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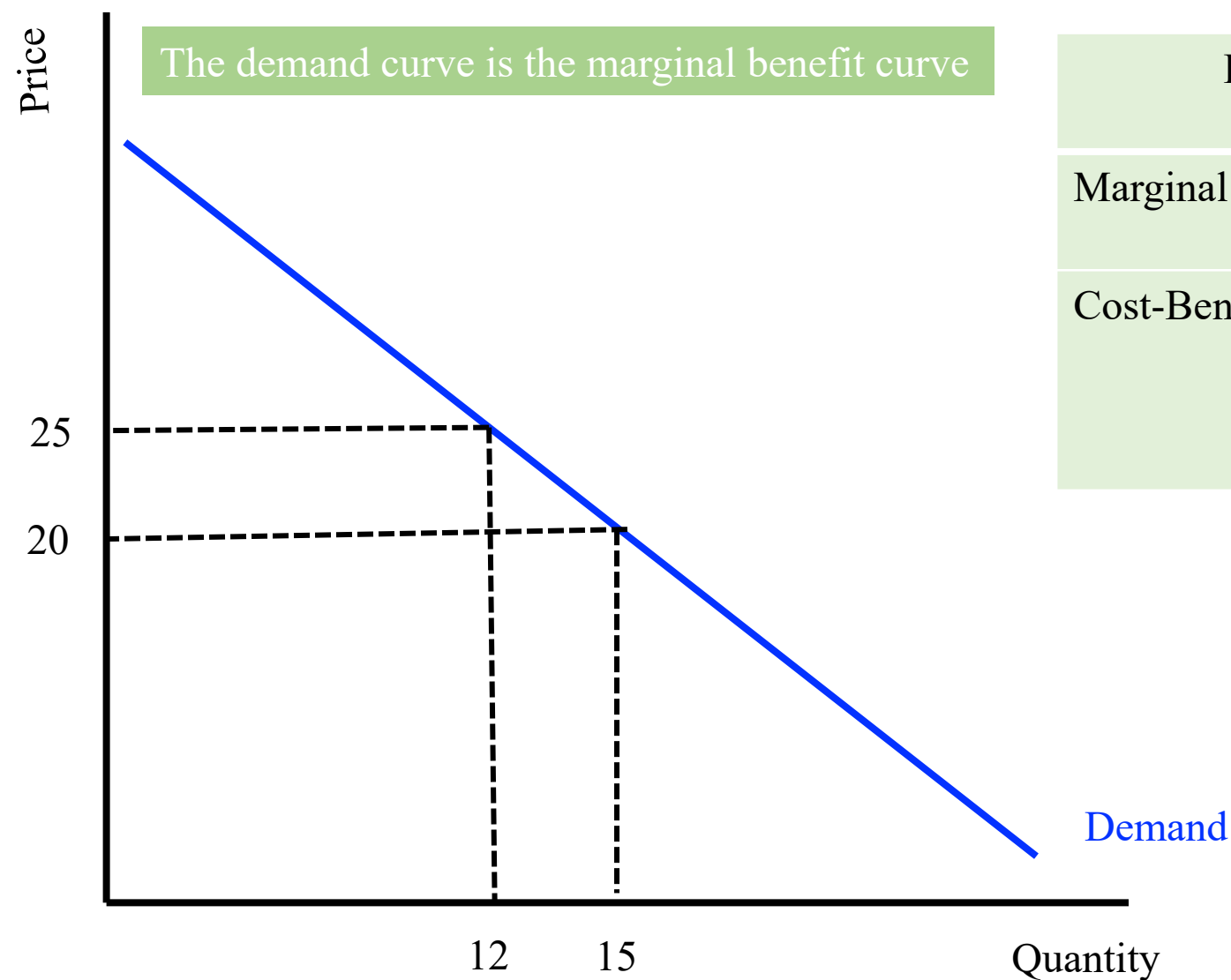
Demand

Chapter 3

Objective

- By the end of this segment, you should understand
 - What demand means and its link to MB
 - How demand is measured and why
 - The difference between “demand” and “quantity demanded”
- Understand how changes in demand affect equilibrium price and quantity
- Understand why changes in demand occur
 - The factors that shift demand curves

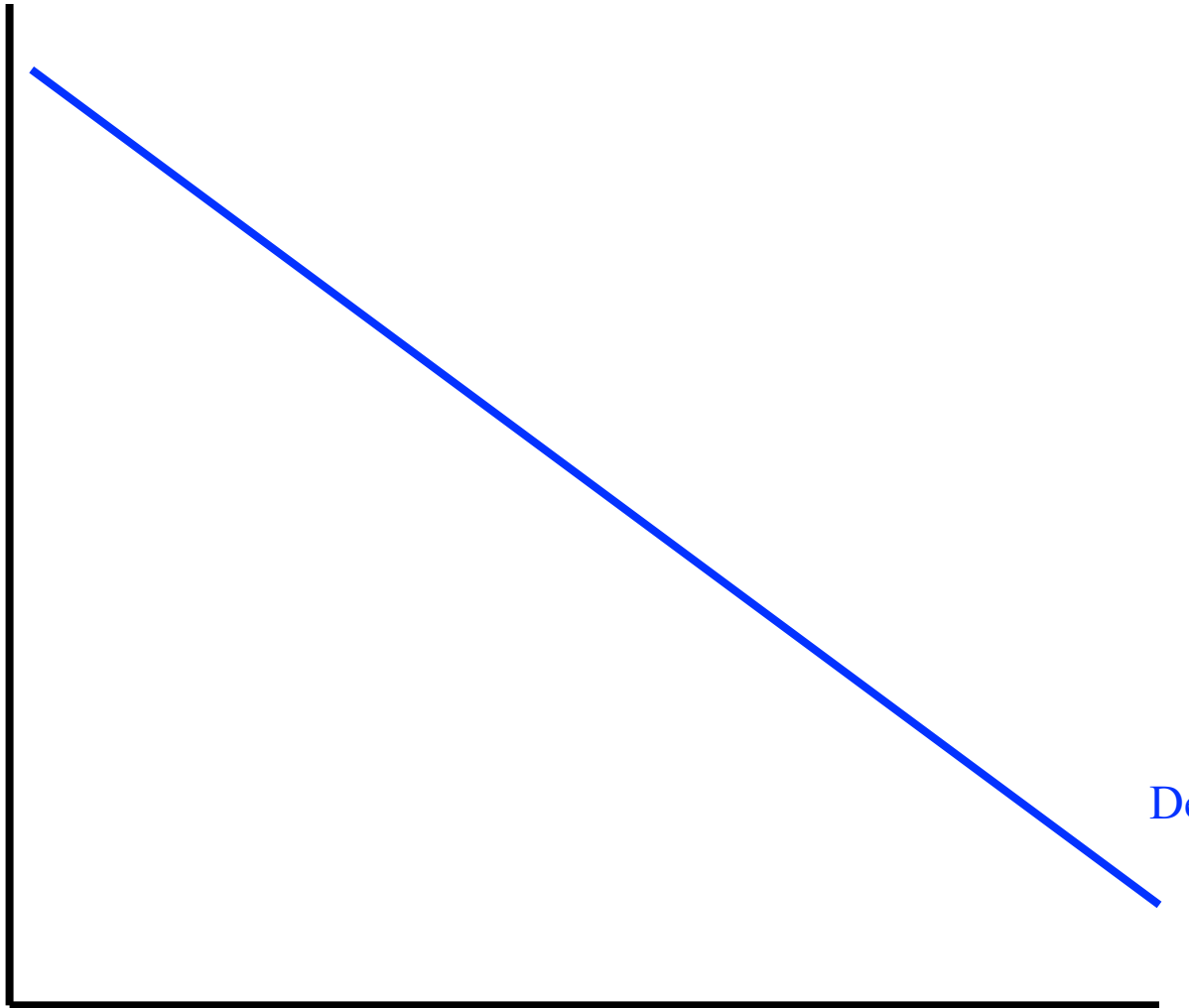
Demand Curve



Principle	Application Demand of Oil
Marginal Principle	Should I demand one more barrel of oil
Cost-Benefit	Demand one more barrel of oil if the market price is at least as large as the marginal benefit

Three ways of expressing Demand

Price



Quantity

Demand

A figure

A price schedule

Price(\$)	Quantity(kg)
4	24
6	21
8	18
10	12

An equation: $Q_D = -P + a$

What is demand?

- The notion of demand is based on observed willingness to pay (WTP) for a good
 - The WTP will never exceed the benefits received
- “Demand” is represented as a relationship between two variables
 1. price
 2. quantity demanded at that price
 - Note that “Demand” and “quantity demanded” mean different things
- The more units consumers are willing to purchase at a given price, the greater the demand
- Demand is thus a pairing of prices and quantities
 - The pairing may be expressed in various equivalent ways
 - As a table (demand schedule)
 - As a graph (demand curve)
 - As an equation

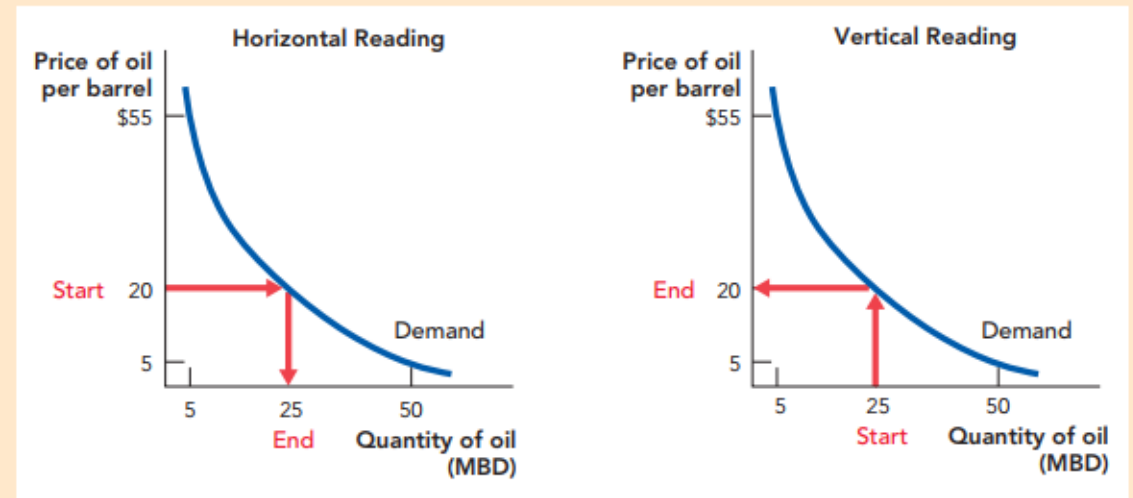
Example: The demand for MacBooks

- How might I go about measuring how much consumers value using a MacBook?
 - I could ask them
 - I could watch what they do (i.e., how many MacBooks they are willing to buy at various prices)
 - Will they update to a new version of the MacBook and when?
- The demand for MacBooks (at a given place and time) is thus:
 - a set of prices
 - the quantities that would be purchased at those prices (quantity demanded)

P and Q along demand curve

- The relationship between price and quantity along a demand curve (or in an equation or schedule) is always *negative*
 - At higher prices, consumers purchase fewer units . . .
 - . . . and at lower prices, consumers purchase more units
- **The Law of Demand:** When prices go up, quantity demanded goes down (or at least doesn't rise), and vice versa
- Why?
 1. The higher the price, the more expensive the good is relative to other goods
 - This is termed the “substitution effect”
 2. The higher the price, the greater the proportion of your income necessary to purchase it
 - This is termed the “income effect”

FIGURE 3.2



Reading a Demand Curve in Two Different Ways

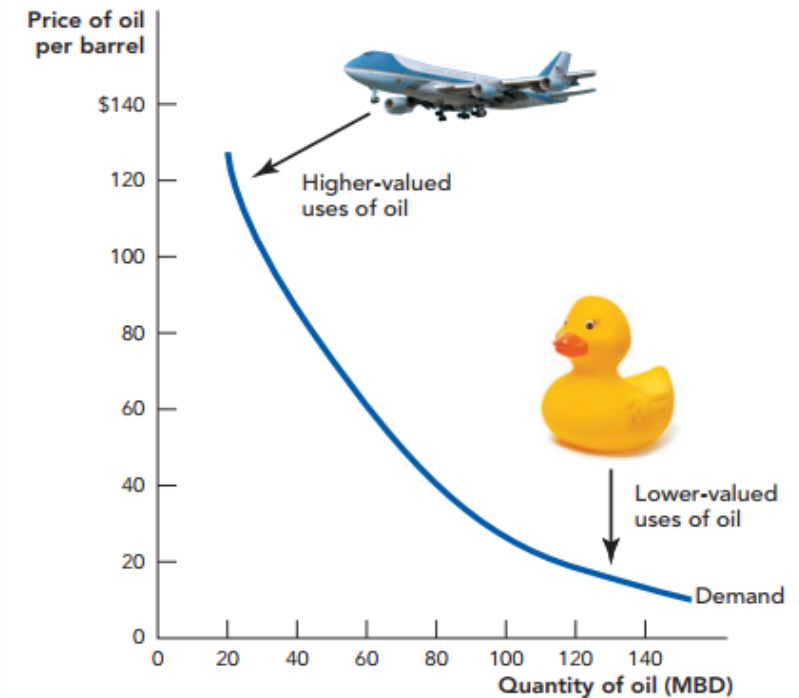
Horizontal Reading: At a price of \$20 per barrel, buyers are willing to buy 25 million barrels of oil per day.

Vertical Reading: The maximum price that demanders are willing to pay to purchase 25 million barrels of oil per day is \$20 per barrel.

The Law of Demand

- The Law of Demand says that as the price of a good rises, people buy less of the good.
- **SUBSTITUTE:** What you use/do instead as the price of a good goes up
 - Price of oranges goes up, some people buy apples (or pears or grapefruit) instead
 - Price of Coca Cola goes up, some people buy Pepsi (or iced tea) instead
 - Price of tires goes up, some people stick with old tires longer
- But what if there are no substitutes for a product?

FIGURE 3.3



The Demand for Oil Depends on the Value of Oil in Different Uses When the price of oil is high, oil will be used only in its higher-valued uses. As the price of oil falls, oil will also be used in lower-valued uses.

(Top photo: ssuaphotos/Shutterstock)
(Bottom: Lew Robertson/Corbis)

Recap

- What did we learn so far?
 - What is the **demand curve**?
 - How can we represent **demand**?
 - What is the **law of demand**?
 - What is **market demand** versus **individual demand**?
 - Can we relate demand to **marginal benefits** and **marginal costs**?

“Measuring” values (i.e. marginal benefits)

- The model:
 - Consumers make decisions by comparing marginal benefits and marginal costs..
 - and choose the options that give them the largest surplus ($MB - MC$).
- In applying the model to the real world, we face the challenge that we cannot observe how much benefit (“enjoyment”) a consumer gets from consuming a good
 - This is true of opportunity costs as well, as we will discuss in a later class
- However, we can observe the choices consumers make; which goods they purchase (and how much) and which goods they don’t at given prices.

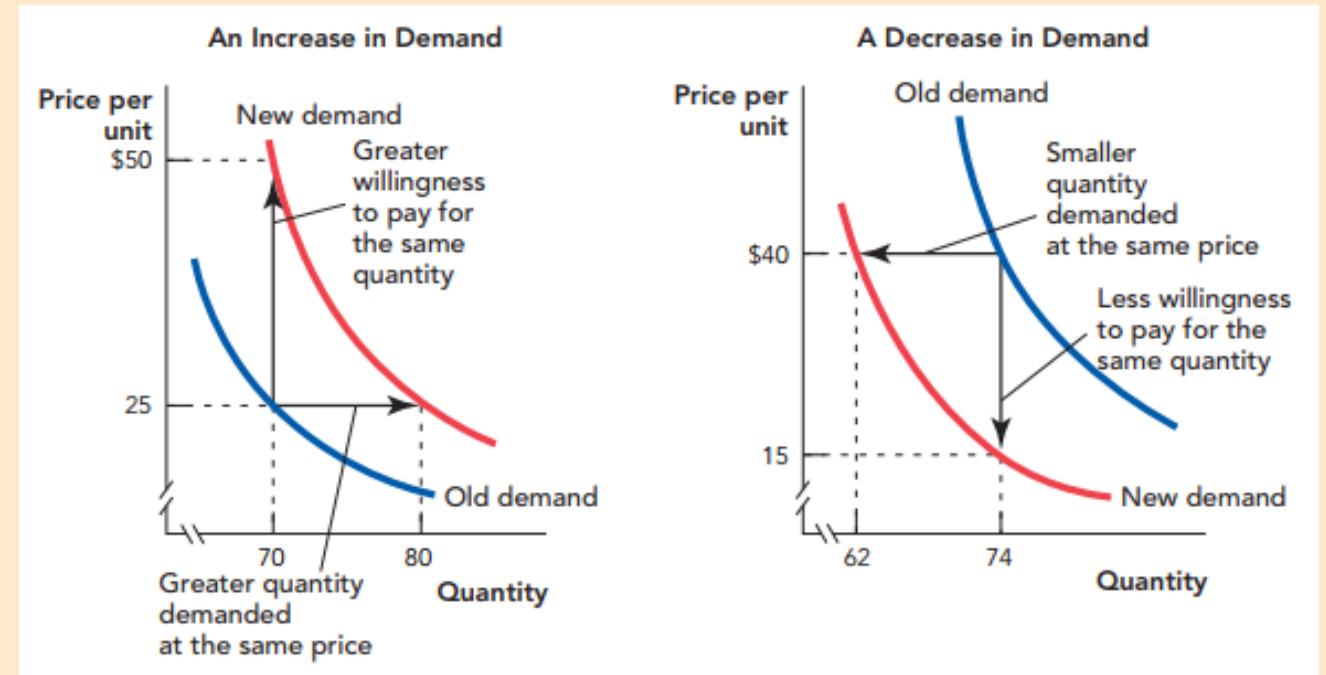
A shift in the demand curve

What kinds of things will increase or decrease demand?
Unfortunately, a lot of things!

Demand shifters:

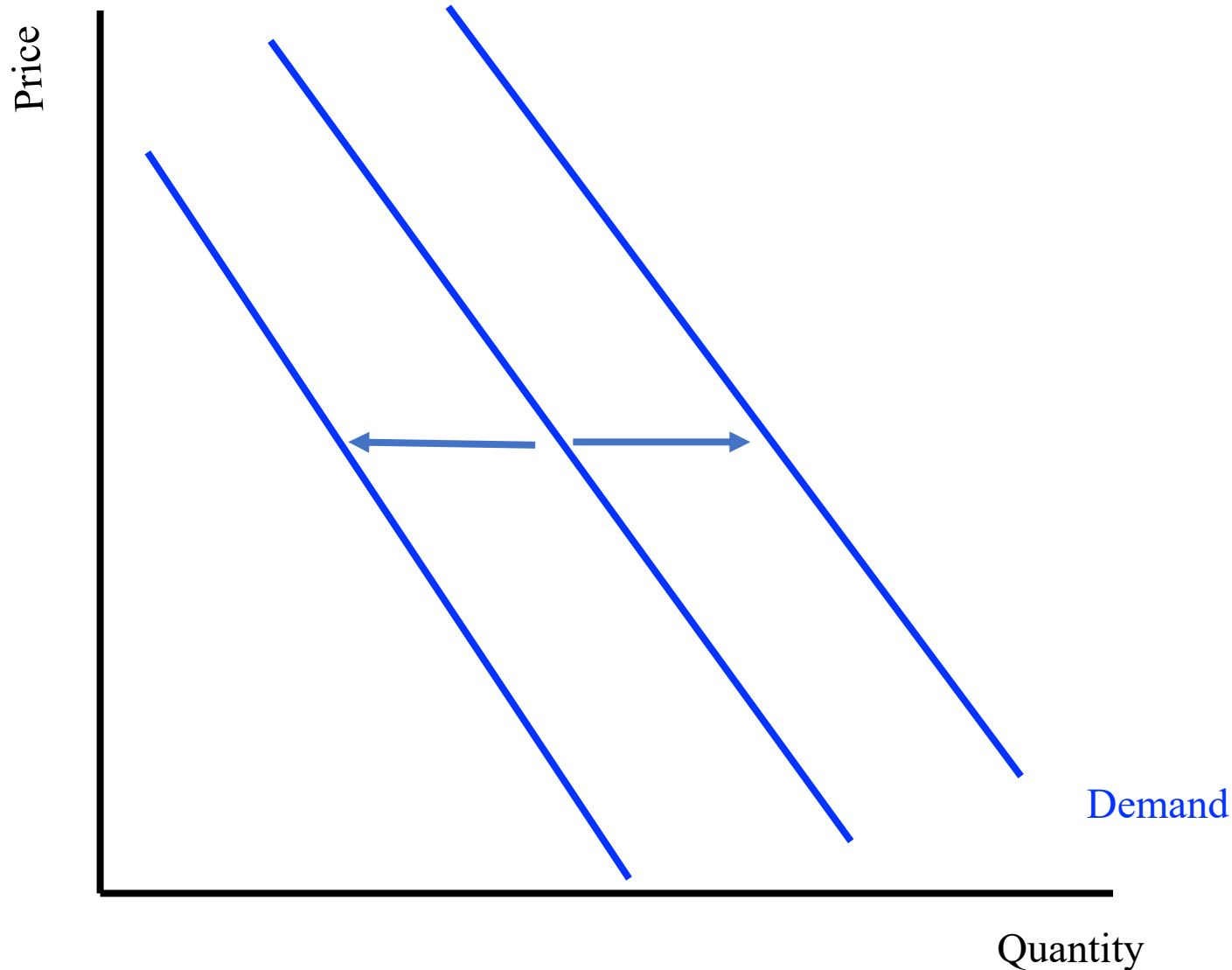
- Taste and preferences
- Income
- Price of substitutes or complements
- Size of the market
- Expectations of future prices

FIGURE 3.5



Shifting the Demand Curve An increase in demand shifts the demand curve outward, up and to the right. A decrease in demand shifts the demand curve inward, down and to the left.

Shift of the Demand Curve



The demand curve shifts when

- Changes in **taste and preference**,
- Changes in **income**,
- Changes in **price of substitutes**,
- Changes in **price of complements**,
- Changes in the **size of the market**,
- Changes in **expectations** of future prices (or market conditions), and

Why do demand curves shift?

- A demand curve is a “**ceteris paribus**” concept
 - Quantity demanded at every price *holding everything else constant*
- Willingness to pay depends on marginal benefits received from consumption
- Therefore, if anything changes these marginal benefits (raising or lowering them), WTP changes . . .
- . . . and the demand curve shifts to a new location (more or less quantity demanded at every P)

Practice Question

- Which of the following will *not* increase the demand for burritos?
 - A. A big burritos sale.
 - B. The discovery that eating burritos cures cancer.
 - C. A rise in the price of burgers, a substitute.
 - D. A fall in the price of guacamole, a complement.
 - E. All of the above will increase the demand for burritos.

Practice Question

- Which of the following will *not* increase the demand for burritos?
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 - E. All of the above will increase the demand for burritos.

The factors that shift demand

1. Tastes and Preferences

- one's own, personal feelings about the good
- How many people watched a football game this past weekend?
- How many people drink milk at dinner?
- “Tastes are not subject to dispute”
- Tastes are also unobservable, so generally not very useful for predicting
- Factors like new information may be expected to affect tastes
 - Imagine what a new study linking bacon to cancer would do to demand for bacon

The factors that shift demand

2. Income (wealth)

- When people become wealthier, their demand for a good may rise or fall.
 - If your income rises, will you eat more filet mignon and smoked salmon?
 - If your income rises, will you eat more Kraft box mac & cheese?
-
- i. “normal good” -> demand rises when income rises (and vice versa)
 - ii. “inferior good” -> demand falls when income rises (and vice versa)

The factors that shift demand

3. Prices of related goods

- When prices of related goods change, demand for the original good changes, too
- Two types of related goods
 - Substitute*: a good you use in its place.
 - When the price of a substitute rises, demand for the original good rises as well (and vice versa)
 - Complement*: a good you use with.
 - When the price of a complement rises, demand for the original good falls (and vice versa)
- Tea and coffee?
- Peanut butter and jelly?

The factors that shift demand

4. The size of the market

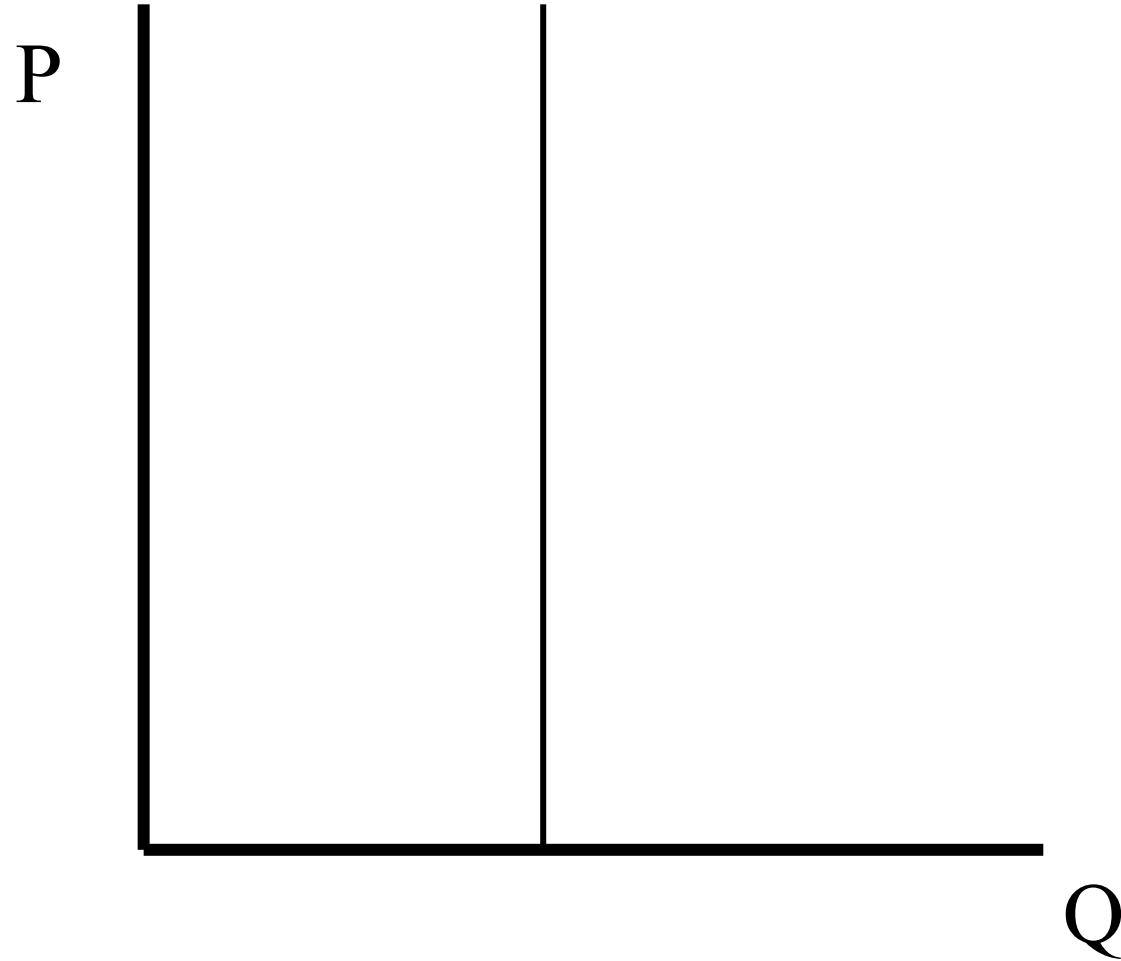
- If you take a local market and expand it nationally, what happens?
- What happens to demand for a local burger joint when it opens another location in the next town over?
 - When it has several locations across the state?
 - Franchises start popping up all over the country/world?
- Remember the market demand curve is the sum of all individual demand curves in the market.
 - Add individuals -> shifts out market demand curve!

The factors that shift demand

5. Expectations regarding future prices

- Suppose you expect price to rise next week. What will you do today?
 - Examples
 - Drought expected to reduce supply of oranges (so you expect price to rise)
 - Great weather supposed to increase supply of oranges (so you expect price to fall)
 - If consumers expect a future price rise, they will buy more today and less tomorrow
 - Current demand increases; future demand decreases
 - If consumers expect a future price fall, they will hold off on purchasing.
 - Current demand decreases; future demand increases

But what if there are no substitutes for a product? – Completely Inelastic Demand



- Quantity demanded will not change regardless of price changes
- We call this “perfectly inelastic” demand.
- What would the demand curve look like if there was a perfect substitute for a good?

Some more subtle points

- Very rarely in the real world can one observe an entire demand curve
 - (Though one can often observe *points* on a demand curve, something we will come back to when we cover the concept of elasticity)
- At the same time, economists understand demand curves very well and are very comfortable analyzing them
- It may sound paradoxical, but demand curves are very useful even if they can't be observed
 - Like protons and electrons in early days of modern physics

Recap

- Why do demand curves shift?
 - What should we look for? Can you give examples?
 - What should we not look for? Can you give examples?
 - What happens when the price of a **substitute** goes up?
 - What happens when the price of a **complement** goes up?

Practice Question

- Which of the following will increase the demand for frisbees?
 - A. A fall in the cost of plastics (an input)
 - B. A rise in the price of nerf footballs (a substitute)
 - C. A fall in the price of frisbees.
 - D. New technology that allows frisbees to be made more cheaply.
 - E. All of the above.

Practice Question

- Which of the following will increase the demand for frisbees?
 - A. A fall in the cost of plastics (an input)
 - B. A rise in the price of nerf footballs (a substitute)
 - C. A fall in the price of frisbees.
 - D. New technology that allows frisbees to be made more cheaply.
 - E. All of the above.

Practice Question

- The price of ham rises sharply. What happens to the equilibrium price and quantity of cheese (ham and cheese are complements)?
 - A. price rises, quantity falls.
 - B. price falls and quantity rises.
 - C. both price and quantity rise.
 - D. both price and quantity fall.
 - E. price falls, but the effect on quantity is uncertain.

Practice Question

- The price of ham rises sharply. What happens to the equilibrium price and quantity of cheese (ham and cheese are complements)?
 - A. price rises, quantity falls.
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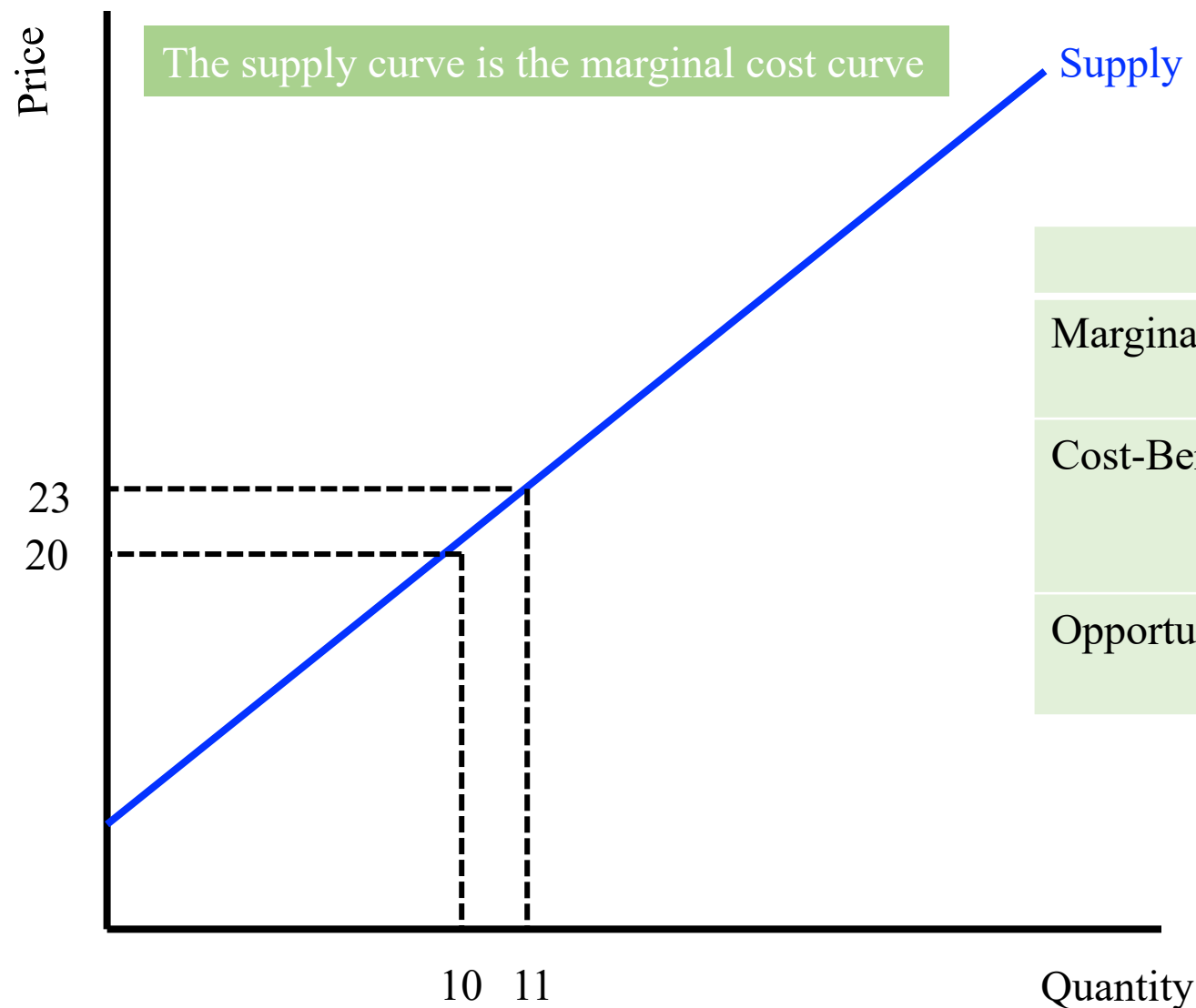
Supply

Chapter 3

Objective

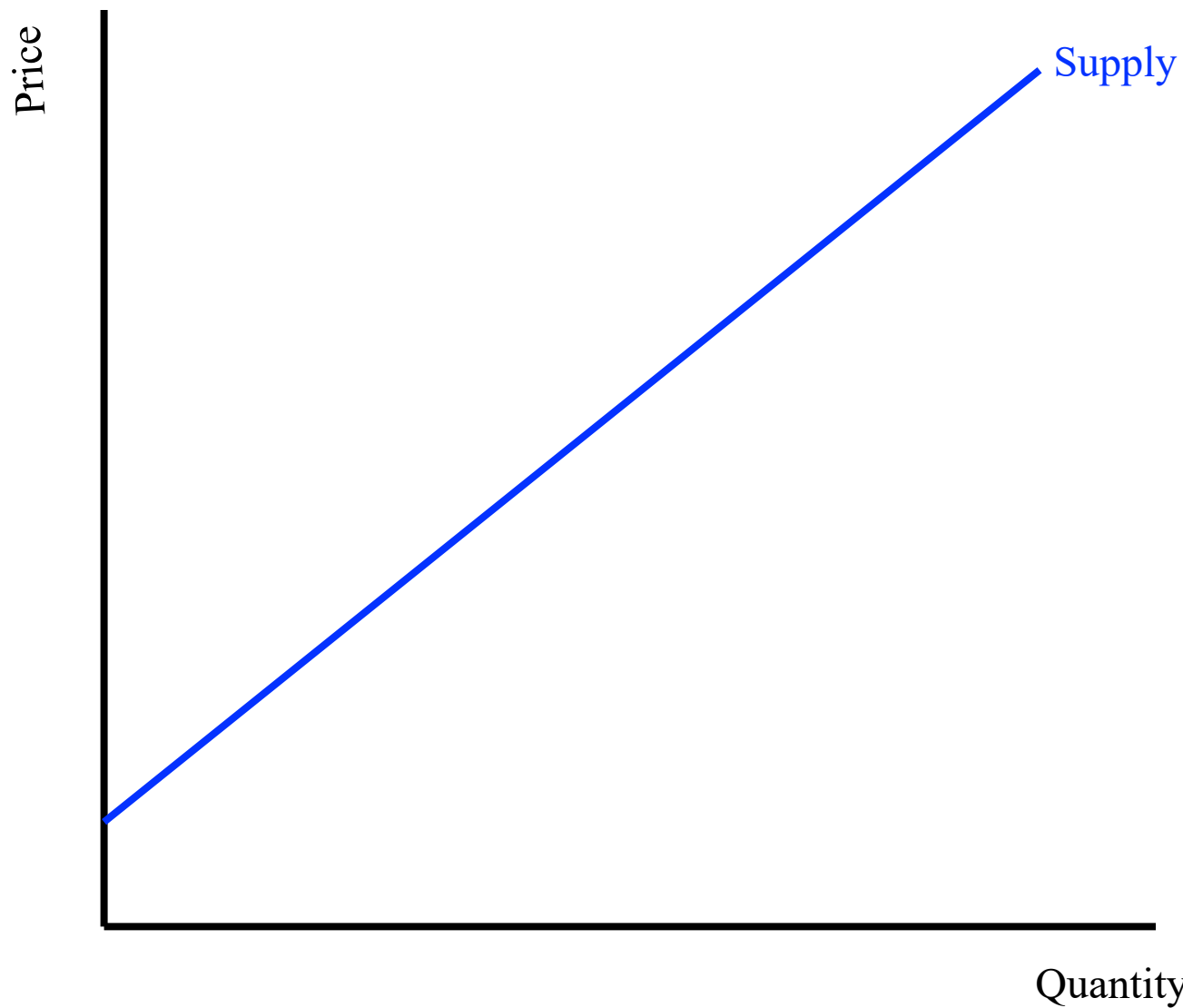
- By the end of this segment, you should understand
 - What supply means and its link to opportunity costs (i.e., marginal costs)
 - How supply is measured and why
- Understand how changes in supply affect equilibrium price and quantity
- Understand why changes in supply occur
 - The factors that shift supply curves

Supply Curve



Principle	Application Supply of Oil
Marginal	Should I supply one more barrel of oil
Cost-Benefit	Supply one more barrel of oil if the market price is at least as large as the marginal cost
Opportunity Cost	If we are not producing oil, what would we do.

Supply Curve



A price schedule

Price(\$)	Quantity(kg)
10	24
8	21
6	18
4	12

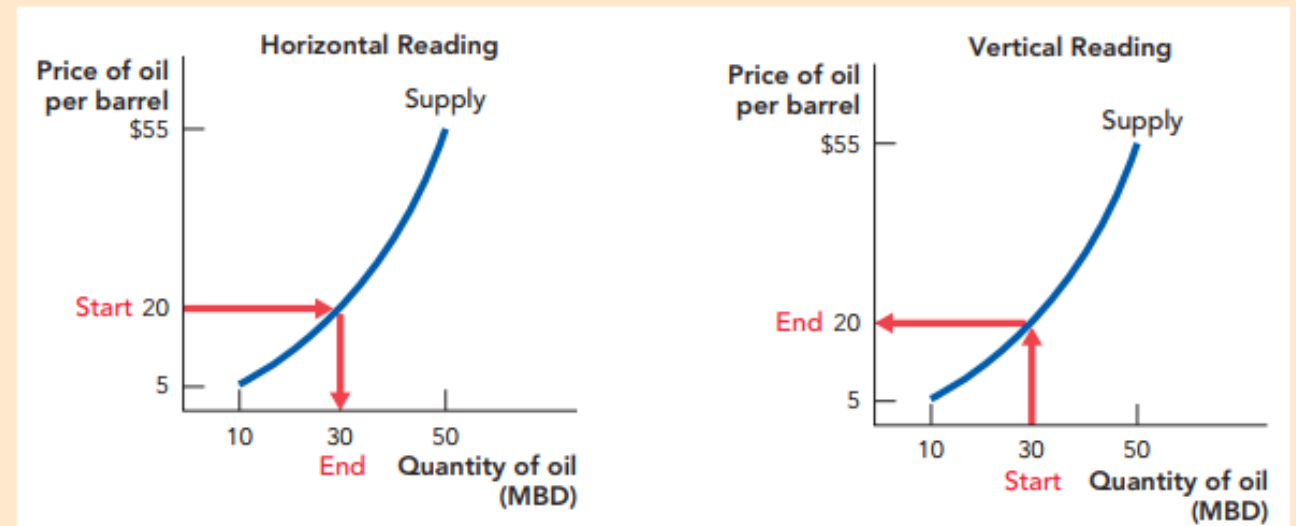
An equation: $Q_s = P - a$

A figure

P and Q along the supply curve

- The relationship between price and quantity along a supply curve (or in an equation or schedule) is always *positive*
 - At lower prices, sellers put fewer units up for sale . . .
 - . . . and at higher prices, sellers put up more units

FIGURE 3.8



Reading a Supply Curve in Two Different Ways

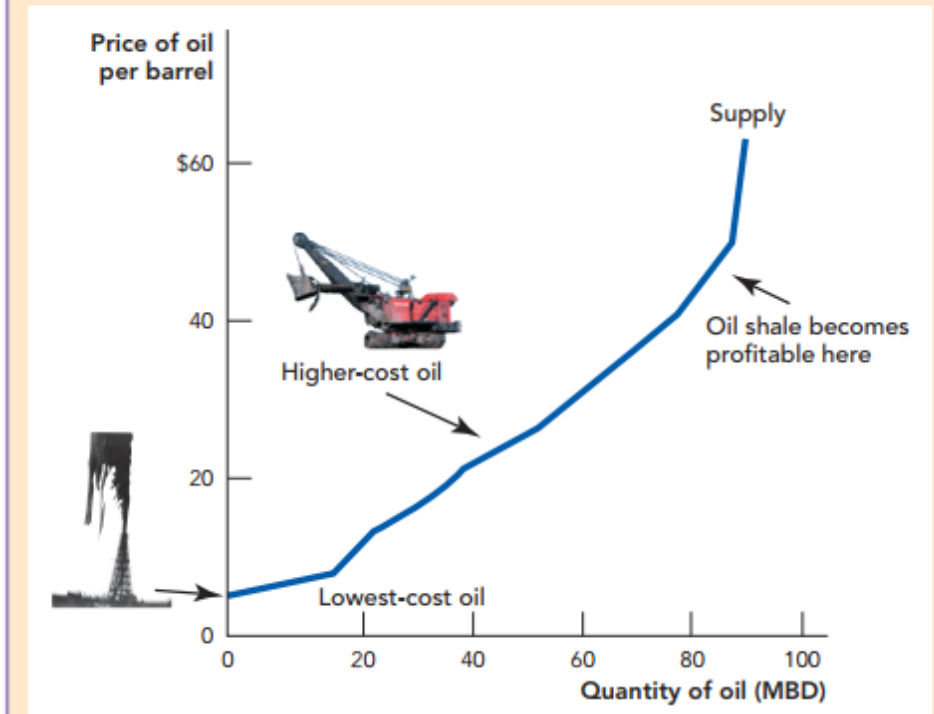
Horizontal Reading: At a price of \$20 per barrel, suppliers are willing to sell 30 million barrels of oil per day.

Vertical Reading: To produce 30 million barrels of oil a day, suppliers must be paid at least \$20 per barrel.

The Law of Supply

- ***The Law of Supply***: When prices go up, quantity supplied goes up (or at least doesn't go down), and vice versa
- Why? Because opportunity costs rise usually with the quantity supplied
 - At lower prices, we see only low opportunity cost units supplied.
 - At higher prices, we see increasingly higher opportunity cost units supplied

FIGURE 3.9



The Supply Curve for Oil As the price of oil rises, it becomes profitable to extract oil from more costly sources. Thus, as the price of oil rises, the quantity of oil supplied increases.

(Top photo: Dan Lamont/Corbis)

(Bottom: Bettmann/Corbis)

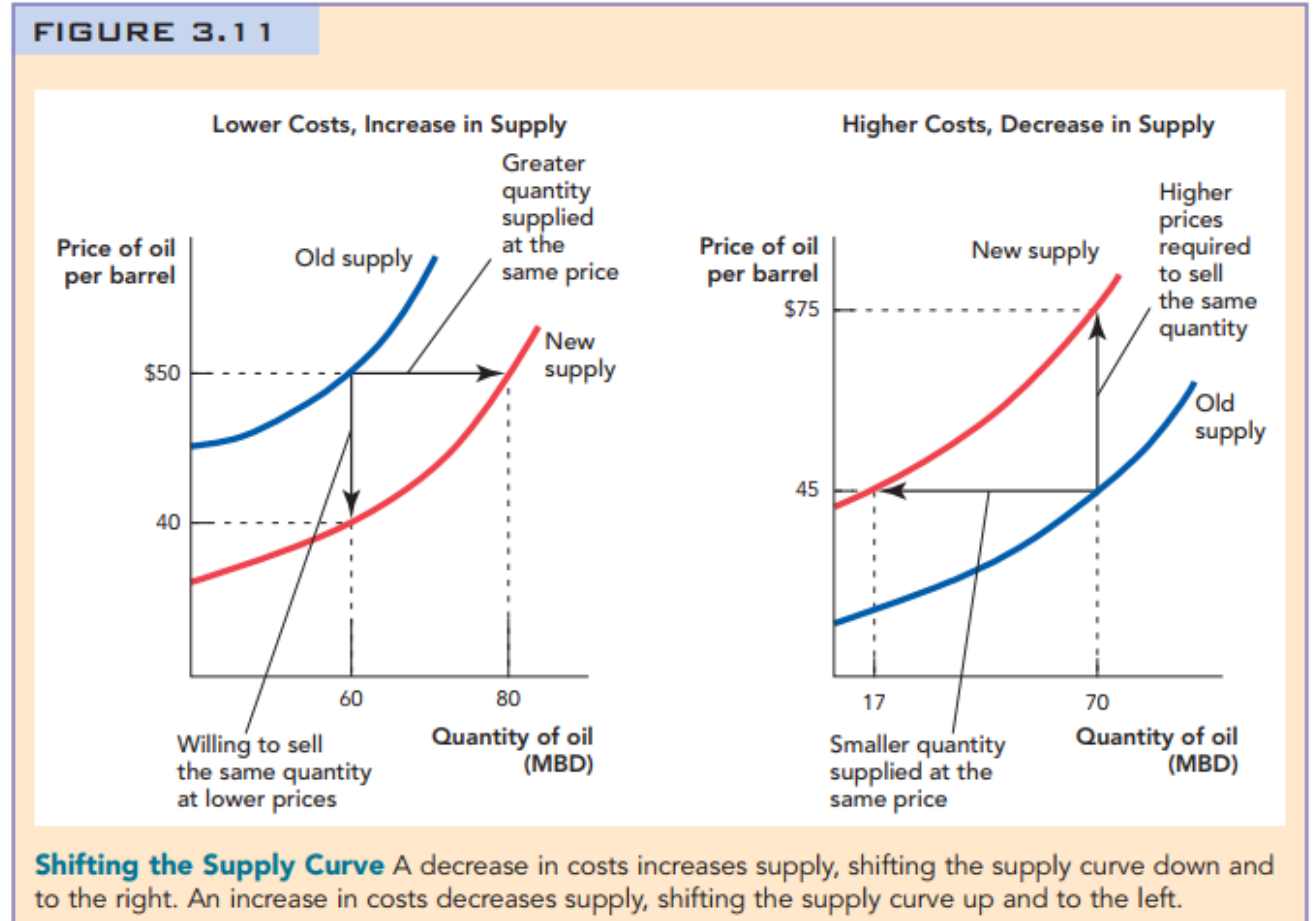
Supply and Marginal Costs

- Marginal costs are often no more observable than marginal benefits
 - We may be able to observe “accounting costs”, but not true opportunity costs
- But we can observe the quantity that suppliers put up for sale at various prices (just like we can observe quantities consumers purchase at various prices)
- From the quantities supplied, we can infer opportunity costs
 - Suppliers will not sell a good for less than it costs them

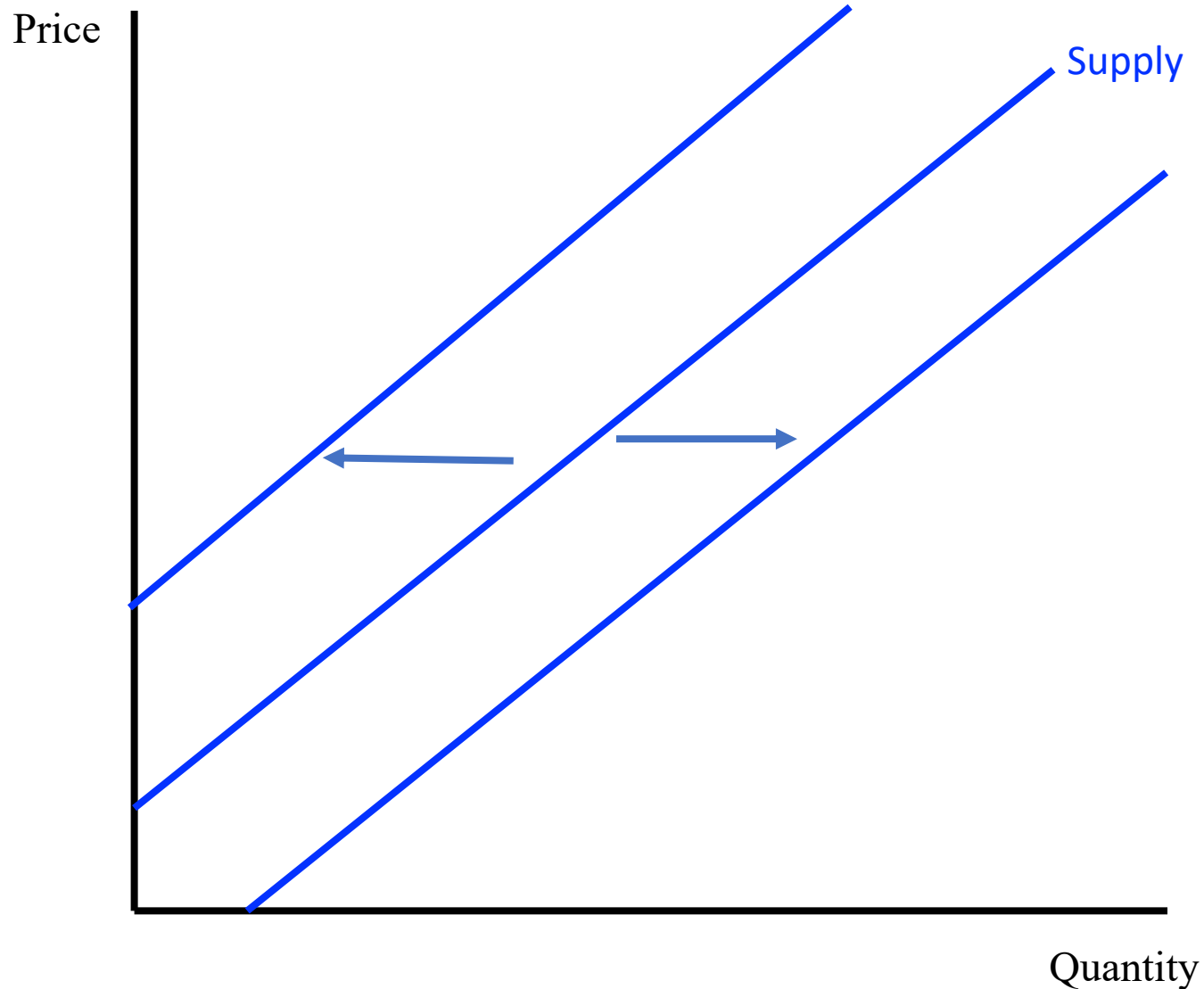
A shift in the supply curve

Suppose, for example, that a technological innovation in oil drilling such as sidewise drilling allows more oil to be produced at the same cost. What happens to the supply curve?

- Technological innovations and changes in the price of inputs
- Taxes and subsidies
- Expectations
- Entry or exit of producers
- Changes in opportunity costs



Shift of the Supply Curve



The supply curve shifts when

- Changes in the price of **inputs**,
- Changes in **technology**,
- Changes in **taxes/subsidies**,
- Changes in the **opportunity costs** (of other goods),
- Changes in **expectations** of future prices (or market conditions), and
- Change in the **number of producers**.

Why do supply curves shift?

- Like demand, supply is a “ceteris paribus” concept
 - Quantity supplied at every price, holding everything else constant
- Willingness to supply depends on the opportunity costs of supplying the good
- Therefore, if something changes opportunity costs (marginal costs), willingness to supply changes . . .
- . . . and the supply curve shifts to a new location (more or less QS at every P)

The factors that shift supply

1. a. Technology

- If technology improves so as to allow a good to be produced at lower cost, supply increases (and vice versa)
- What did Eli Whitney do to the supply of cotton?
- What did digital and streaming technologies do to the supply of movies?

The factors that shift supply

1. b. The price of inputs (materials, labor, energy, etc.).

- If an input becomes more expensive, opportunity costs rise and supply decreases (and vice versa)
- What are the inputs to chocolate cake?
- What happens to orange juice after an early freeze in FL?

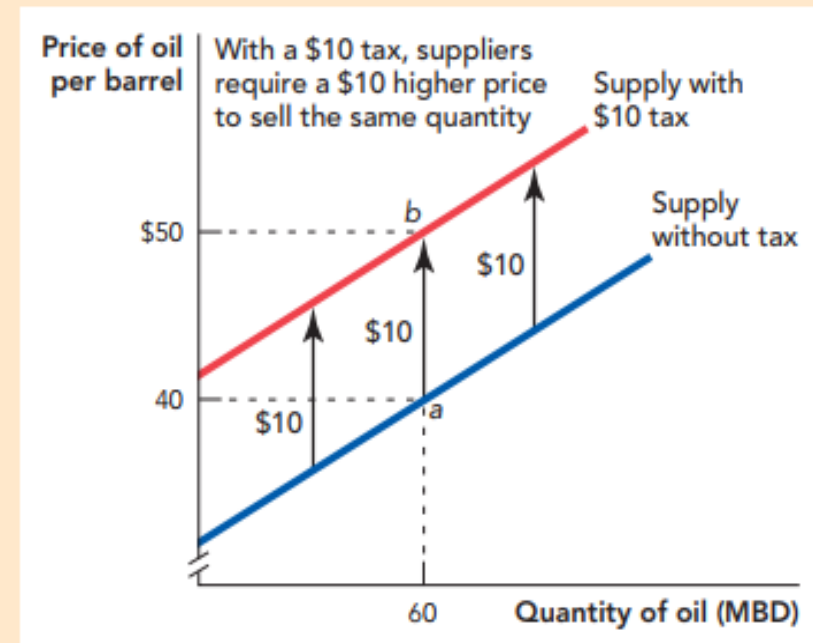
The factors that shift supply

2. Taxes and subsidies

We will cover this in further detail in the future, but a tax on a product would shift its supply curve inwards.

Why?

FIGURE 3.12



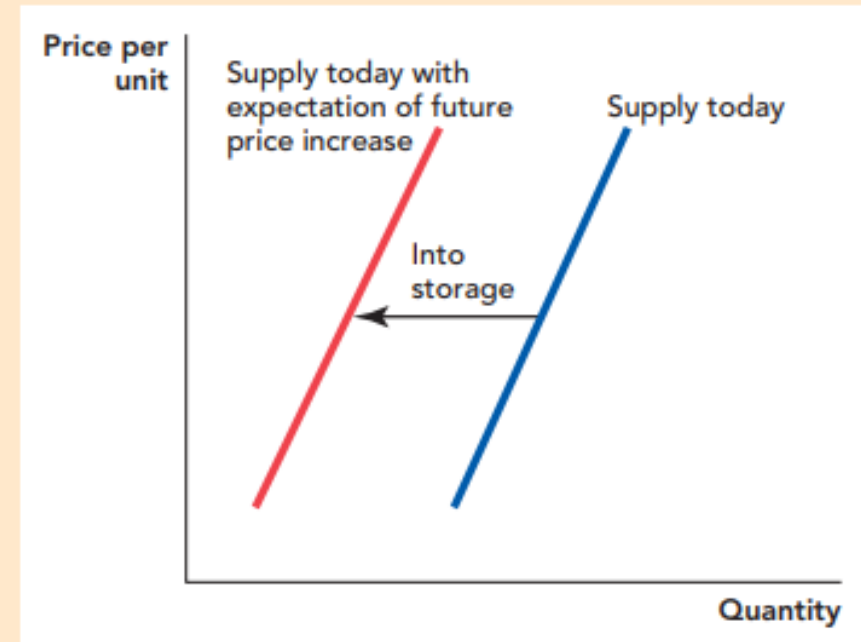
A Tax on Industry Output Shifts the Supply Curve Up by the Amount of the Tax When suppliers pay no tax, they are willing to supply 60 million barrels a day (MBD) of oil for a price of \$40 per barrel. If they must pay a tax of \$10 per barrel, they will be willing to supply 60 MBD for \$10 more, or \$50 a barrel. Thus, a tax shifts the supply curve up by the amount of the tax.

The factors that shift supply

3. Expectations regarding future prices

- Suppose you are a seller and expect price to rise next week. What will you do today?
 - If suppliers expect a future price rise, they will sell less today
 - Current supply decreases; future supply increases
 - If suppliers expect a future price fall, they will sell more today.
 - Current supply increases; future supply decreases

FIGURE 3.13

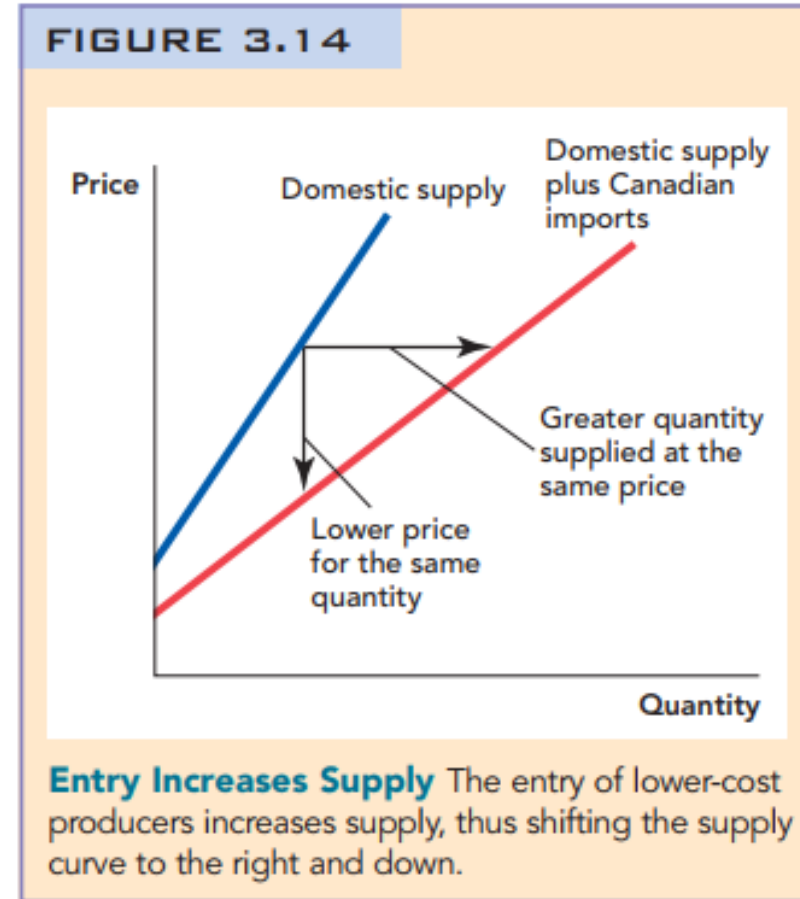


Expectations Can Shift the Supply Curve If sellers expect a higher price in the future, today's supply curve will shift to the left as producers store some of the good for future sale.

The factors that shift supply

4. Entry or exit of producers

- As the number of potential suppliers rises, supply increases
- How has Amazon affected the supply of used books?
- How has trade with Asia affected the supply of textiles?

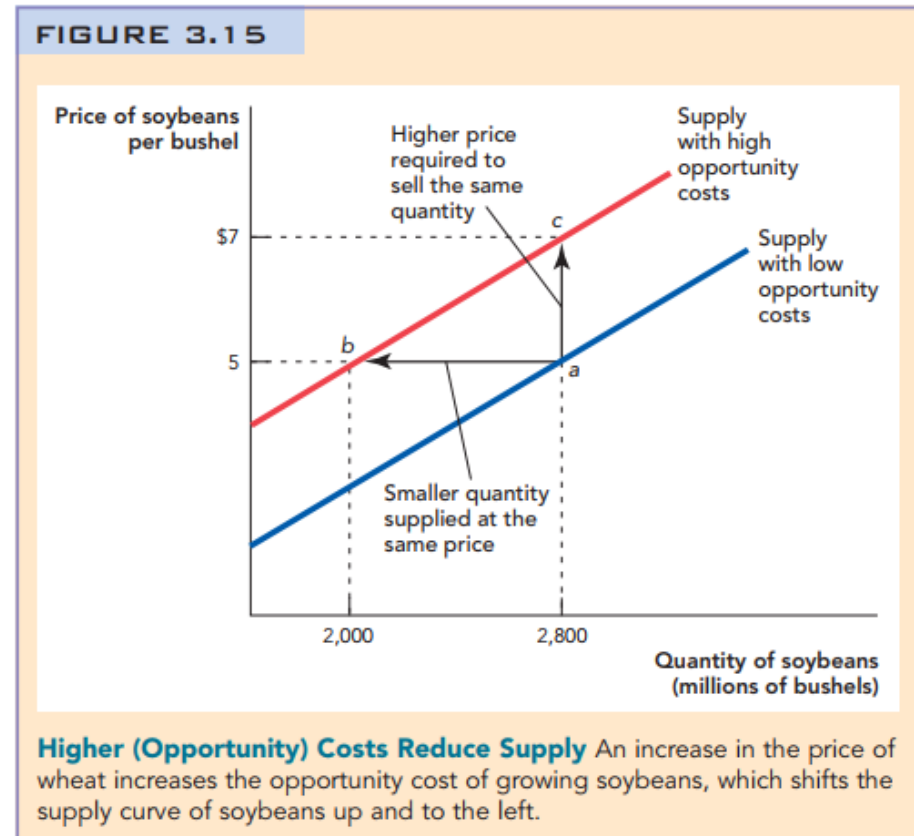


The factors that shift supply

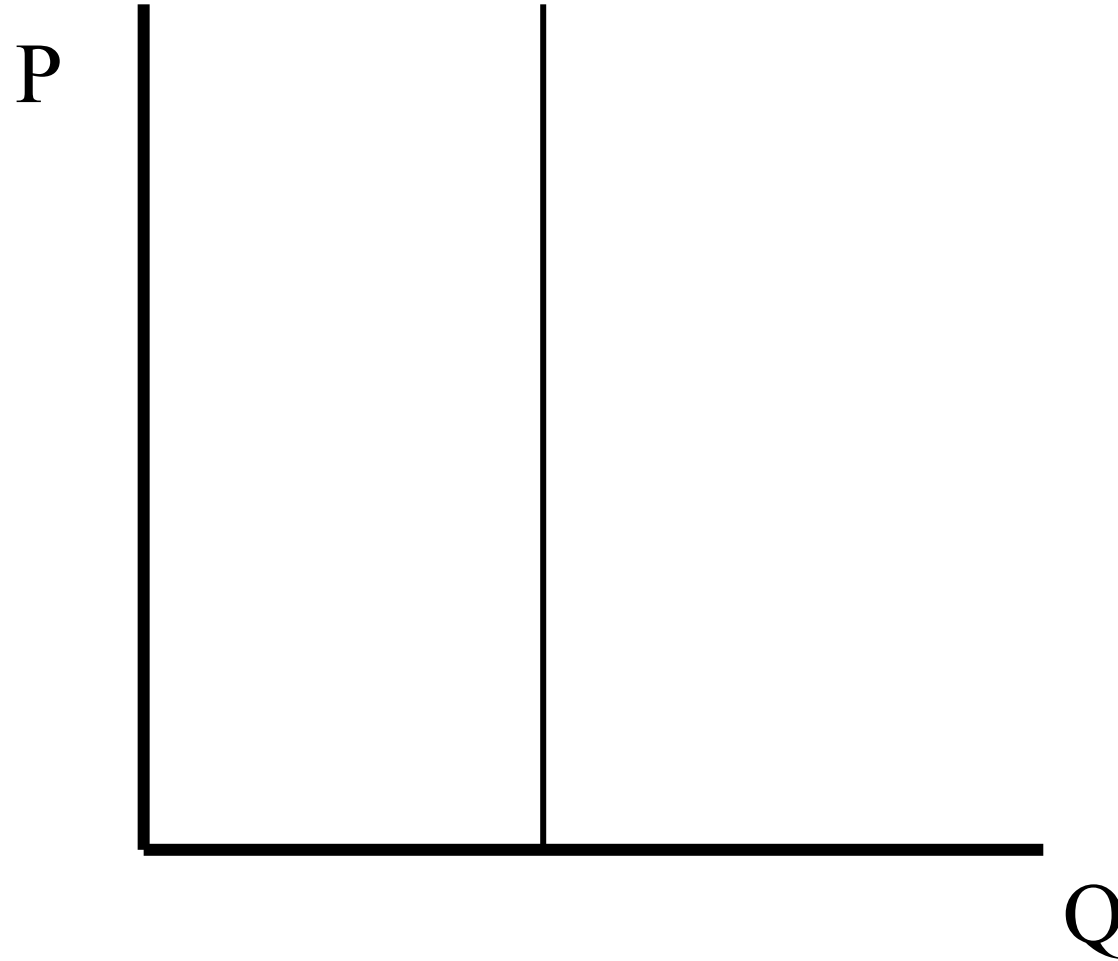
5. Changes in opportunity costs

Let's say the price of wheat rises, so farmers want to grow more wheat

- What land do they use?
 - Perhaps start with land lying fallow (lowest opportunity cost)
 - Then start growing wheat on land would have been used for growing alfalfa for hay (next lowest opportunity cost)
 - Then start growing wheat on land would have been used for other food grains, such as barley and rye (somewhat higher opportunity cost)
 - Then start growing wheat on land would have been used for higher value products such as soybeans or corn (even higher opportunity cost)
 - And so on



But what if the opportunity costs was very high for a product? – **Completely Inelastic Supply**

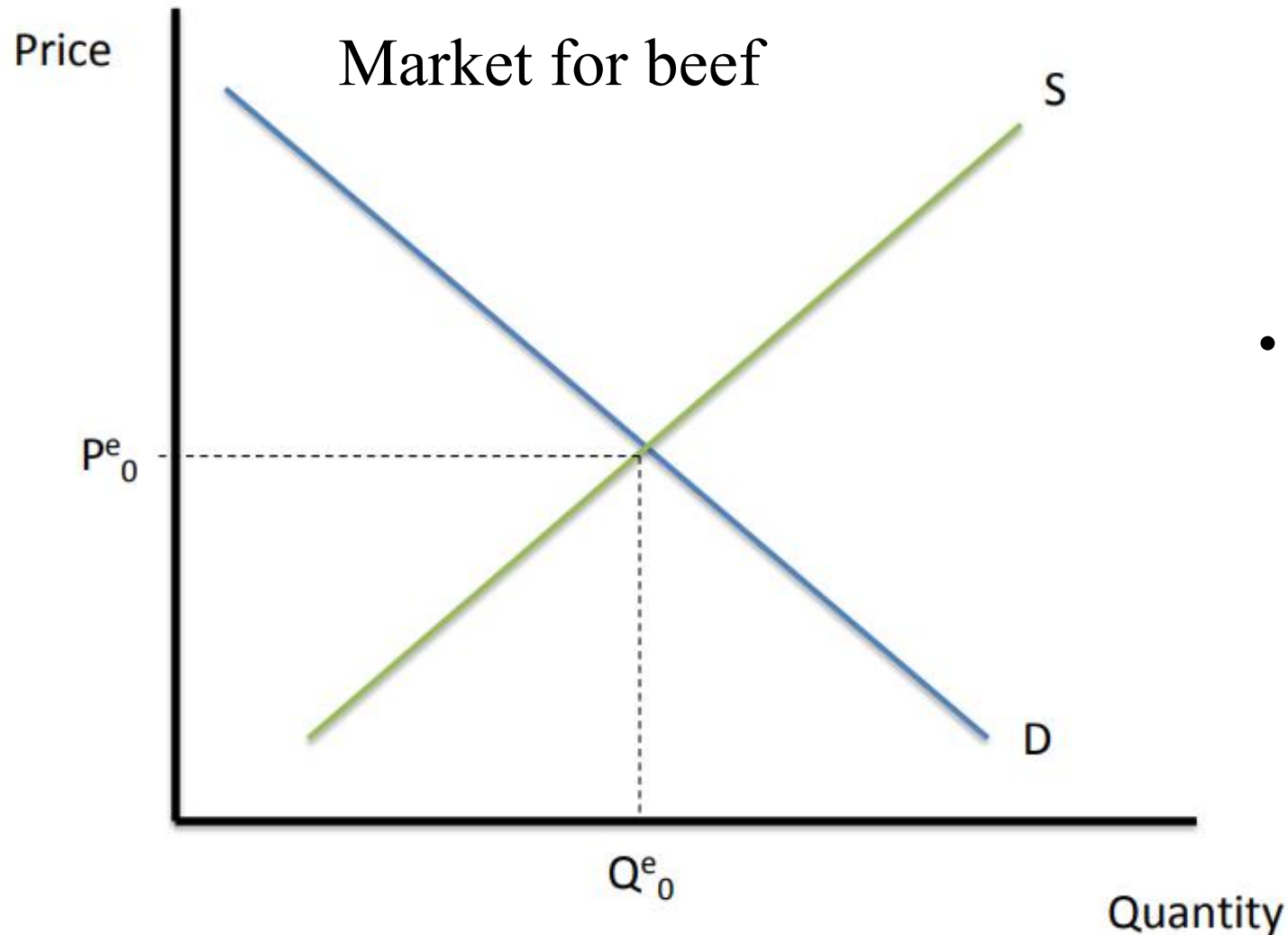


- Quantity supplied will not change regardless of price changes
- We call this “perfectly inelastic” supply.
- What would the supply curve look like if the opportunity costs of production was zero?

Recap

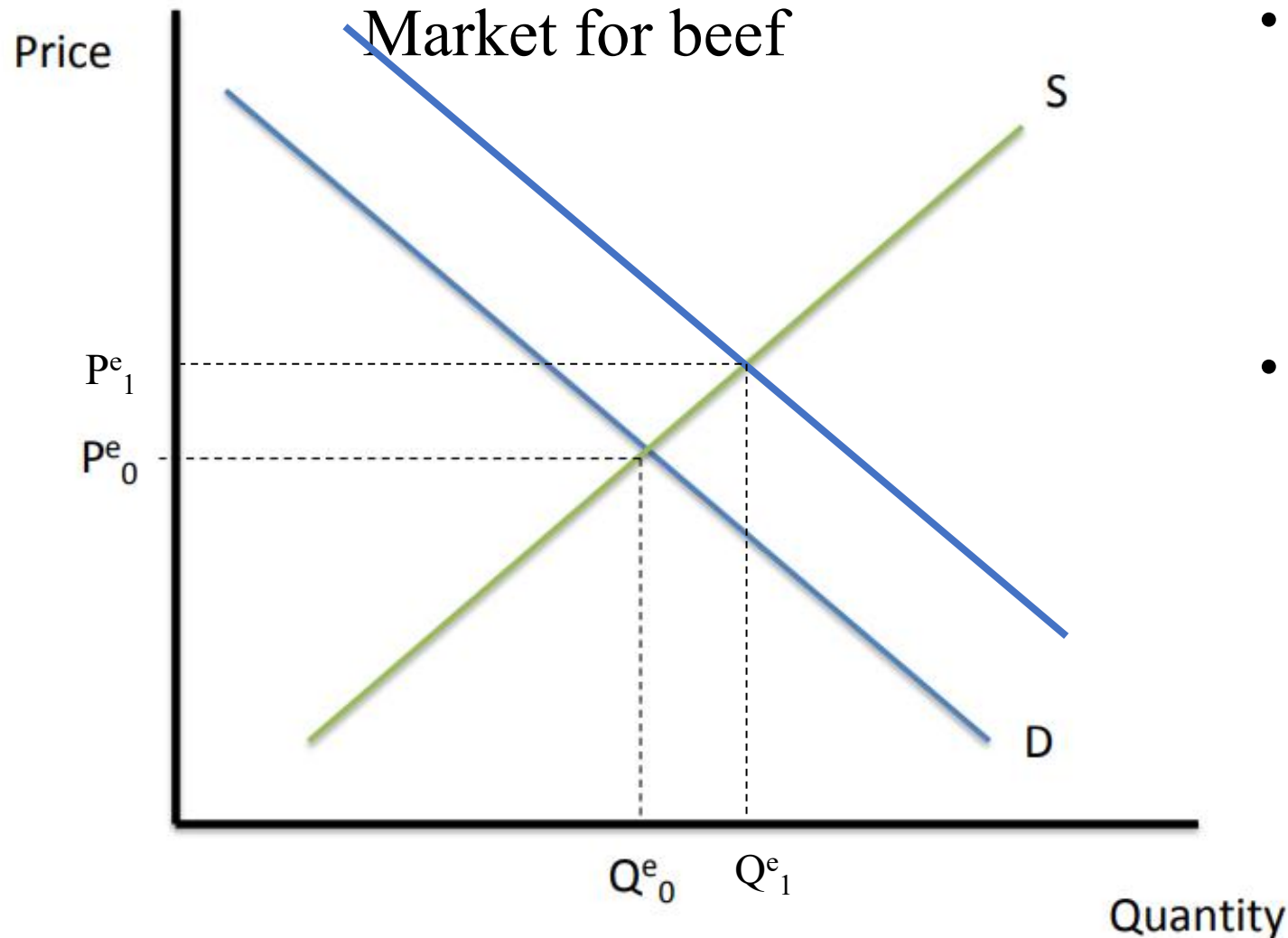
- Why do supply curves shift?
 - What should we look for? Can you give examples?
 - What should we not look for? Can you give examples?
 - What happens when the opportunity costs of production of a good rises?
 - What about the entry and exits of producers?

An example of a demand shift



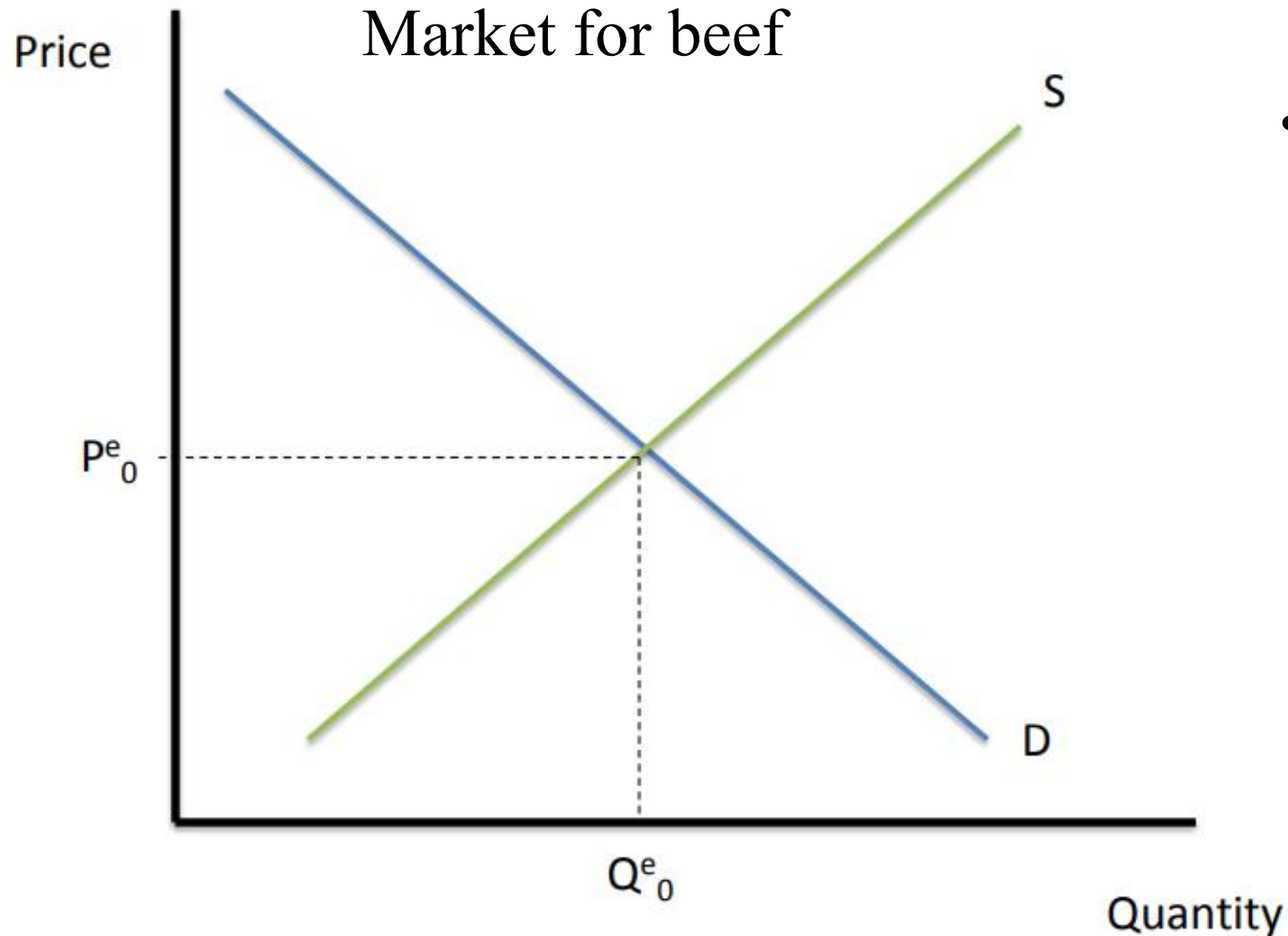
- Suppose a bad bird flu outbreak occurs, so that the price of chicken (a substitute) P_c increases. What happens?

An example of a demand shift



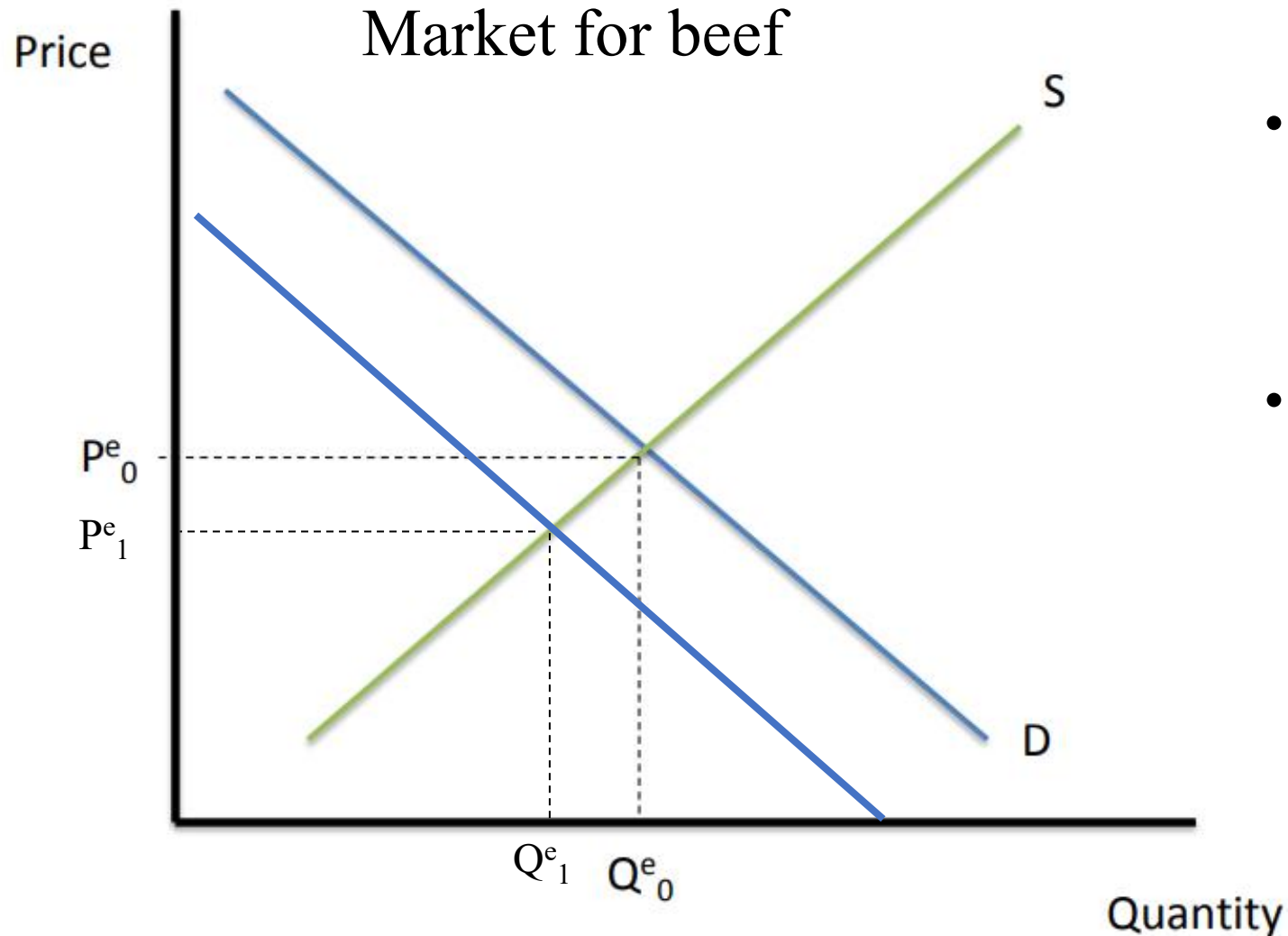
- Suppose a bad bird flu outbreak occurs, so that the price of chicken, P_C increases. What happens?
- Beef and chicken are substitutes, so increasing P_C increases demand for beef
 - Equilibrium price increases
 - Equilibrium quantity increases

An example of a demand shift



- Suppose beef is linked to an E. coli breakout. What happens?

An example of a demand shift



- Suppose beef is linked to an E. coli breakout. What happens?
- Tastes change, decreasing demand
 - Equilibrium price, P_B decreases
 - Equilibrium quantity, Q_B decreases

Practice Question

- If a new technology is developed that allows twice the soybeans to be grown at half the cost, and at the same time a new soybean drink becomes the hottest thing in town, we would expect (*DRAW THE CURVES*)
 - A. the equilibrium price and quantity of soybeans to rise.
 - B. the equilibrium price and quantity of soybeans to fall.
 - C. the equilibrium price to rise, but the effect on quantity to be uncertain.
 - D. the equilibrium quantity to rise, but the effect on price to be uncertain.
 - E. the equilibrium quantity to fall, but the effect on price to be uncertain.

Practice Question

- If a new technology is developed that allows twice the soybeans to be grown at half the cost, and at the same time a new soybean drink becomes the hottest thing in town, we would expect (*DRAW THE CURVES*)
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But what exactly is Supply and Demand?

“Supply” is thus based on “willingness to accept”, just as demand is based on “willingness to pay”

Changes in price and/or quantity

- Changes in the market price and/or quantity occur only if demand or supply has shifted.
 - If we see a change, we know one or the other has shifted
- Three steps for figuring the effect of an event on price and quantity:
 1. Decide whether supply, demand, or both has shifted.
 2. Decide in which direction the shift occurred.
 3. Use the supply-and-demand diagram to see how the shift(s) affects equilibrium price and quantity.
- If *both* supply and demand shift, the outcome depends upon which is greater - change in supply or change in demand

Where we are:

Barring restrictions on market operations

- The price we see in the marketplace is the equilibrium price
- The quantity we see in the marketplace is the equilibrium quantity
- We use the term “equilibrium”, because at these price/quantity pairs, demand and supply are “in balance”
 - i.e., $Q_D = Q_S$; $P_D = P_S$
- Law of Supply and Demand: The price of any good adjusts to bring the quantities of that good supplied and demanded into balance.
 - Automatic movement toward the *equilibrium (market clearing)* price

Practice Question

- If you read in the newspaper that the price of a product has risen, and that the quantity of the product sold on the market has risen as well, you know that
 - A. the law of demand has been violated.
 - B. the newspaper story must be wrong.
 - C. supply must have shifted.
 - D. demand must have increased.
 - E. demand must have decreased.

Practice Question

- If you read in the newspaper that the price of a product has risen, and that the quantity of the product sold on the market has risen as well, you know that
 - A. the law of demand has been violated.
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 - C. supply must have shifted.
 - D. demand must have increased.
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A shift in the demand curve versus a move along the demand curve

A shift in the demand curve happens due to the following:

- Taste and preferences
- Income
- Price of substitutes or complements
- Size of the market
- Expectations of future prices

These are the same factors that shift the demand curve!

A move along the demand curve happens due to the following:

- Technological innovations and changes in the price of inputs
- Taxes and subsidies
- Expectations of future supply
- Entry or exit of producers
- Changes in opportunity costs

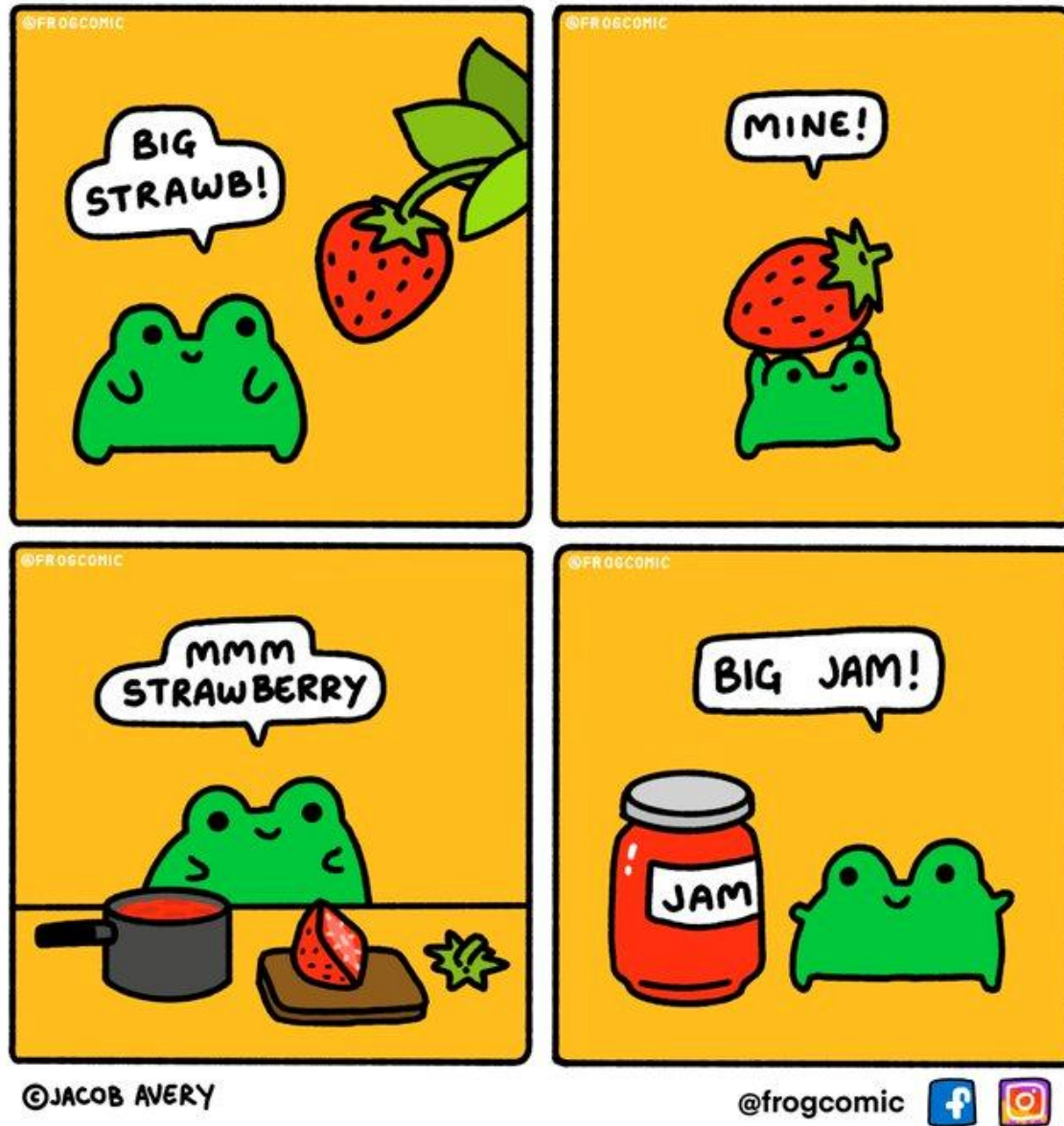
These are the same factors that shift the supply curve!

Practice Question

- Which of the following would cause both the equilibrium price and the equilibrium quantity of pears to decrease?
 - A. a higher price for apples (a substitute)
 - B. a lower price for apples
 - C. an increase in consumer income if pears are a normal good
 - D. an increase in the cost of fertilizers for growing pears
 - E. the discovery that eating pears reduces risk of heart disease

Practice Question

- Which of the following would cause both the equilibrium price and the equilibrium quantity of pears to decrease?
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Putting demand and supply together, or “Where do market prices and quantities come from?”

Chapter 4

Objective

- Understand what happens when we put demand and supply together
 - The “equilibrium” price and quantity (i.e., the prices and quantities we see in the marketplace)

Where we are

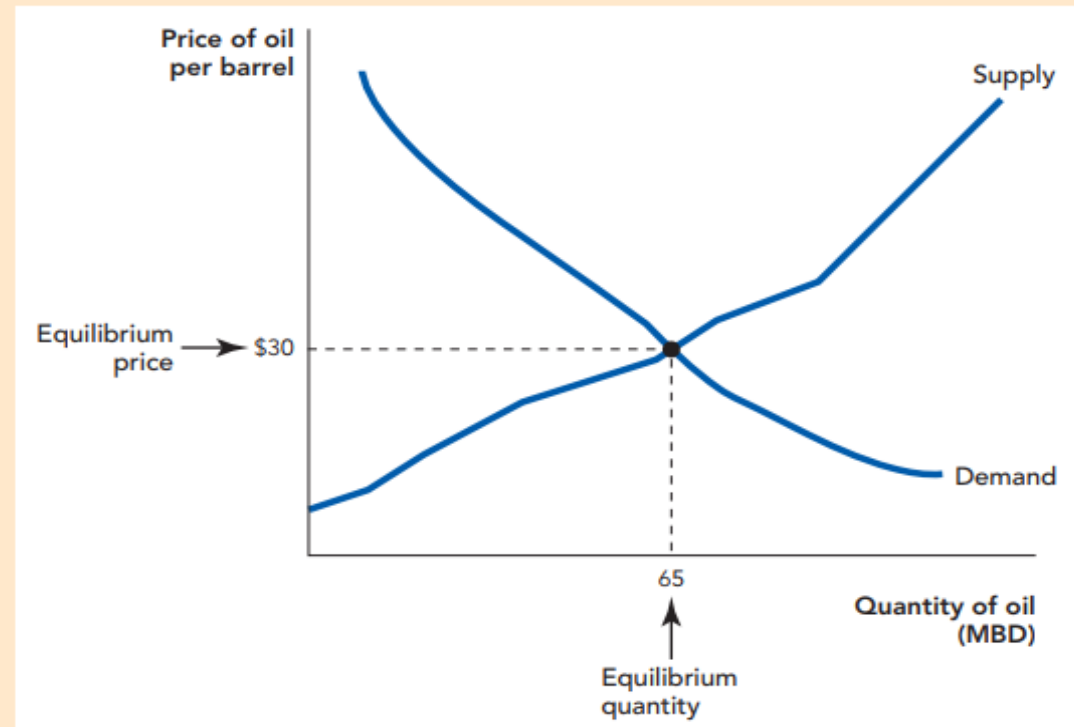
The price we see in the marketplace is the equilibrium price

The quantity we see in the marketplace is the equilibrium quantity

We use the term “equilibrium”, because at these price/quantity pairs, demand and supply are “in balance”

$$\text{i.e., } Q_D = Q_S; P_D = P_S$$

FIGURE 4.1



Price Is Determined by Supply and Demand Equilibrium occurs when the quantity demanded equals the quantity supplied. The quantity demanded equals the quantity supplied only when the price is \$30 and the quantity exchanged is 65; hence, \$30 is the equilibrium price and 65 the equilibrium quantity.

Law of Supply and Demand

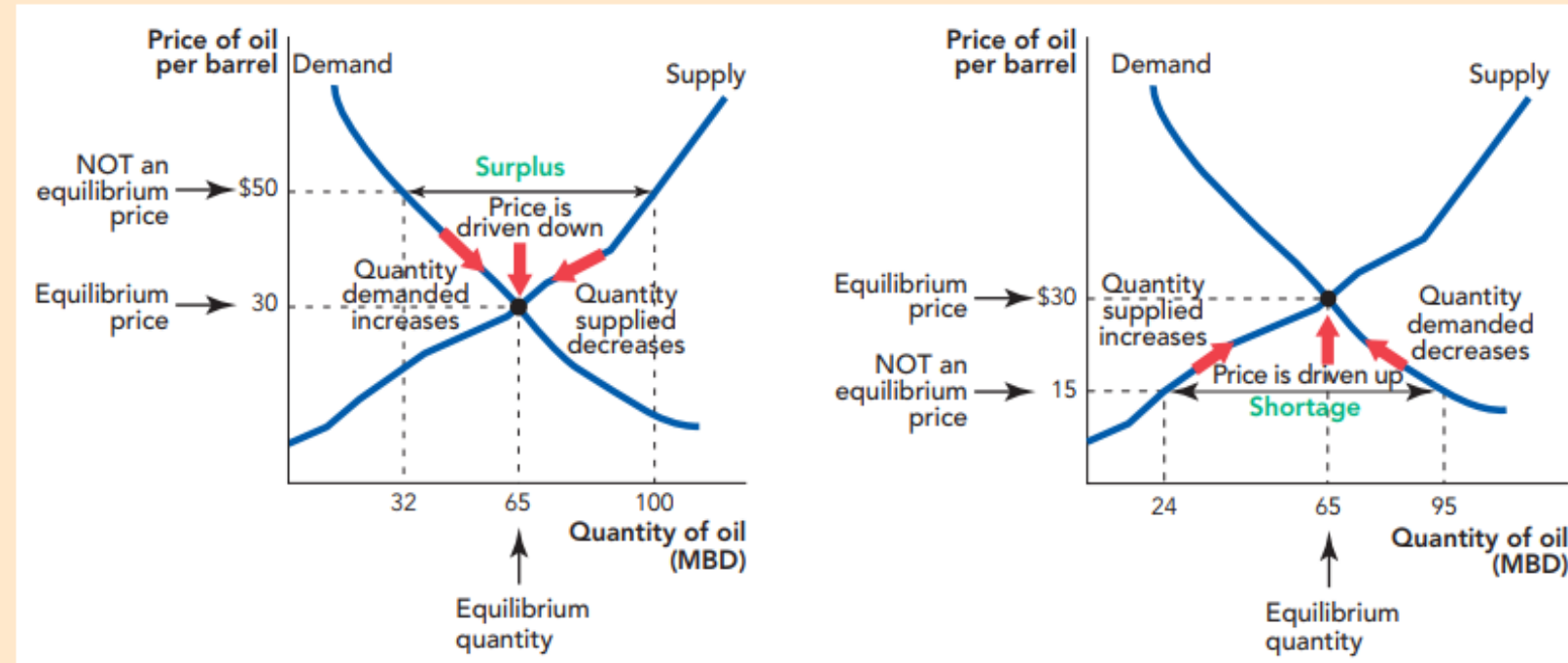
- The law of demand says that at higher prices, buyers will demand less of an economic good.
- The law of supply says that at higher prices, sellers will supply more of an economic good.
- These two laws interact to determine the actual market prices and volume of goods that are traded on a market.

But if we are in equilibrium, why do prices change?

- Because supply or demand changes!
 - Hurricane Irma raised gas prices last year. Why?
 - Gasoline prices rise every summer. Why?
- Why do we need supply and demand curves?
 - To find the market clearing price!

Surplus vs Shortage

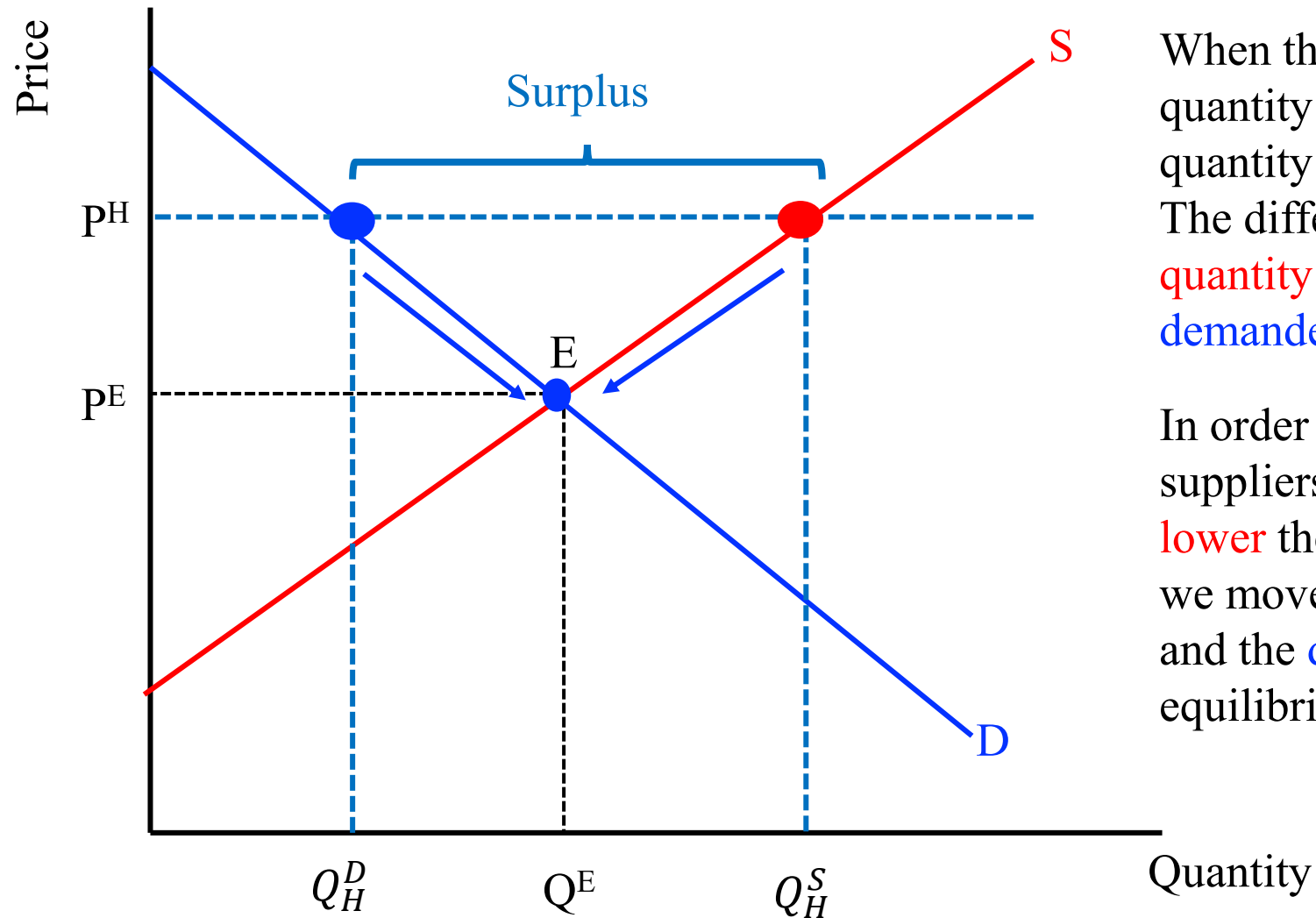
FIGURE 4.2



A Surplus Drives Prices Down At a price of \$50 there is a surplus of oil. When there is a surplus, sellers have an incentive to decrease their price and buyers have an incentive to offer lower prices. The price decreases until at \$30 the quantity demanded equals the quantity supplied and there is no longer an incentive for price to fall.

A Shortage Drives Prices Up At a price of \$15 there is a shortage of oil. When there is a shortage, sellers have an incentive to increase the price and buyers have an incentive to offer higher prices. The price increases until at \$30 the quantity supplied equals the quantity demanded and there is no longer an incentive for the price to rise.

Equilibrium

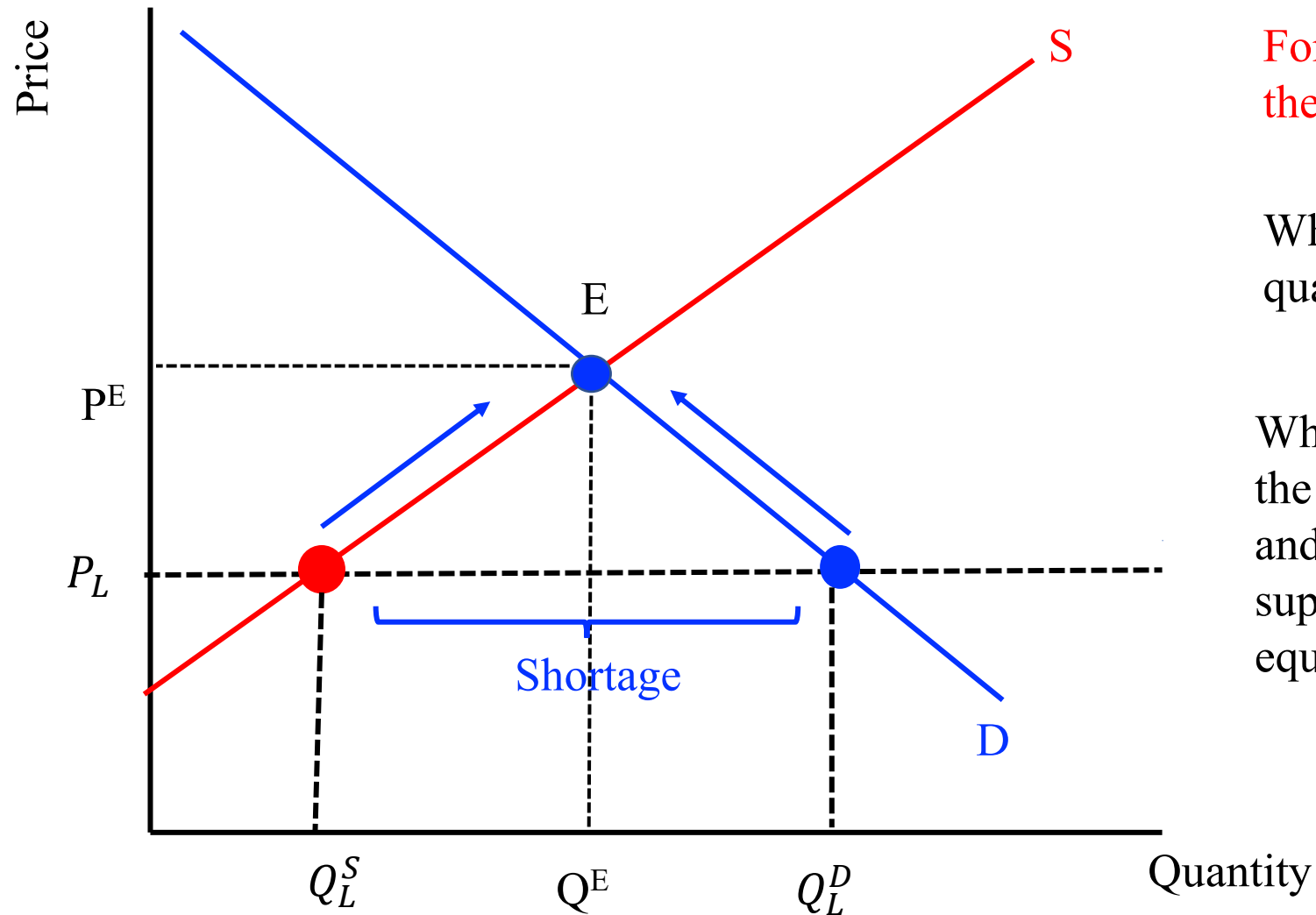


When the price is too high, the quantity supplied is greater than the quantity demanded.

The difference between the **quantity supplied** and the **quantity demanded** is called a **surplus**.

In order to eliminate a **surplus**, suppliers will **lower** the price and as the price falls we move along the **supply curve** and the **demand curve** until equilibrium is **restored/achieved**.

Equilibrium



For example, what if the price is below the equilibrium price?

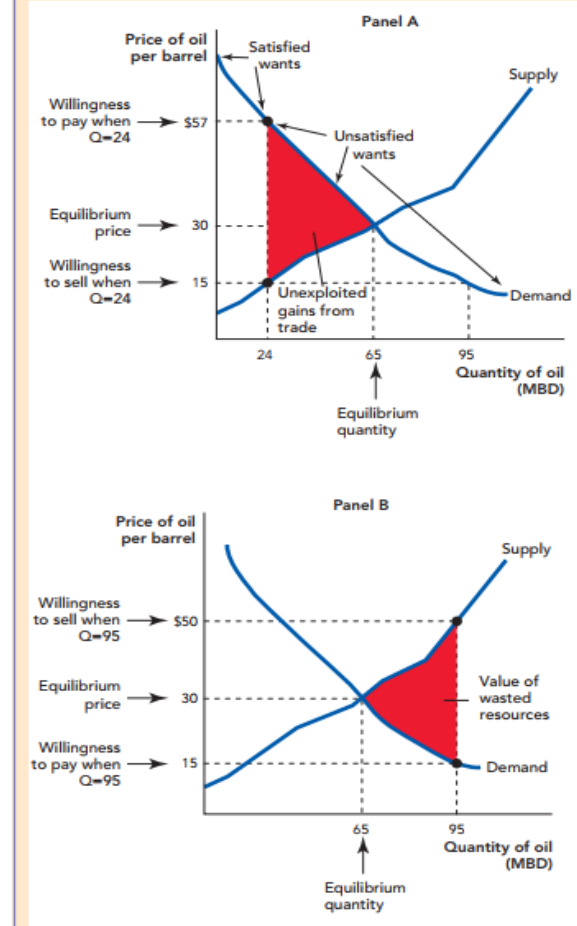
When the quantity demanded exceeds the quantity supplied, there is a shortage.

What happens next? Suppliers increase the price or demanders bid up the price and as the price rises we move along the supply and demand curve until equilibrium is restored/achieved.

What happens when prices are below or above the equilibrium prices?

- I. Market power undermines competitive pressure — occurs when a handful of sellers (monopoly or oligopoly) or buyers can influence market prices.
- II. Externalities can make the social costs (benefits) different than the private costs (benefits).
- III. Information problems can undermine trust
- IV. Government regulations impeded market forces.

FIGURE 4.3



At the Equilibrium Quantity There Are no Unexploited Gains from Trade or any Wasteful Trades

Panel A: Unexploited gains from trade exist when quantity is below the equilibrium quantity. Buyers are willing to pay \$57 for the 24th unit and sellers are willing to sell the 24th unit for \$15, so not trading the 24th unit leaves \$42 in unexploited gain from trade. Only at the equilibrium quantity are there no unexploited gains from trade.

Panel B: Resources are wasted at quantities greater than the equilibrium quantity. Sellers are willing to sell the 95th unit for \$50, but buyers are willing to pay only \$15 so selling the 95th unit wastes \$35 in resources. Only at the equilibrium quantity are there no wasted resources.

Practice Questions

- Which of the following will increase the quantity of brass key rings?
 - A. a rise in the demand for key rings
 - B. a rise in the price for brass.
 - C. an improvement in key ring-making technology.
 - D. all of the above.
 - E. just A and C.

Practice Questions

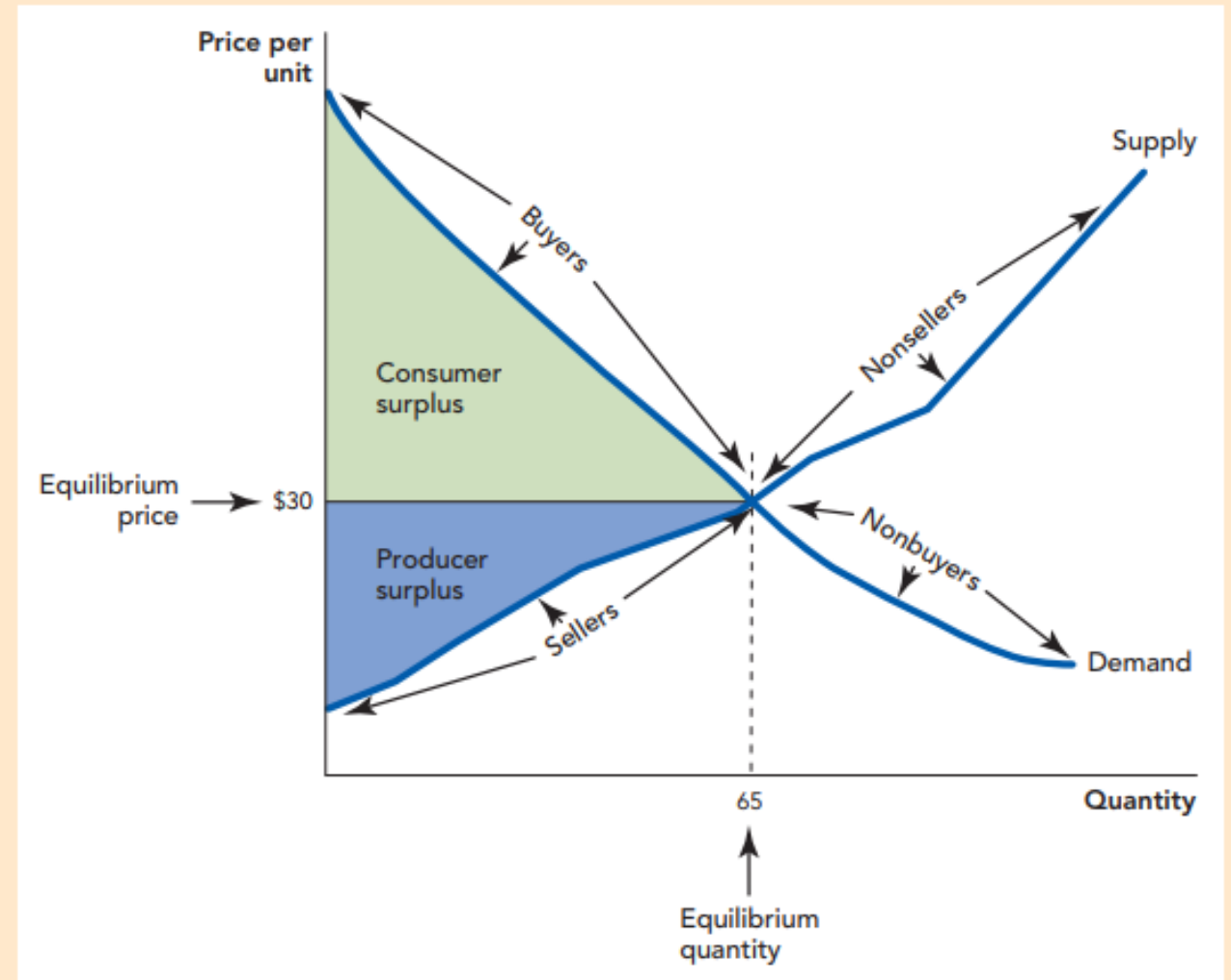
- Which of the following will increase the quantity of brass key rings?
 - A. a rise in the demand for key rings
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 - C. an improvement in key ring-making technology.
 - D. all of the above.
 - E. just A and C.

Going back to Consumer surplus and Producer surplus

A market will maximize the gains from trade:

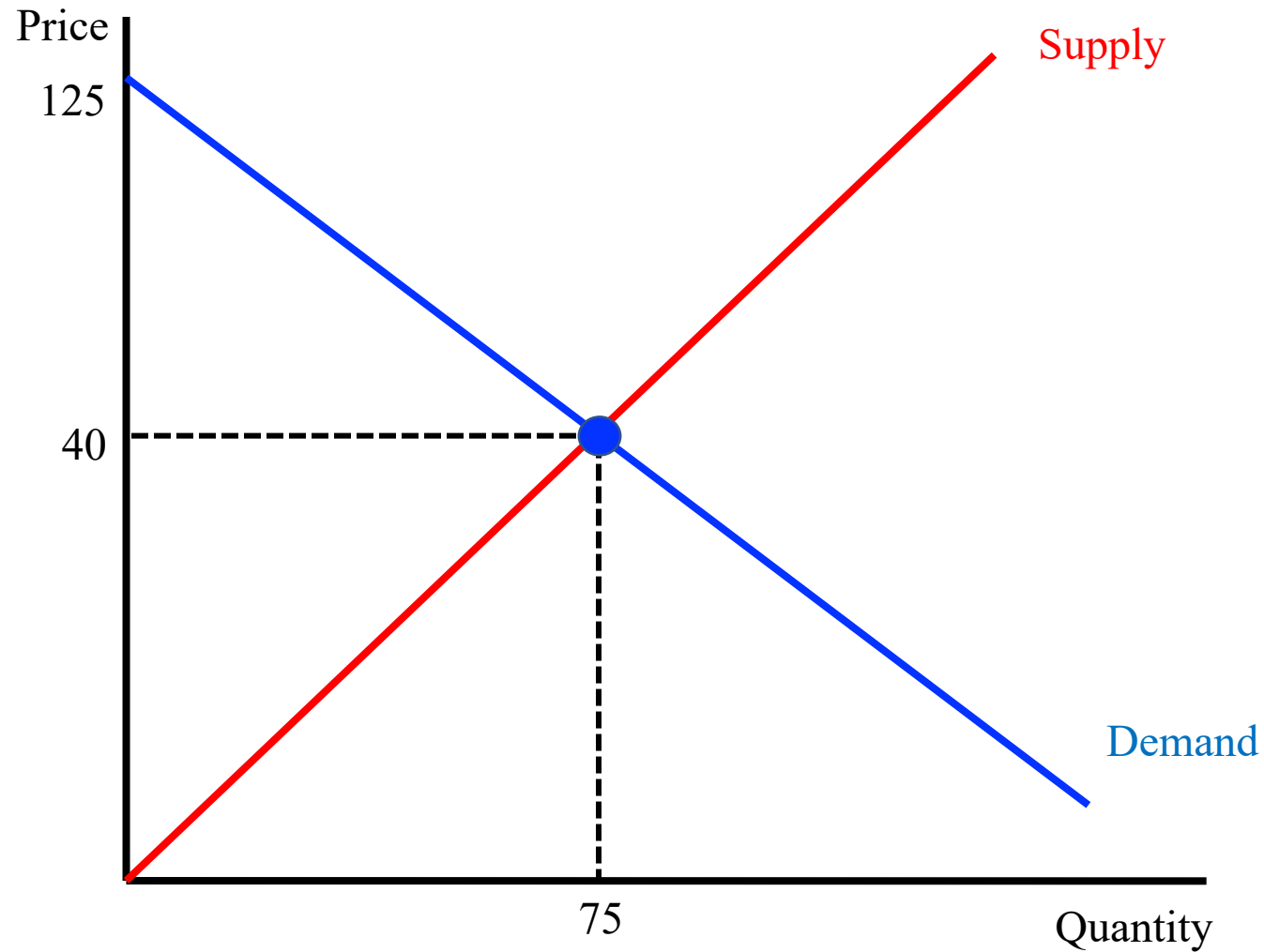
- buyers are willing to pay more for the good than nonbuyers,
- sellers are willing to sell the good at a lower price than non-sellers,
- there are no mutually profitable deals between non-sellers and nonbuyers.

FIGURE 4.4



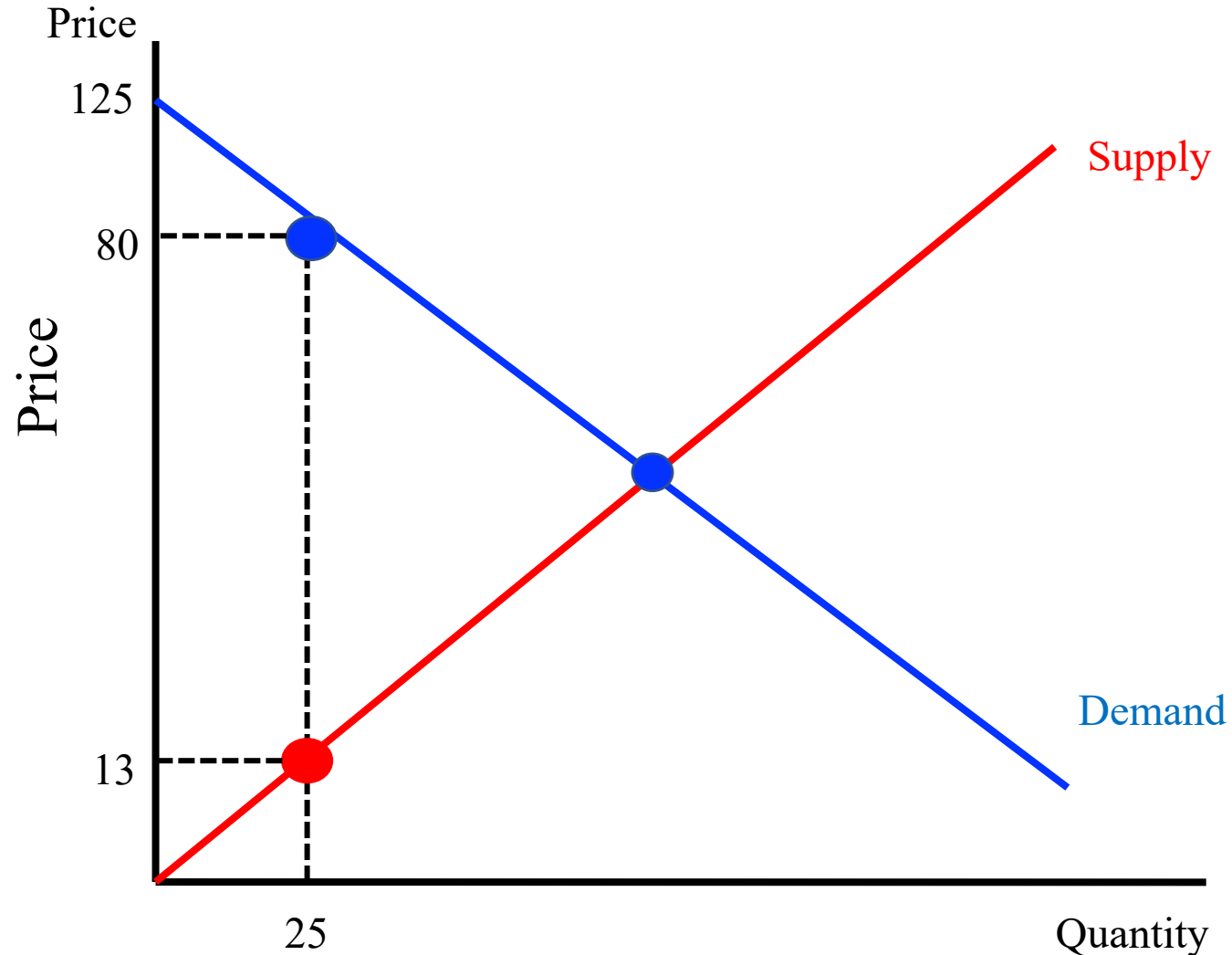
A Free Market Maximizes Producer Plus Consumer Surplus (the Gains from Trade) A free market maximizes the gains from trade because (1) buyers are willing to pay more for the good than nonbuyers, (2) sellers are willing to sell the good at a lower price than nonsellers, and (3) there are no mutually profitable deals between nonsellers and nonbuyers.

Gains from Trade



We will show that the total gains from trade are maximized in equilibrium

Gains from Trade



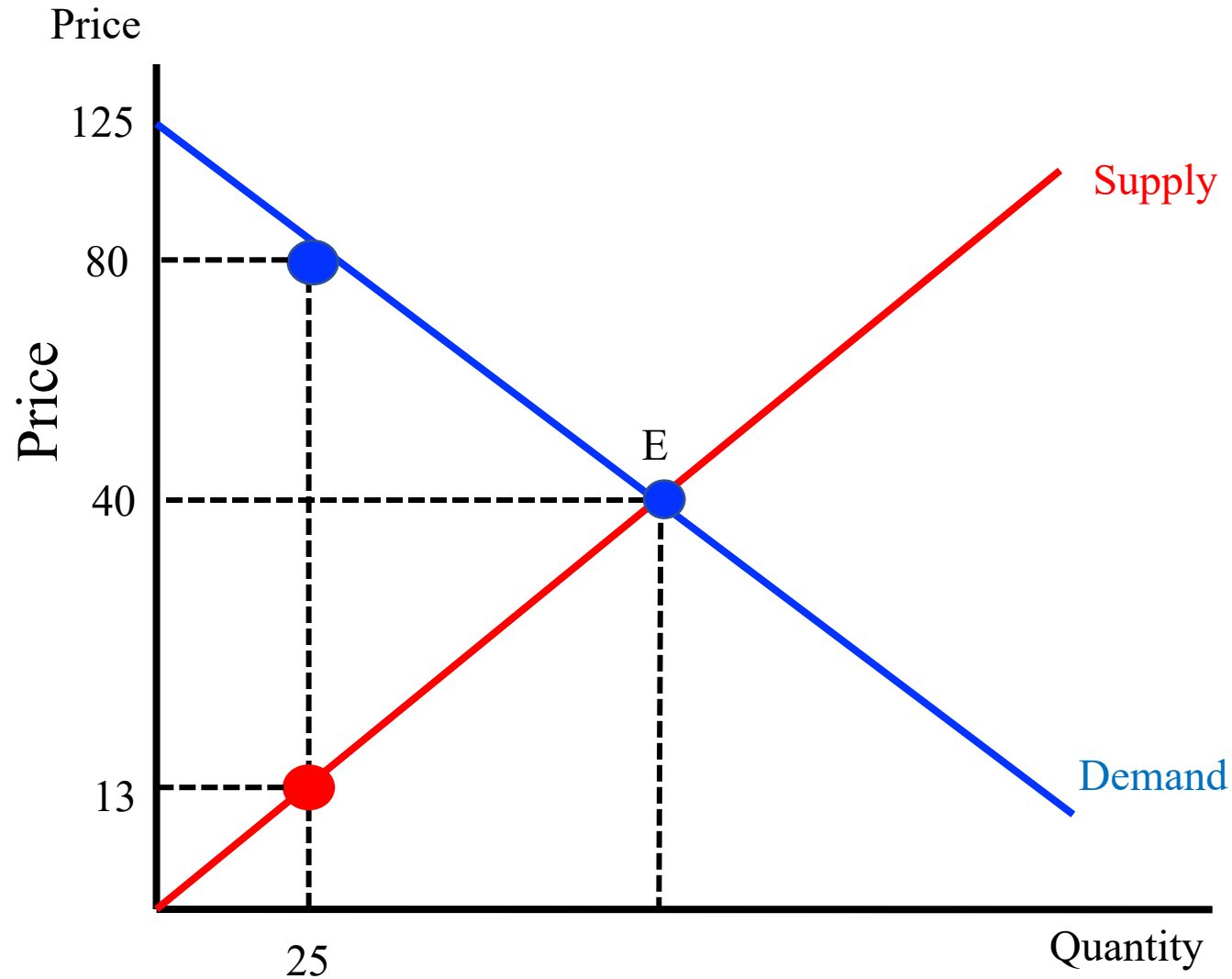
For a given quantity, it can be depicted as the difference from the point on the demand curve and the point on the supply curve.

Recall this point on the demand curve represents a consumer's willingness to pay (marginal benefit).

Recall this point on the supply curve represents a seller's willingness to sell (marginal cost).

At this quantity, the total surplus would be the difference between the (marginal) willingness to pay and the (marginal) willingness to sell.

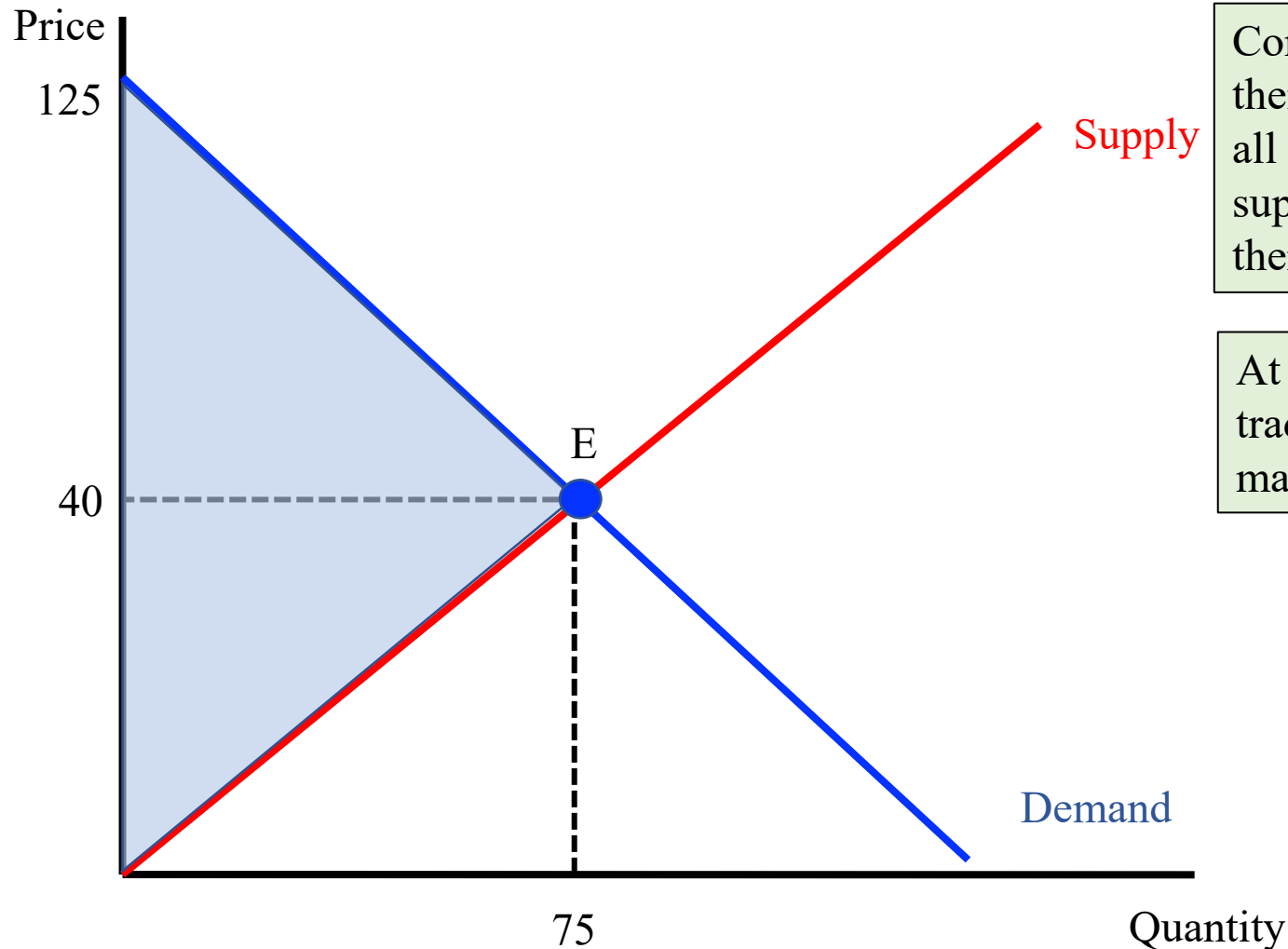
Gains from Trade



For a given quantity, it can be depicted as the difference from the point on the demand curve and the point on the supply curve.

If you know the (equilibrium) price is \$40, we can now determine how the total price surplus is allocated to producers and consumers.

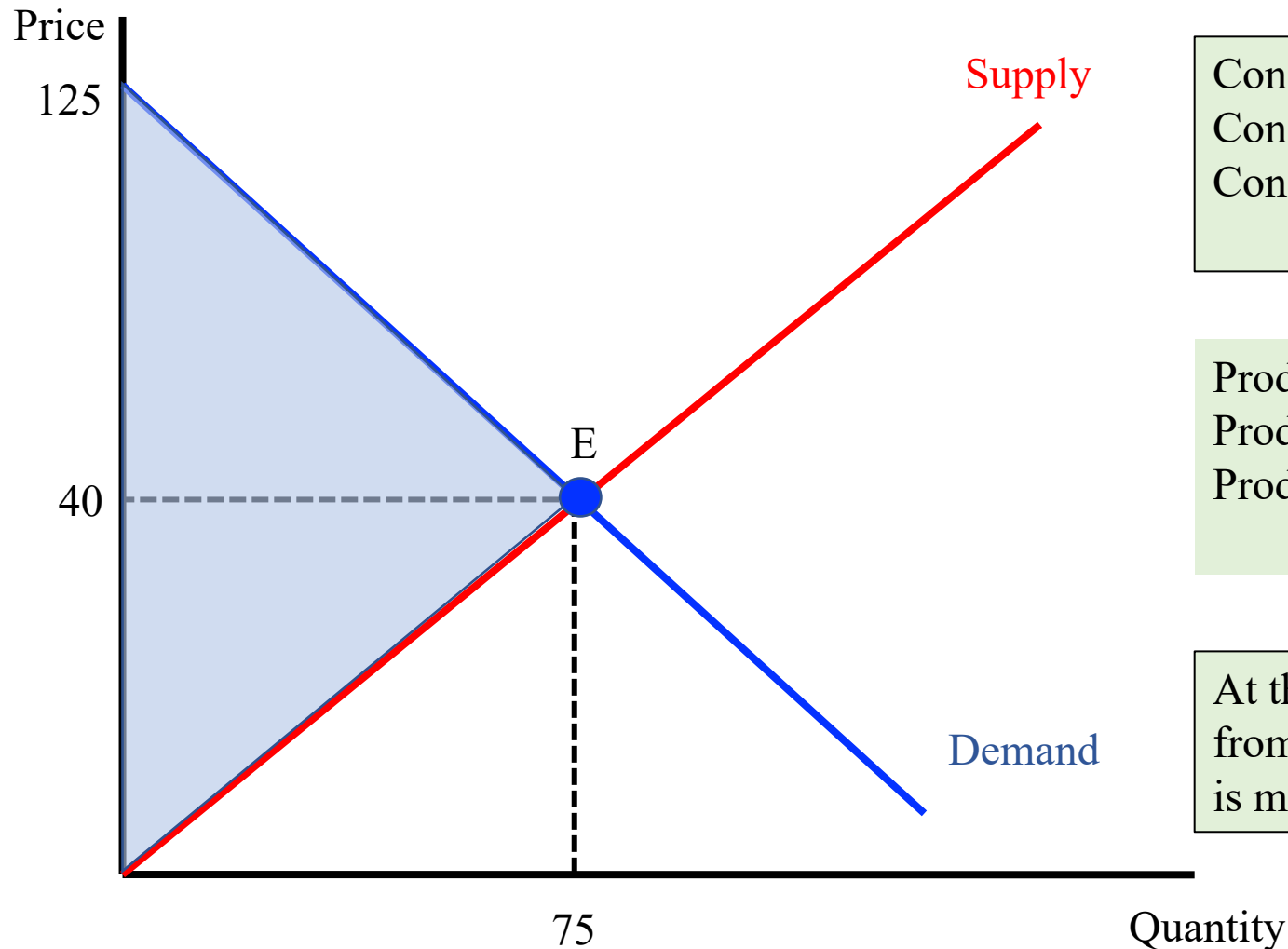
Gains from Trade



Continuing with this logic, we see that there are potential gains from trade all the way up to the point, where supply equals demand – at that point there are no additional gains from trade.

At this price there are no additional gains from trade available and so the total surplus is maximized.

Gains from Trade



$$TS = \$4,6187.4$$

$$\begin{aligned}\text{Consumer Surplus} &= \frac{1}{2} * (125 - 40) * 75 \\ \text{Consumer Surplus} &= \frac{1}{2} * (85) * 75 \\ \text{Consumer Surplus} &= \$3,187.5\end{aligned}$$

$$\begin{aligned}\text{Producer Surplus} &= \frac{1}{2} * (40) * 75 \\ \text{Producer Surplus} &= \frac{1}{2} * (3000) \\ \text{Producer Surplus} &= \$1,500\end{aligned}$$

At this price there are no additional gains from trade available and so the total surplus is maximized.

But if we are in equilibrium, why do prices change?

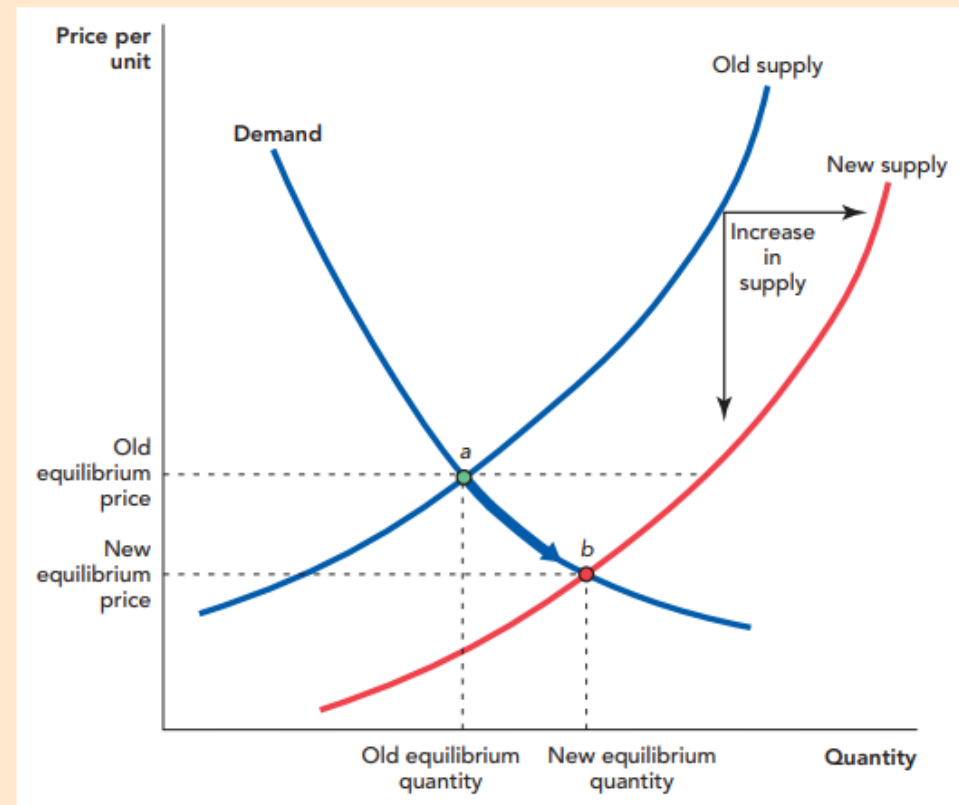
- Because supply or demand changes!
 - Remember, “demand/supply” are different than “quantity supplied/demand”
 - When supply or demand change, we mean the whole curve has shifted.

Now we have a framework to work with.

1. What will a hot summer day do to the price of ice cream?
2. What will a fall in the price of frozen yogurt do to the price of ice cream?
3. What will a new technology that allows ice cream to be made more cheaply do to the price of ice cream?

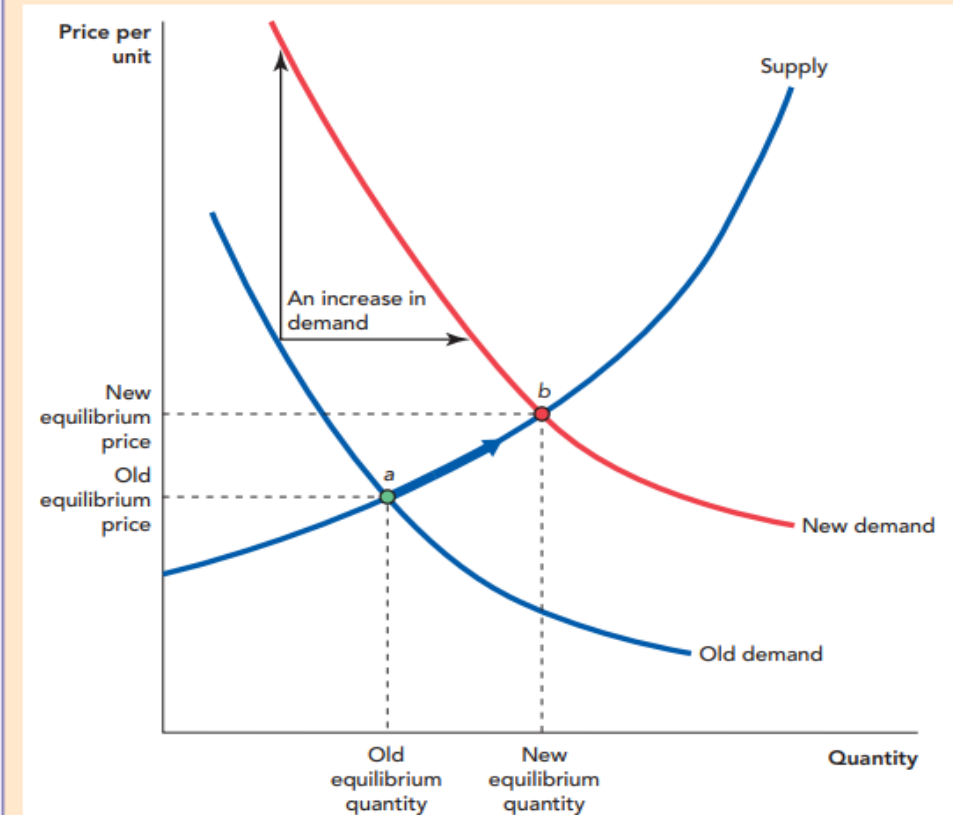
An increase in supply or an increase in demand?

FIGURE 4.6



An Increase in Supply Reduces Price and Increases Quantity When costs fall, the supply curve shifts down and to the right, moving the equilibrium price and quantity from point *a* to point *b*, a reduction in price and an increase in quantity.

FIGURE 4.7

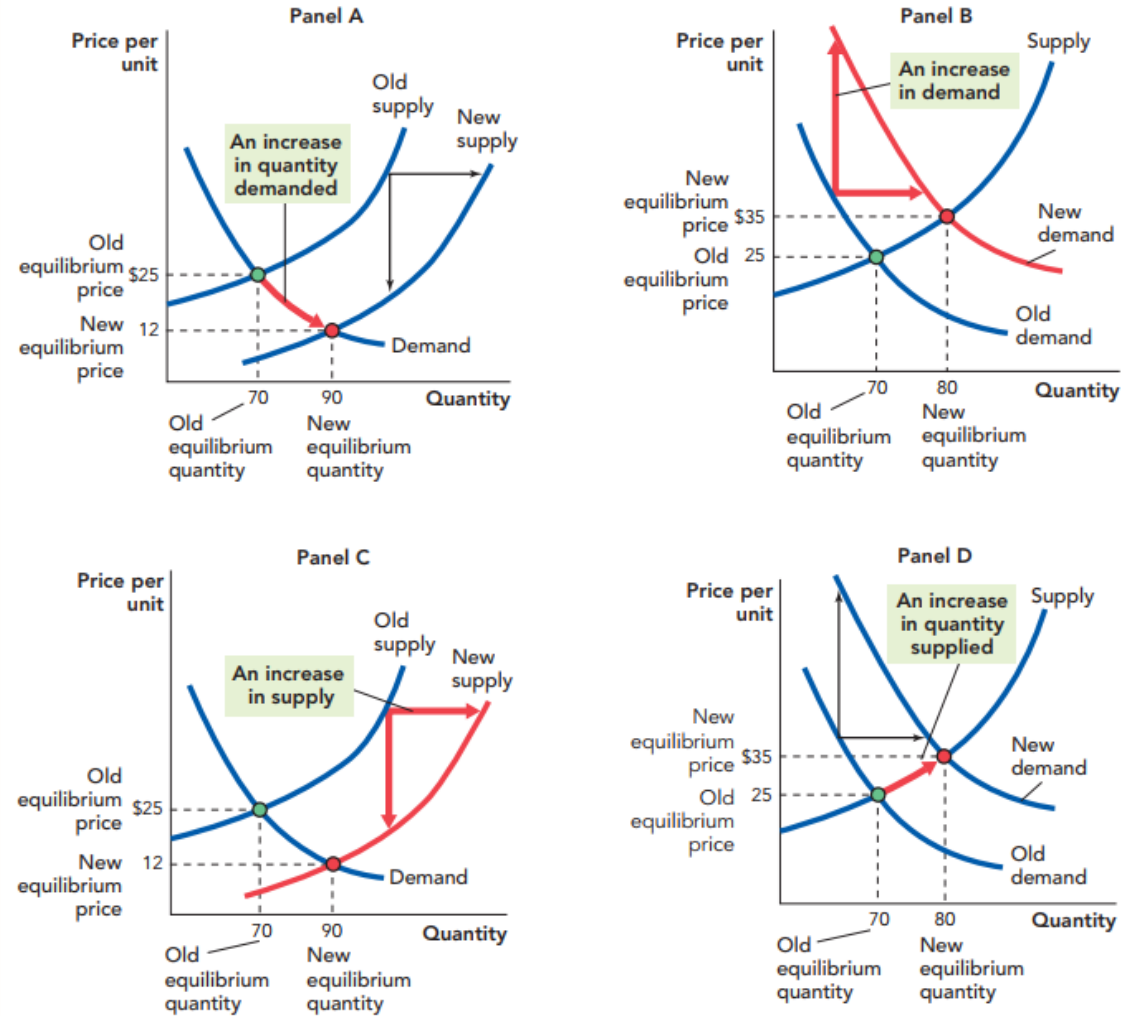


An Increase in Demand Increases Price and Quantity An increase in demand shifts the demand curve up and to the right, moving the equilibrium from point *a* to point *b*, an increase in price and quantity.

Bringing everything together

- An increase in quantity demanded causes a shift in the supply curve along a fixed demand curve
- An increase in demand is a shift of the demand curve to the right or left, with supply curve fixed.
- An increase in supply is a shift of the supply curve to the right or left, with demand curve fixed.
- An increase in quantity supplied causes a shift in the demand curve along a fixed supply curve

FIGURE 4.8



An Increase in Quantity Demanded Compared with an Increase in Demand, and an Increase in Supply Compared with an Increase in Quantity Supplied

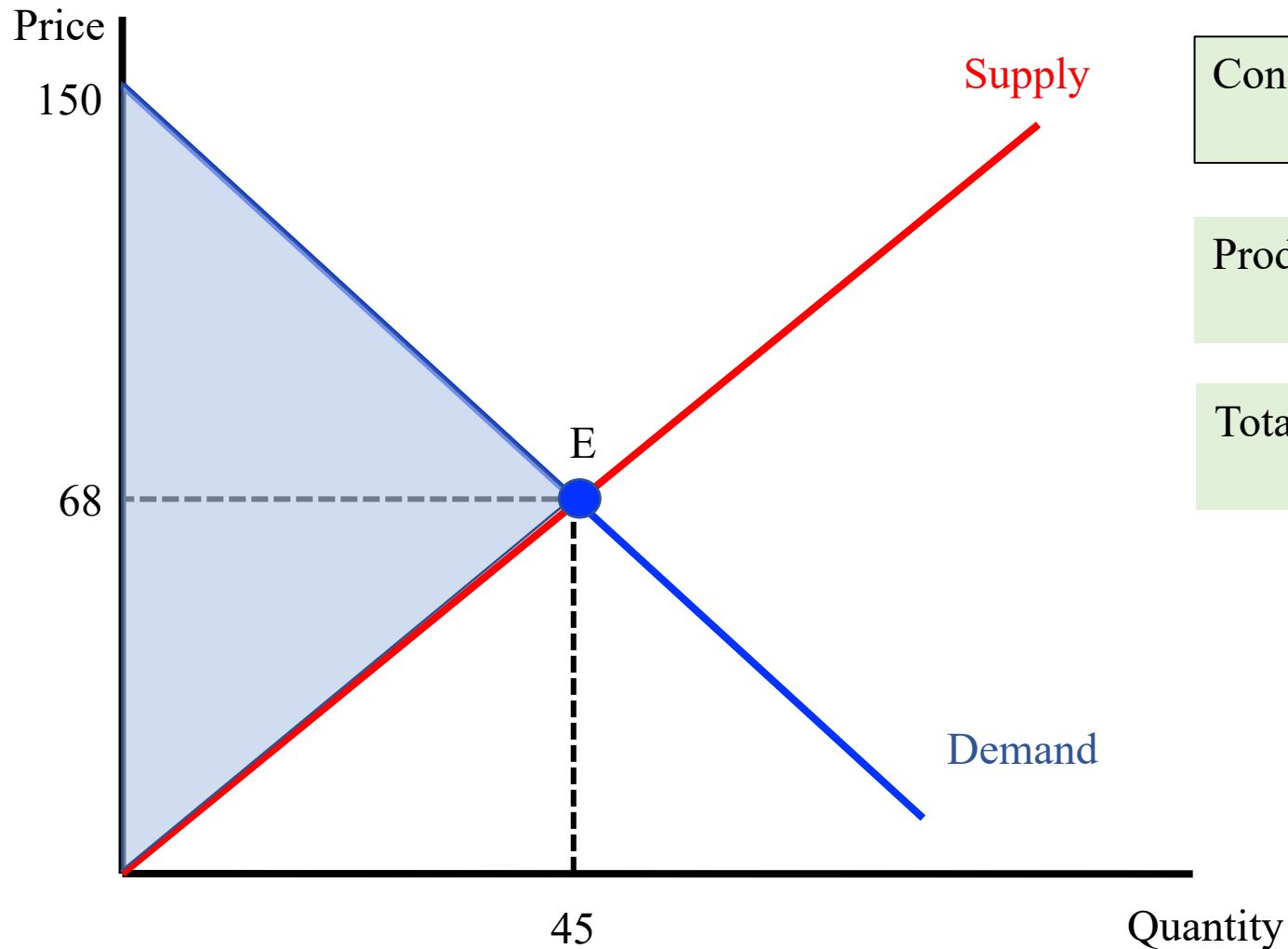
Panel A: An increase in quantity demanded is a movement along a fixed demand curve caused by a shift in the supply curve.

Panel B: An increase in demand is a shift in the demand curve up and to the right.

Panel C: An increase in supply is a shift in the supply curve down and to the right.

Panel D: An increase in quantity supplied is a movement along a fixed supply curve caused by a shift in the demand curve.

Practice Questions

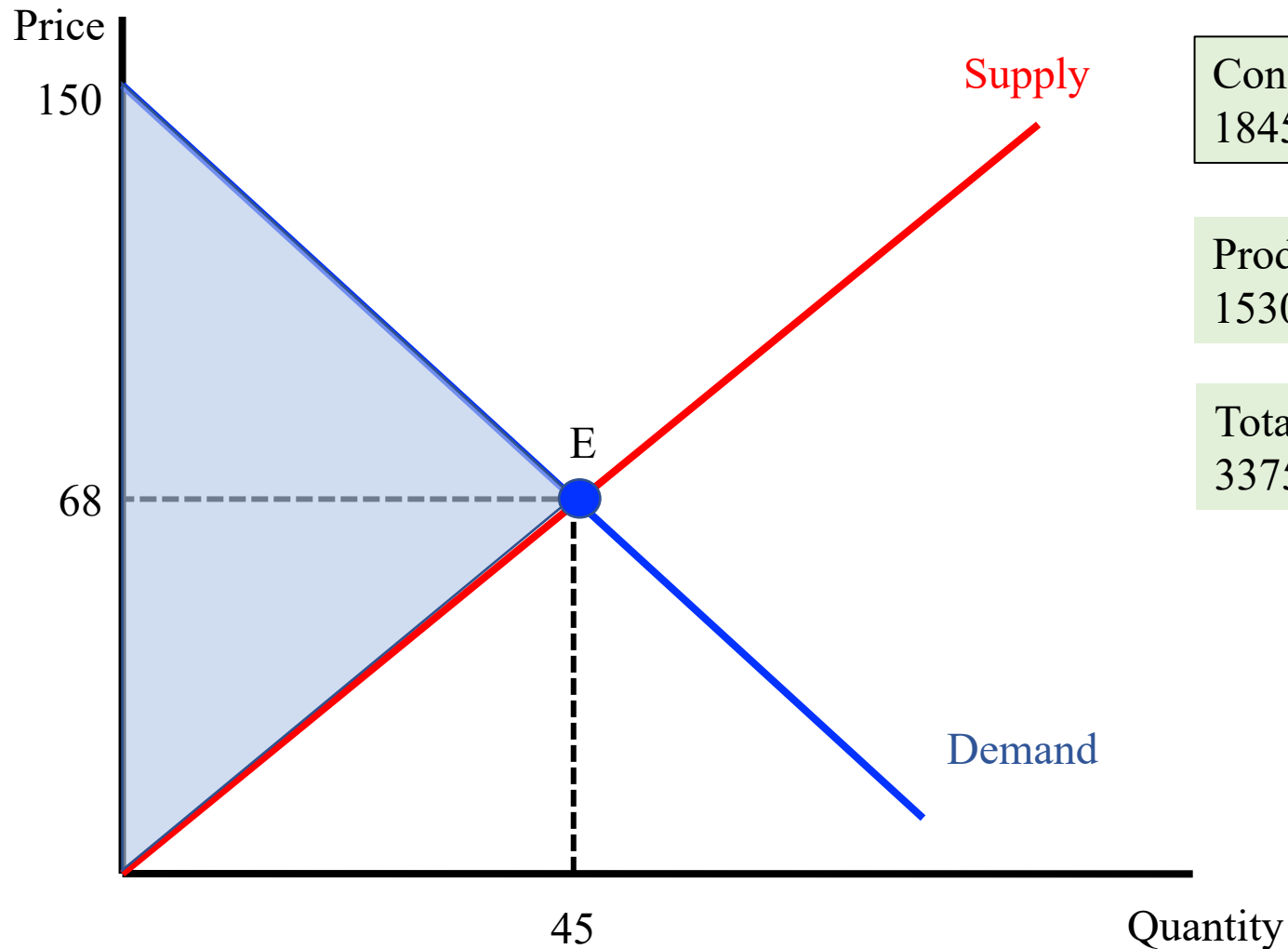


Consumer Surplus ?

Producer Surplus ?

Total Surplus ?

Practice Questions



Consumer Surplus ?
1845

Producer Surplus ?
1530

Total Surplus ?
3375

Practice Questions

- If equilibrium price has fallen from \$5.50 to \$4.75 while equilibrium quantity has risen from 10,000 to 12,000, we would know that
 - A. demand has decreased.
 - B. supply has increased.
 - C. demand has increased.
 - D. either demand has increased or supply has decreased.
 - E. either supply has increased or demand has decreased.

Practice Questions

- If equilibrium price has fallen from \$5.50 to \$4.75 while equilibrium quantity has risen from 10,000 to 12,000, we would know that
 - A. demand has decreased.
 - B. supply has increased.
 - C. demand has increased.
 - D. either demand has increased or supply has decreased.
 - E. either supply has increased or demand has decreased.

Practice Questions

- A rise in demand results in
 - A. price up and quantity down.
 - B. price down and quantity up.
 - C. price and quantity up.
 - D. price and quantity down.

Practice Questions

- A rise in demand results in
 - A. price up and quantity down.
 - B. price down and quantity up.
 - C. price up and quantity up.
 - D. price and quantity down.

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