• Supply, Demand, and Government Policies

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Government Policies

- Economists as policy analysts and advisers
  - Try to use theories to change the world
- Policies
  - Often have effects that their architects did not intend or anticipate
  - Alter the private market outcome
  - Price controls
  - Taxes

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The Surprising Effects of Price Controls

- Price ceiling:
  - Legal maximum on the price at which a good can be sold
  - Example: Rent-control laws
- Price floor:
  - Legal minimum on the price at which a good can be sold
  - Example: Minimum wage laws

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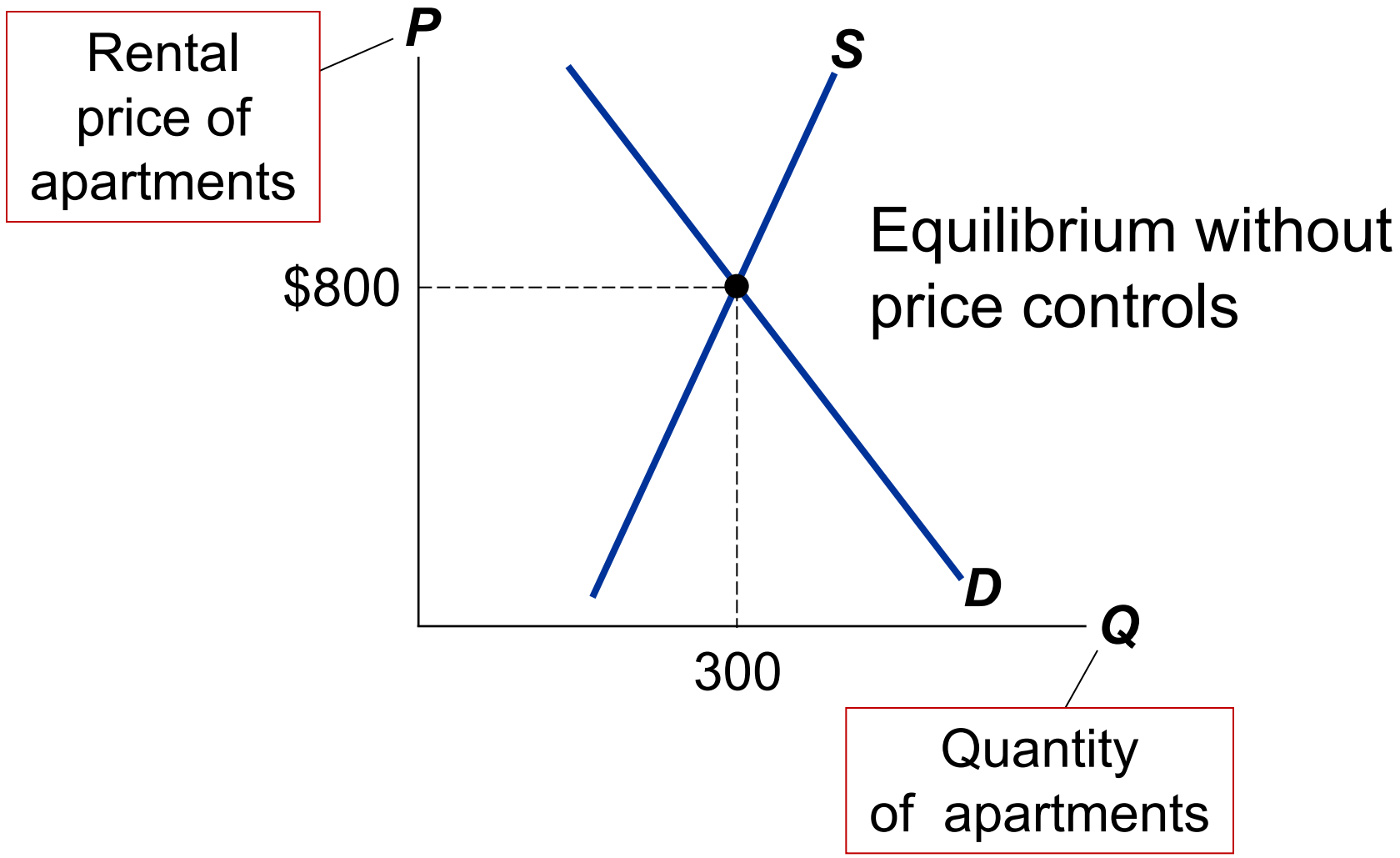
EXAMPLE 1: The market for apartments



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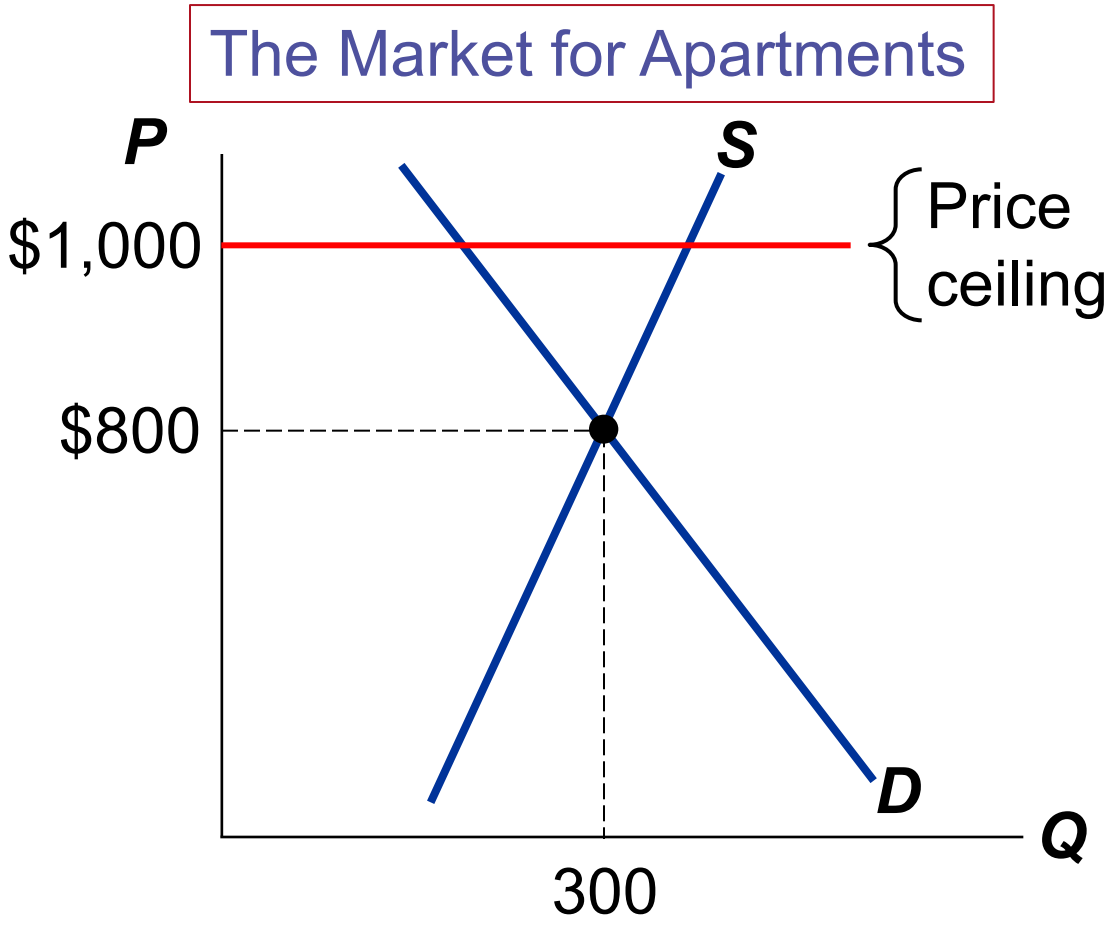
EXAMPLE 1A: Not binding price ceiling

Price ceiling = Max Price (can't go above it)

A price ceiling above the equilibrium price is **not binding**— has no effect on the market outcome.

P = $800

Q = 300



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EXAMPLE 1B: Binding price ceiling

Price ceiling = Max Price
(can't go above it)

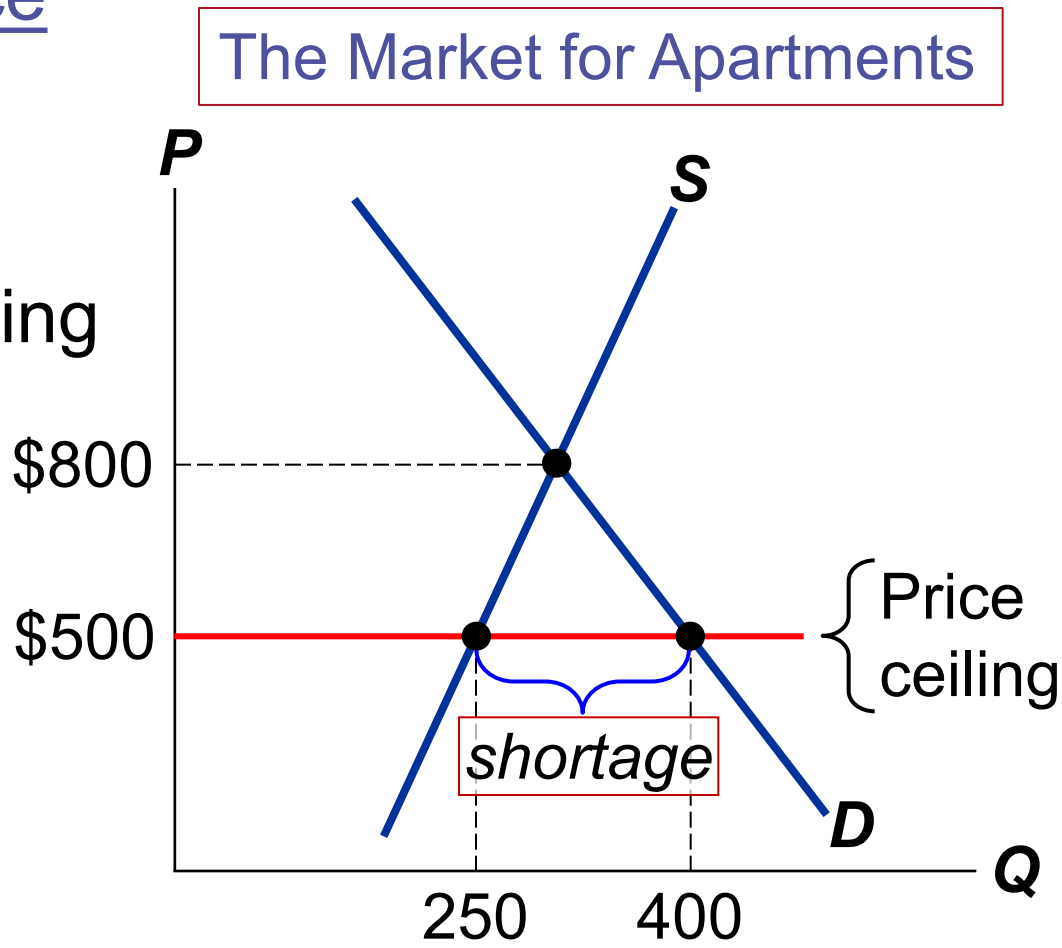
The equilibrium price ($800) is above the ceiling and therefore illegal.

The price ceiling is **binding**, causes a shortage.

P = \$500

Q^d = 400

Q^s = 250



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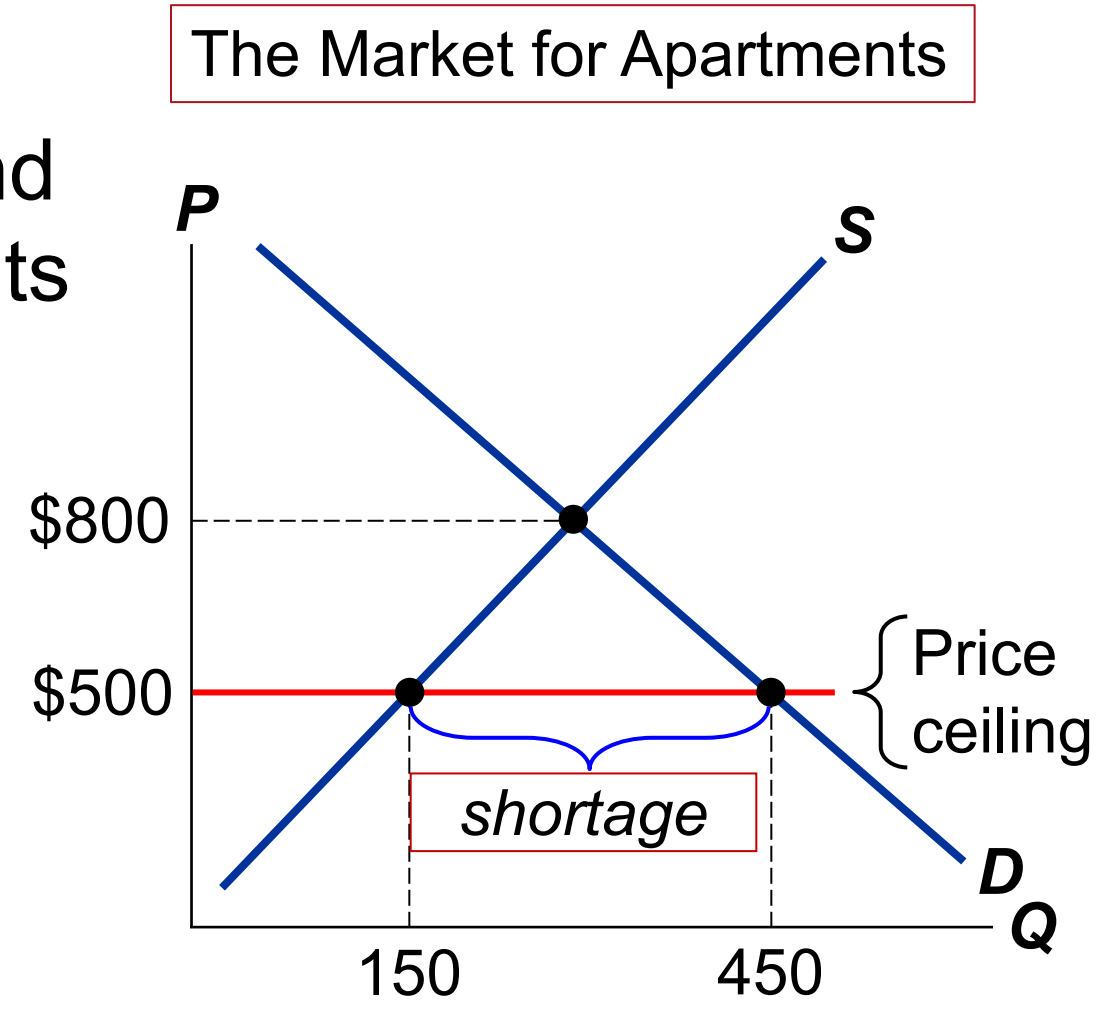
EXAMPLE 1C: Binding price ceiling in long run

In the long run, supply and demand of rental apartments are more price-elastic.

So, the shortage is larger.



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How Price Ceilings Affect Market Outcomes

- Effects of a binding price ceiling on a competitive market:
  - A shortage arises
  - Sellers must ration scarce goods among potential buyers
    - Long lines (inefficient, wasting buyers' time)
    - Bias of sellers (inefficient and unfair)

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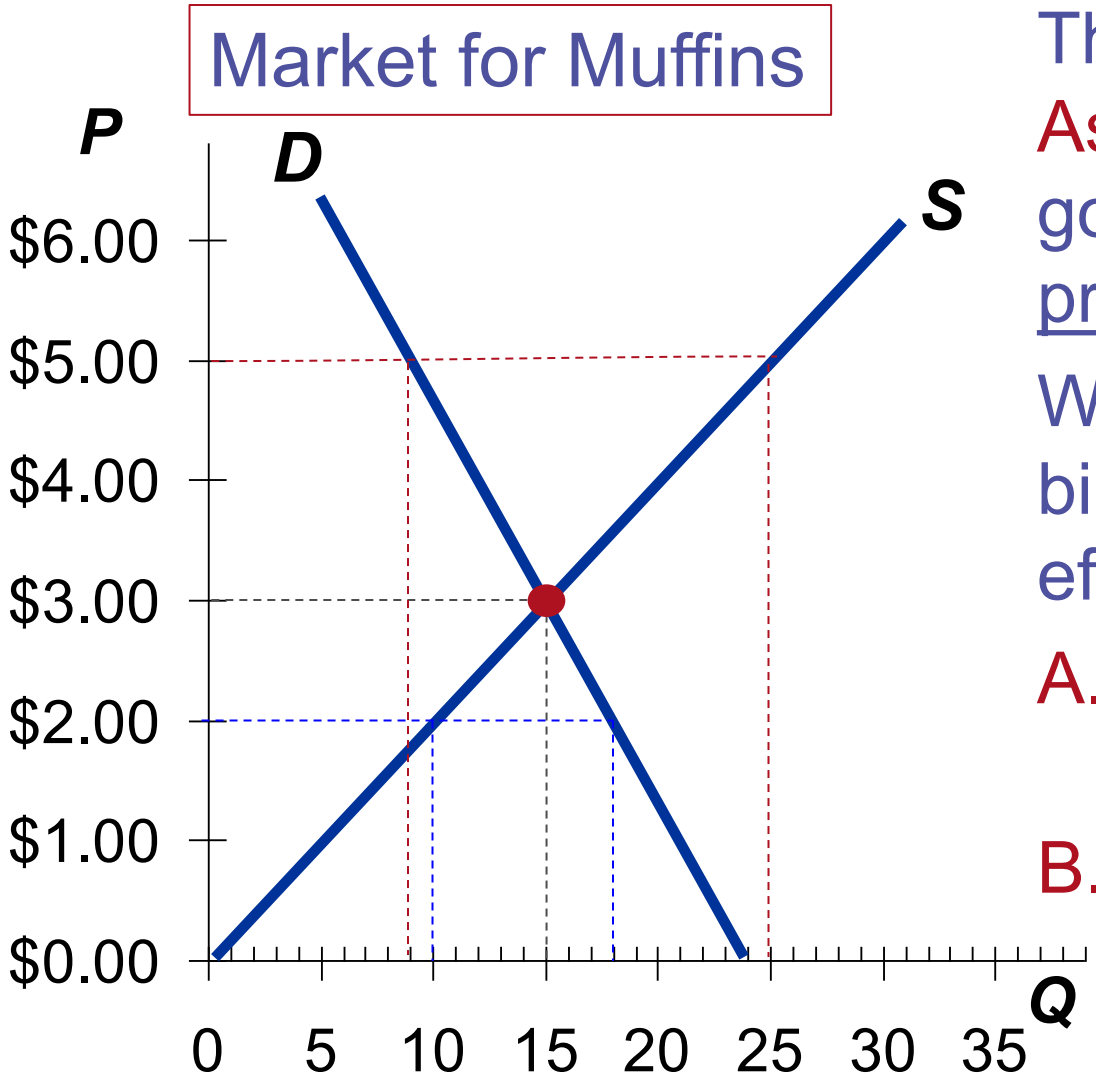
Active Learning 1: Price ceilings for muffins



The Muffin Buyers' Association lobbies the government to impose a price ceiling.

Which of the following is binding and what's the effect on the market?

A. The price ceiling is set at $5.

B. The price ceiling is set at $2.

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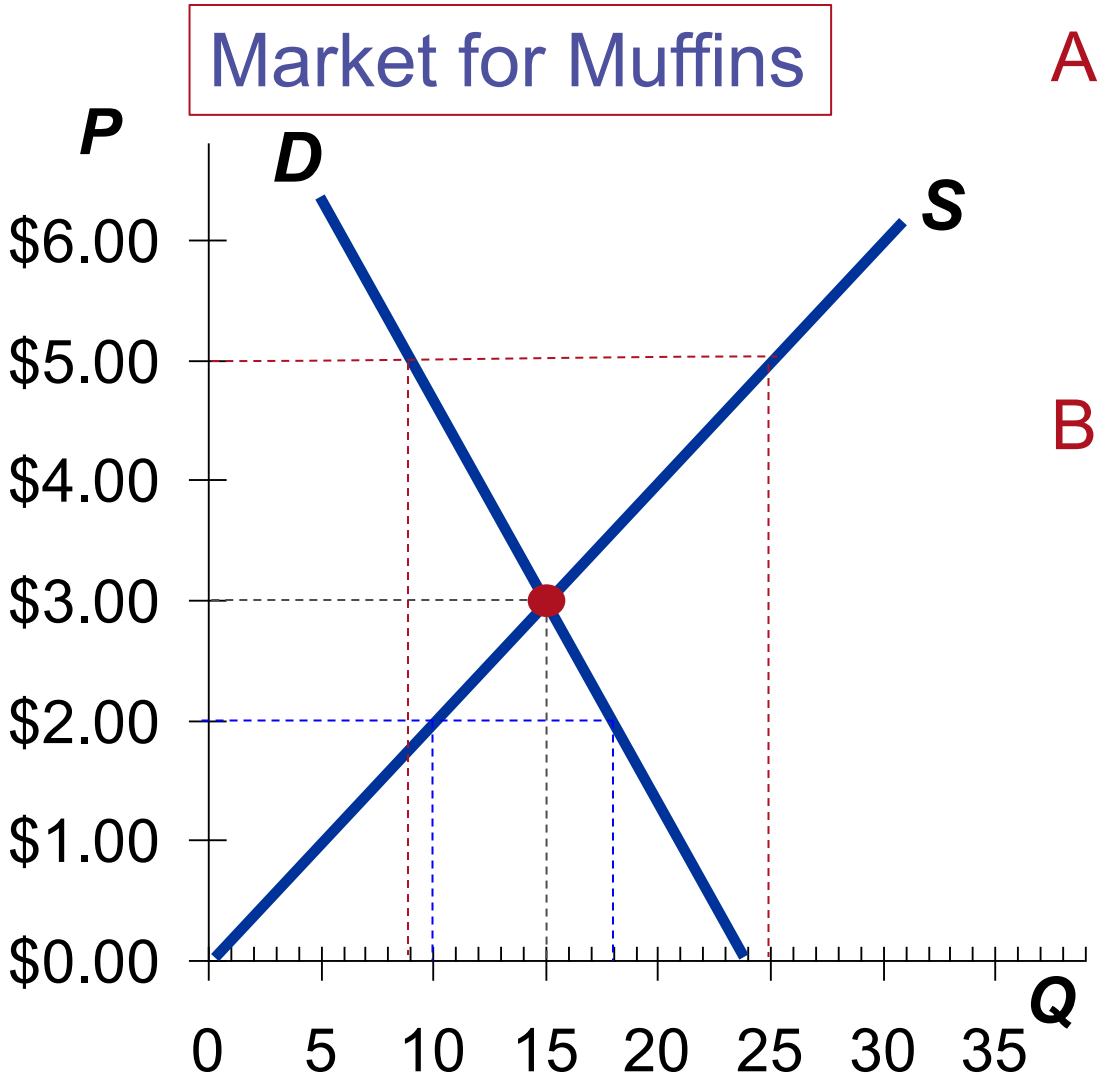
Active Learning 1: Answers



A. The price ceiling is set at $5.
- Not binding
- P = \$3, Q = 15

B. The price ceiling is set at $2.
- Binding
- P = \$2
- Q^d = 18
- Q^s = 10
- Shortage = 8 muffins

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Taxi price cap

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THIS STORY IS FROM MARCH 11, 2020

Maharashtra caps Ola, Uber surge pricing at three times taxi fare, but defers rule till April 6

Somit Sen & Bhavika Jain / TNN / Updated: Mar 11, 2020, 06:26 IST

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Stent

Health News / Latest Health News / Medical Devices

Coronary stents prices slashed by 85%, govt tells Delhi High Court

The price of drug eluting stents and bio-resorbable scaffold or biodegradable stents, which used to range between Rs 40,000 and Rs 1.98 lakh, is now capped at Rs 29,600 and the bare metal stents.

PTI • March 03, 2017, 08:19 IST

NEW DELHI: The prices of life-saving coronary stents, used in angioplasty to ensure blood supply to and from the heart, have been slashed by 85 per cent from their existing prices and capped, government said on Thursday.

The price of drug eluting stents and bio-resorbable scaffold or biodegradable

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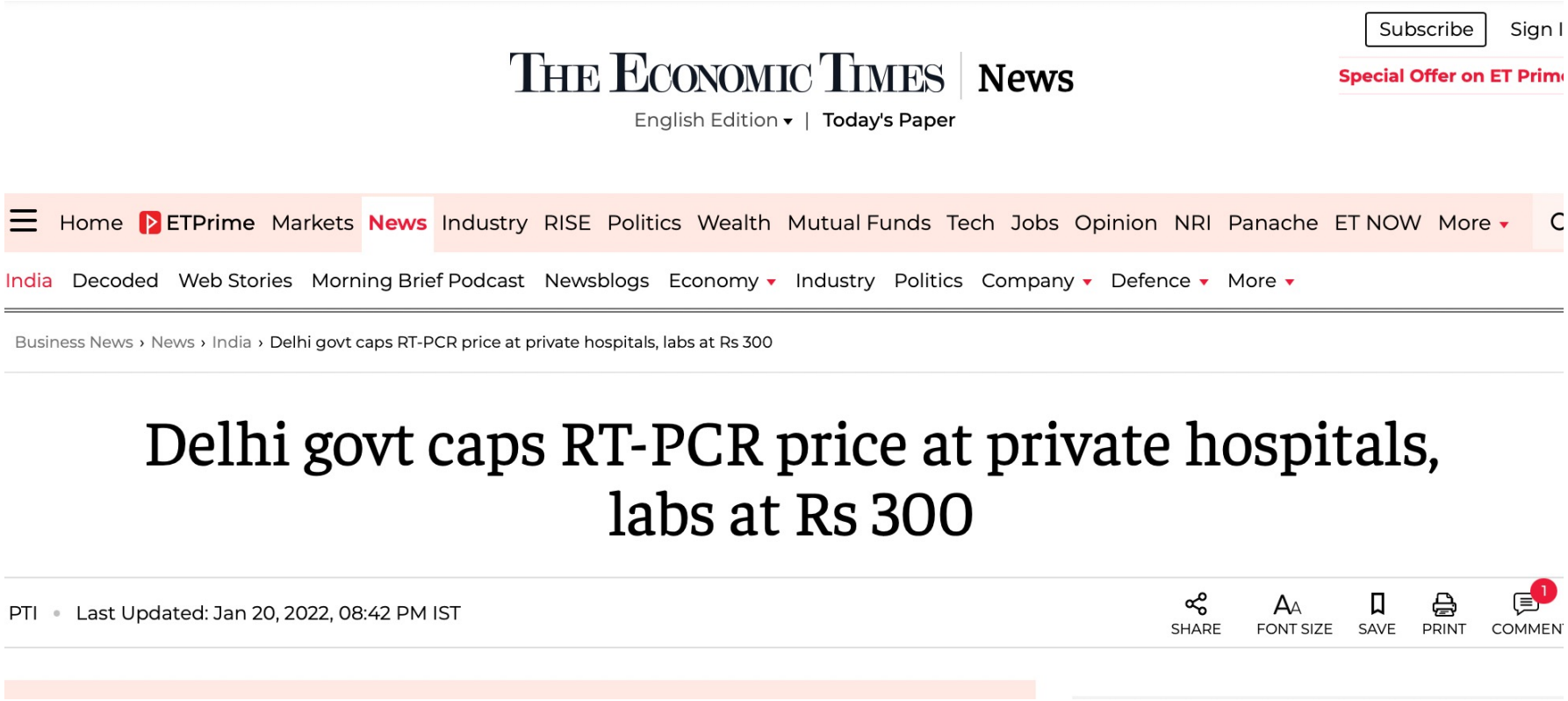
RT-PCR



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Delhi govt caps RT-PCR price at private hospitals, labs at Rs 300

PTI • Last Updated: Jan 20, 2022, 08:42 PM IST

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Price Floors

- Price floors
  - Are an attempt by the government to maintain prices at other than equilibrium levels
  - Places a legal minimum on prices
  - Not binding: Price floor set below equilibrium
  - Binding: Price floor set above equilibrium

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The minimum wage

Karnataka govt notifies new minimum wages

The new wages have come into effect from July 28 when they were notified

DHNS, AUG 04 2022, 22:30 IST | UPDATED: AUG 05 2022, 04:40 IST

Representative image. Credit: iStock Photo

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The minimum wage

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Opinion
Eduardo Porter

Minimum Wages Are Going Up. Jobs May Disappear.

Past studies have found that higher pay doesn't hurt employment over the short term. New research shows that the effects over time could be more harmful.

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Minimum Support Price

The Indian EXPRESS

Monday, August 22, 2022

Novozymes crop yield

Maximize your crop yield

Enhance nitrogen fixation & availability of nitrogen, phosphorus & potassium in crops.

biosolutions.novozymes.com

OPEN

Govt hikes paddy MSP by Rs 100 a quintal, sharpest rise in soybean

The MSP of paddy (common) has been increased by 5.15 per cent from Rs 1,940 per quintal in 2021-22 to Rs 2,040 quintal for 2022-23.

Written by Harikishan Sharma , with input from Pti

New Delhi | Updated: June 9, 2022 7:32:48 am

NewsGuard

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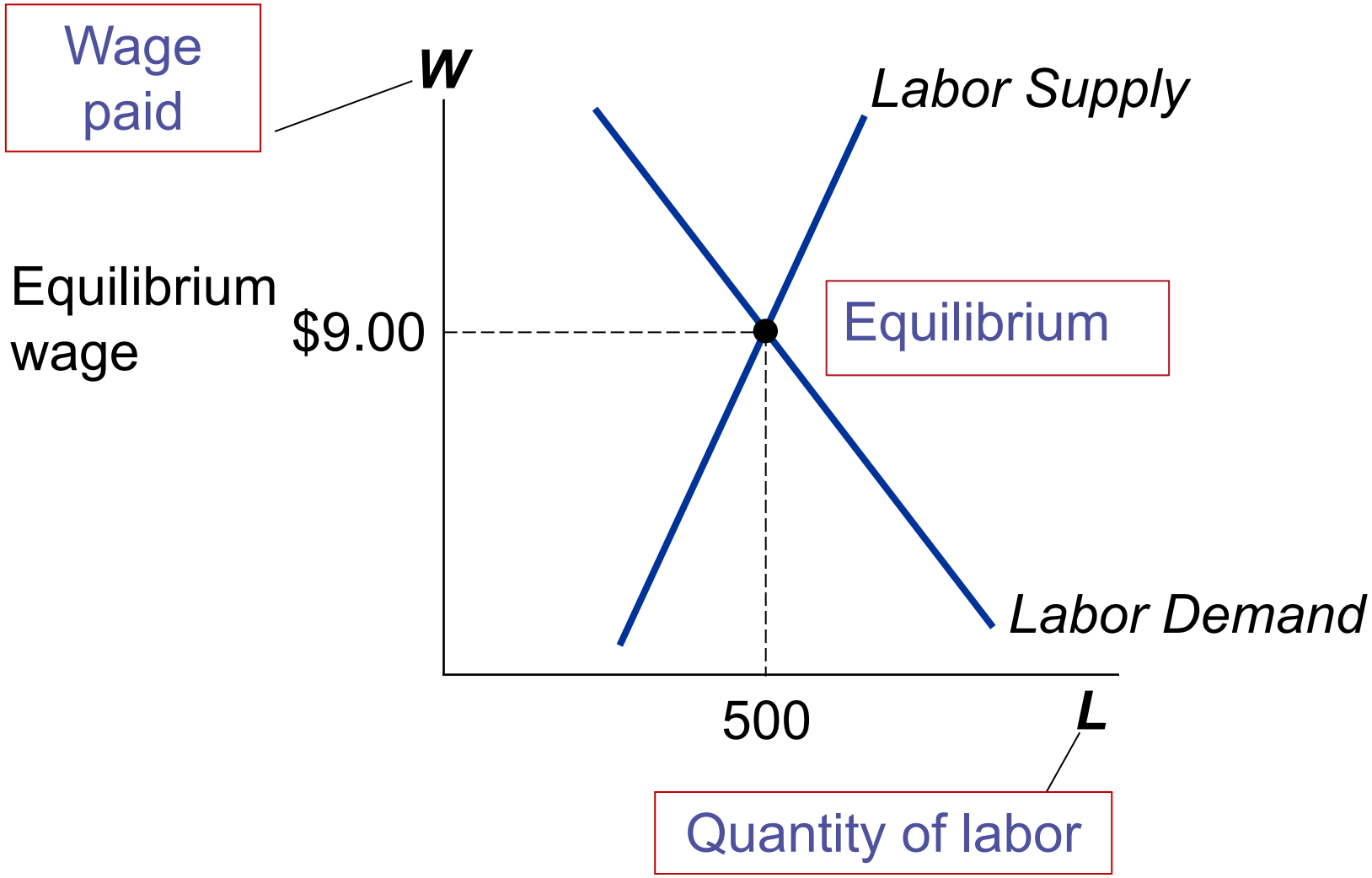
EXAMPLE 2: A free labor market



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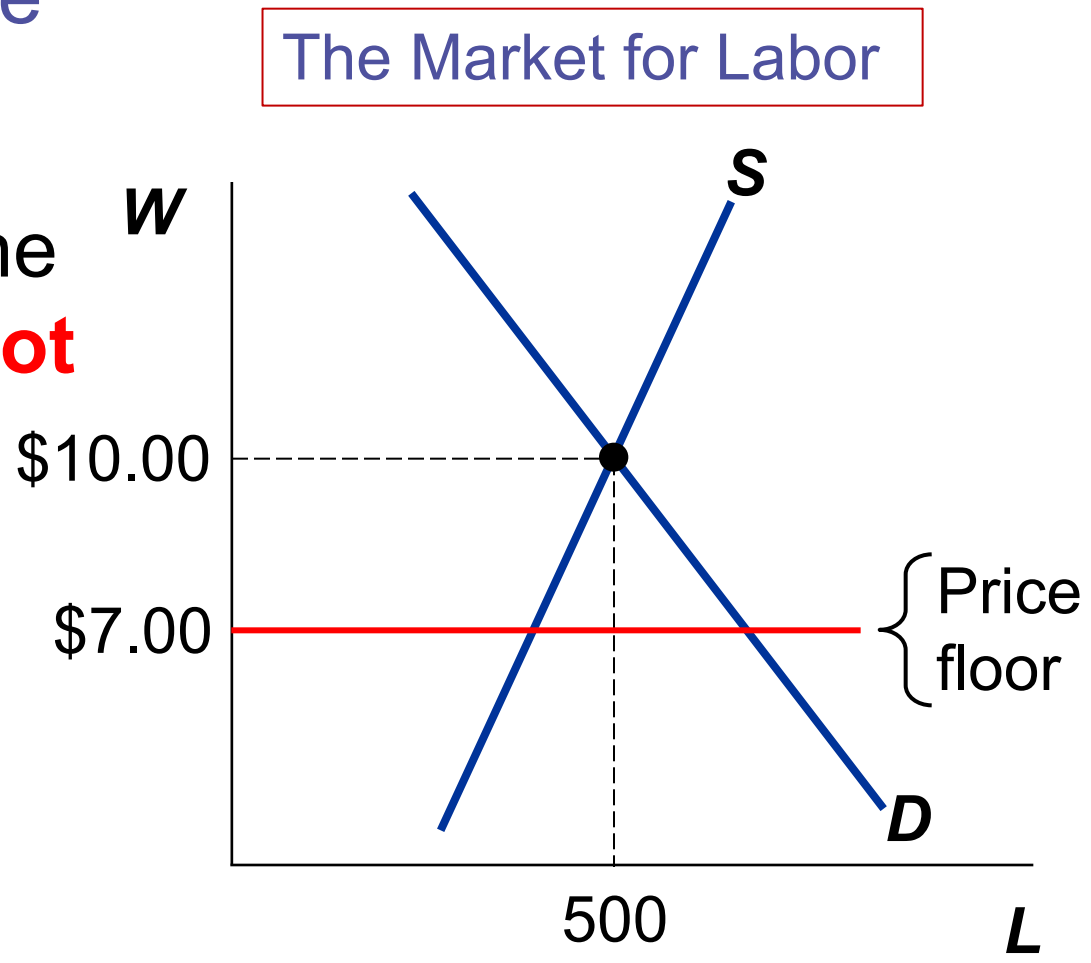
EXAMPLE 2A: Not binding price floor

Price floor = Min price (can't go below it)

A price floor below the equilibrium price is **not binding** – has no effect on the market outcome.

W = $10.00

Q = 500



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EXAMPLE 2B: Binding price floor

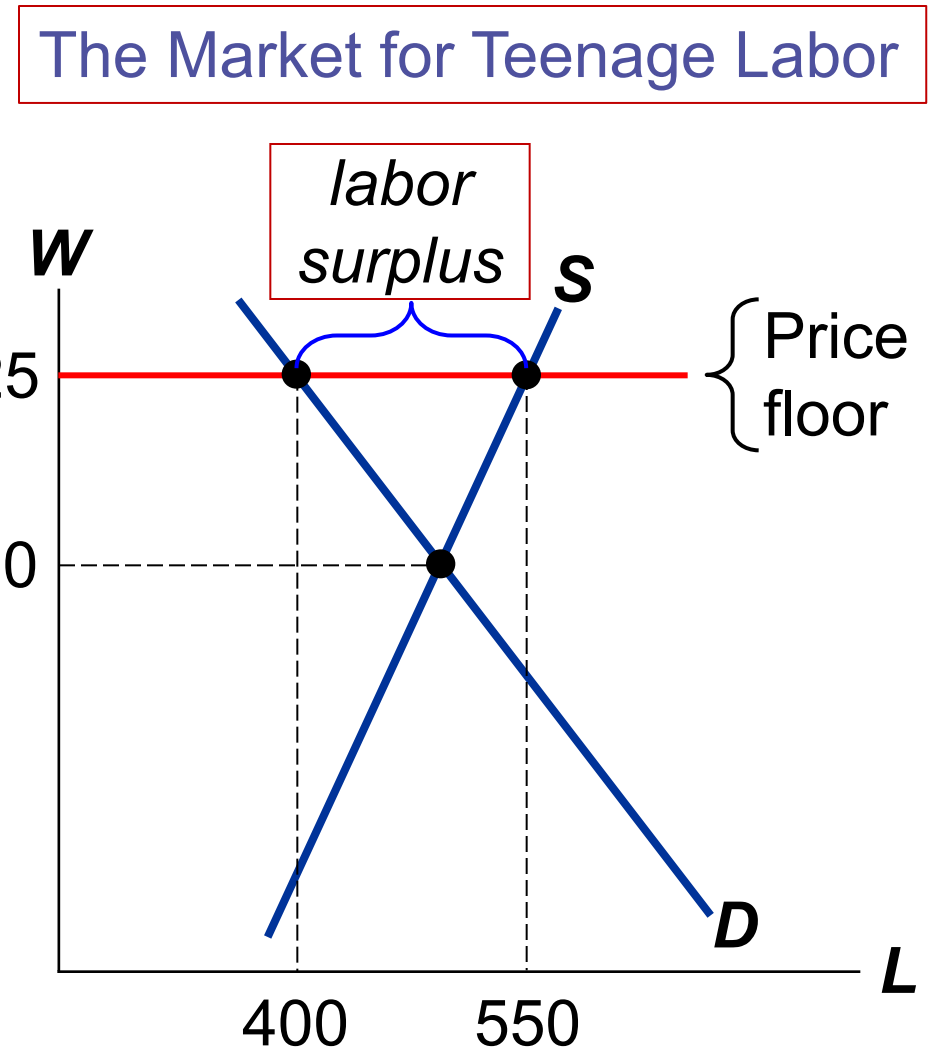
Price floor = Min price (can't go below it)

The equilibrium wage ($7) is below the floor and therefore illegal.

The price floor is **binding**, causes a surplus (i.e., unemployment).

W = $9.25

Q^d = 400 and Q^s = 550



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CASE STUDY

Controversies over the Minimum Wage – 1

- Minimum-wage laws set the lowest price for labor that any employer may pay
  - $7.25 an hour (federal law) in 2021
  - Many states and cities mandate minimum wages above the federal level
- European nations minimum wages
  - Higher than in the United States
    - Average income in France: 30% lower than in U.S.
    - French minimum wage: 50% higher

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CASE STUDY

Controversies over the Minimum Wage – 2

- The minimum wage has its greatest impact on the market for teenage labor.
  - Least skilled and least experienced
  - Willing to accept a lower wage in exchange for on-the-job training
  - A 10% increase in minimum wage decreases teenage employment by 1-3%
  - Focus on the effects in short-run
  - Long-run effects: harder to estimate, but more relevant and likely larger

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CASE STUDY

Controversies over the Minimum Wage – 3

- Long-run effects:
  - Harder to estimate reliably
  - More relevant for evaluating the policy
  - Increase in quantity supplied of labor
    - Higher number of teenagers who choose to look for jobs
    - Displaced teenagers
    - New teenage dropouts

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CASE STUDY

Controversies over the Minimum Wage – 4

- Advocates of a higher minimum wage
  - Humane way to raise the income of the working poor
  - Workers who earn the minimum wage can afford only a meager standard of living
  - Labor markets are not well explained, so they doubt the theory's predictions regarding unemployment
  - Policy has some small adverse effects, and all things considered, a higher minimum wage makes the poor better off.

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CASE STUDY

Controversies over the Minimum Wage – 5

- Opponents of raising the minimum wage: not the best way to combat poverty
  - Causes unemployment, encourages teenagers to drop out of school, results in some unskilled workers not getting on-the-job training
  - Poorly targeted policy
    - Less than 1/3 of minimum-wage earners are in families with incomes below the poverty line
    - Many are teenagers from middle-class homes working at part-time jobs for extra spending money

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How Price Floors Affect Market Outcomes

- Effects of a binding price floor on a competitive market
  - Causes a surplus
  - Undesirable rationing mechanisms
    - The sellers who appeal to the buyers' personal biases may be better able to sell their goods than those who do not

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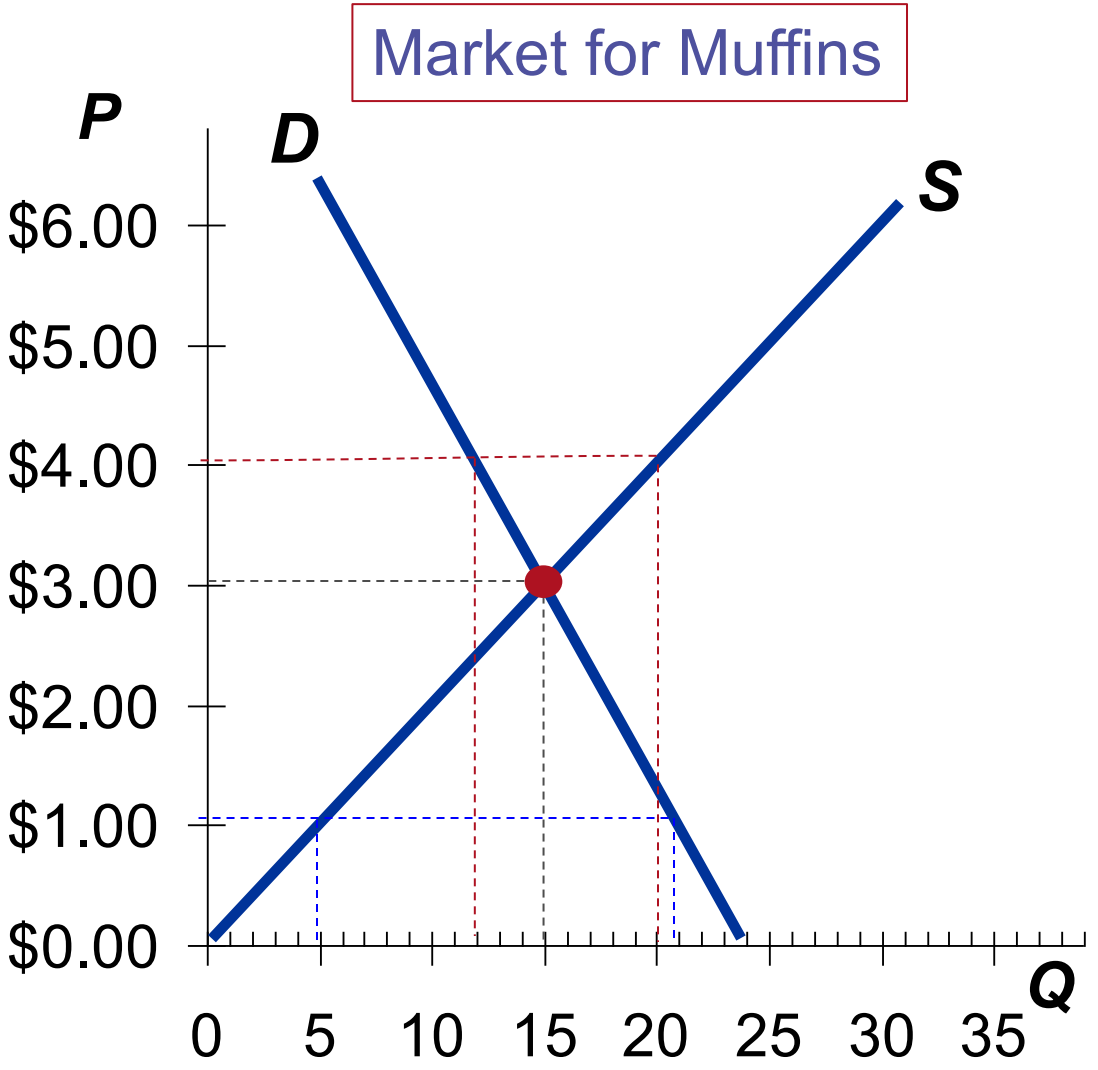
Active Learning 2: Price floors for muffins

The Muffin Sellers' Association lobbies the government to impose a price floor.

Which of the following is binding and what's the effect on the market?

A. The price floor is set at $1.

B. The price floor is set at $4.



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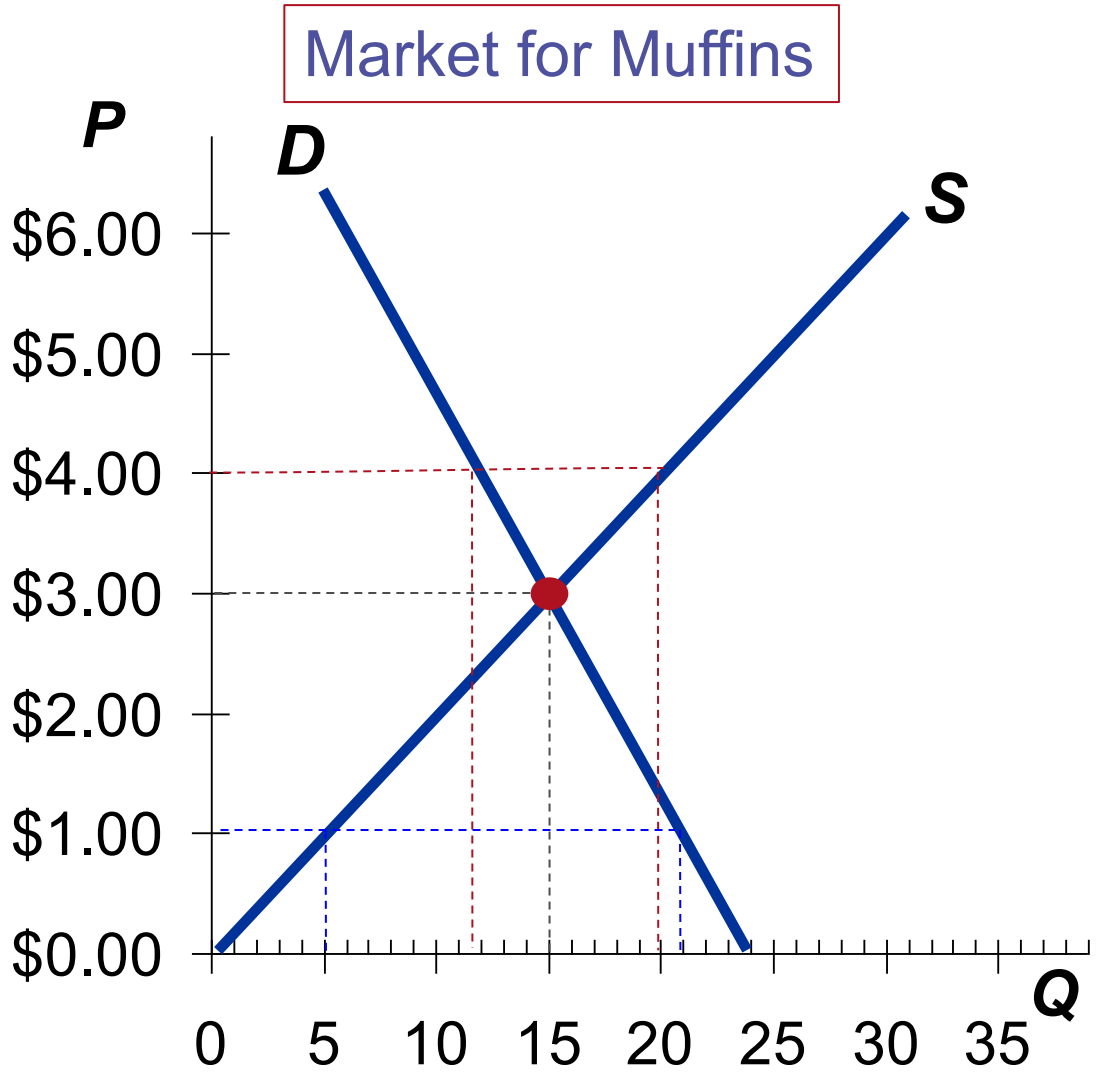
Active Learning 2: Answers

A. The price floor is set at $1.

- Not binding
- P = \$3, Q = 15

B. The price floor is set at \$4.

- Binding
- P = \$4
- Q^d = 12
- Q^s = 20
- Surplus = 8 muffins



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Evaluating Price Controls – 1

- Markets are usually a good way to organize economic activity
  - Economists often oppose price ceilings and price floors
  - Prices are not the outcome of some haphazard process
  - Prices have the crucial job of balancing supply and demand
    - Coordinating economic activity

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Evaluating Price Controls – 2

- Governments can sometimes improve market outcomes
  - Want to use price controls
    - Because of unfair market outcome
    - Aimed at helping the poor
  - Often hurt those they are trying to help
  - Other ways of helping those in need
    - Rent subsidies
    - Wage subsidies (earned income tax credit)

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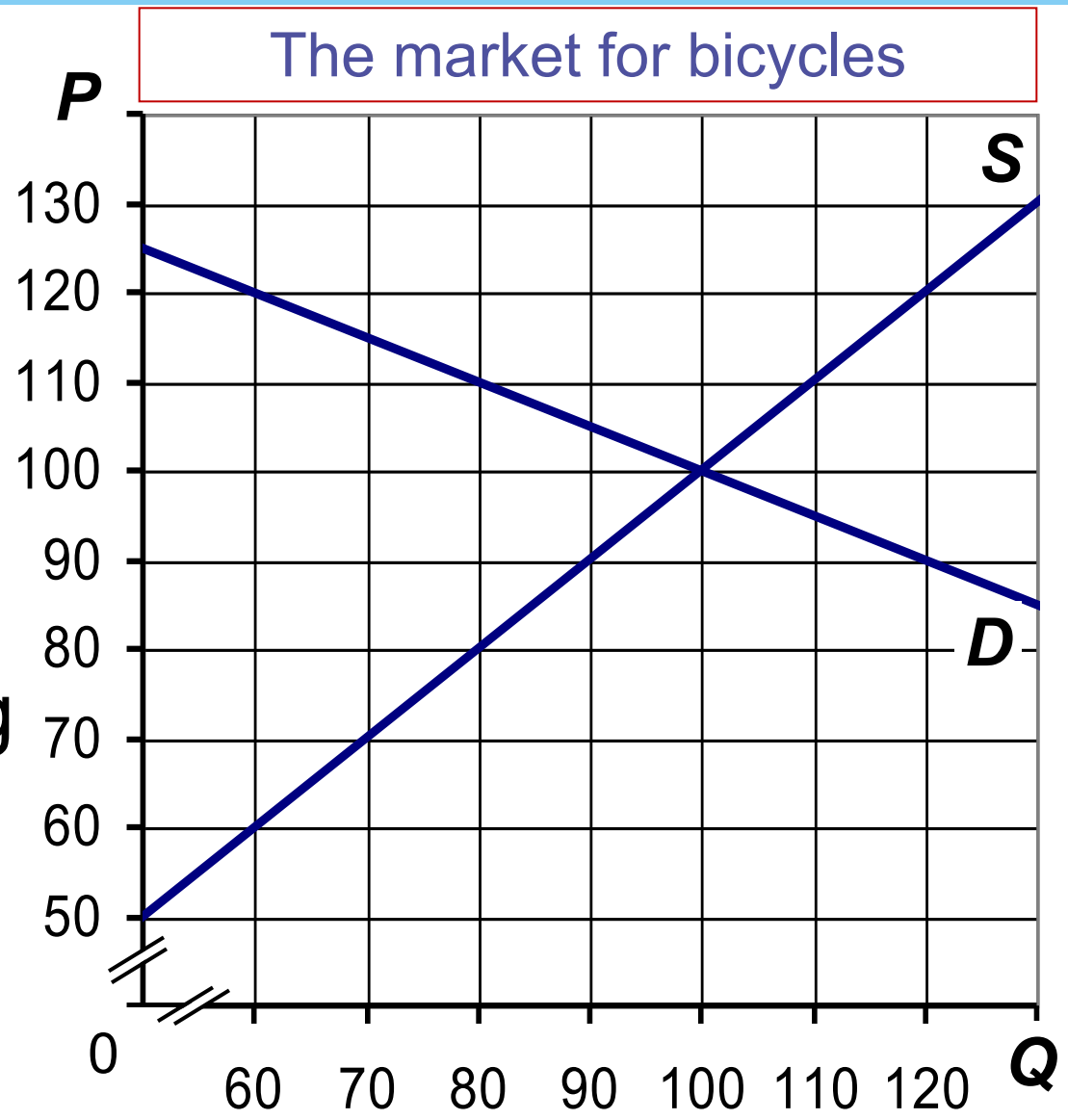
Active Learning 3: Price controls: binding or not?

The market for bicycles is in equilibrium as in the graph. Determine the effects of:

A. $90 price ceiling

B. $90 price floor

C. $120 price floor



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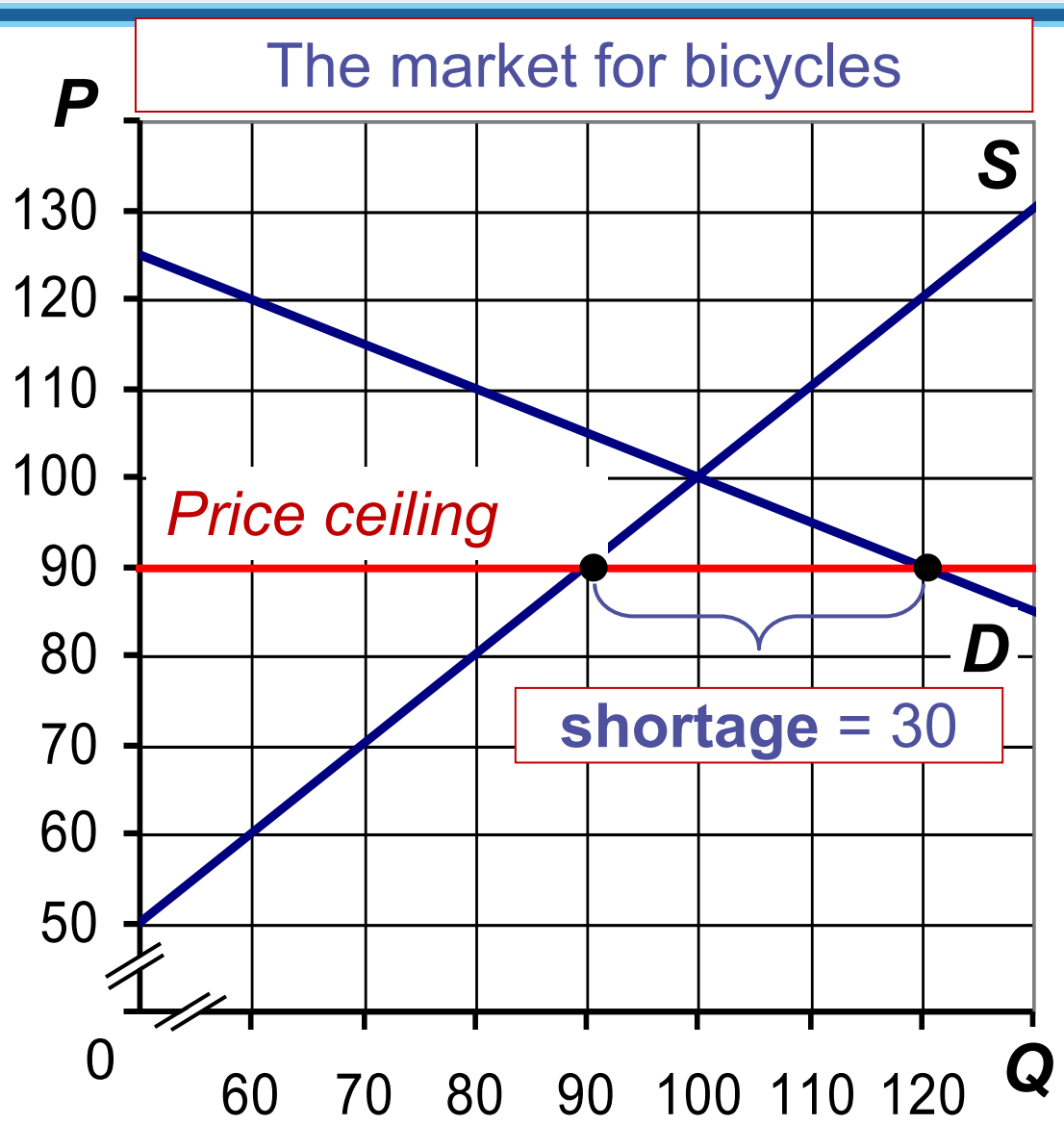
Active Learning 3**A**: $90 price ceiling

The price falls to $90. (binding price ceiling below the equilibrium)

Consumers demand 120 bicycles; sellers supply 90, leaving a shortage of 120-90 = 30 bicycles.



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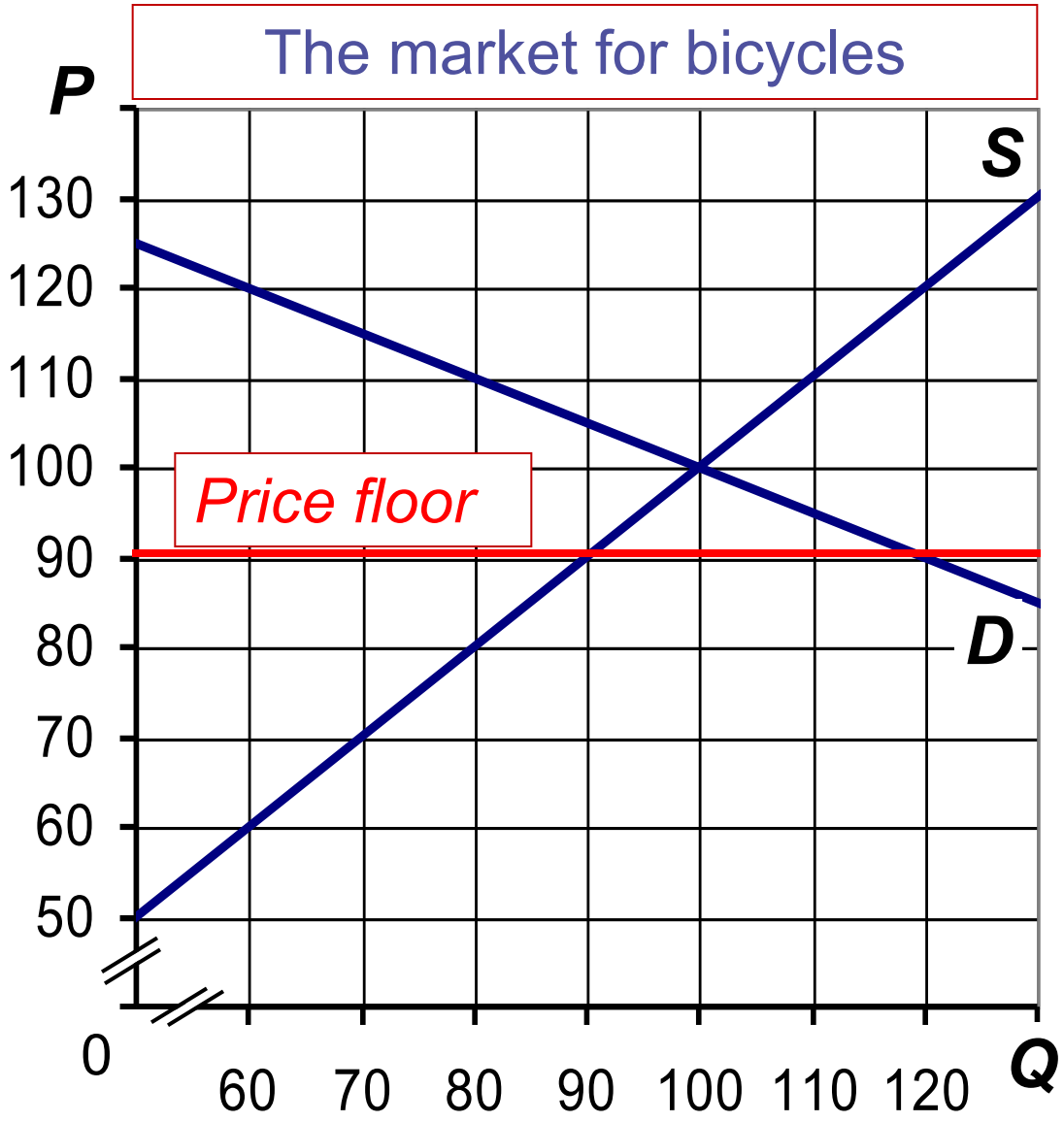
Active Learning 3**B**: $90 price floor

Equilibrium price is above the $90 price floor, so the price floor is not binding.

P = $100,
Q = 100 bicycles.



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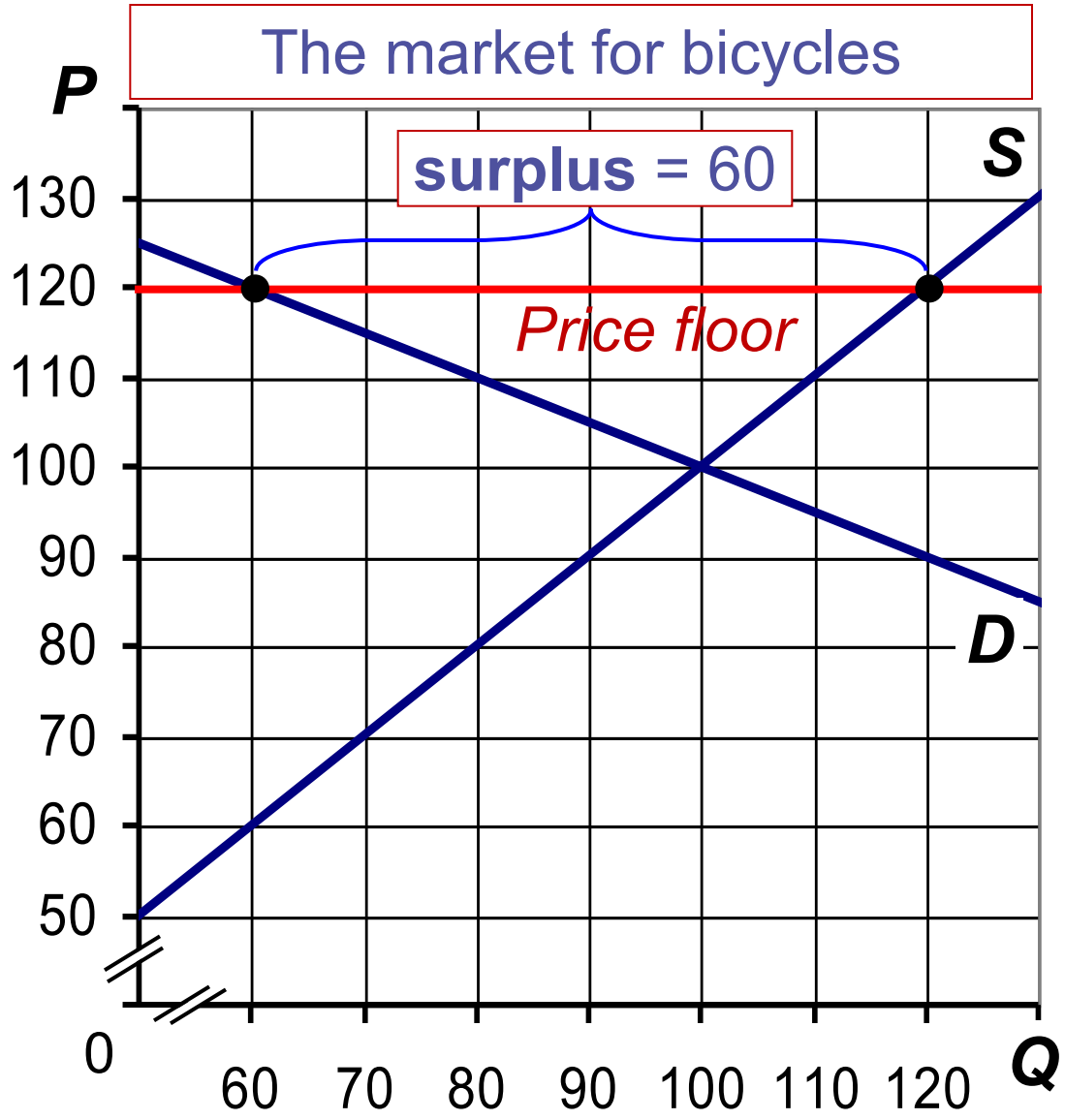
Active Learning 3C: $120 price floor

The price rises to $120. (binding price floor above the equilibrium)

Consumers demand 60 bicycles; sellers supply 120, causing a surplus of 120-60 = 60 bicycles.



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The Surprising Study of Tax Incidence

- Government uses taxes
  - To raise revenue for public projects
    - Roads, schools, and national defense
- Legally, the government can
  - Make the seller or the buyer to pay the tax
- Tax incidence
  - The manner in which the burden of a tax is shared among participants in a market

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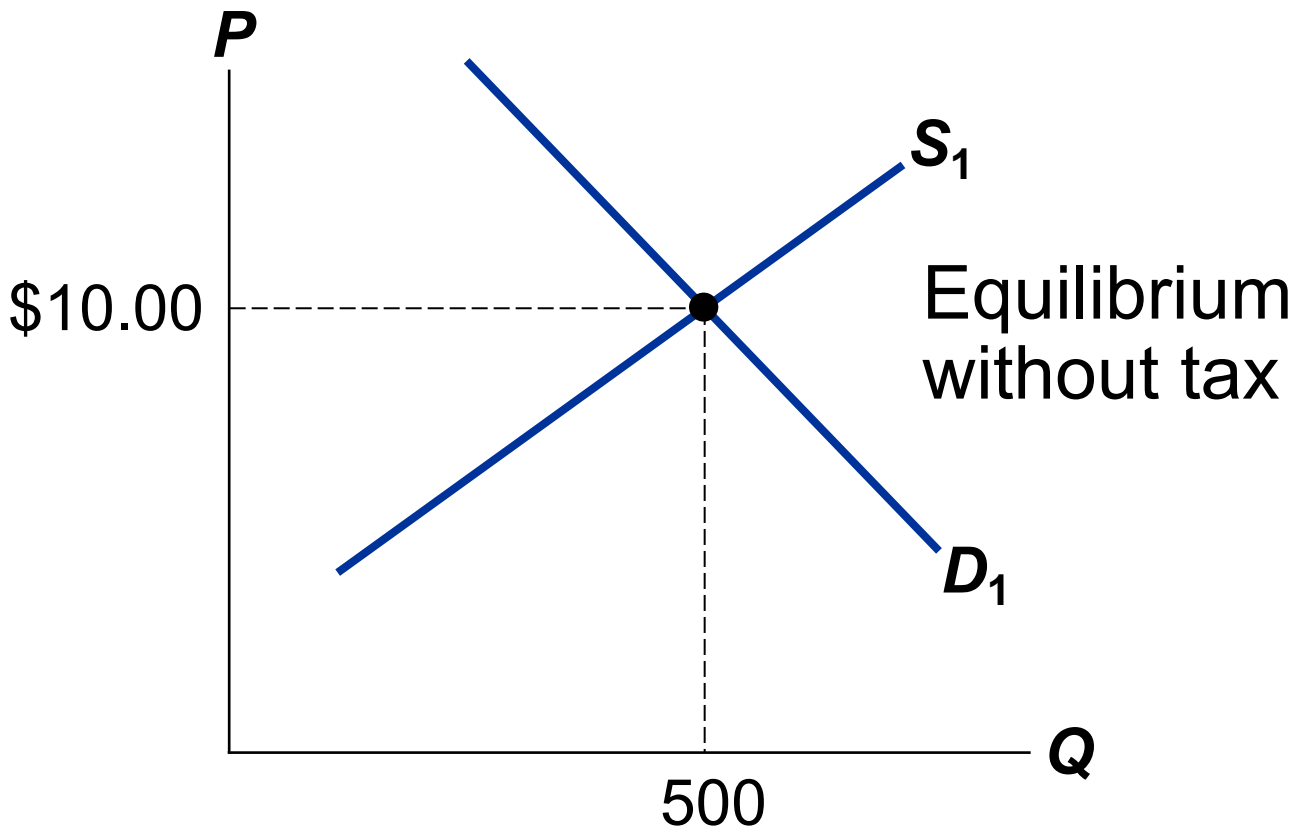
EXAMPLE 3: The market for pizza



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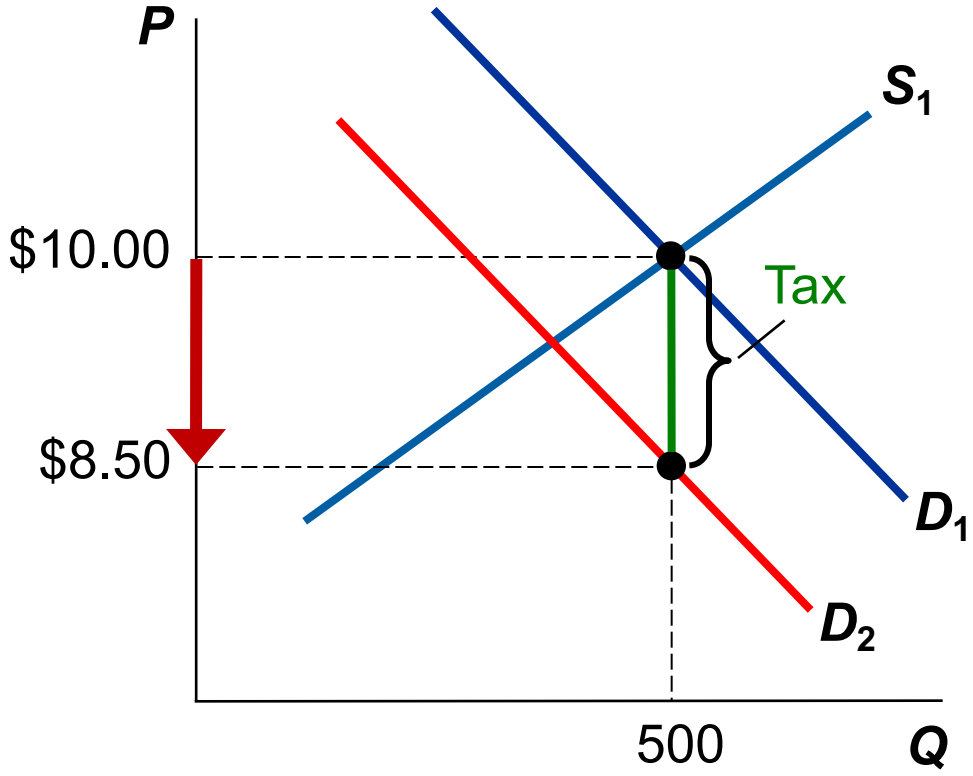
EXAMPLE 3A: A $1.50 tax imposed on buyers

Effects of a $1.50 per unit tax on buyers



Hence, a tax on buyers shifts the ***D*** curve down by the amount of the tax.

The price buyers pay is now $1.50 higher than the market price ***P***.

P would have to fall by $1.50 to make buyers willing to buy same ***Q*** as before.

E.g., if ***P*** falls from $10.00 to $8.50, buyers are willing to purchase 500 pizzas.

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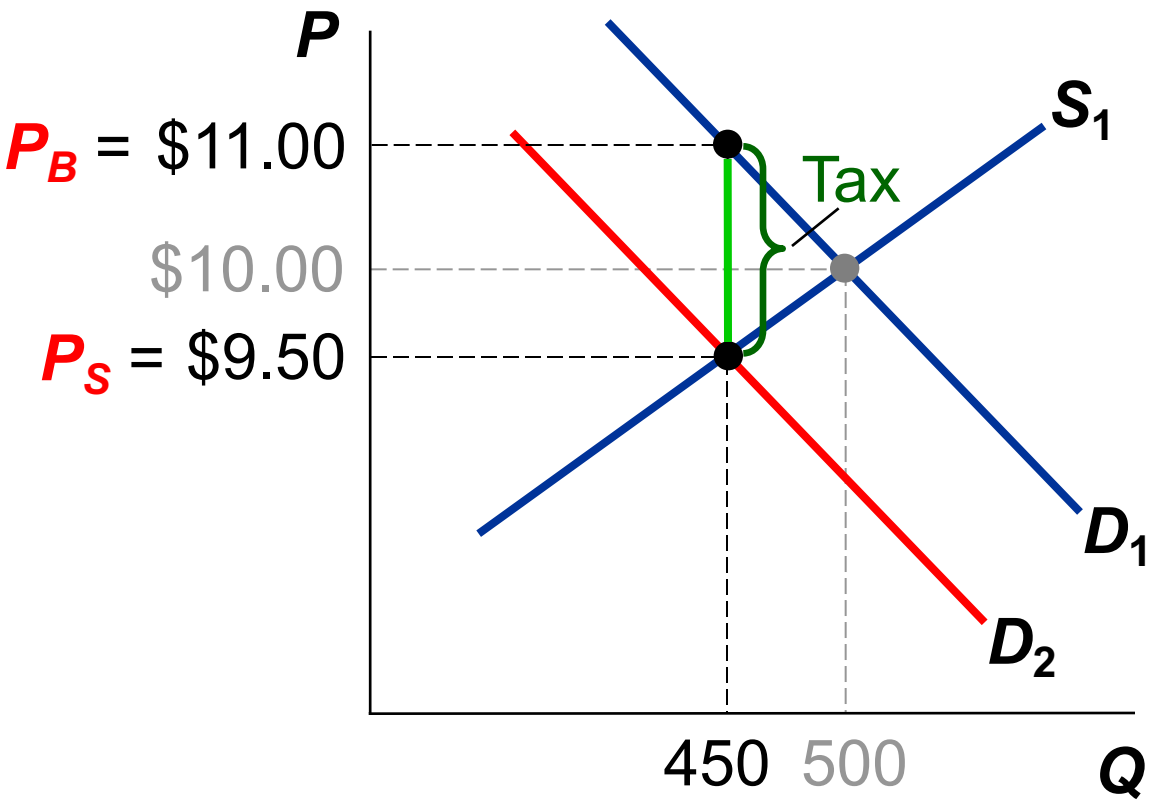
EXAMPLE 3B: The new equilibrium ($1.50 tax on buyers)

Effects of a $1.50 per unit tax on buyers



New equilibrium:

$Q = 450$

Sellers receive

$P_S = \$9.50$

Buyers pay

$P_B = \$11.00$

Difference between them = $P_B - P_S$ = $1.50 = tax

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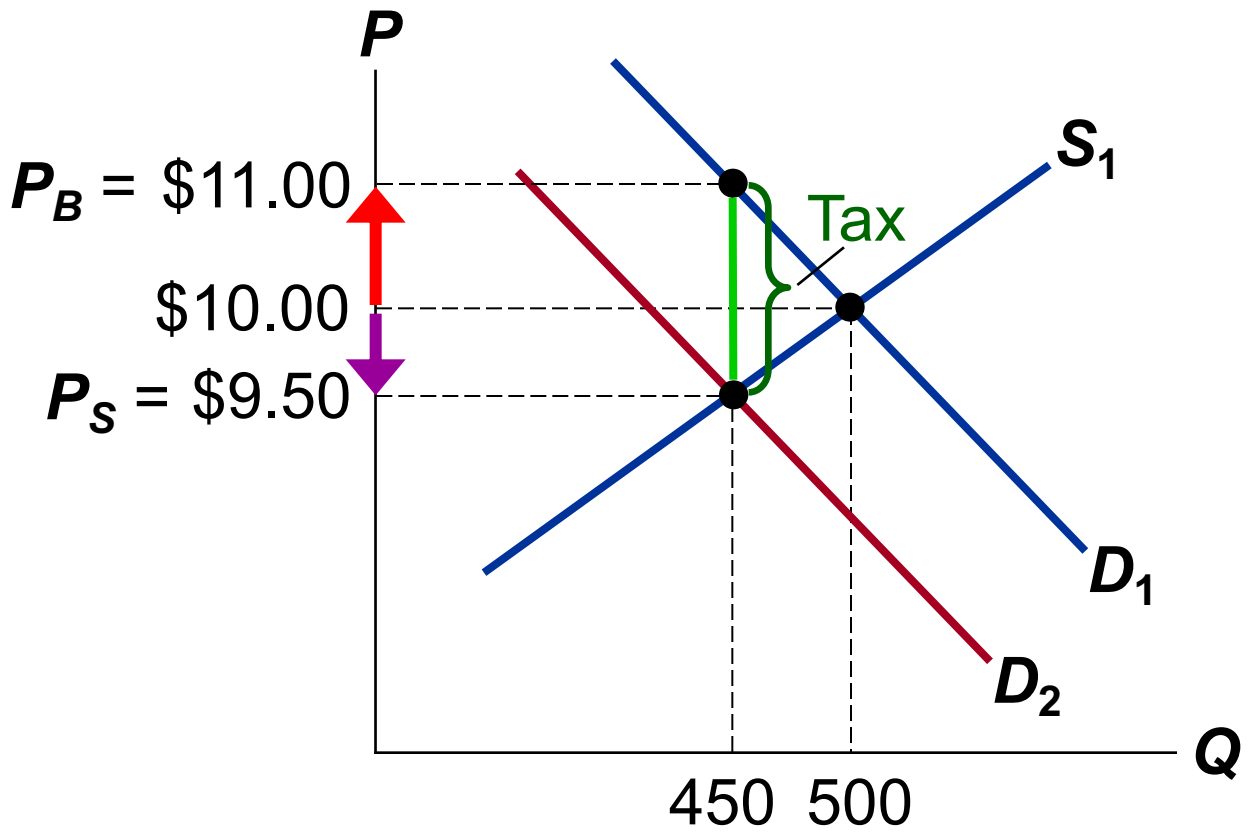
EXAMPLE 3C: The incidence of a tax on buyers

- Tax incidence: how the burden of a tax is shared among market participants

In our example,

buyers pay $1.00 more,

sellers get $0.50 less.



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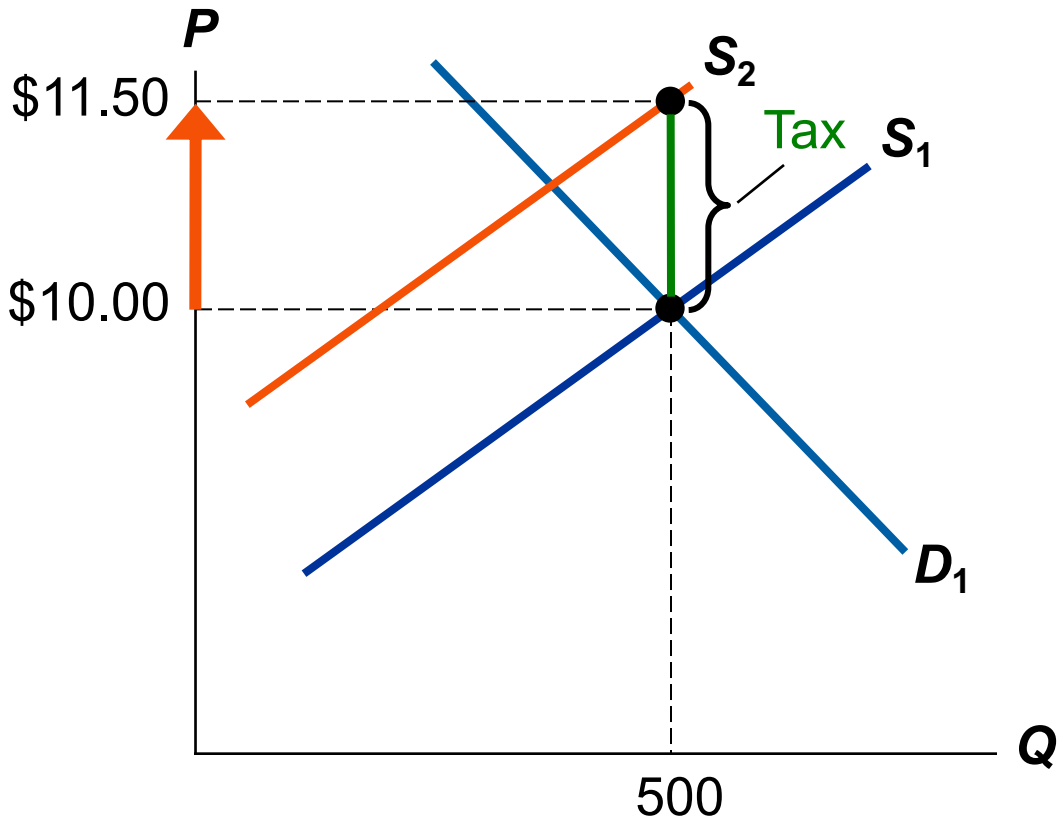
EXAMPLE 4A: A $1.50 tax imposed on sellers

Effects of a $1.50 per unit tax on sellers



The tax effectively raises sellers' costs by $1.50 per pizza.

Sellers will supply 500 pizzas only if ***P*** rises to $11.50, to compensate for this cost increase.

Hence, a tax on sellers shifts the ***S*** curve up by the amount of the tax.

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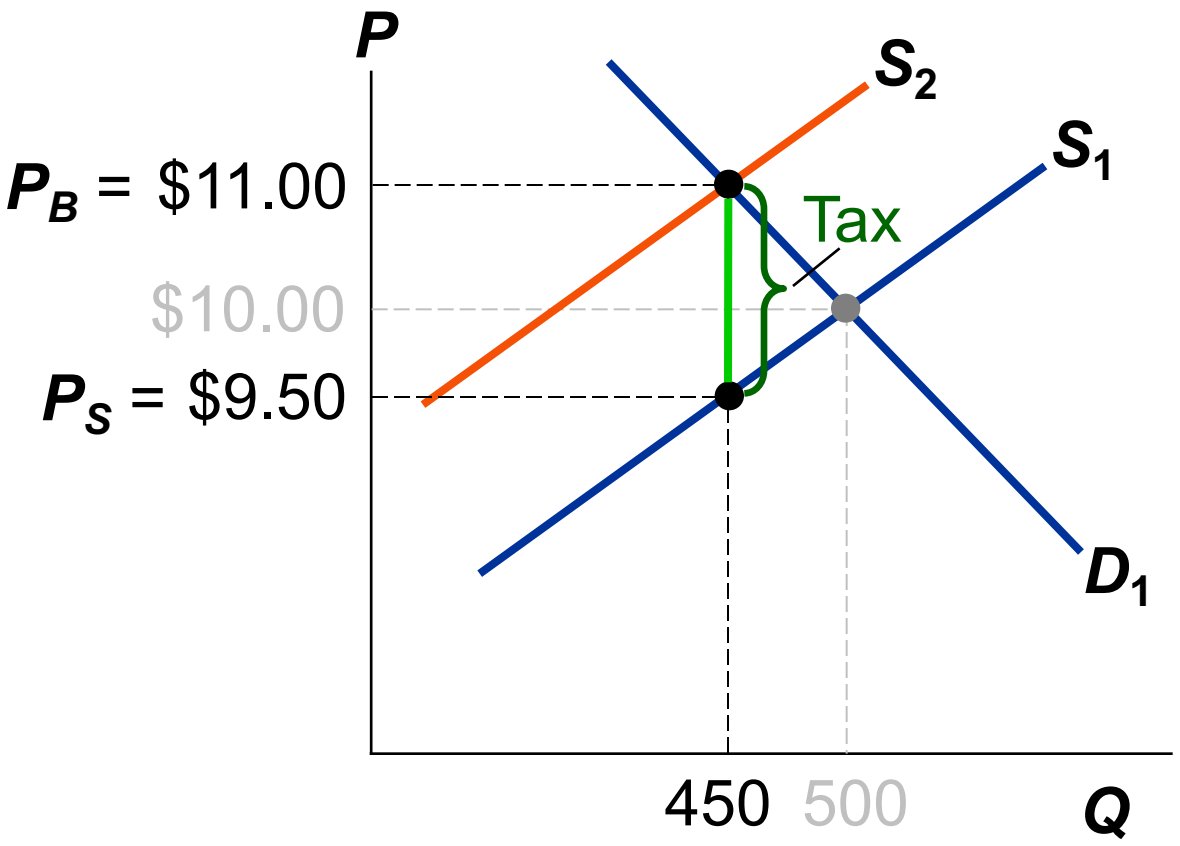
EXAMPLE 4B: The new equilibrium ($1.50 tax on sellers)

Effects of a $1.50 per unit tax on sellers



New equilibrium:

$Q = 450$

Buyers pay

$P_B = \$11.00$

Sellers receive

$P_S = \$9.50$

Difference between them = $1.50 = tax

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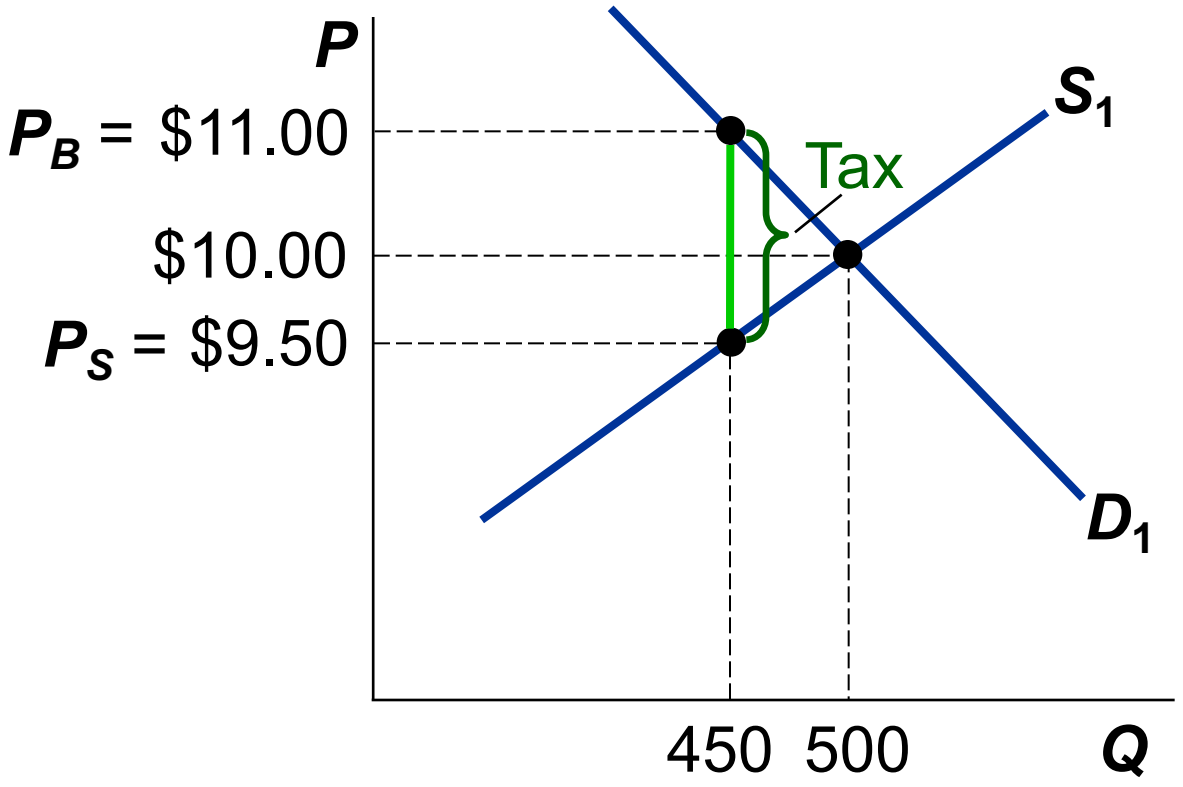
The Outcome is the Same in Both Cases!

The effects on ***P*** and ***Q***, and the tax incidence are the same whether the tax is imposed on buyers or sellers!

A tax drives a wedge between the price buyers pay and the price sellers receive.



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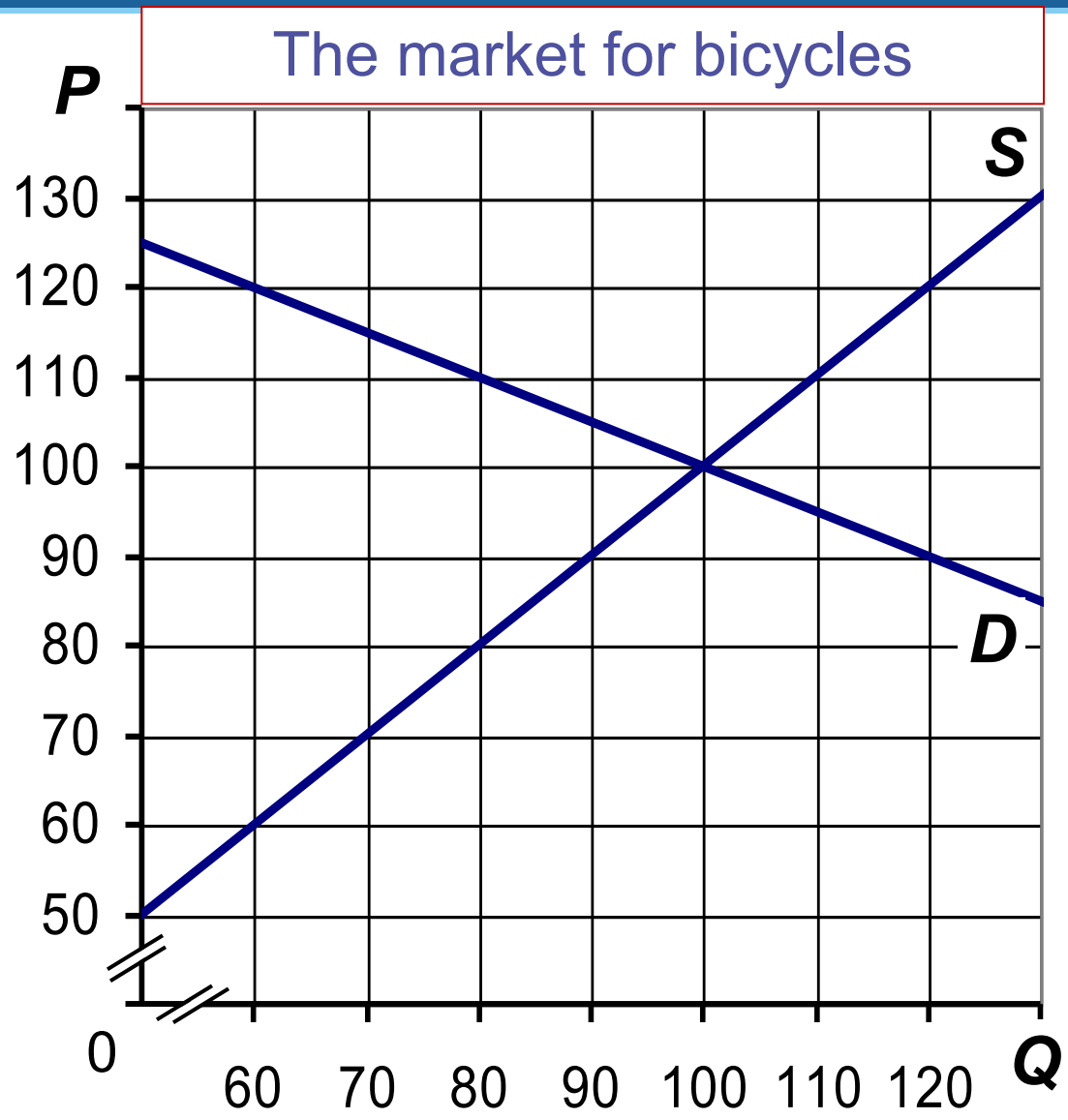
Active Learning 4: Effects of a tax

The market for bicycles is in equilibrium as in the graph. Suppose the government imposes a tax on buyers of $30 per bicycle.

- Find the new Q, P_B, P_S, and incidence of tax.



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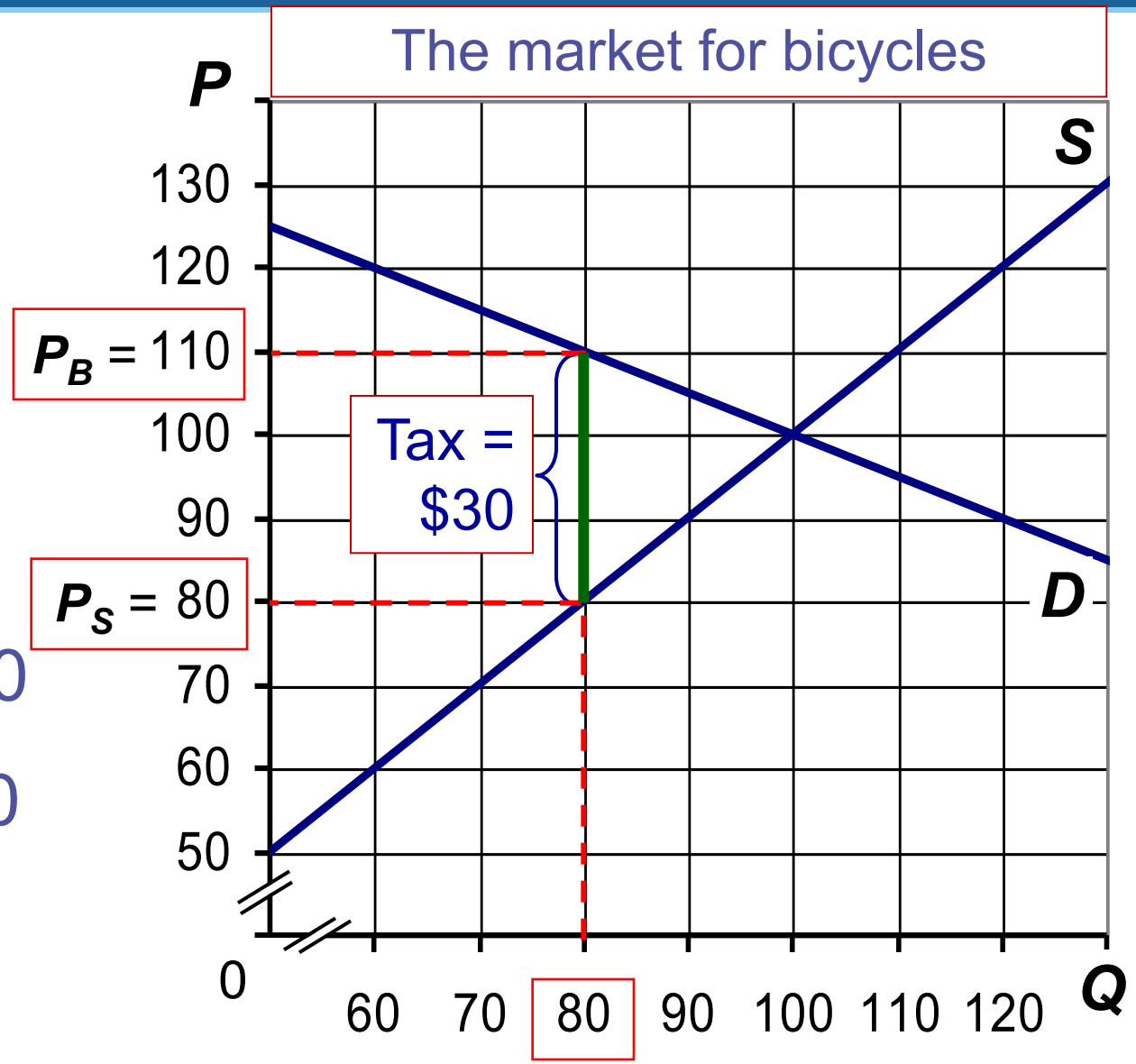
Active Learning 4: Answers

- $Q = 80$
- $P_B = \$110$
- $P_S = \$80$
- Incidence
  - buyers: \$10
  - sellers: \$20



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Elasticity and Tax Incidence

- When a good is taxed
  - Which curve shifts depends on whether the tax is levied on buyers or sellers
    - Irrelevant for determining the tax's incidence
    - Buyers and sellers of the good share the burden of the tax
  - But how exactly is the tax burden divided?
    - Depends on the elasticity of demand and elasticity of supply

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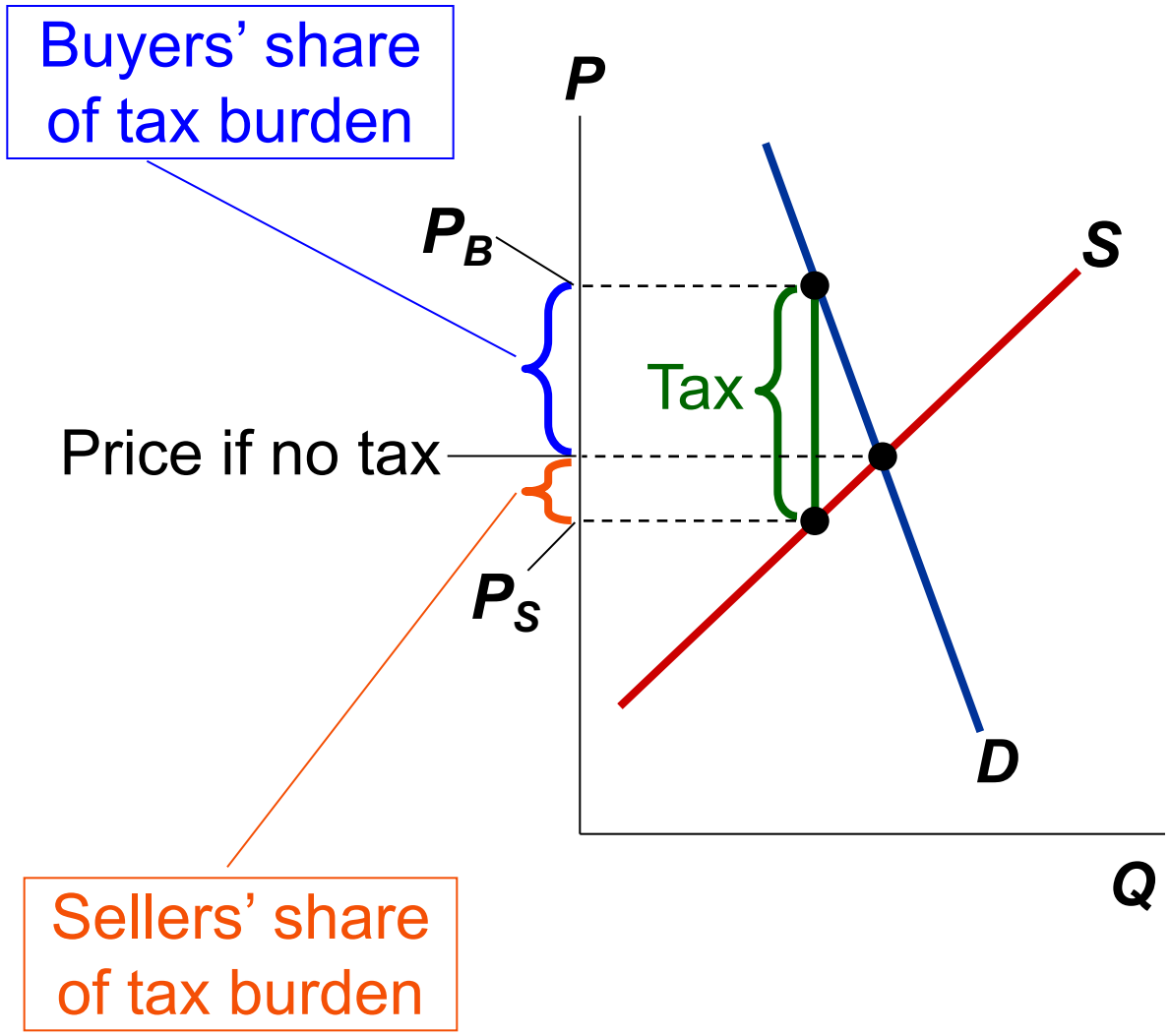
CASE 1: Elastic supply, inelastic demand



It's easier for sellers than buyers to leave the market.

So, buyers bear most of the burden of the tax.

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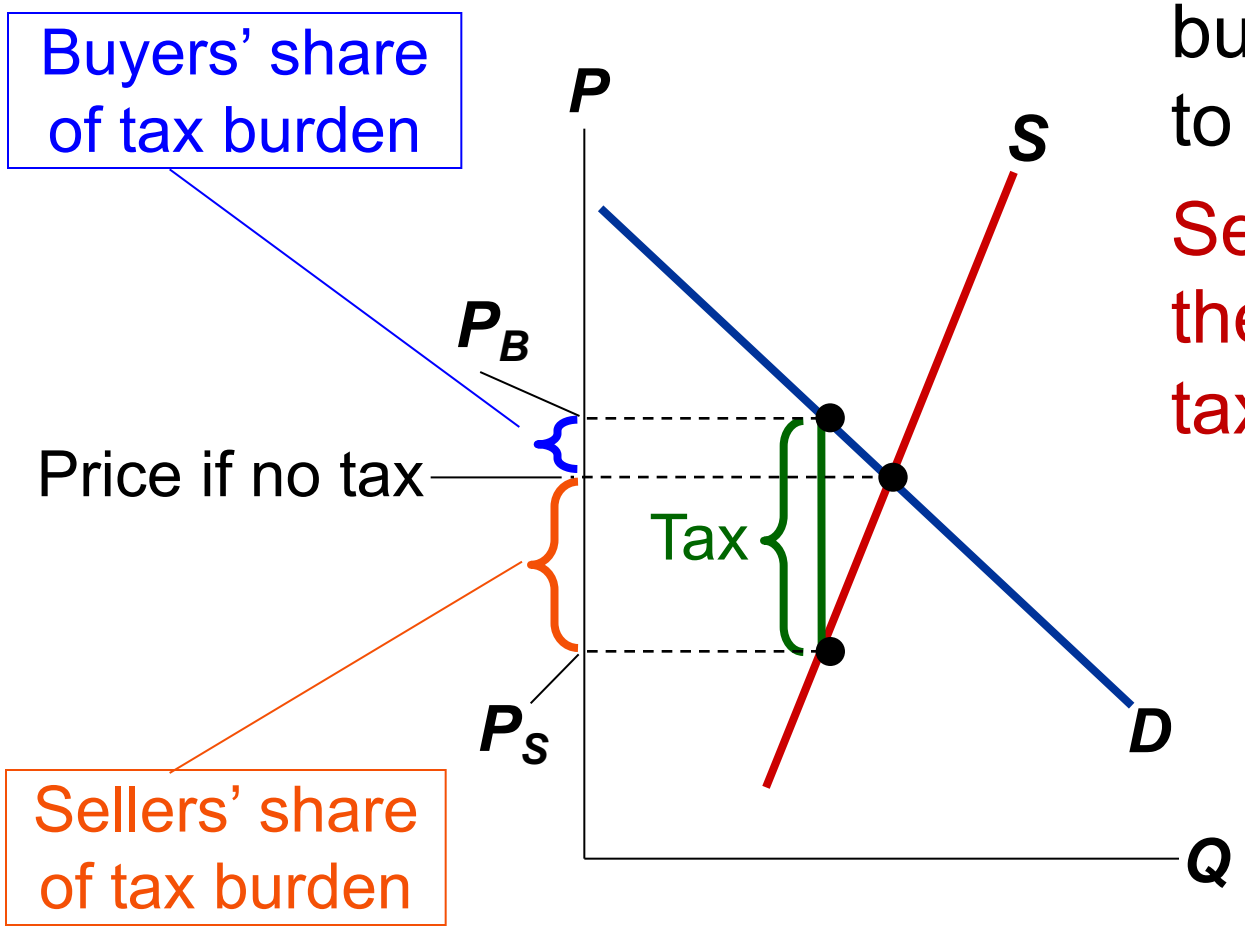
CASE 2: Inelastic supply, elastic demand



It's easier for buyers than sellers to leave the market.

Sellers bear most of the burden of the tax.

A tax burden falls more heavily on the side of the market that is less elastic.

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CASE STUDY

Who pays the luxury tax?

- 1990, Congress adopted a new luxury tax
  - On yachts, private airplanes, furs, jewelry, high-end cars
  - Goal: to raise revenue from those who could most easily afford to pay
  - Luxury items
    - Demand is quite elastic
    - Supply is relatively inelastic
    - The tax burden falls largely on the suppliers

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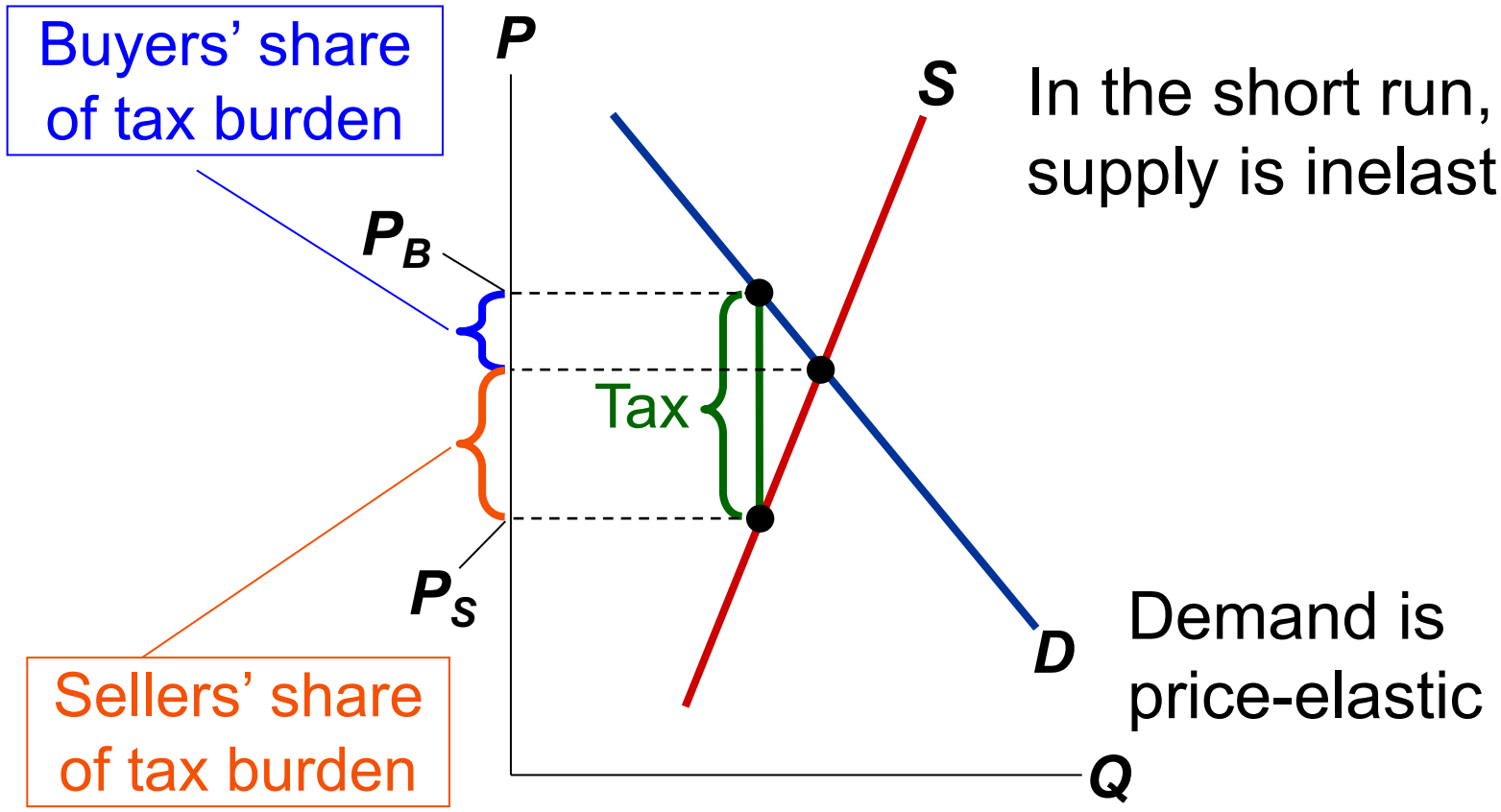
CASE STUDY

Who Pays the Luxury Tax?

The market for yachts



Hence, companies that build yachts pay most of the tax.

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THINK-PAIR-SHARE

Suppose that your state needs to raise more tax revenue. The governor proposes a tax on food because everyone must eat and, thus, a food tax would surely raise a great deal of tax revenue. He insists the tax should be placed on food sellers to protect the poor who spend a large proportion of their income on food.

A. Will the burden of a food tax fall only on the sellers of food as the governor said? Explain.

B. Who will bear most of this tax burden? Explain.

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CHAPTER IN A NUTSHELL

- A price ceiling is a legal maximum on the price of a good or service. Example: rent control.
  - Binding if below the equilibrium price: shortage.
  - Sellers must somehow ration the good or service among buyers.
- A price floor is a legal minimum on the price of a good or service. Example: minimum wage.
  - Binding if above the equilibrium price: surplus.
  - Buyers' demands for the good or service must in some way be rationed among sellers.

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CHAPTER IN A NUTSHELL

- When the government levies a tax on a good, the equilibrium quantity of the good falls.
  - A tax on a market shrinks the market's size
  - The tax places a wedge between the price paid by buyers and the price received by sellers.
  - Buyers pay more for the good and sellers receive less for it.
- The incidence of tax depends on the price elasticities of supply and demand.
  - Most of the burden falls on the side of the market that is less elastic.

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