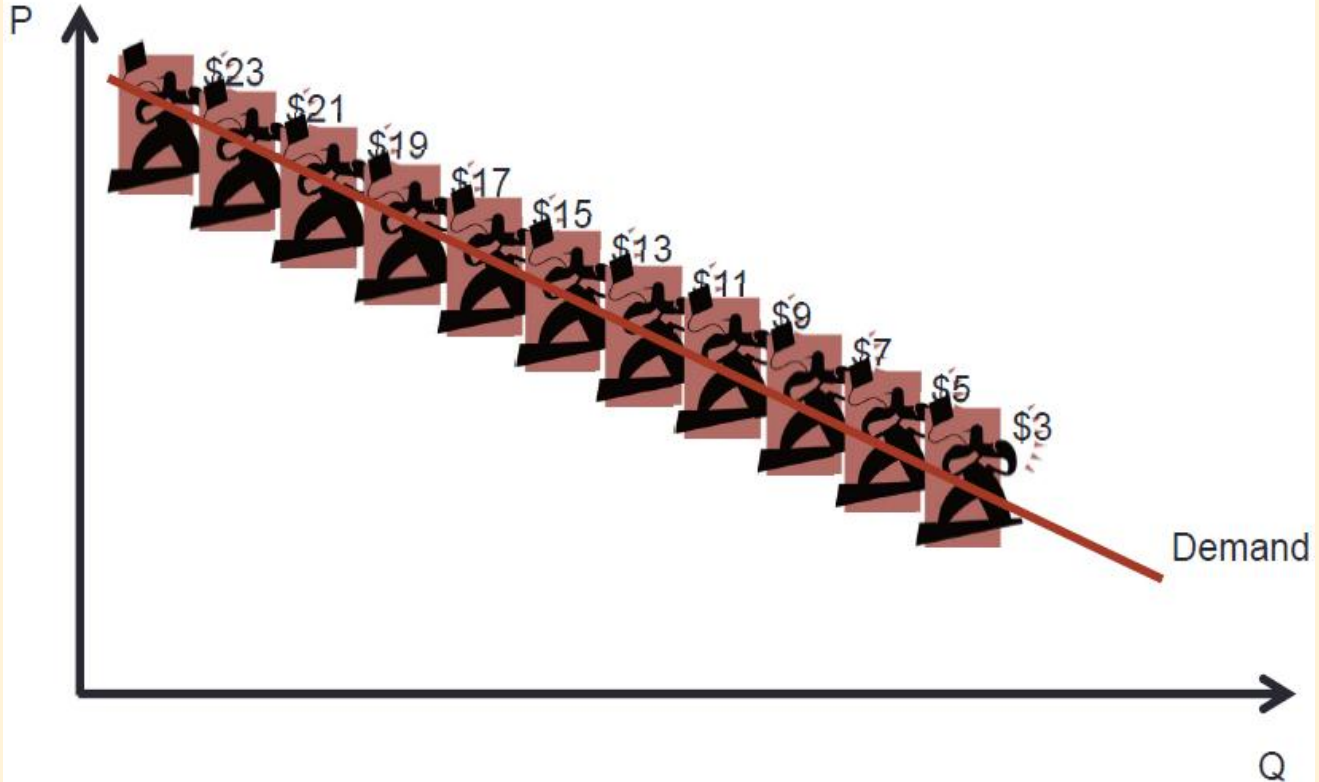
What Do Markets Look Like?

- $D = MB = WTP$ (value)
- Diminishing marginal benefit



- snickers bar, soda pop, pizza
- washer and dryer, automobile, house

Graphically



Demand

- Demand Curve
 - The *demand curve* is a graph of the relationship between the price of a good and the quantity demanded.
- Demand Schedule
 - The *demand schedule* is a table that shows the relationship between the price of the good and the quantity demanded.

Quantity Demanded

- *Quantity demanded* is the amount of a good that buyers are willing and able to purchase.
- 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.

Demand Schedule and Demand Curve

Price of
Ice-Cream Cone

\$3.00

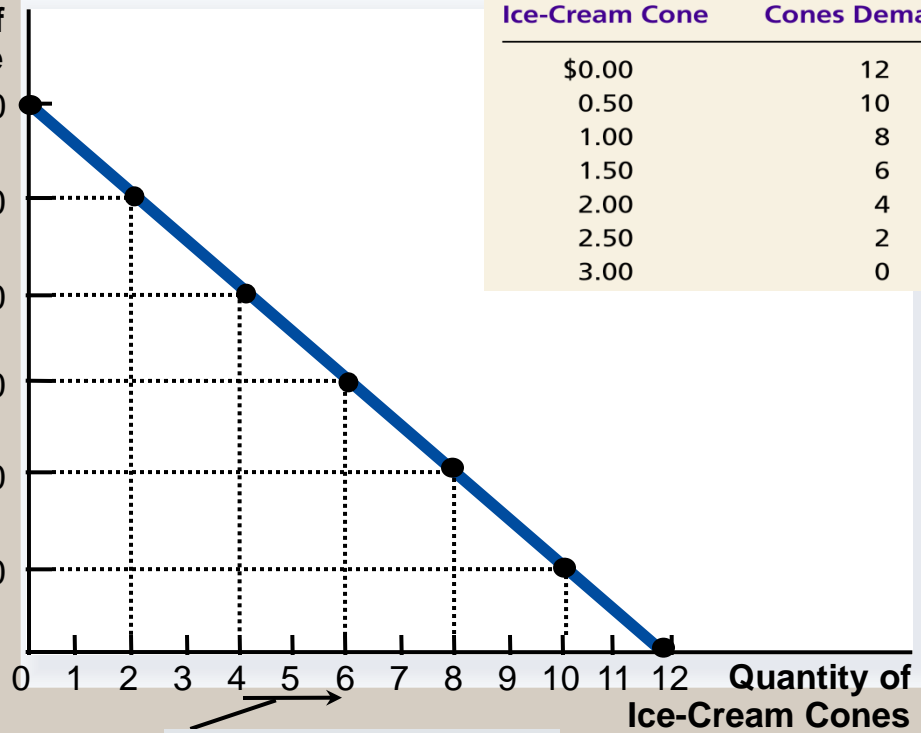
2.50

2.00

1.50

1.00

0.50



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

1. A decrease
in price ...

2. ... increases quantity
of cones demanded.

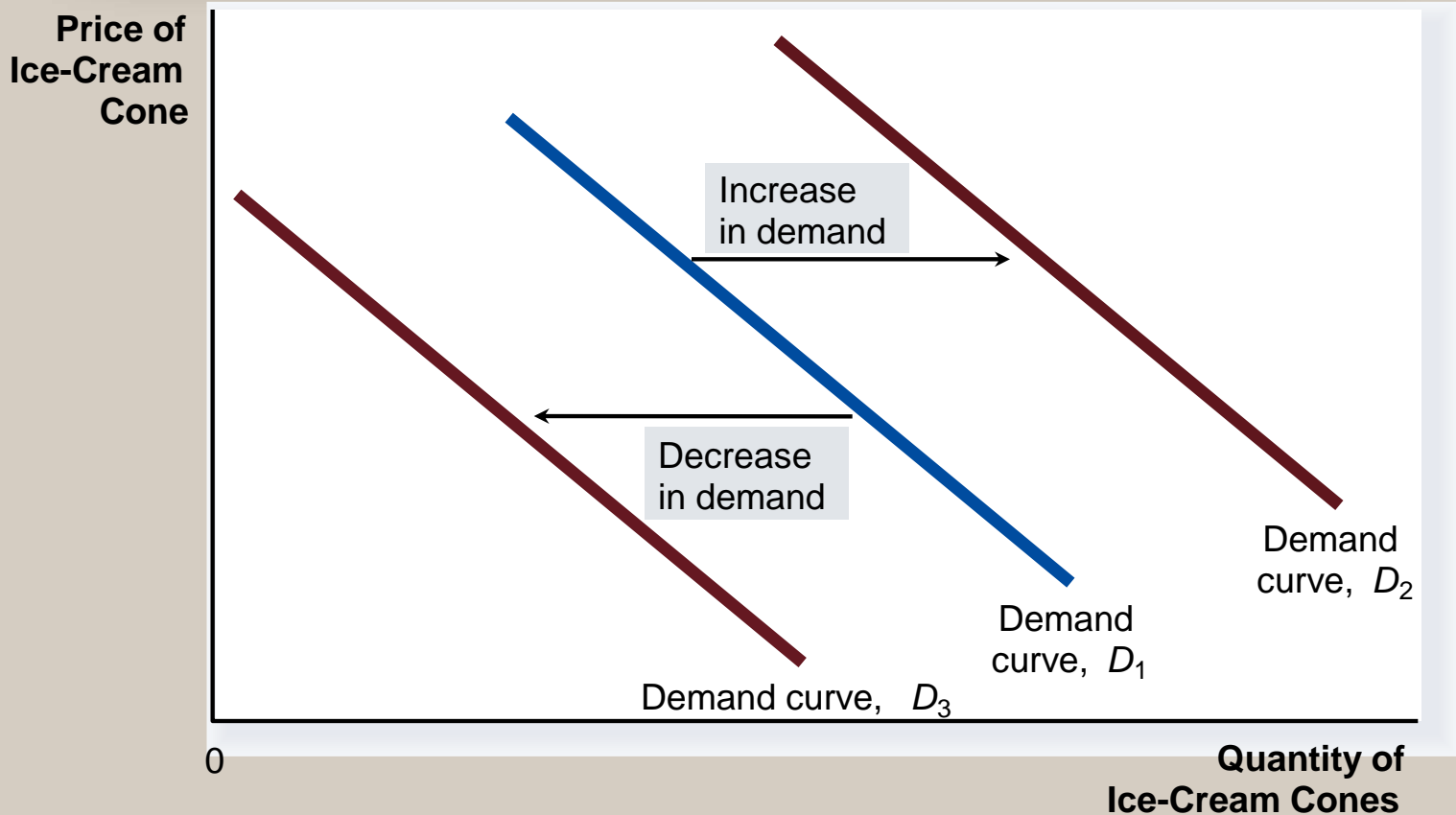
Individual & Market Demand

- Individual demand depicts the various quantities that a single buyer would be willing and able to purchase at different prices.
- Market demand depicts the various quantities that all buyers would be willing and able to purchase at different prices.
- Market demand is the horizontal sum across all the individual demand for all consumers in the market.

Change in Demand

- Change in Demand
 - A shift in the demand curve, either to the left or right.
 - Caused by any change that alters the quantity demanded at every price.
 - This occurs when there is a change in a determinant of demand **other than price**.

Change in Demand: Shift the Demand Curve



Change in Demand

- Consumer income
- Prices of related goods
- Tastes & preferences



Shifts in the Demand Curve

- Consumer Income

- As income increases the demand for a *normal good* will increase.
- As income increases the demand for an *inferior good* will decrease.

Shifts in the Demand Curve

- Prices of Related Goods
 - 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*.

Demand: Willingness To Pay

- price → opportunity cost
- signal/incentives help buyers make decisions.
- high price → purchase less
- higher price means less incentive to consume this good relative to what else you could do.
- demand represents value (compared to alternatives)
- willingness to pay (gasoline)

Demand: Willingness To Pay

- All else equal, the quantity demanded of a good varies negatively with the price of that good.

- Buyers



- $P \uparrow \rightarrow Q_d \downarrow$ $P \downarrow \rightarrow Q_d \uparrow$

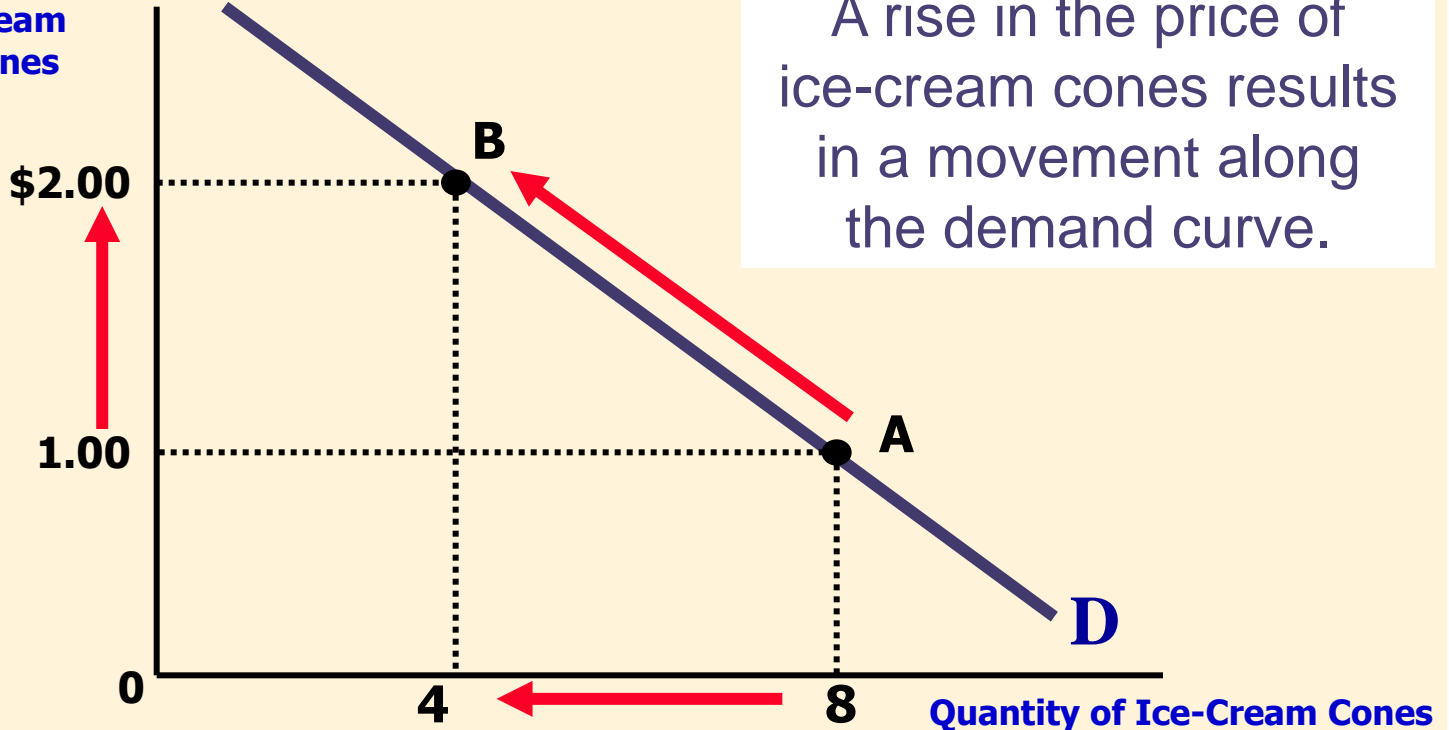
- Law of Demand

Change in Quantity Demanded

- Change in Quantity Demanded
 - Movement along the demand curve.
 - Only caused by a change in the price of the product.

Change in Quantity Demanded

Price of Ice-Cream Cones



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

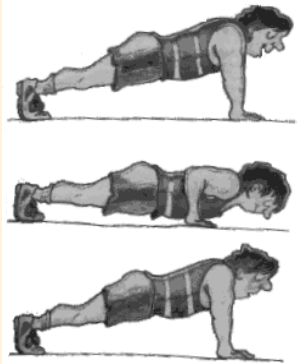
What Do Markets Look Like?

- People do things that make them better off.
- For a producer, the benefit is the price received from selling the good.
- For the producer, the cost is the opportunity cost of the materials and risk to produce the good.

$$\mathbf{MB > MC}$$

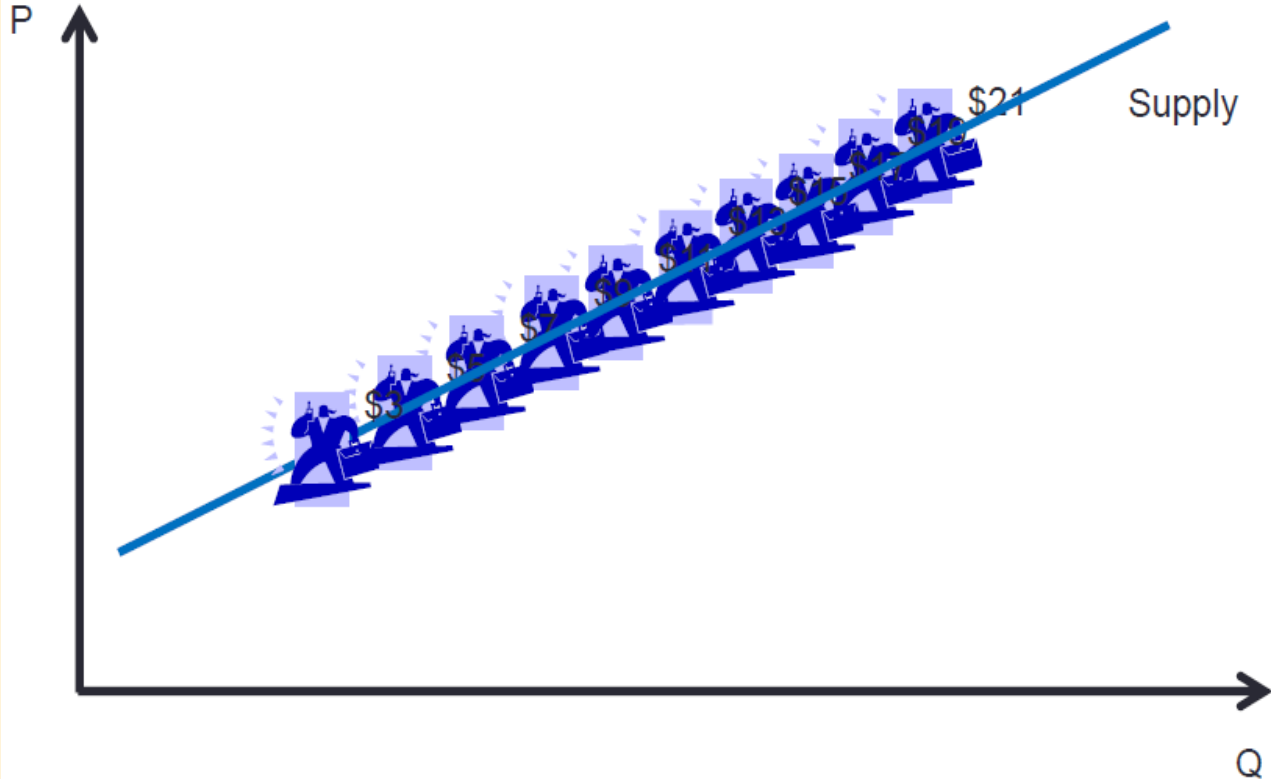
What Do Markets Look Like?

- $S = MC = WTS$ (production cost)
- Rising marginal cost



- push-ups, sleeping in, oranges (Flansas)
- cars, construction, steel, oil (China & India)

Graphically



Supply

- Supply Curve
 - The *supply curve* is the graph of the relationship between the price of a good and the quantity supplied.
- Supply Schedule
 - The *supply schedule* is a table that shows the relationship between the price of the good and the quantity supplied.

Quantity Supplied

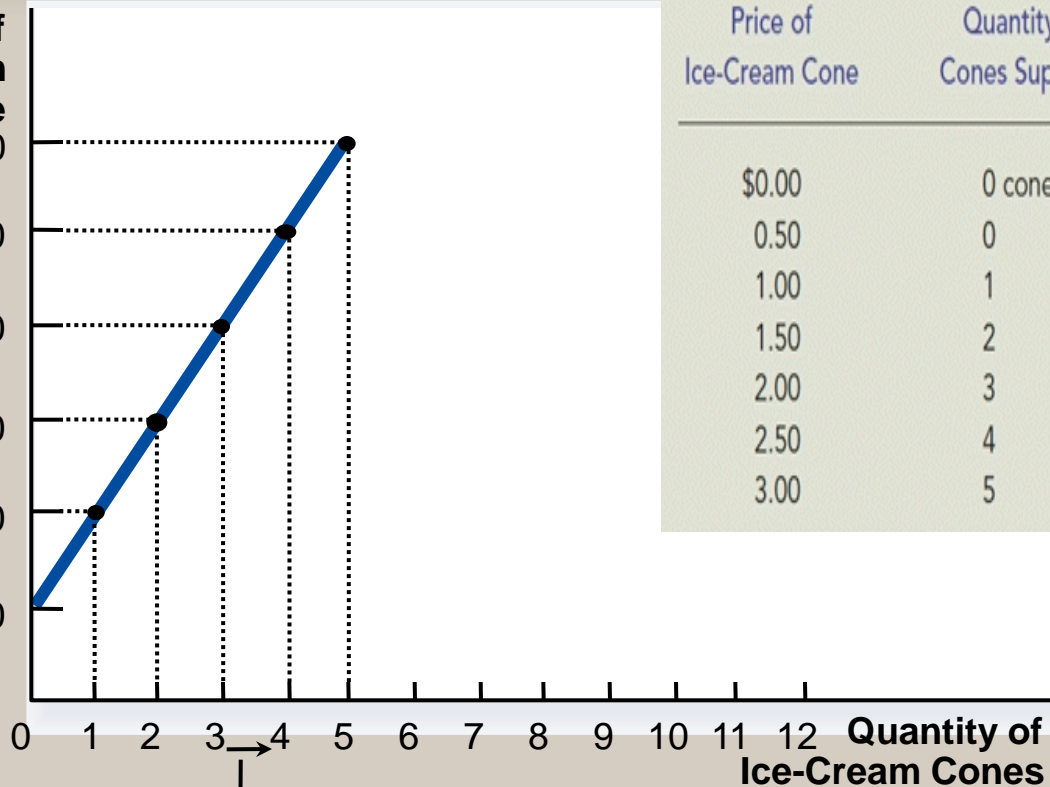
- *Quantity supplied* is the amount of a good that sellers are willing and able to sell.
- Law of Supply
 - The *law of supply* states that, other things equal, the quantity supplied of a good rises when the price of the good rises.

Supply Schedule and Supply Curve

**Price of
Ice-Cream
Cone**
\$3.00

2.50
2.00
1.50
1.00
0.50

1. An
increase
in price ...



**Price of
Ice-Cream Cone**

**Quantity of
Cones Supplied**

\$0.00	0 cones
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5

2. ... increases quantity of cones supplied.

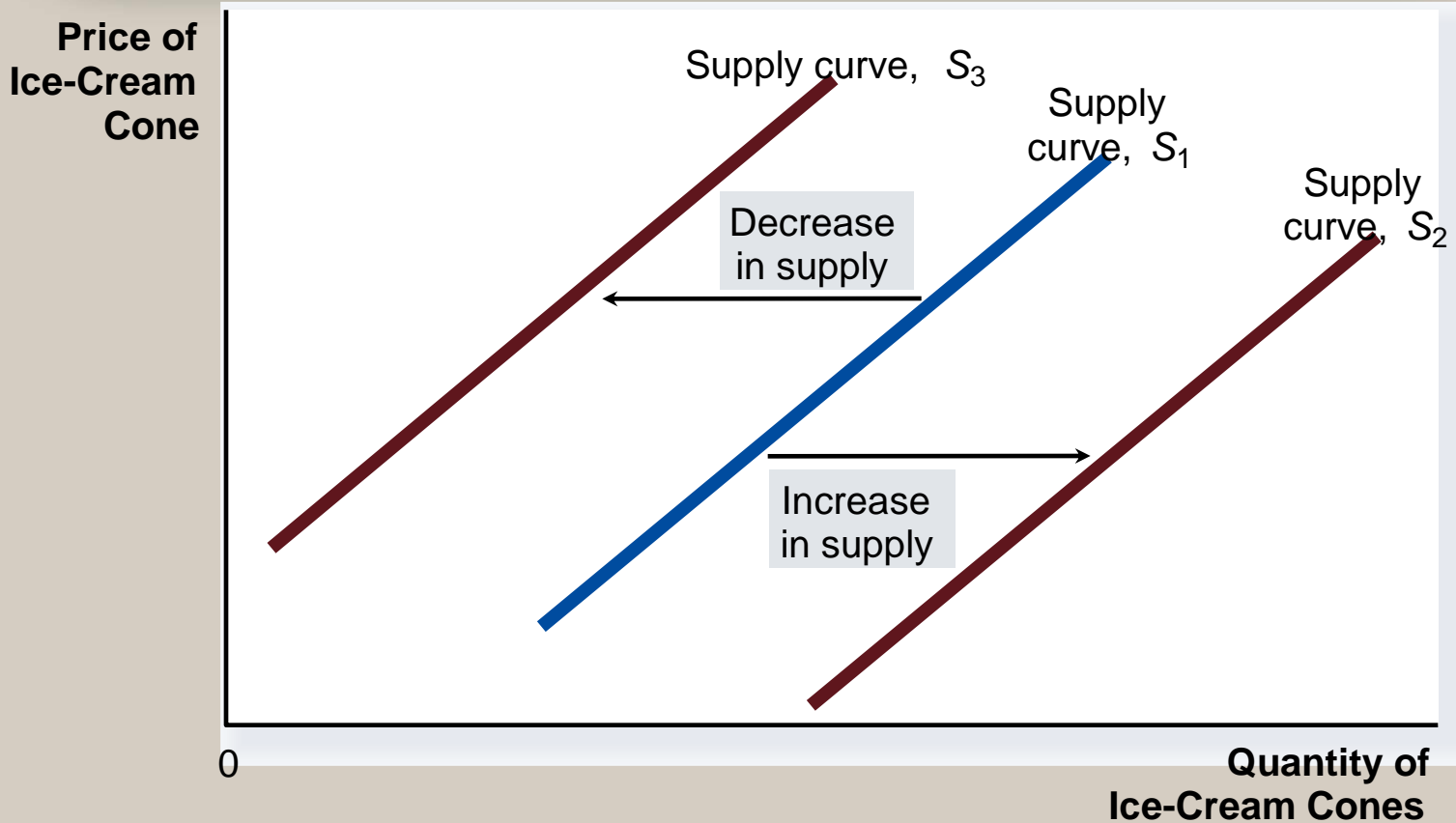
Individual and Market Supply

- An individual supply curve depicts the various quantities that a single producer would be willing and able to sell at different prices.
- The market supply curve depicts the various quantities that producers would be willing and able to sell at different prices.
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Change in Supply

- Change in Supply
 - A shift in the supply curve, either to the left or right.
 - Caused by any change that alters the quantity supplied at every price.
 - This occurs when there is a change in a determinant of supply **other than price**.

Shifts in the Supply Curve



Change in Supply

- Input prices
- Technology
- Weather



Supply: Willingness To Sell

- price → opportunity cost
- signal/incentives help sellers make decisions
- high price → produce more
- higher price means more incentive to produce this good relative to what else you could do.
- supply represents marginal (opportunity) cost
- willingness to sell (corn/ethanol)

Supply: Willingness To Sell

- All else equal, the quantity supplied of a good varies positively with the price of that good.

- Sellers



$$\bullet \quad P \uparrow \rightarrow Q_d \uparrow \qquad P \downarrow \rightarrow Q_d \downarrow$$

- Law of Supply

Change in Quantity Supplied

- Change in Quantity Supplied
 - Movement along the supply curve.
 - Caused by a change in the price of the product.

Change in Quantity Supplied

Price of Ice-Cream Cone

\$3.00

1.00

0

1

5

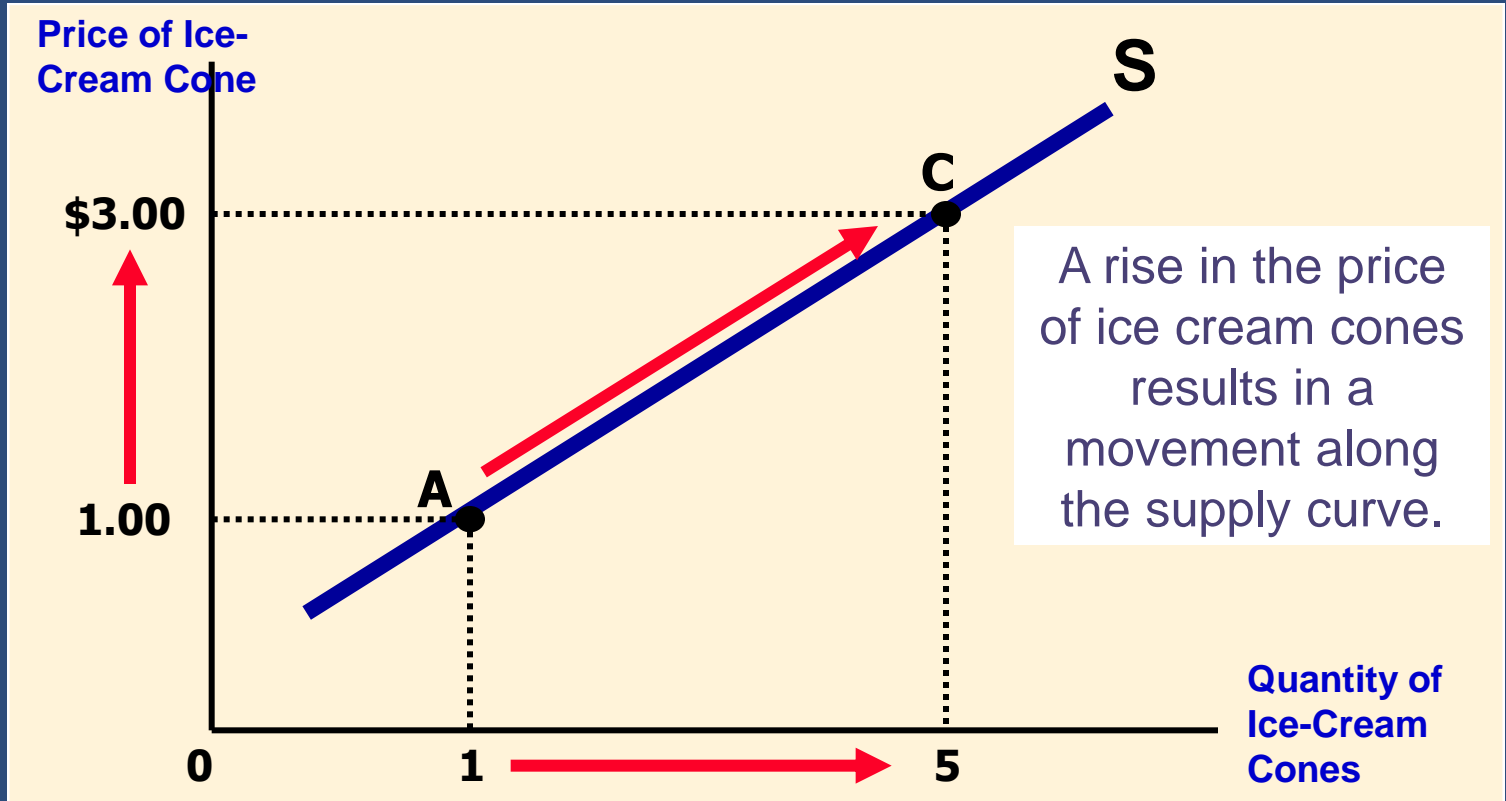
Quantity of Ice-Cream Cones

S

C

A

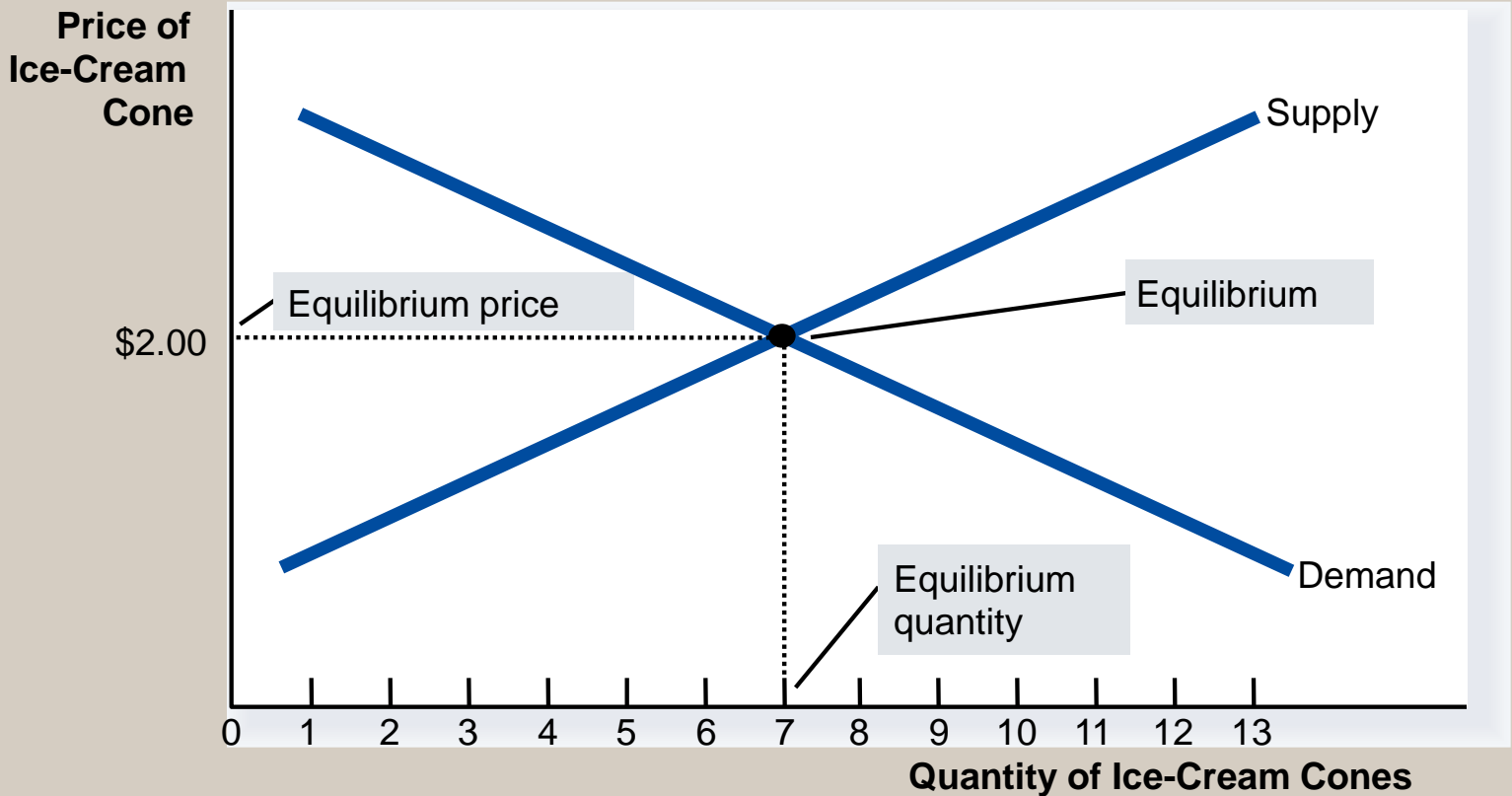
A rise in the price of ice cream cones results in a movement along the supply curve.



Supply & Demand Together

- *Equilibrium* is achieved when the price has reached the level such that the quantity supplied (Q_s) equals quantity demanded (Q_d).
- At equilibrium, there is no tendency for change.
- Graphically, it is where the supply curve and the demand curve intersect.

The Equilibrium of Supply and Demand



Supply & Demand Together

Demand Schedule

Price of Ice-Cream Cone	Market
\$0.00	19
0.50	16
1.00	13
1.50	10
2.00	7
2.50	4
3.00	1

Supply Schedule

Price of Ice-Cream Cone	Market
\$0.00	0
0.50	0
1.00	1
1.50	4
2.00	7
2.50	10
3.00	13

At \$2.00, the quantity demanded is equal to the quantity supplied!

How Do Markets Work?

- Price is a measure of relative scarcity.
- Price represents opportunity cost.
- Price sends signals/incentives to players.

- Buyers
- Demand



- Sellers
- Supply



How Do Markets Work?

- Buyers and sellers each perform cost/benefit analysis.
- Each party will be willing to exchange if the expected benefit from a market transaction exceeds the expected cost (opportunity cost).

- Buyers/Demand



- Sellers/Supply

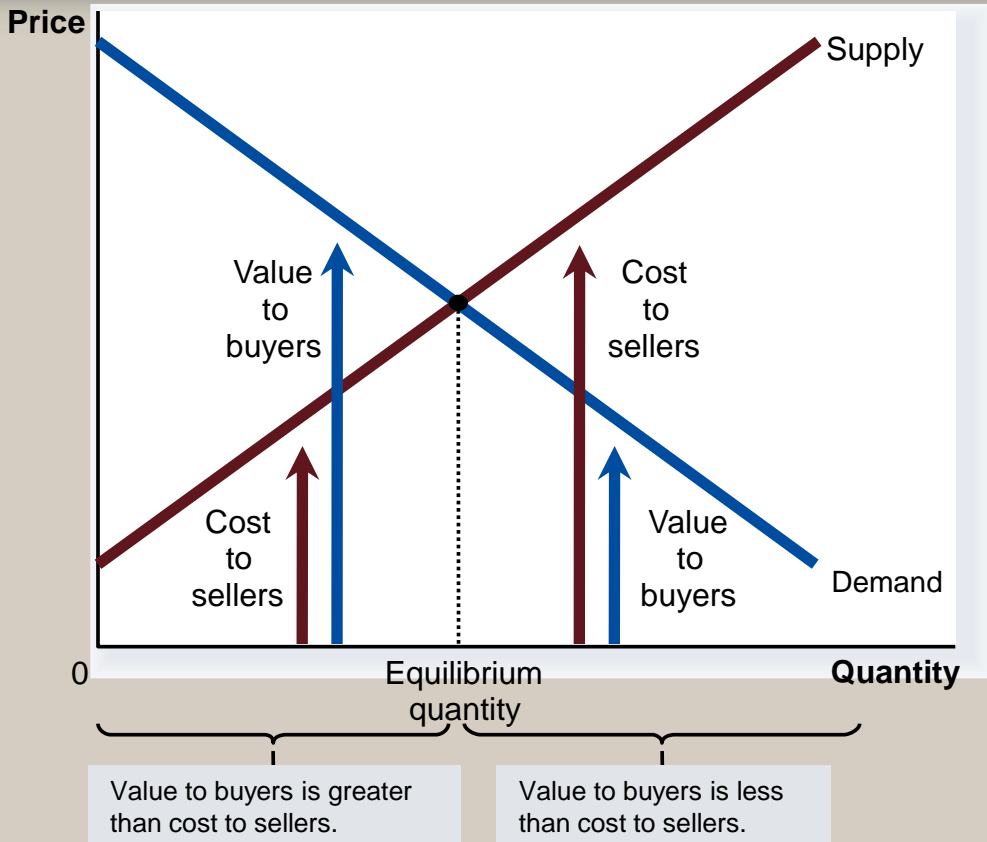


The Efficiency of the Equilibrium Quantity

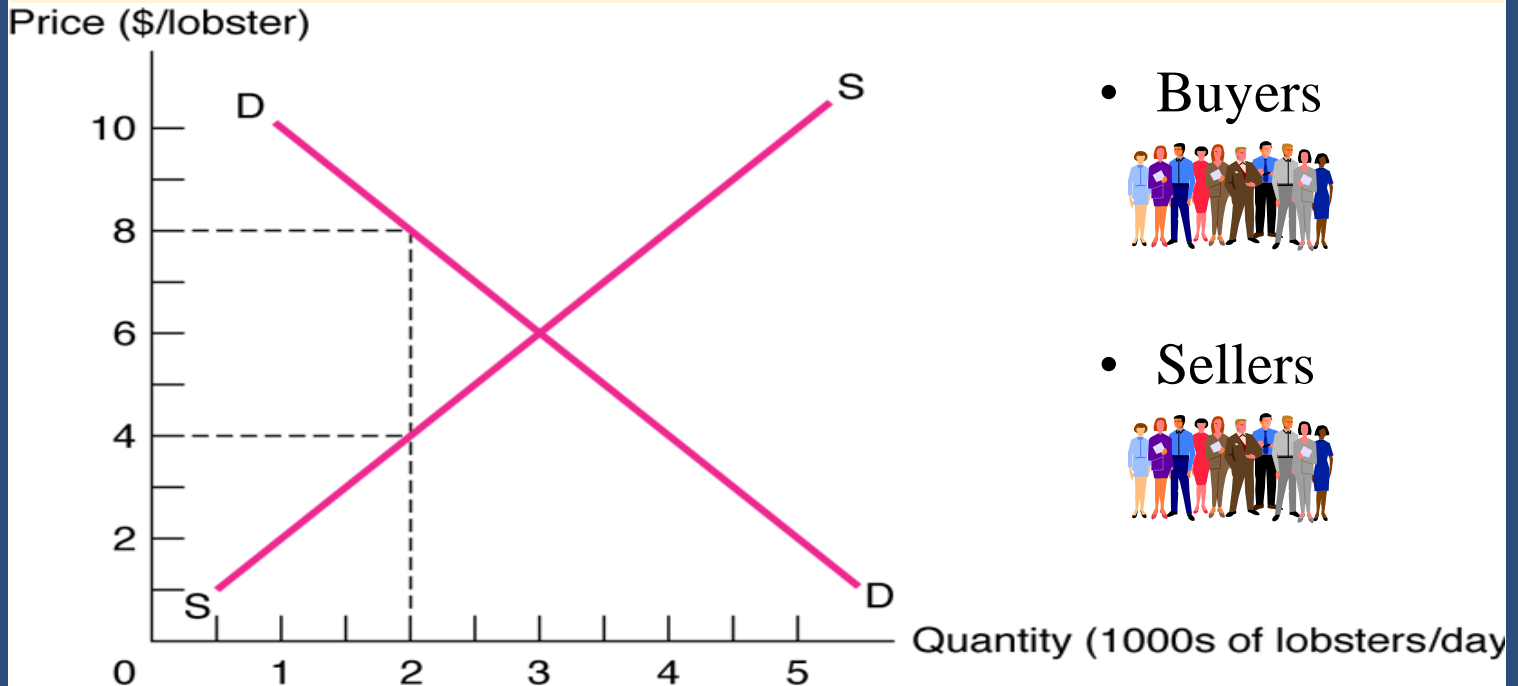
- Buyers



- Sellers

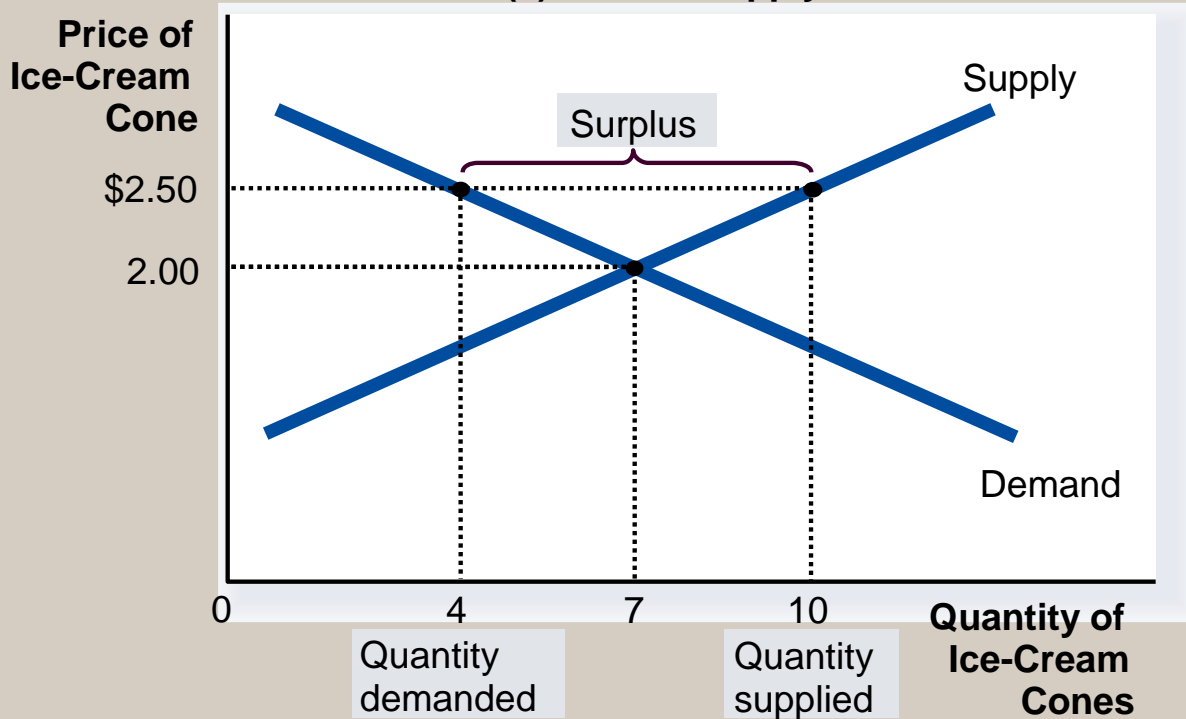


An Opportunity for Improvement in the Lobster Market



Markets Not in Equilibrium

(a) Excess Supply



Market Forces & Equilibrium

- *Surplus*

- When $P > P^*$ then $Q_s > Q_d$

- There is excess supply or a surplus.
- Suppliers will lower the price to increase sales, thereby moving toward equilibrium (competition between sellers).

- Buyers/Demand

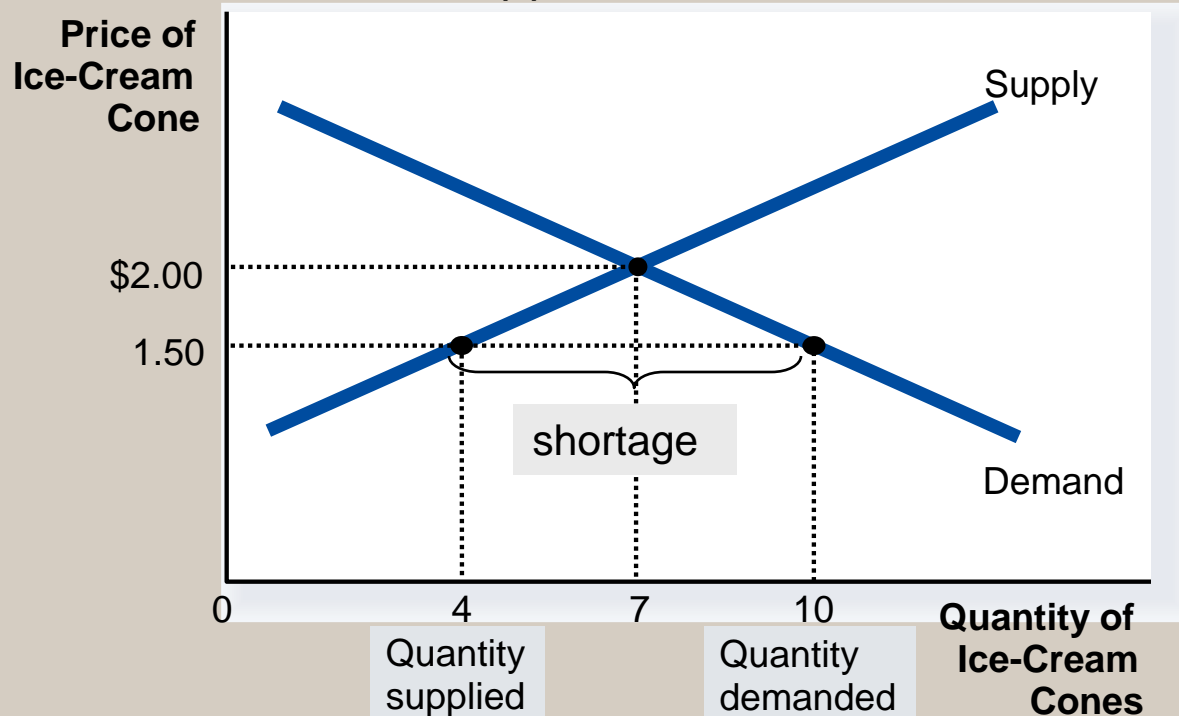


- Sellers/Supply



Markets Not in Equilibrium

(b) Excess Demand



Market Forces & Equilibrium

- *Shortage*

- When $P < P^*$ then $Q_d > Q_s$

- There is excess demand or a shortage.
- Consumers will bid the price up, thereby moving toward equilibrium (competition between buyers).

- Buyers/Demand



- Sellers/Supply



Market Forces & Equilibrium

- *Law of supply and demand*

- The price of any good adjusts to bring the quantity supplied and quantity demanded for that good into balance.

- Buyers/Demand



- Sellers/Supply

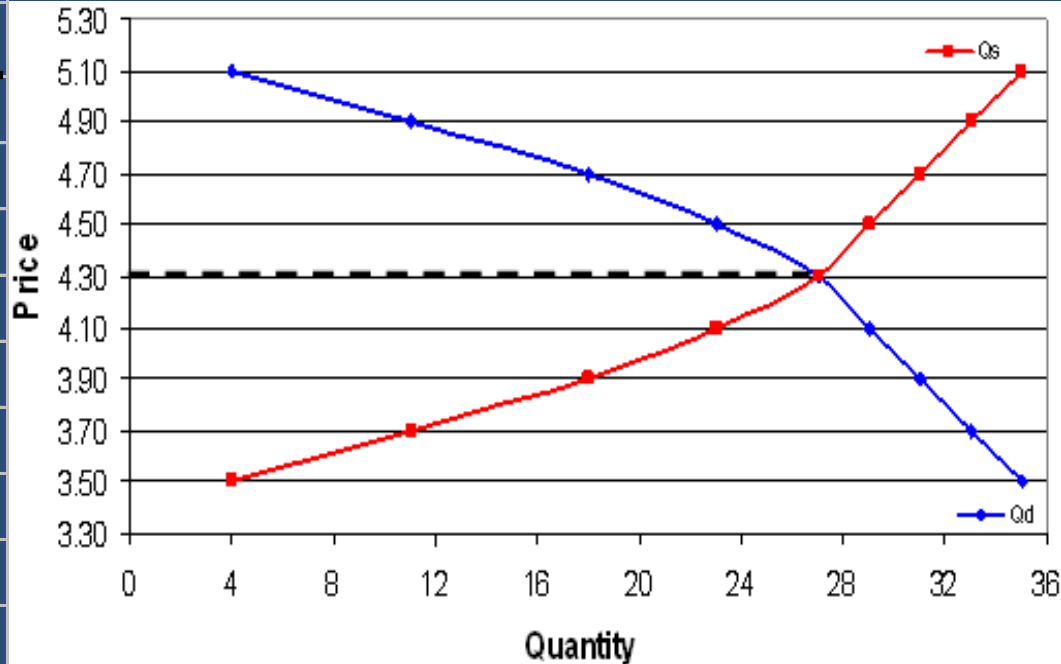


- *Buyers*
- *Sellers*



In the Chips

P	Qd	Qs
3.50	35	4
3.70	33	11
3.90	31	18
4.10	29	23
4.30	27	27
4.50	23	29
4.70	18	31
4.90	11	33
5.10	4	35





Market Forces & Equilibrium

- Price floats to where $Q_s = Q_d$ and the market clears.
- This price facilitates all transactions that can improve the well-being of market participants.
- Goods purchased by those with highest value.
- Goods produced by those with lowest opportunity cost.
- The well-being of society is maximized.

Analyzing Market Shocks

- Decide whether the event shifts the supply or demand curve (or both).
- Decide whether the curve(s) shift(s) to the left or to the right.
- Use the supply-and-demand diagram to see how the shift affects equilibrium price and quantity.

Analyzing Market Shocks

- Shifts in Curves versus Movements along Curves
 - A shift in the supply curve is called a change in supply.
 - A movement along a fixed demand curve is called a change in quantity demanded.
 - A shift in the demand curve is called a change in demand.
 - A movement along a fixed supply curve is called a change in quantity supplied.

What If Something Changes?

- price
 - income, price of other goods, tastes & preferences
 - Recall the market for ice cream.
 - Suppose the weather gets hotter.
 - What would you expect to happen?
- Buyers



- \uparrow T&P

- D shifts right

- shortage at P1

- ΔD

- Disequilibrium

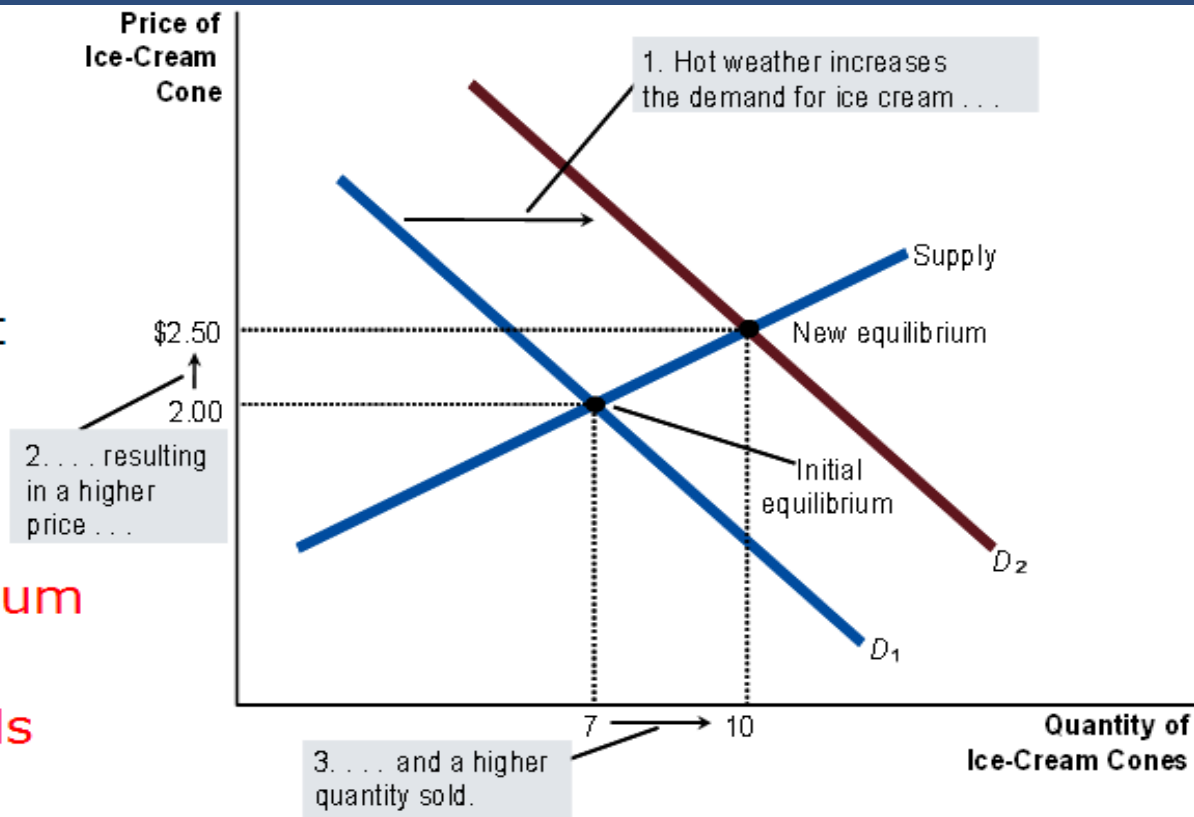
- P adjusts

- Qs responds

- Law of S

- **P \uparrow to restore equilibrium (sellers respond, Qs \uparrow)**

- **new equilibrium: higher P & higher Q**



What If Something Changes?

- price
- price of inputs, technology, weather
- Recall the market for ice cream.
- Suppose the price of sugar increases.
- What would you expect to happen?

- Sellers



- $\uparrow P$ input

- S shifts left

- shortage at P_1

- ΔS

- Disequilibrium

- P adjusts

- Q_d responds

- Law of D

- **$P \uparrow$ to restore equilibrium (buyers respond, $Q_d \downarrow$)**

- **new equilibrium: higher P & lower Q**

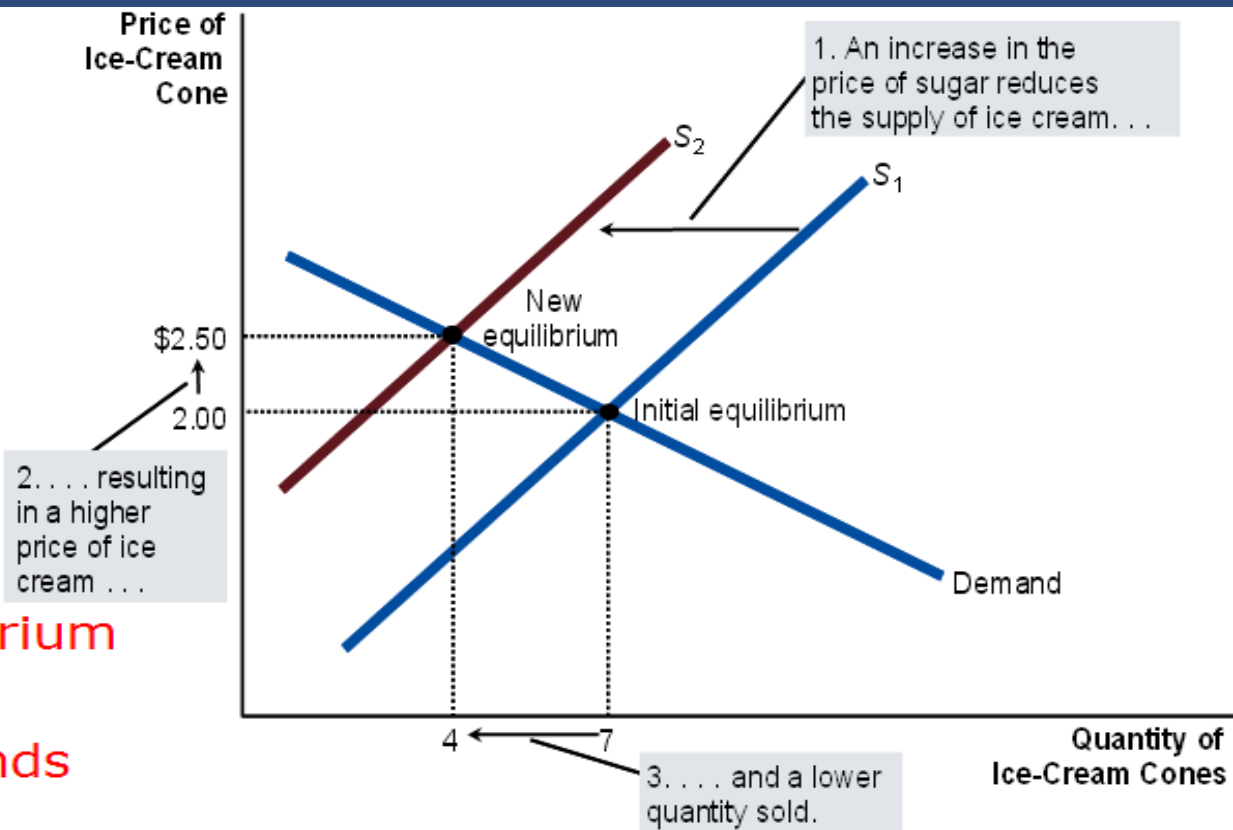
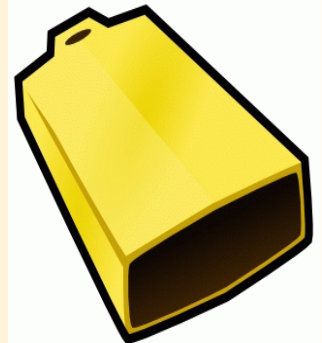


Table 4 What Happens to Price and Quantity When Supply or Demand Shifts?

	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

Recall.....

- if more people want a particular product
D ↑ leads to P ↑
- sends signal to producers that more is desired
- sellers respond to incentive of higher prices
- ethanol and corn



Summary

- Economists use S & D to analyze markets.
- In a competitive market, there are many buyers and sellers of a nearly identical product.
- Each individual buyer and seller has little or no influence on the market price.
- Buyers and sellers act on information and compete as they engage in voluntary transactions.

Summary

- The demand curve shows how the quantity demanded of a good depends upon the price.
 - Law of Demand: As the P of a good falls, the Q_d rises. Therefore, the demand curve slopes downward.
 - Other determinants of willingness to buy include income, prices of related goods and tastes & preferences.
 - If one of these factors changes, the demand curve shifts causing disequilibrium followed by a P adjustment and Q response according to the Law of Supply.

Summary

- The Supply curve shows how the quantity demanded of a good depends upon the price.
 - Law of Supply: As the P of a good rises, the Qs rises. Therefore, the supply curve slopes upward.
 - Other determinants of willingness to sell include the price of inputs, technology and weather.
 - If one of these factors changes, the supply curve shifts causing disequilibrium followed by a P adjustment and Q response according to the Law of Demand.

Summary

- Market equilibrium is determined by the intersection of the supply and demand curves.
- At the equilibrium price, the quantity demanded equals the quantity supplied and the well-being of market participants is maximized.
- The behavior of buyers and sellers naturally drives markets toward their equilibrium.

Summary

- To analyze how any event influences a market, we use the supply-and-demand diagram to examine how the event alters incentives, thereby changing behavior and thus affecting the equilibrium price and quantity.
- In market economies, prices are the signals that influence behavior and guide economic decisions, thereby allocating scarce resources.