CH 3 – Demand and Supply

ECON 1B

CSUS

Previously . . .

- “Scarcity” refers to the limited nature of society’s resources.
- The production possibilities frontier (PPF) is an illustration of the goods and services an economy is capable of producing.
- Trade is mutually beneficial for both parties involved.

Markets and the Nature of Competition

- Firms
  - Supply goods and services
- Consumers
  - Want to purchase goods supplied by firms
- Exchange happens
  - Through prices established in markets
  - Supply or demand factors can change the market price.

Markets

- Sellers and buyers come together to form a market.
  - Markets exist whenever goods and services are exchanged.
  - Doesn't have to be a physical place

Markets

- Market economy
  - Resources are allocated among households and firms with little or no government interference.
  - The “main” economic structure of the United States
  - Prices are determined by the forces of supply and demand.
  - Buying and selling is voluntary.

Demand

- Quantity demanded
  - The amount of a good purchased at a given price
- Law of demand
  - All other things equal, there is an inverse relationship between price and quantity demanded
  - Inverse: two variables move in opposite directions

Demand

- Demand schedule
  - Table showing the relationship between price and quantity demanded
- Demand curve
  - Graph of the relationship between price and quantity demanded
- Market demand
  - Horizontal sum of all individual quantities demanded by each buyer in the market at each price

Demand

Meredith's Demand Schedule for Salmon Fillets	
Price of Salmon	**Salmon Fillets Demanded**
$20.00	0
$17.50	1
$15.00	2
$12.50	3
$10.00	4
$ 7.50	5
$ 5.00	6
$ 2.50	7
$ 0.00	8

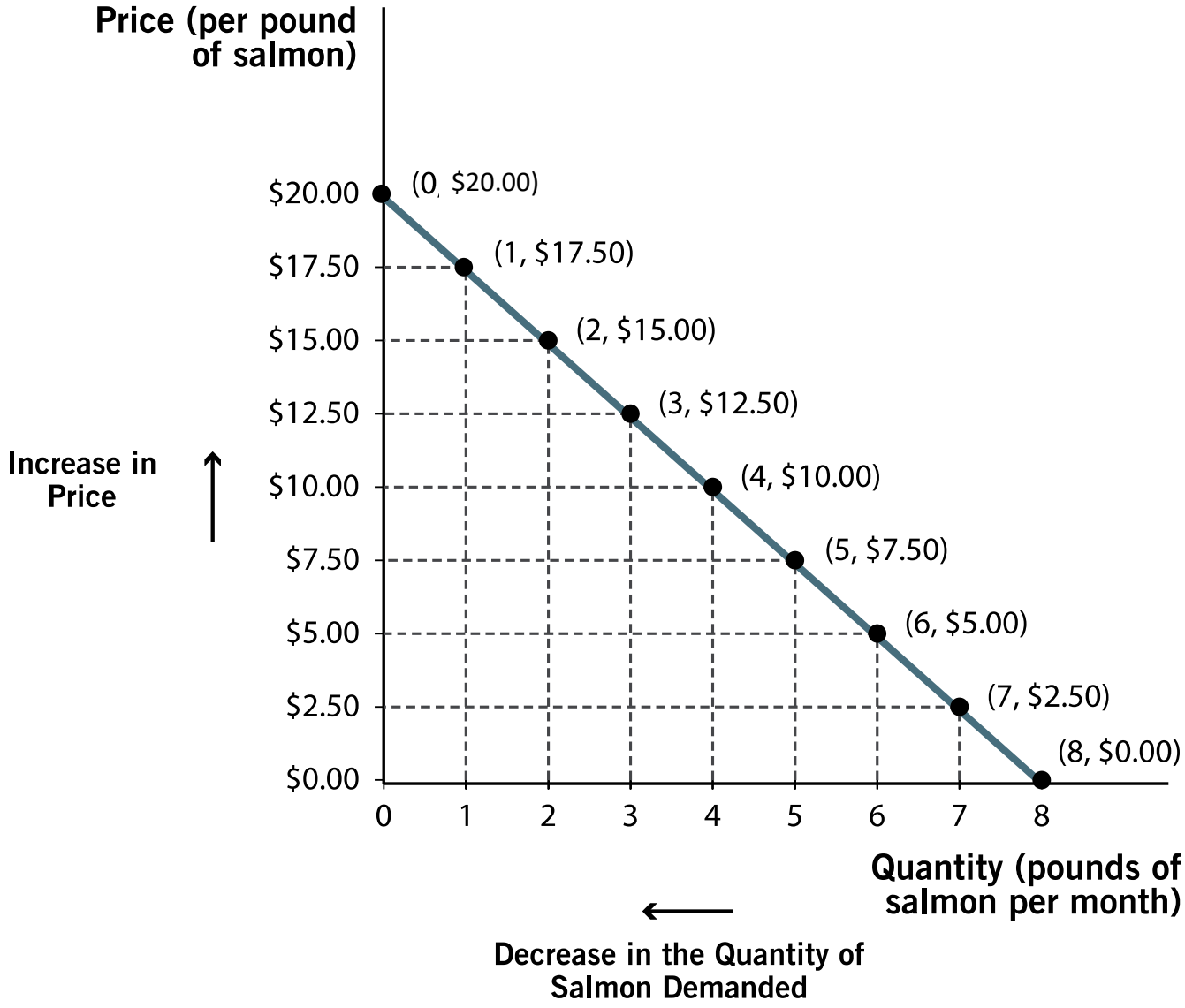
Higher price

Lower price

Lower quantity demanded

Higher quantity demanded

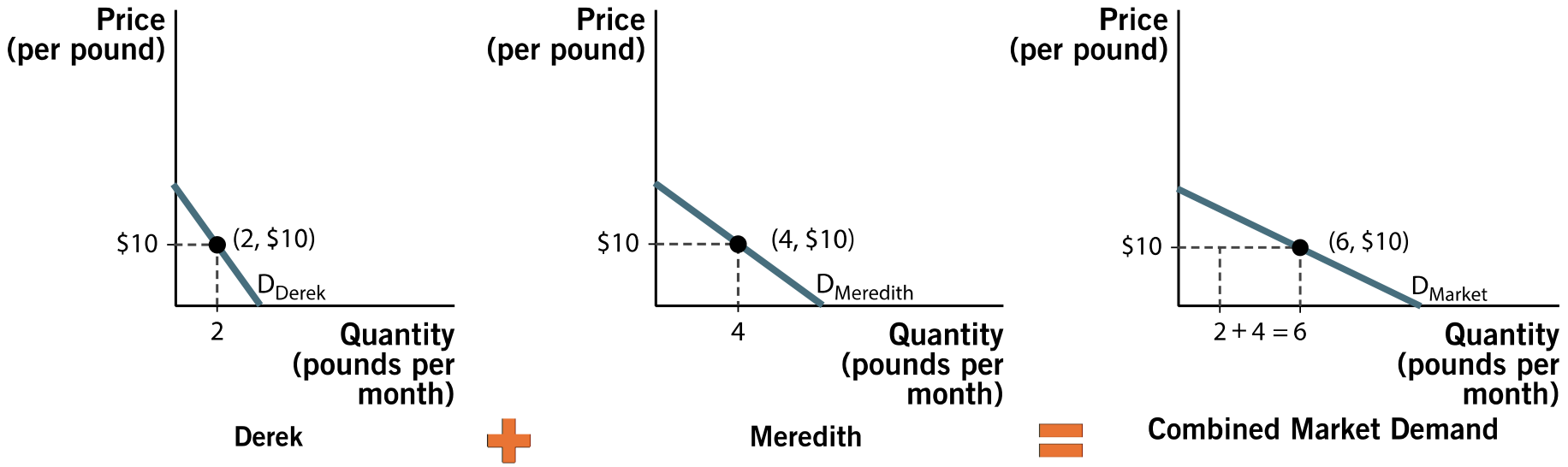
Demand Curve



Market Demand

Price of Salmon		Meredith's Demand		Derek's Demand		Market Demand
$20.00		0		0		0
$17.50		1		0		1
$15.00		2		1		3
$12.50		3	+	1	=	4
$10.00		4		2		6
$ 7.50		5		2		7
$ 5.00		6		3		9
$ 2.50		7		3		10
$ 0.00		8		4		12

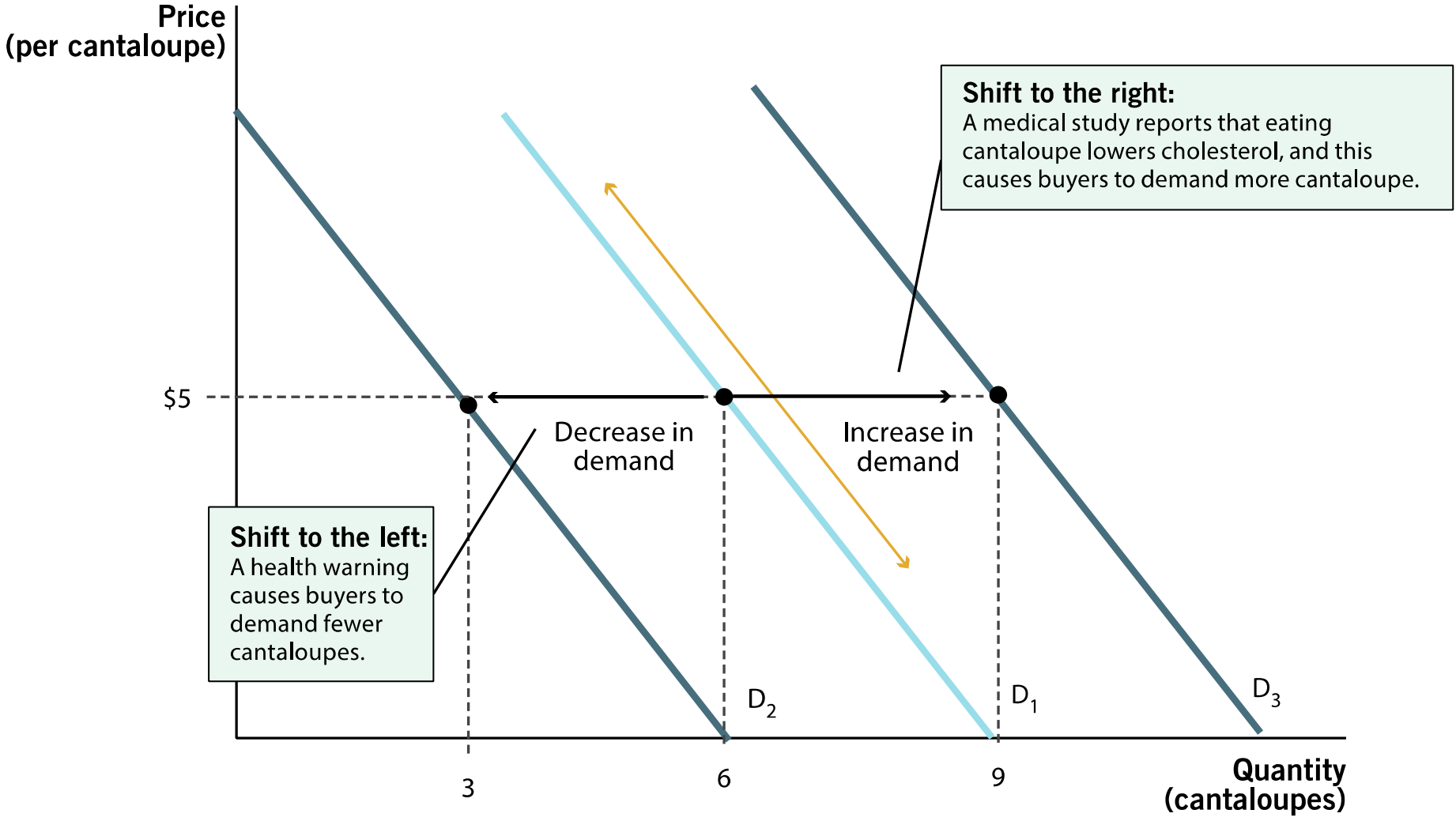
Market Demand



Shifts in Demand

- Movement along a demand curve
  - Caused by a change in the price of the good
  - Inverse relationship between price and quantity demanded
- Shift in demand
  - Caused by changes in non-price factors
  - Entire demand curve will shift to the left or right

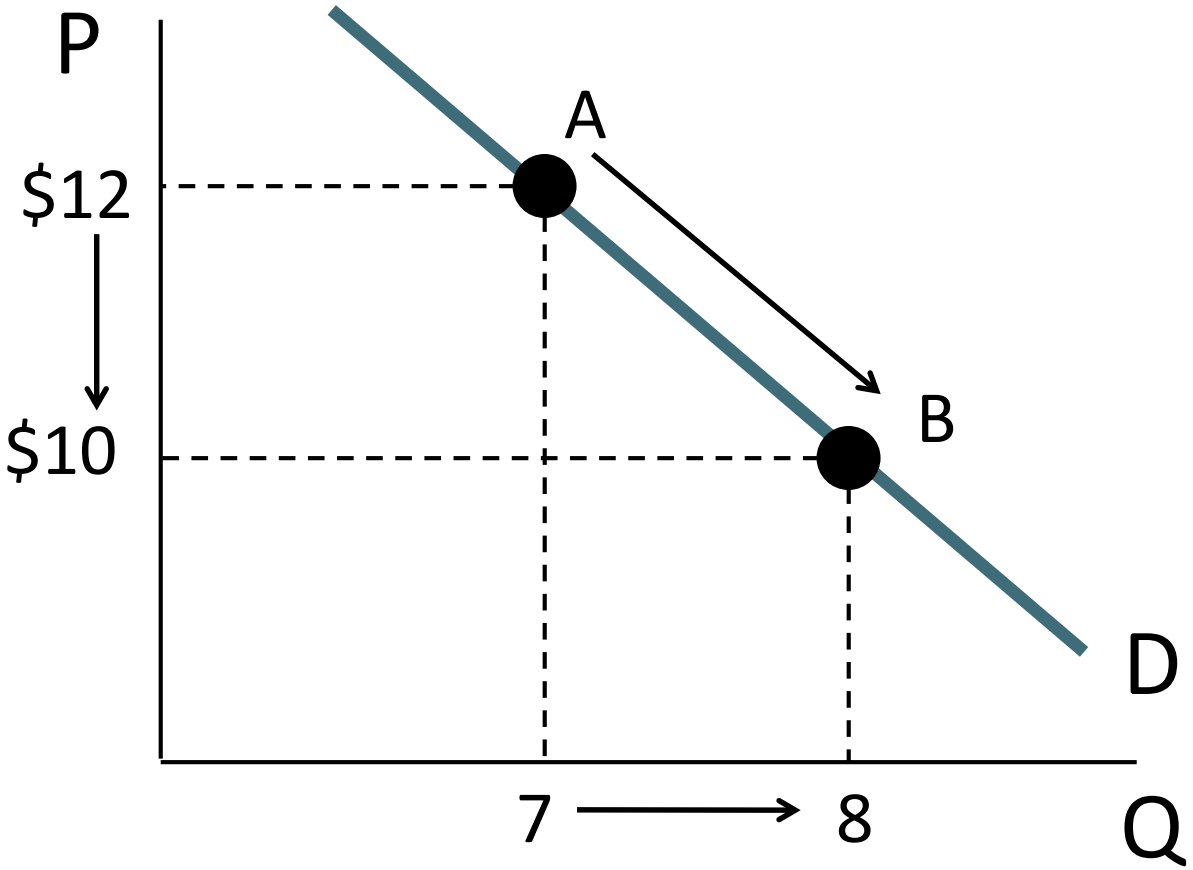
Shifts in Demand



Graphical Summary of Demand Movement versus Shift

- The next few slides give a summary of the possible movements and shift that we could see when considering demand.

Increase in Quantity Demanded



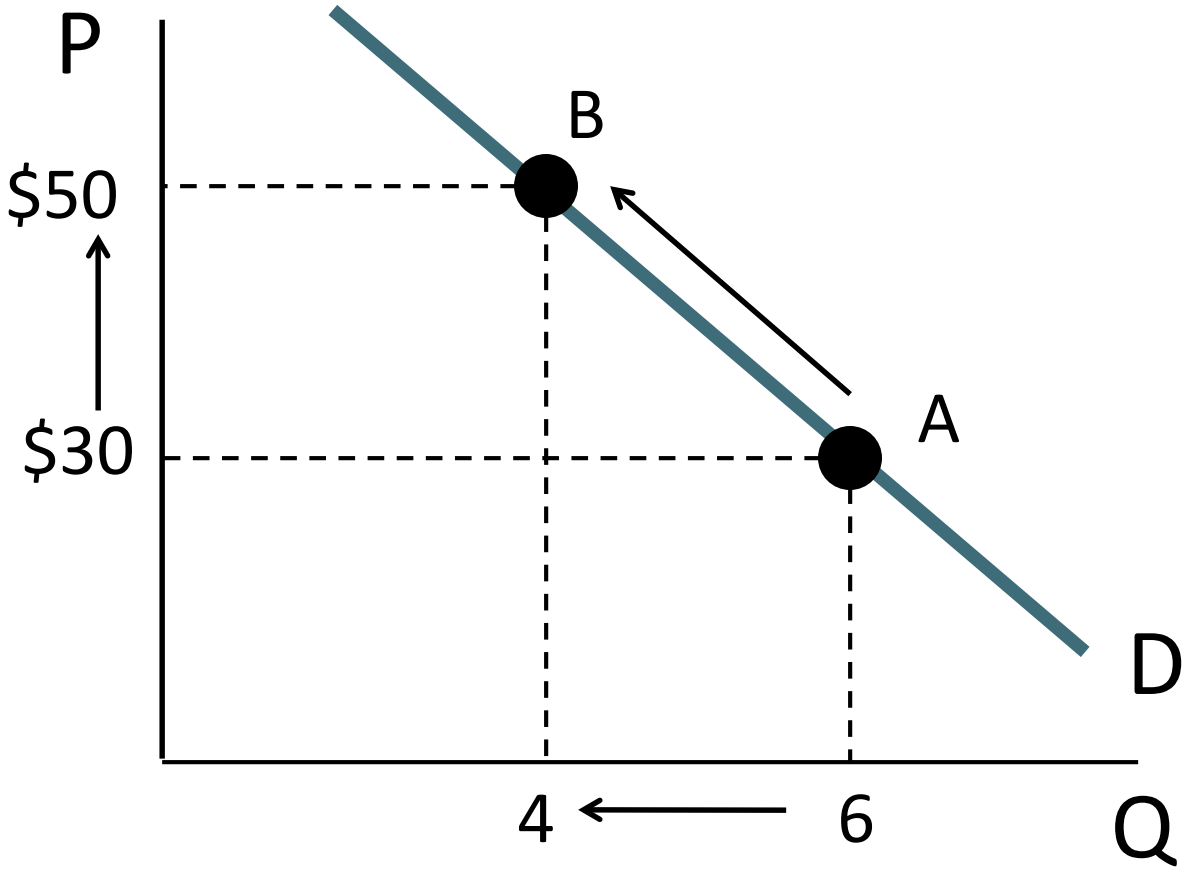
Caused by price decrease

Move from point A to point B

Movement along a demand curve

Price↓ Q_d↑

Decrease in Quantity Demanded



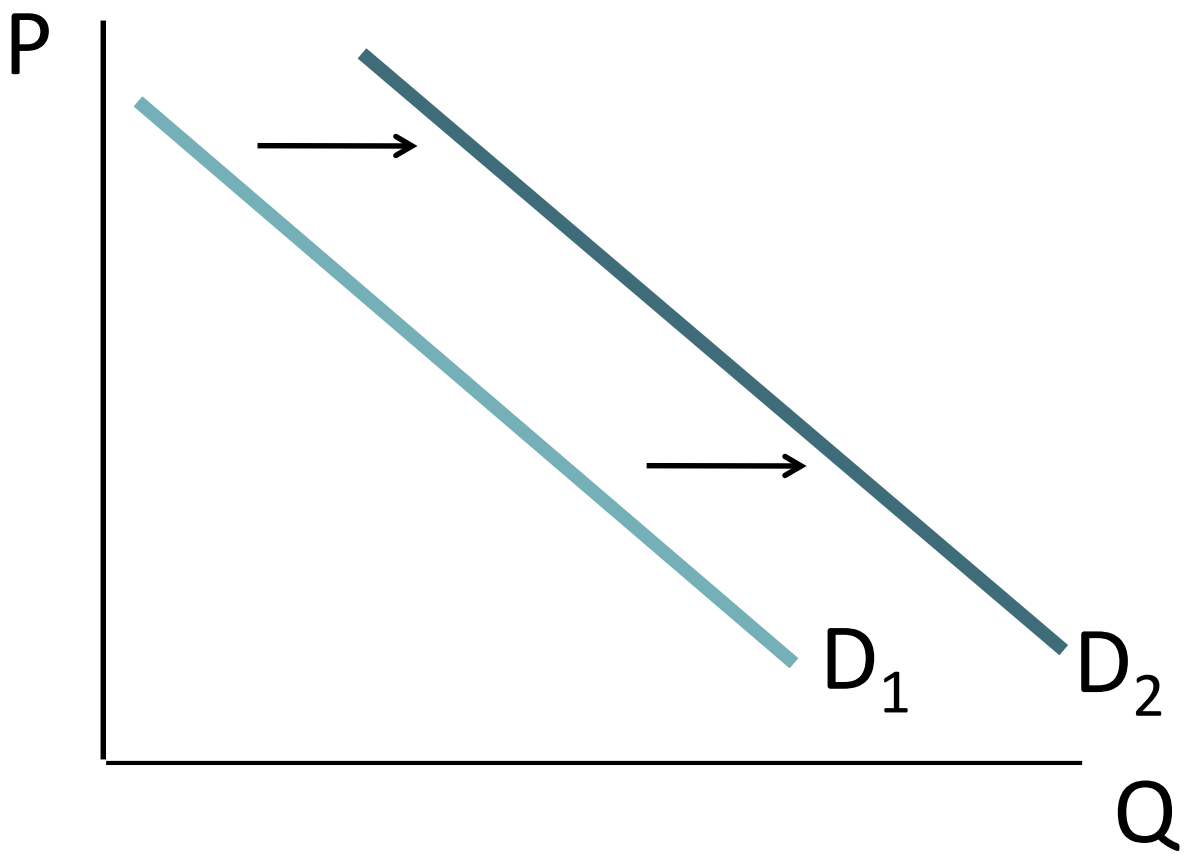
Caused by price increase

Move from point A to point B

Movement along a demand curve

Price↑ Q_d↓

Increase in Demand

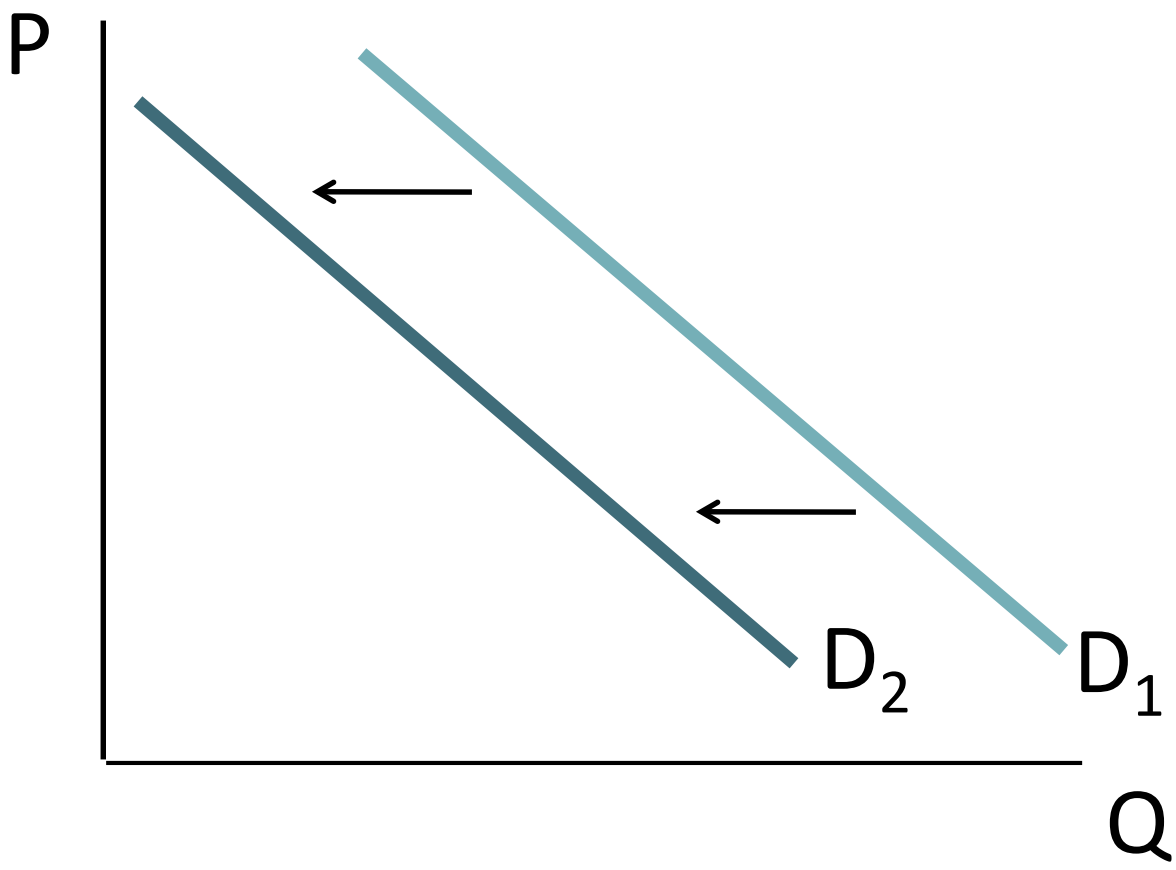


Caused by non-price factors

Entire demand curve shifts to the right

Willing to buy more at ANY price

Decrease in Demand



Caused by non-price factors

Entire demand curve shifts to the left

Willing to buy less at ANY price

Demand Shifters

1. Changes in income

- Normal good
  - Good in which we buy more of when we get more income
  - Direct relationship between income and demand
- Inferior good
  - Good in which we buy less of when we get more income
  - Inverse relationship between income and demand

Normal and Inferior Goods

Normal Goods

- Steak
- Housing
- Laptop
- TV
- Sit-down restaurant meals
- Name-brand clothing

Inferior Goods

- Canned meat, SPAM
- Ramen
- Easy Mac
- Store-brand goods
- Secondhand clothing

Demand Shifters

2. Price of related goods

- Complements
  - Two goods used together
  - Inverse relationship between the price of good X and demand for good Y
- Substitutes
  - Goods that can be used in place of each other
  - Direct relationship between the price of good X and demand for good Y

Substitutes and Complements in Consumption

Complements

- Biscuits and gravy
- Milk and cereal
- Printers and toner
- Peanut butter and jelly
- Toothbrush and toothpaste

Substitutes

- Coke and Pepsi
- Snickers and Milky Way
- Butter and margarine
- Pizza Hut and Dominos
- Various items in the store with multiple brands

Demand Shifters

3. Changes in Tastes and Preferences

- A good may become more fashionable or may come into season.
  - New style becomes popular
  - Demand increases (shifts right) as a result
- A good may go out of style or out of season.
  - Demand decreases (shifts left)
  - Lower demand for hot chocolate in summer
- New information about a good
  - Can change tastes for better or worse

Demand Shifters

4. Future expectations

- Our consumption *today* may depend on what we think the price may be *tomorrow*.

5. Number of buyers

- Recall the market demand curve
- More individual buyers means more market demand.
- Aging, immigration, war, and birth rates can affect the number of buyers for various goods.

Multiple Market Effects

- Goods are often related
  - Substitutes and complements
- This means that one economic event
  - Can affect multiple markets
- Consider an increase in the price of peanut butter
  - This will affect the market for peanut butter and the market for jelly, but in *different* ways!

Multiple Market Effects

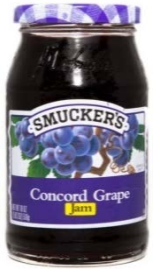
- Event: price of peanut butter increases

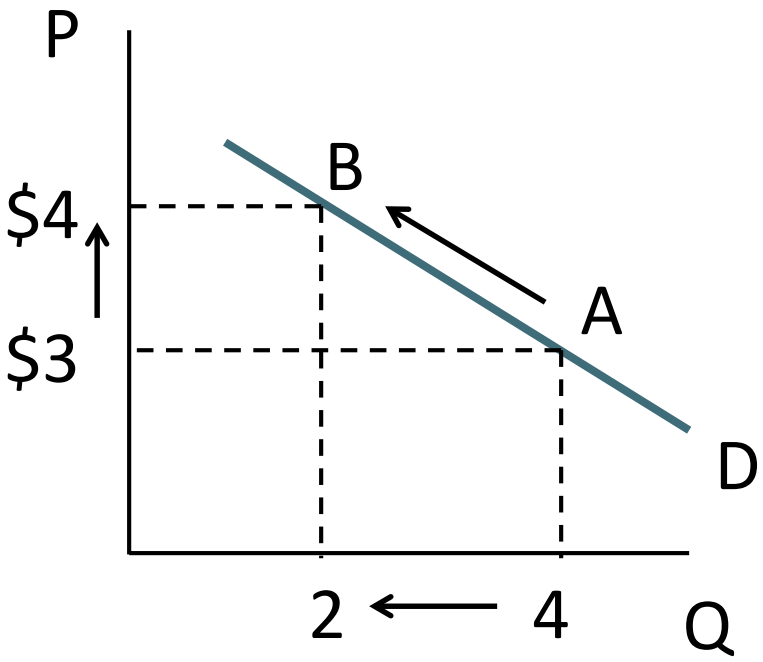
Peanut butter:

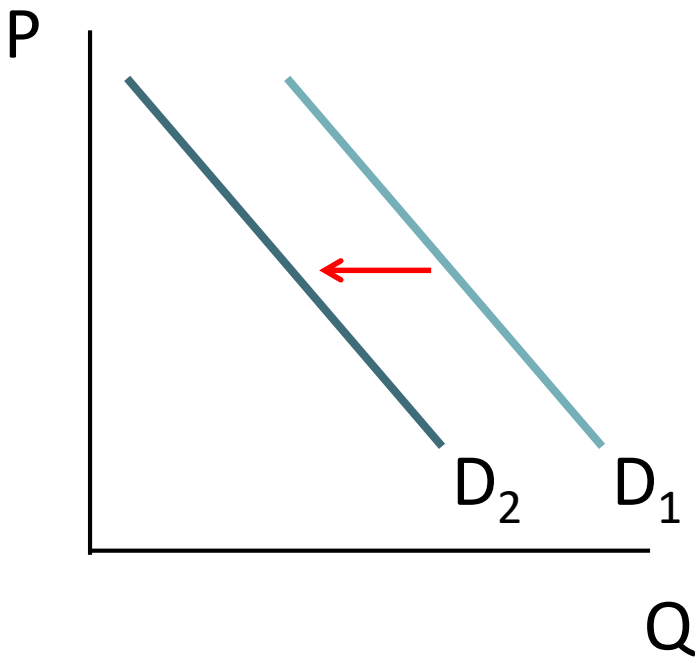
Movement along the demand curve

Jelly:

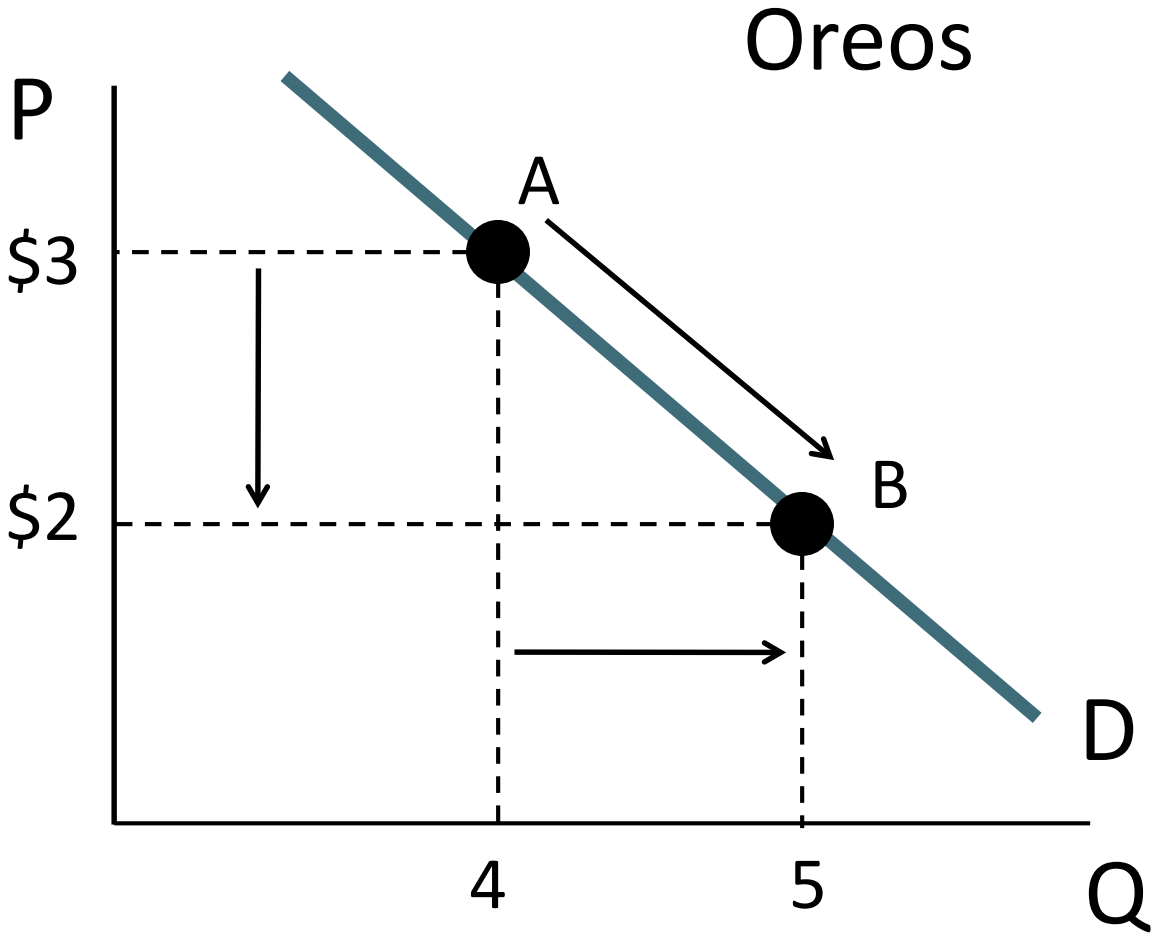
A shift in demand







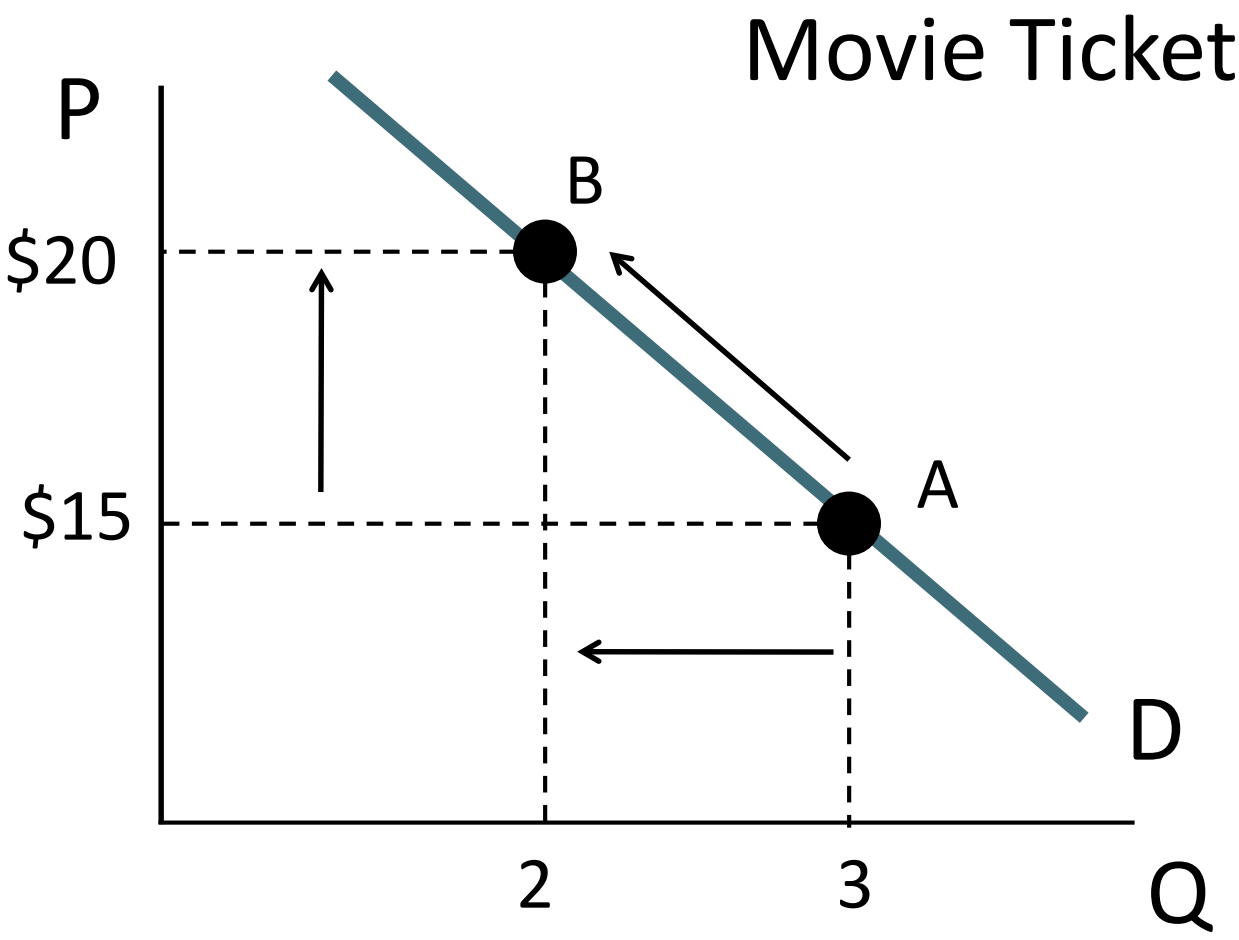
Practice What You Know—Demand Quiz 1



Event:

The price of Oreos falls.

Practice What You Know—Demand Quiz 1

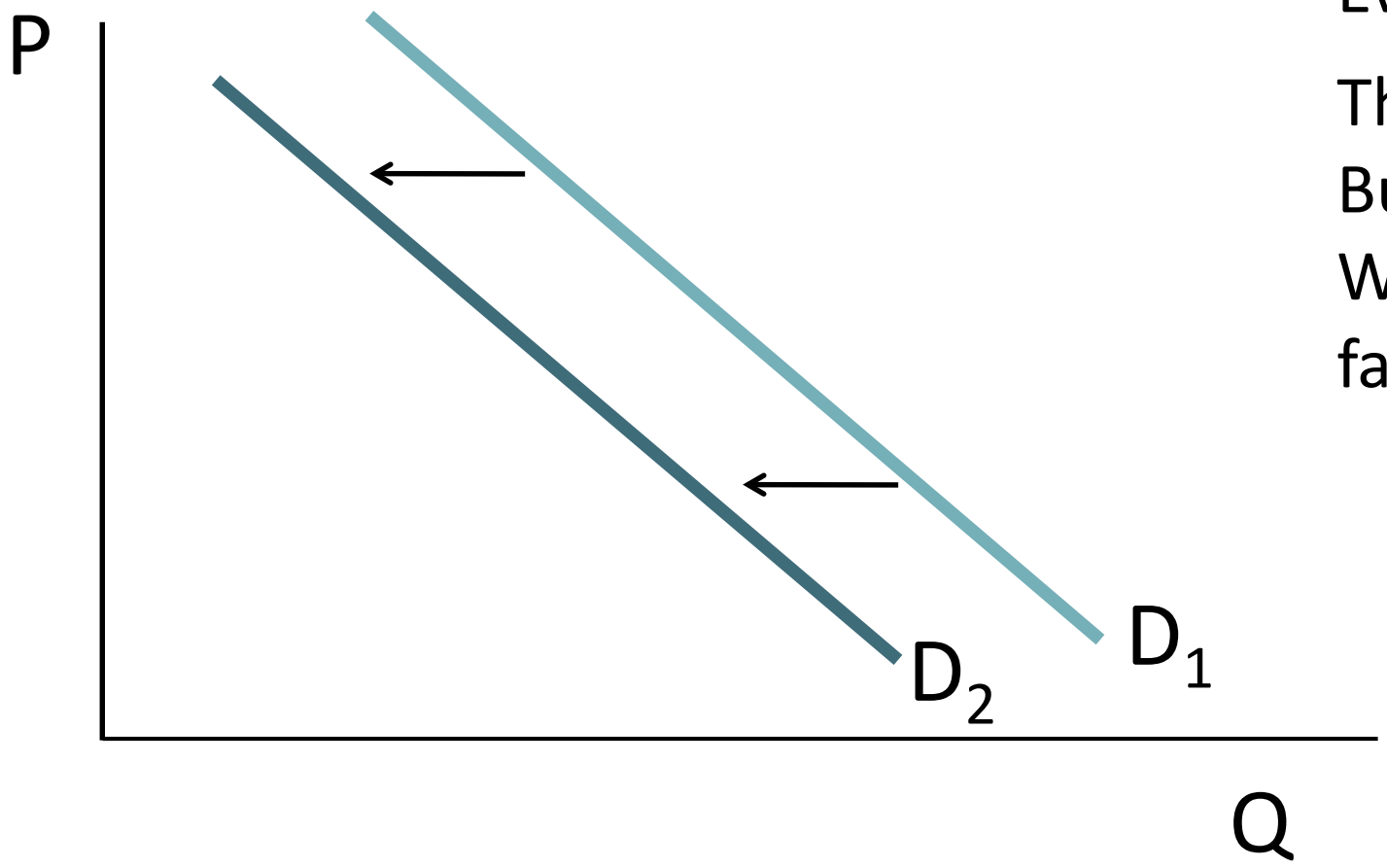


Event:

The price of movie tickets increases.

Practice What You Know—Demand Quiz 1

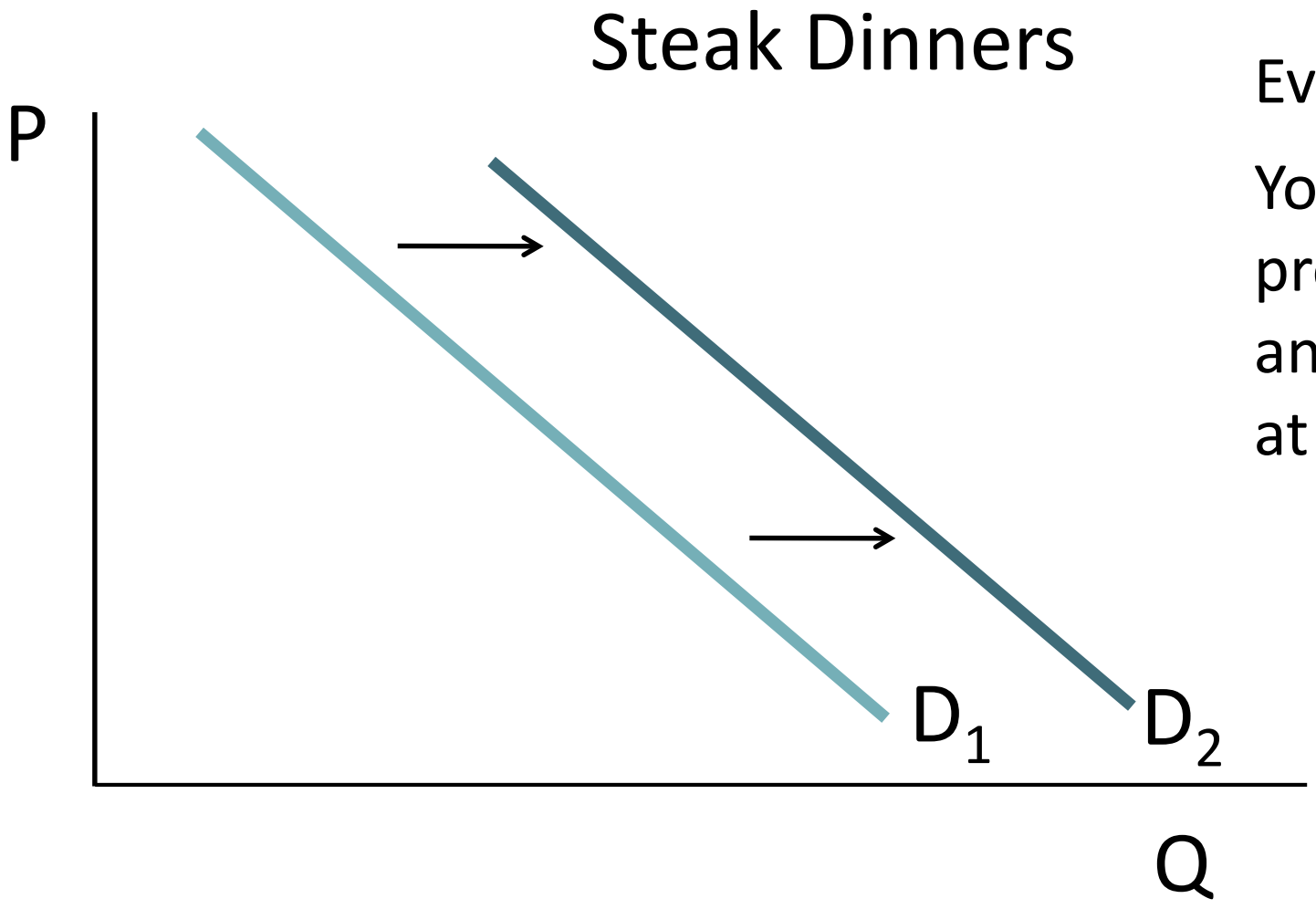
Big Macs



Event:

The price of a Burger King Whopper falls.

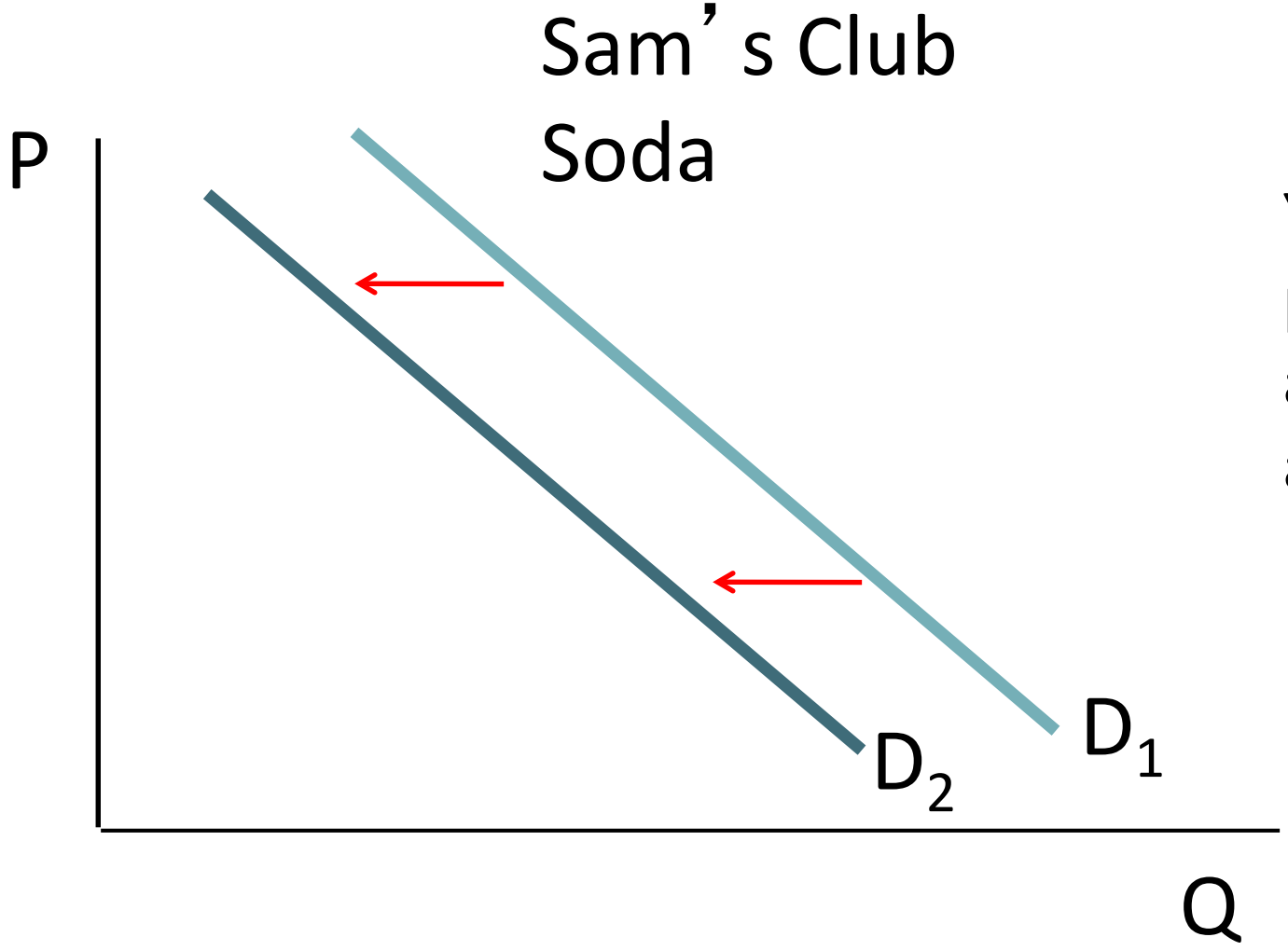
Practice What You Know—Demand Quiz 1



Event:

You get a promotion and pay raise at your job.

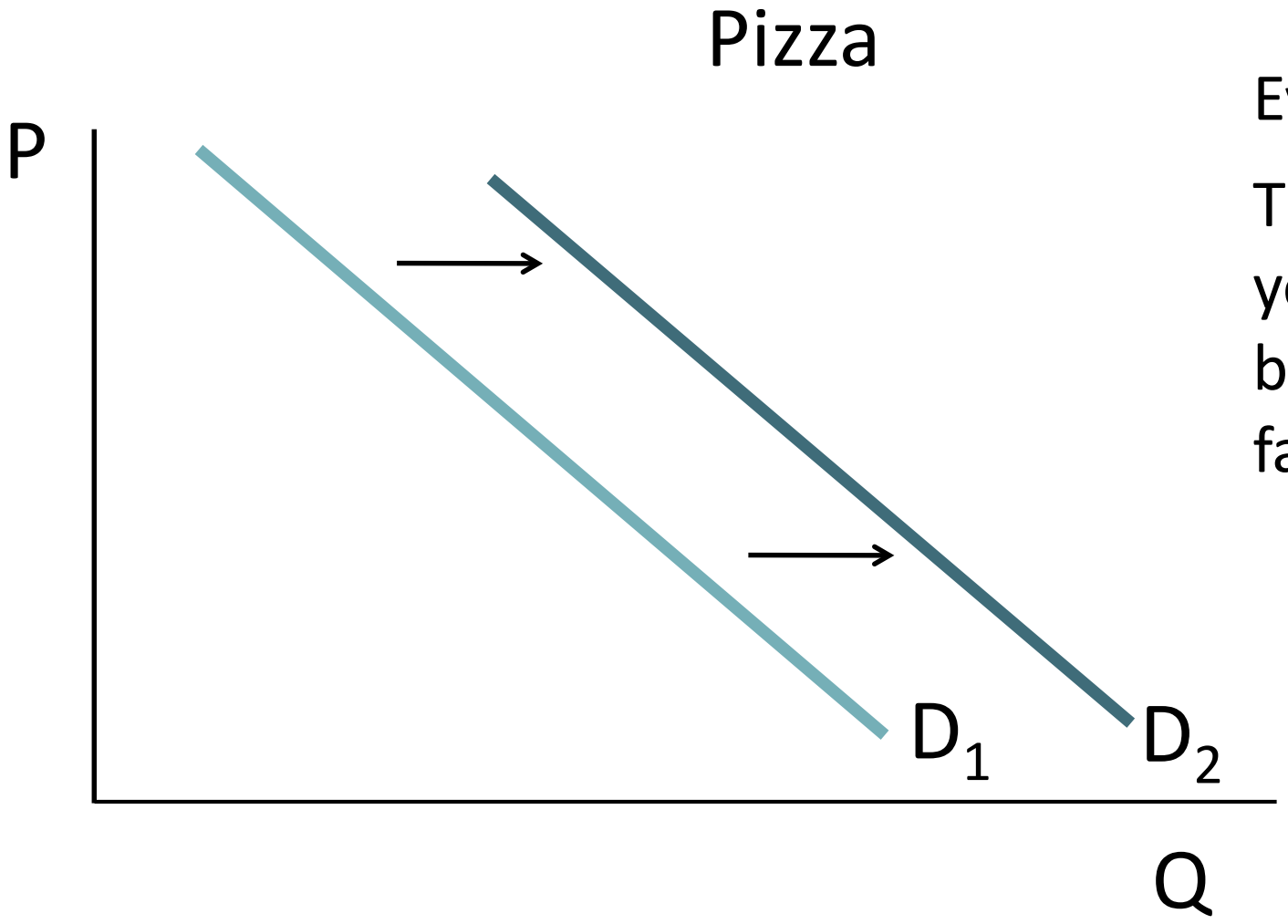
Practice What You Know—Demand Quiz 1



Event:

You get a promotion and pay raise at your job.

Practice What You Know—Demand Quiz 1

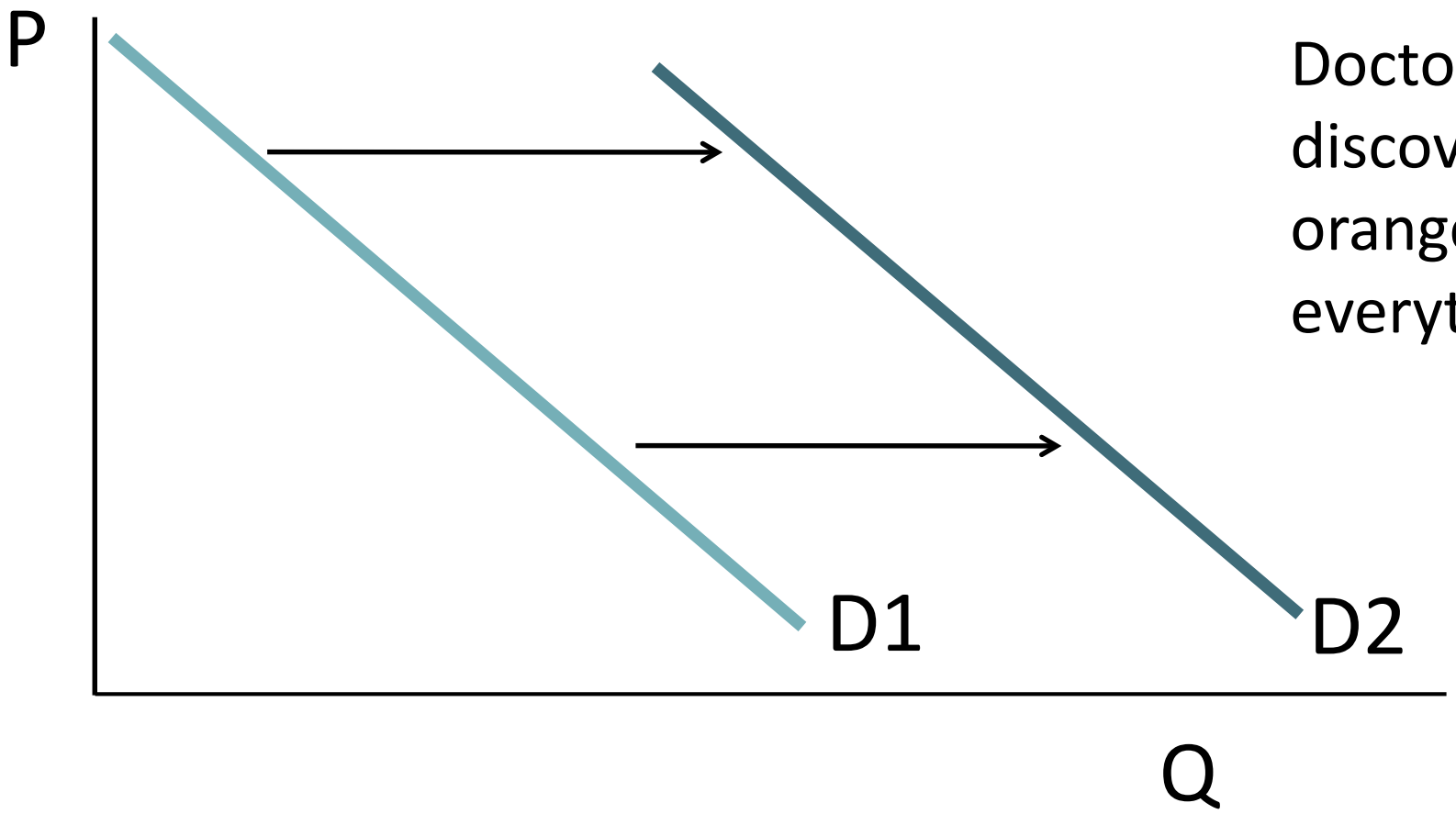


Event:

The price of your favorite beverage falls.

Practice What You Know—Demand Quiz 1

Demand for oranges



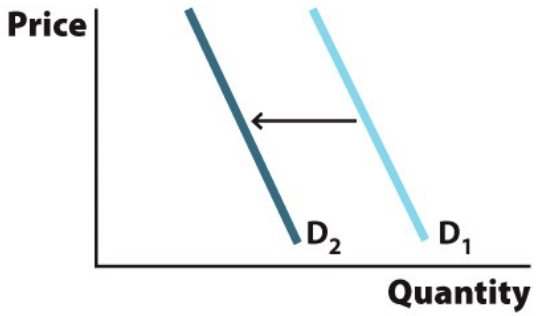
Event:

Doctors discover that oranges cure everything.

Summary of Demand Shifters

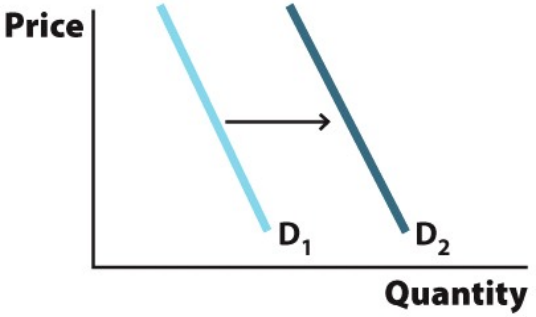
Factors That Shift the Demand Curve

Factors That Shift Demand to the Left (Decrease Demand)



- Income falls (demand for a normal good).
- Income rises (demand for an inferior good).
- The price of a substitute good falls.
- The price of a complementary good rises.
- The good falls out of style.
- There is a belief that the future price of the good will decline.
- The number of buyers in the market falls.

Factors That Shift Demand to the Right (Increase Demand)



- Income rises (demand for a normal good).
- Income falls (demand for an inferior good).
- The price of a substitute good rises.
- The price of a complementary good falls.
- The good is currently in style.
- There is a belief that the future price of the good will rise.
- The number of buyers in the market increases.

Supply

- Quantity supplied
  - The amount of the good or service that producers are willing and able to sell at the current price
- Law of supply
  - All other things equal, there is a direct relationship between price and quantity supplied.
  - Direct: two variables move in the same direction

Supply

- Supply schedule
  - Table showing the relationship between price and quantity supplied
- Supply curve
  - Graph of the relationship between price and quantity supplied
- Market supply
  - Horizontal sum of all individual quantities supplied by each seller in the market at each price

Supply

Pure Food Fish's Supply Schedule	
Price of Salmon	**Salmon Fillets Supplied**
$20.00	800
$17.50	700
$15.00	600
$12.50	500
$10.00	400
$ 7.50	300
$ 5.00	200
$ 2.50	100
$ 0.00	0

Higher price

Lower price

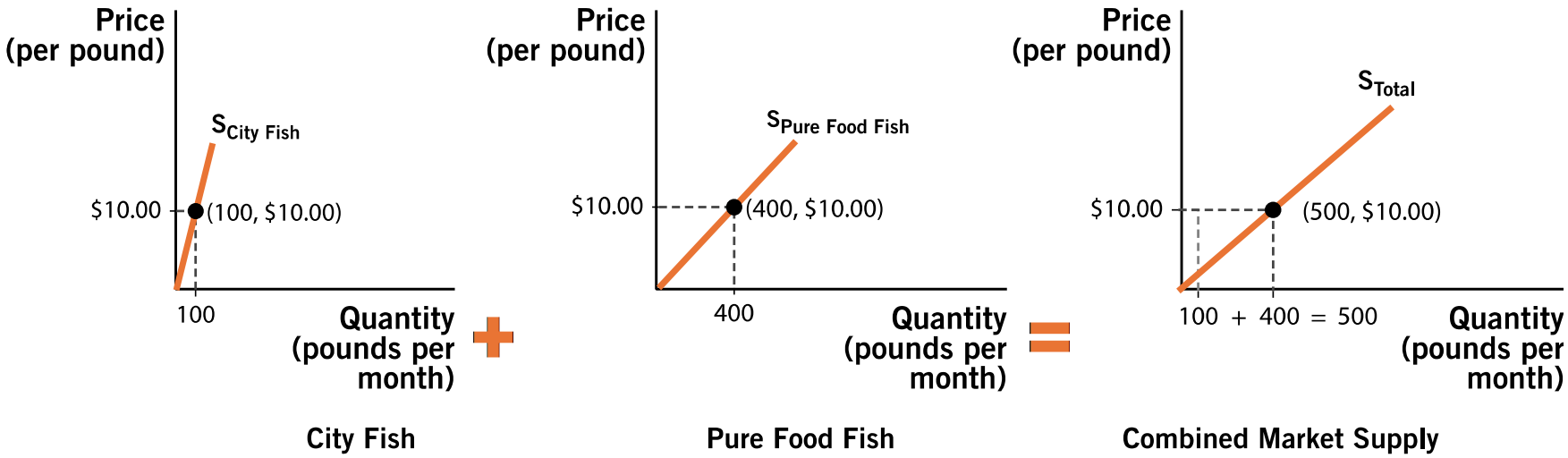
Higher quantity supplied

Lower quantity supplied

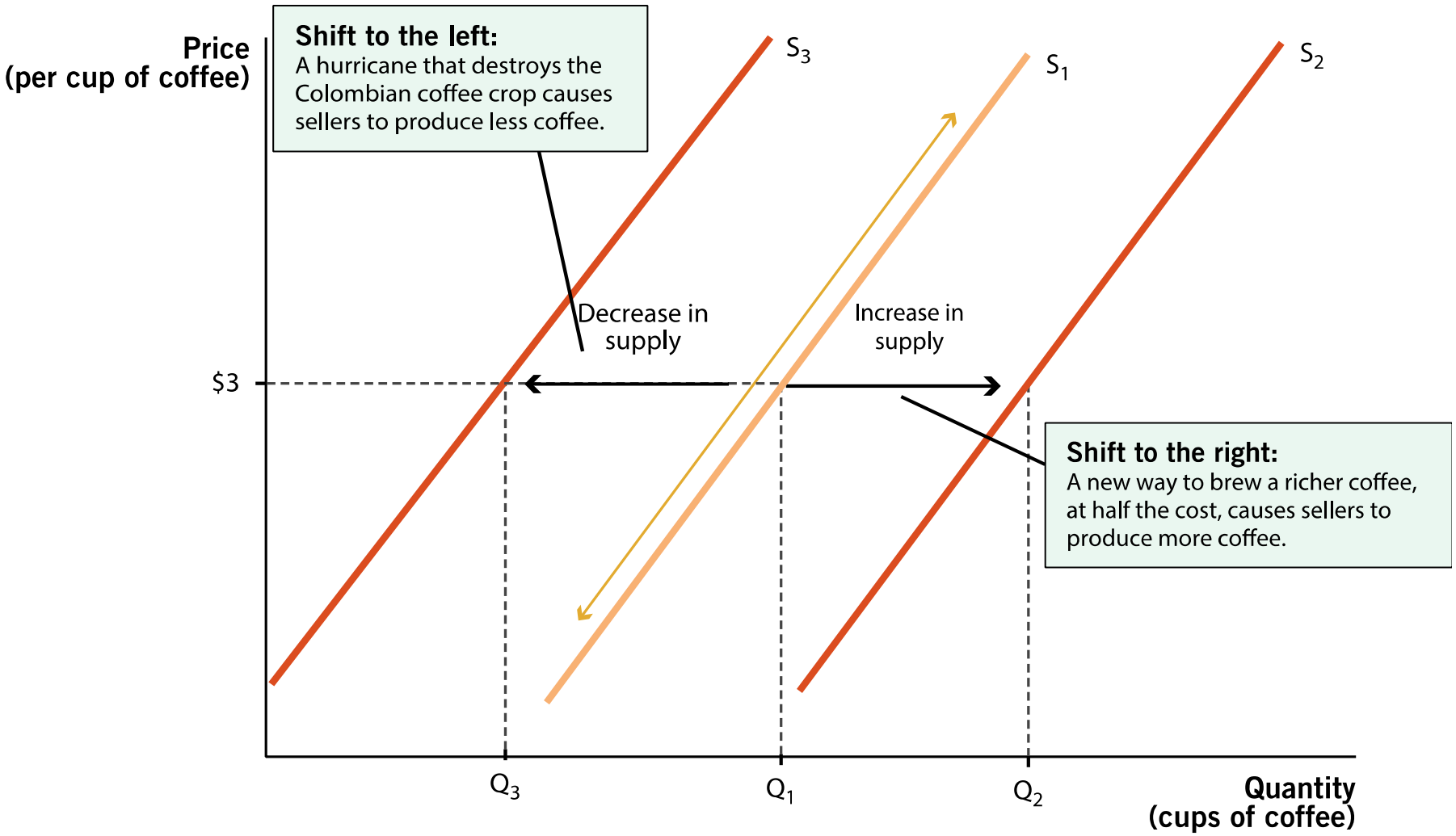
Market Supply

Price of Salmon		Pure Food Fish's Supply		City Fish's Supply		Market Supply
$20.00		800		200		1000
$17.50		700		175		875
$15.00		600		150		750
$12.50		500	+	125	=	625
$10.00		400		100		500
$ 7.50		300		75		375
$ 5.00		200		50		250
$ 2.50		100		25		125
$ 0.00		0		0		0

Supply Curve



Market Supply



Shifts in Supply

- Movement along a supply curve
  - Caused by a change in the price of the good
  - Direct relationship between price and quantity supplied
- Shift in supply
  - Caused by non-price factors
  - Entire supply curve will shift to the left or right

Supply Shifters

1. The cost of inputs

- Inputs
  - Resources used in the production process
  - Inverse relationship between input costs and supply curve

2. Changes in technology

- Technology
  - Knowledge that producers have about how to produce a product
  - Direct relationship between level of technology and supply

Supply Shifters

3. Taxes and subsidies

- Tax
  - Tax paid by producer → added cost of production
  - Inverse relationship between taxes and supply
- Subsidy
  - "Opposite" of a tax; government pays sellers to produce goods.
  - Direct relationship between subsidies and supply

Supply Shifters

4. Number of sellers

- Recall the market supply curve
- More individual sellers means more market supply.

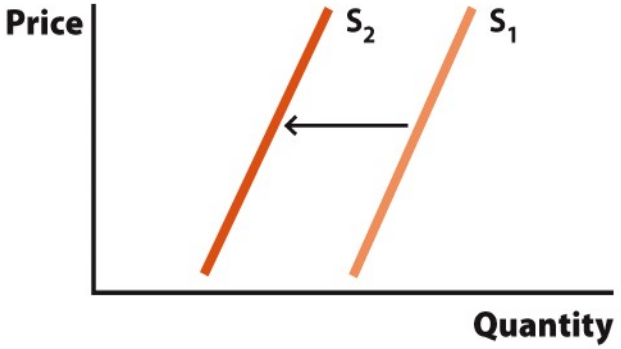
5. Price expectations

- Higher price expected tomorrow? If so, delay sales until future, if possible.
- Inverse relationship between tomorrow's expected price and today's supply

Summary of Supply Shifters

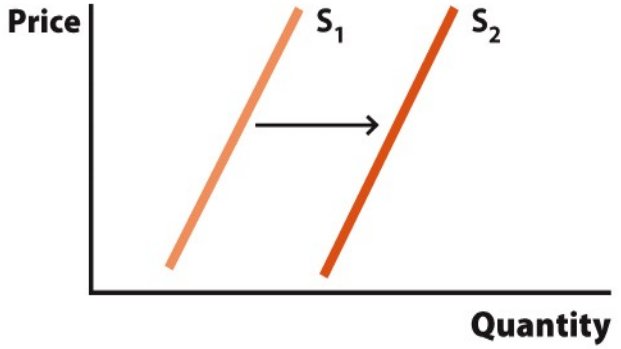
Factors That Shift the Supply Curve

Factors That Shift Supply to the Left (Decrease Supply)



- The cost of an input rises.
- Business taxes increase or subsidies decrease.
- The number of sellers decreases.
- The price of the product is anticipated to rise in the future.

Factors That Shift Supply to the Right (Increase Supply)



- The cost of an input falls.
- Business taxes decrease or subsidies increase.
- The number of sellers increases.
- The price of the product is expected to fall in the future.
- The business deploys more efficient technology.

Bringing Supply and Demand Together

- How is the price of a good determined?
  - The market forces of supply AND demand work simultaneously to determine the price.
- The law of supply and demand
  - The price of any good will adjust to bring the quantity supplied and quantity demanded into balance.

Supply and Demand

- Equilibrium point
  - Graphically, the intersection of supply and demand
- Equilibrium price
  - The price that causes quantity supplied to equal quantity demanded.
  - The price that “clears the market”
- Equilibrium quantity
  - The numerical quantity (supplied and demanded) at the equilibrium price

Finding the Equilibrium Using Equations

Use equations to solve:

Let Demand be: Qd = 90 – 2P,
Let Supply be: Qs = P

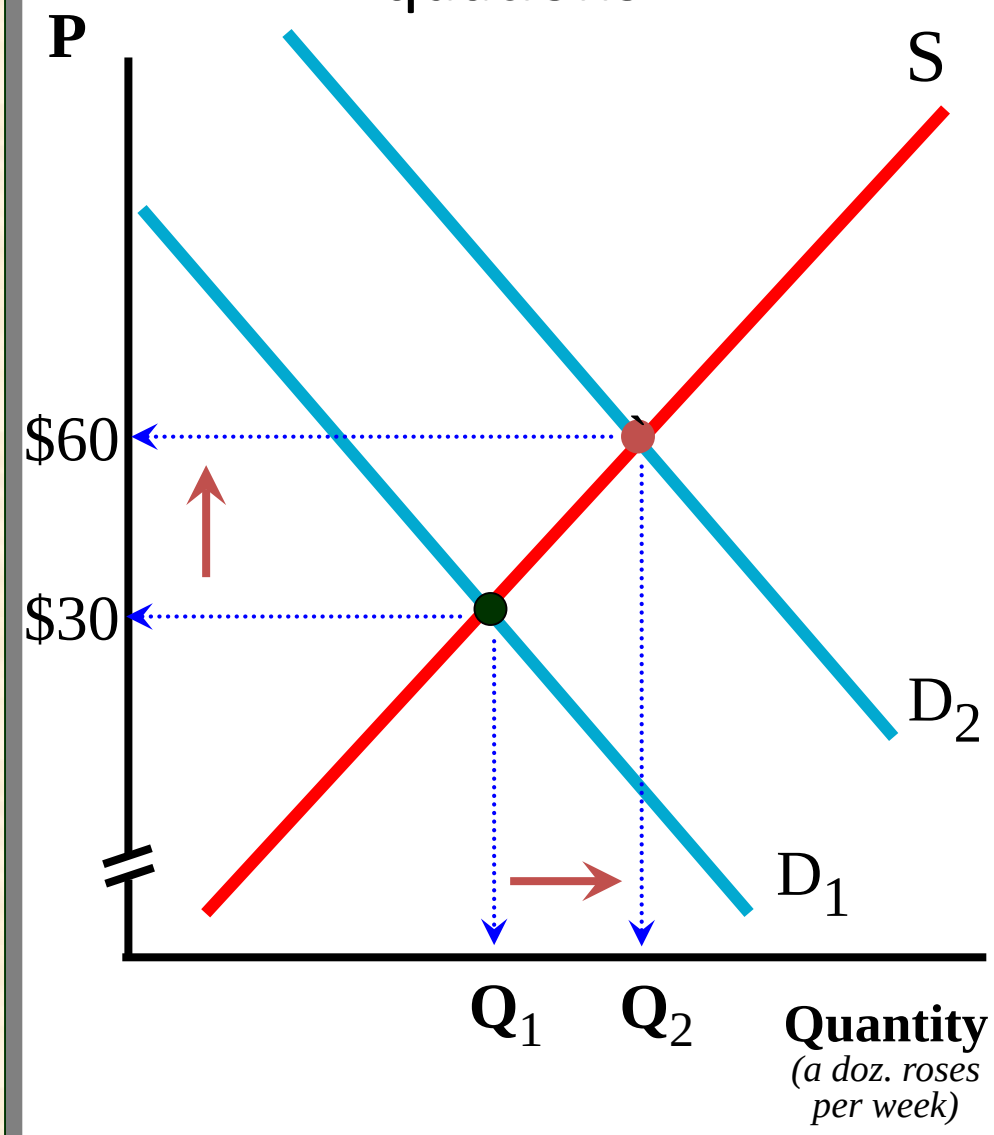
Set Qd = Qs, so

90 – 2P = P, or 90 = 3P or P=30.

Then plug P into Qd and Qs to find the equilibrium quantity.

If P=30, then Qd = 90 – 2(30) = 30

and double checking: Qs = (30) = 30



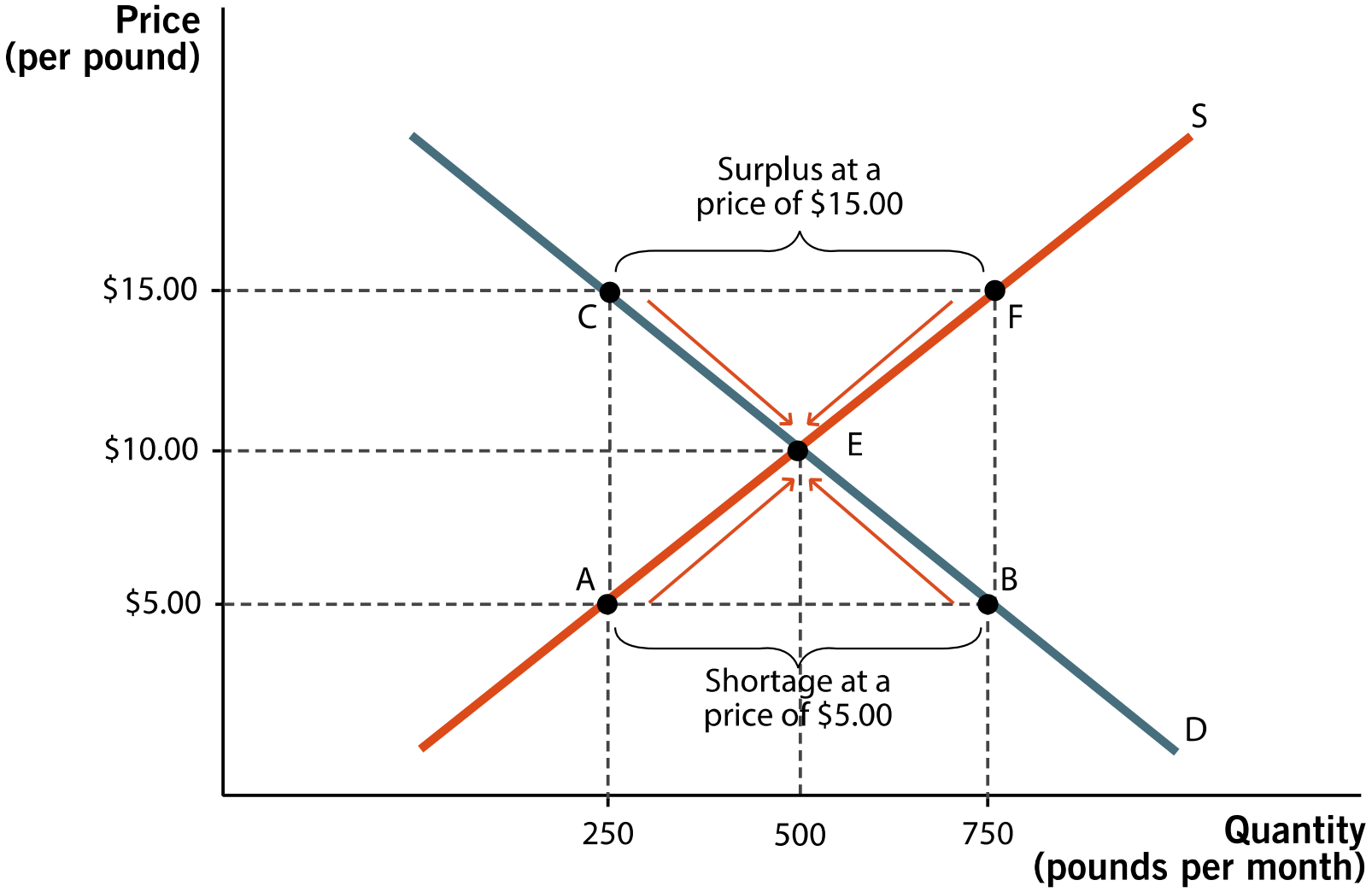
Shortages and Surpluses

- Shortage
  - $Q_D > Q_S$
  - Occurs at any price below equilibrium
  - Price will rise over time toward equilibrium
- Why does price rise over time with a shortage?
  - Consumers who value the product will “outbid” other consumers or otherwise show a higher willingness to pay.
  - Suppliers will see that the price can be raised without a decrease in sales.

Shortages and Surpluses

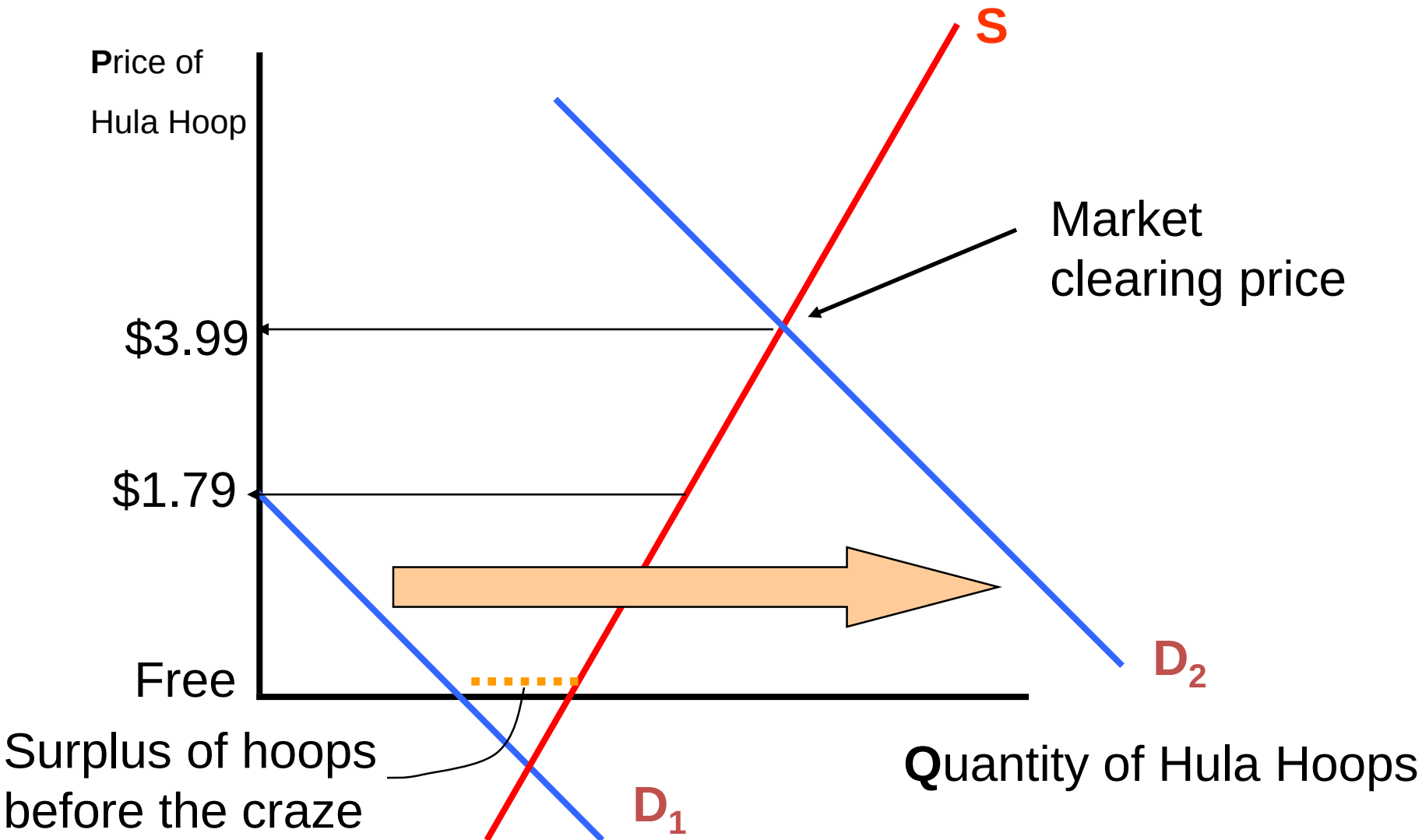
- Surplus
  - $Q_S > Q_D$
  - Occurs at any price above equilibrium
  - Price will fall over time toward equilibrium.
- Why does price fall over time with a surplus?
  - Firms will have to eventually get rid of mounting inventories of goods.
  - To do this, they must lower their prices.

Supply and Demand

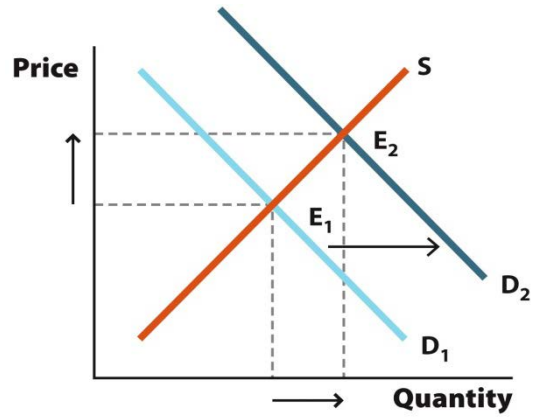
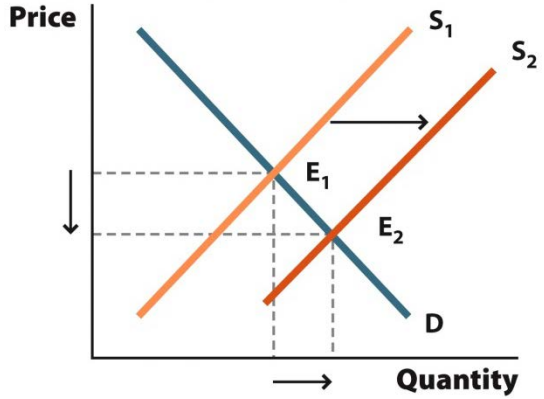


The Hudsucker Proxy

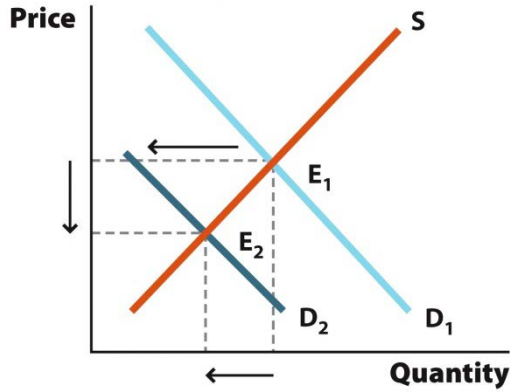
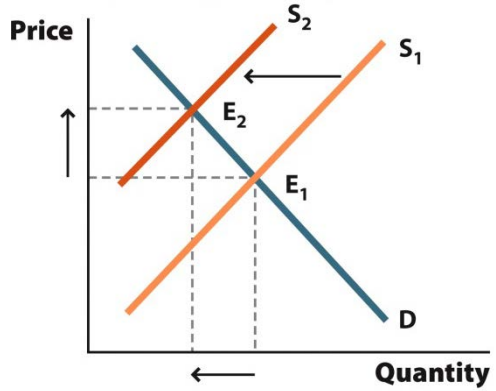
The clip nicely shows how markets coordinate prices and eliminate excess supply and excess demand.



Graphs of Shifts

Change	Illustration	Impact on Price and Quantity
Demand increases		The demand curve shifts to the right. As a result, the equilibrium price and equilibrium quantity increase.
Supply increases		The supply curve shifts to the right. As a result, the equilibrium price declines and the equilibrium quantity increases.

Graphs of Shifts

Change	Illustration	Impact on Price and Quantity
Demand decreases		The demand curve shifts to the left. As a result, the equilibrium price and equilibrium quantity decrease.
Supply decreases		The supply curve shifts to the left. As a result, the equilibrium price increases and the equilibrium quantity decreases.

Shifts in Supply and Demand

- We just learned that the supply and the demand curve can shift based on changes in non-price factors.
- Supply shifts
  - Generally caused by factors that change production costs
- Demand shifts
  - Generally caused by factors that change our willingness to pay for goods

Shifts in Supply and Demand

- The world is complex and shifts don’t always occur in a simple, one-at-a-time manner.
- What happens if there is a shift in supply AND a shift in demand?

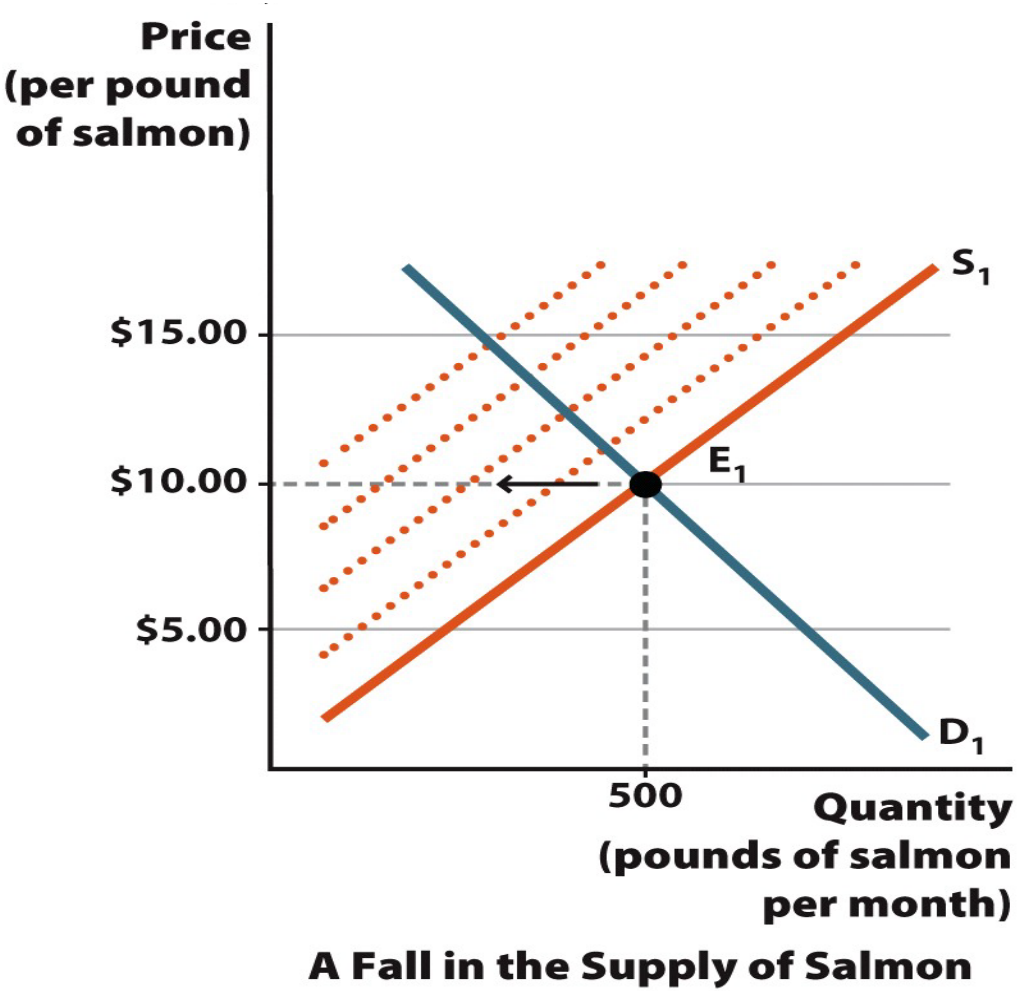
Shifts in Supply and Demand: Example

- Consider the market for salmon, and suppose two things happen simultaneously:
  1. A major drought hits the northwest United States
  2. A medical journal reports that people who consume salmon live longer than people who eat other fish
- These two events will respectively lead to:
  1. A decrease in the supply of salmon
  2. An increase in the demand for salmon

Shifts in Supply and Demand: Example

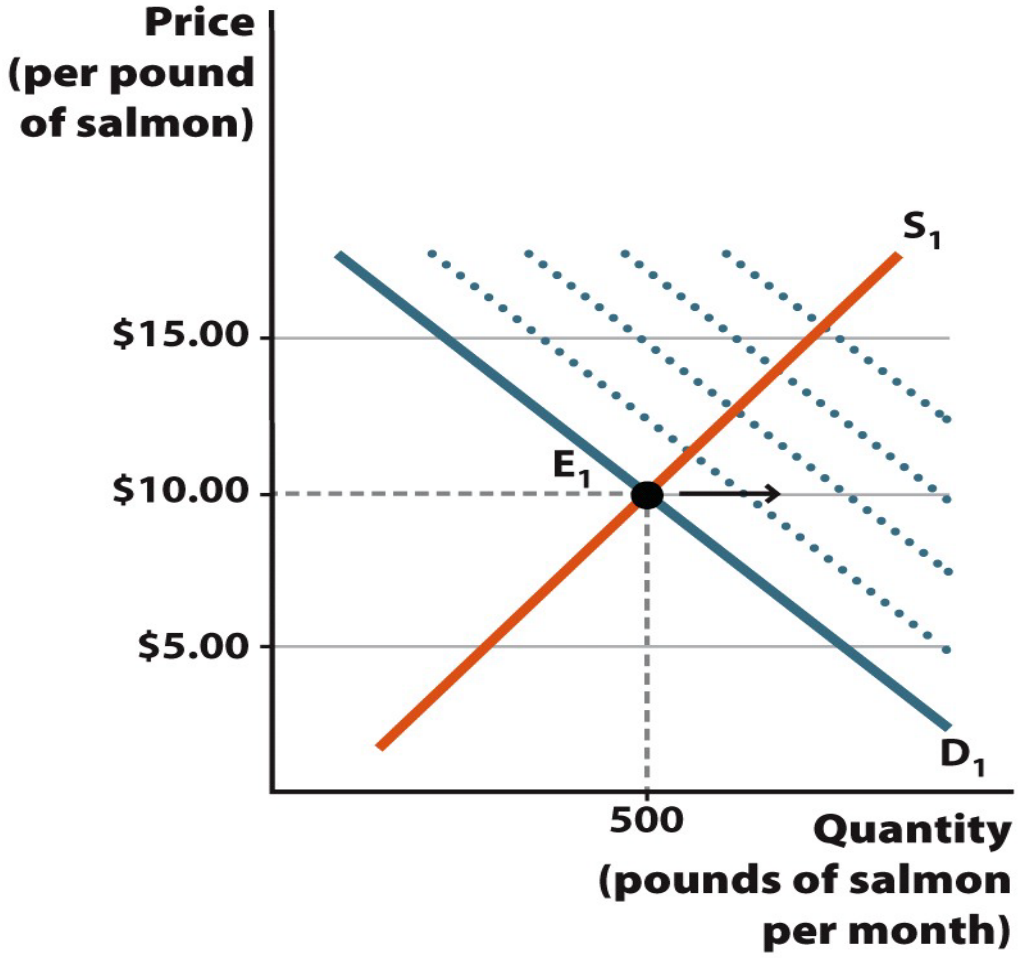
- By itself, decrease in supply leads to
  - Higher equilibrium price
  - Lower equilibrium quantity
- By itself, increase in demand leads to
  - Higher equilibrium price
  - Higher equilibrium quantity
- Combined effects?
  - Higher equilibrium price
  - Equilibrium quantity???

Graphical Analysis



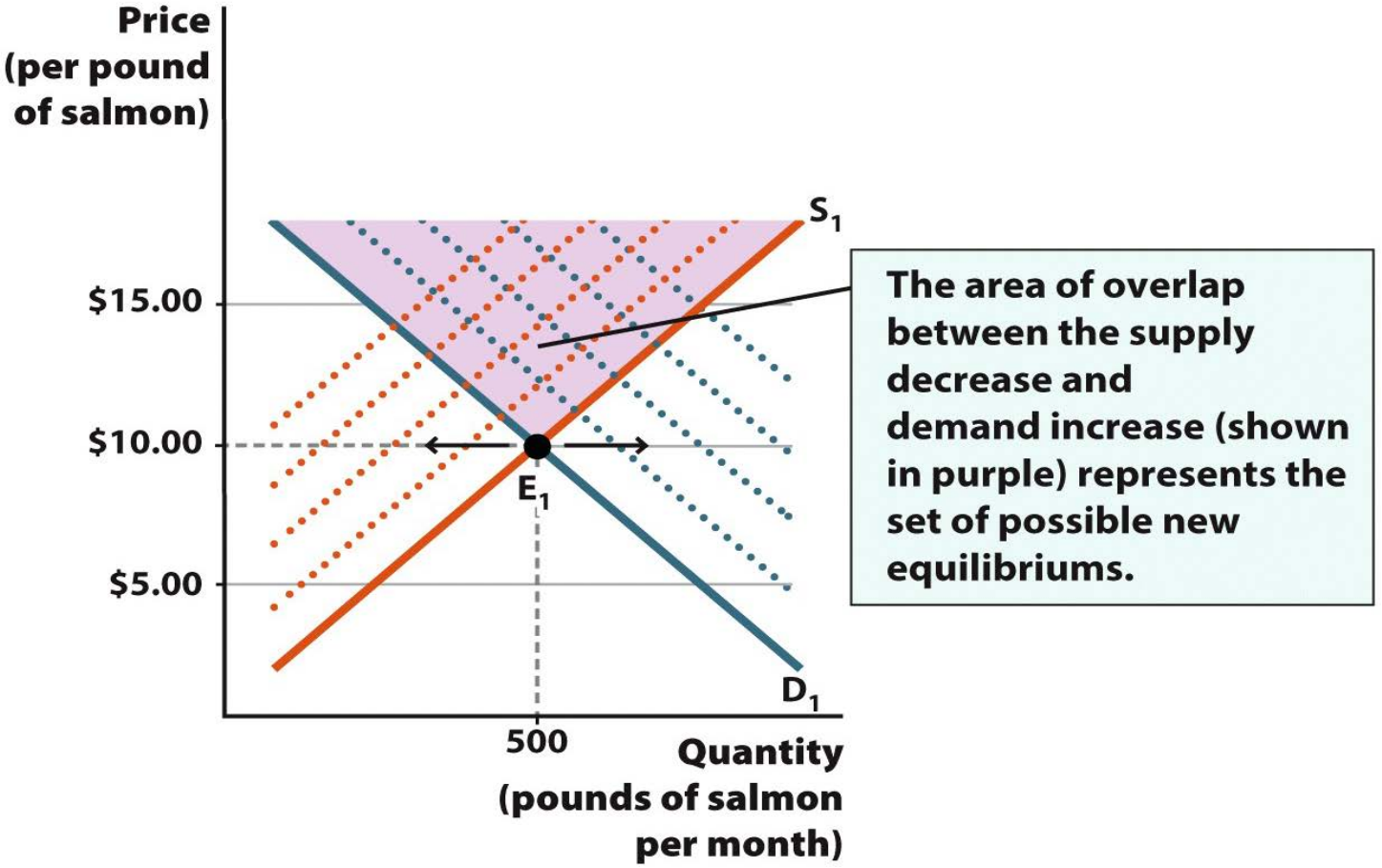
A Fall in the Supply of Salmon

Graphical Analysis



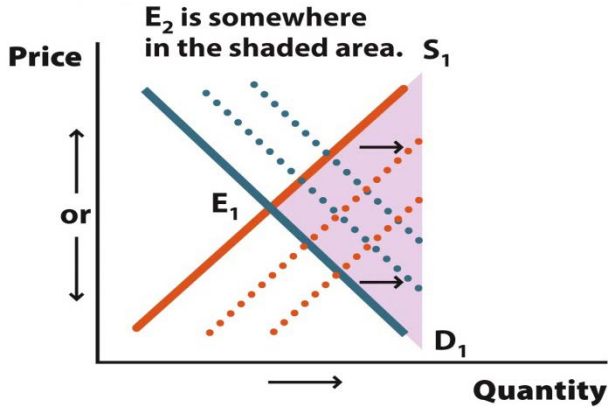
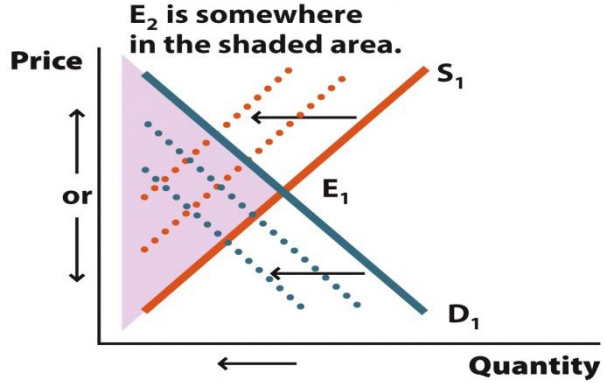
A Rise in the Demand of Salmon

Graphical Analysis

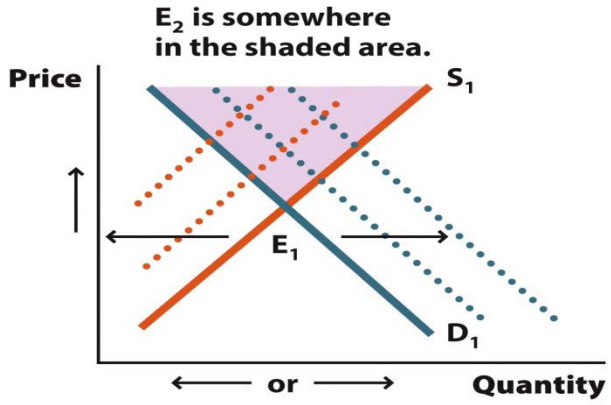
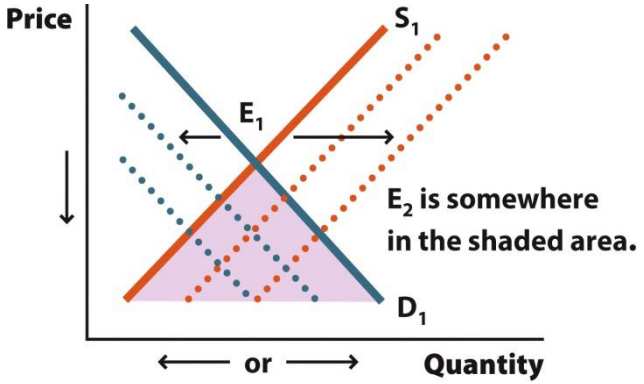


Possible Equilibriums after Supply Decreases and Demand Increases

Graphs of Shifts

Change	Illustration	Impact on price and quantity
Demand and supply both increase		The demand and supply curves shift to the right. The shifts reinforce each other with respect to quantity, but act as countervailing forces along the price axis.
Demand and supply both decrease		The demand and supply curves shift to the left. The shifts reinforce each other with respect to quantity, but act as countervailing forces along the price axis.

Graphs of Shifts

Change	Illustration	Impact on price and quantity
Demand increases and supply decreases		The demand curve shifts to the right and the supply curve shifts to the left. The shifts reinforce each other with respect to price, but act as countervailing forces along the quantity axis.
Demand decreases and supply increases		The demand curve shifts to the left and the supply curve shifts to the right. The shifts reinforce each other with respect to price, but act as countervailing forces along the quantity axis.

Shorthand Summary of Shifts

- D→ : P↑Q↑
- D← : P↓Q↓
- S→ : P↓Q↑
- S← : P↑Q↓
- D→ & S→ : P(↑↓ or ↔)Q↑
- D← & S← : P(↑↓ or ↔)Q↓
- D→ & S← : P↑Q(↑↓ or ↔)
- D← & S→ : P↓Q(↑↓ or ↔)

Notation: ↔ means “stays the same”

Shift Summary

- Don’t memorize the previous slide!
- A better idea:
  1. Figure out what shift(s) will occur as a result of some economic event.
  2. Draw the correct shift(s).
  3. Examine what you just graphed.

Conclusion

- If you take away just one thing from this course, it will probably be “supply and demand.”
- In most markets, supply and demand allow prices to adjust toward equilibrium.
- In equilibrium, the markets clears. This means there are no surpluses or shortages.