

CHAPTER

Supply, Demand, and Government Policies

PRINCIPLES OF
Economics

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Premium PowerPoint Slides
by Vance Ginn & Ron Cronovich



**In this chapter,
look for the answers to these questions:**

- What are price ceilings and price floors?
What are some examples of each?
- How do price ceilings and price floors affect market outcomes?
- How do taxes affect market outcomes?
How do the effects depend on whether the tax is imposed on buyers or sellers?
- What is the incidence of a tax?
What determines the incidence?

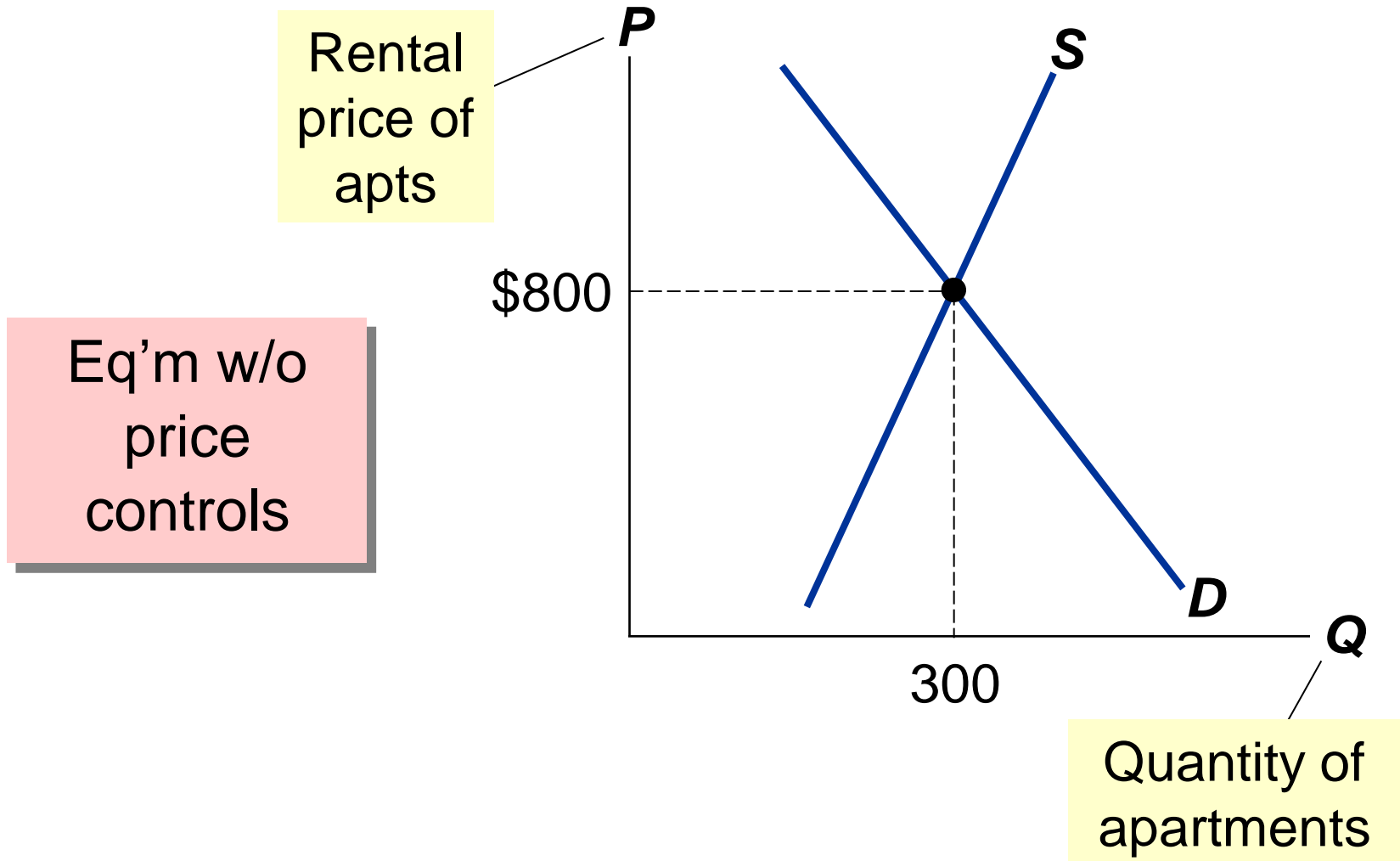
Government Policies That Alter the Private Market Outcome

- Price controls (video)
 - Price ceiling: a legal maximum on the price of a good or service *Example: rent control*
 - Price floor: a legal minimum on the price of a good or service *Example: minimum wage*
- Taxes
 - The govt can make buyers or sellers pay a specific amount on each unit bought/sold.

We will use the supply/demand model to see how each policy affects the market outcome (the price buyers pay, the price sellers receive, and eq'm quantity).

EXAMPLE 1: The Market for Apartments

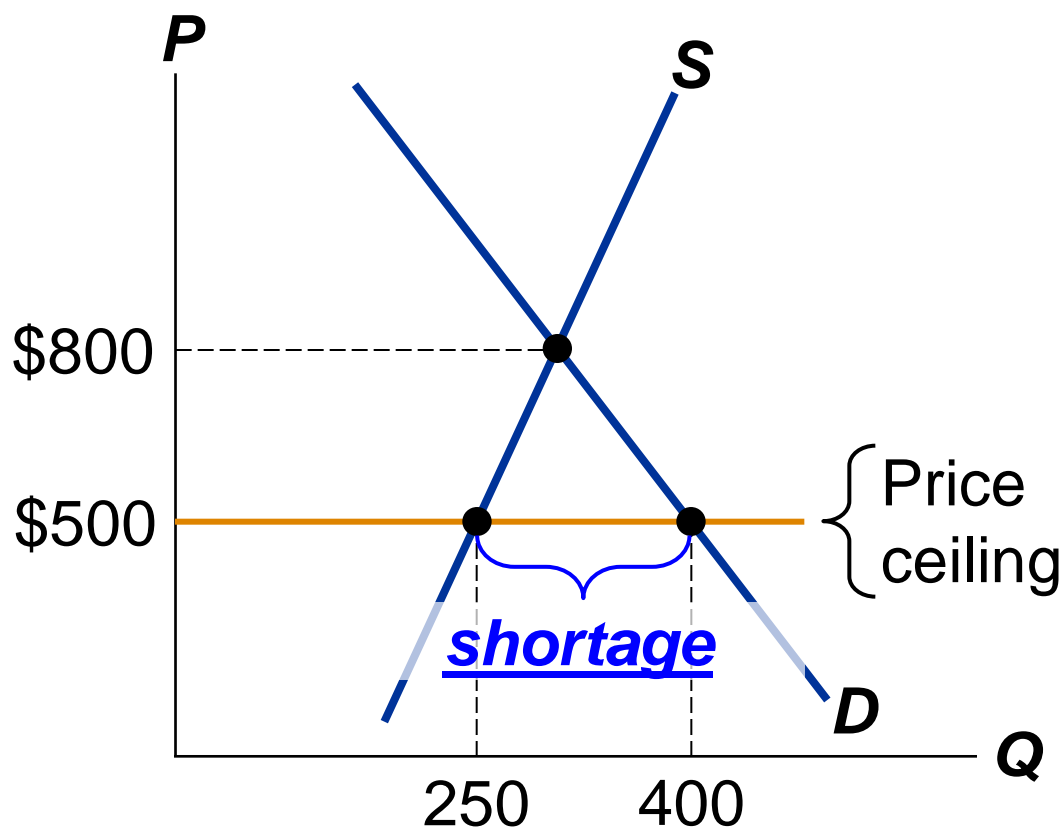
Price Ceiling - Rent Control



How Price Ceilings Affect Market Outcomes

The eq'm price (\$800) is above the ceiling and therefore

The ceiling is a **binding constraint** on the price, causes a shortage.

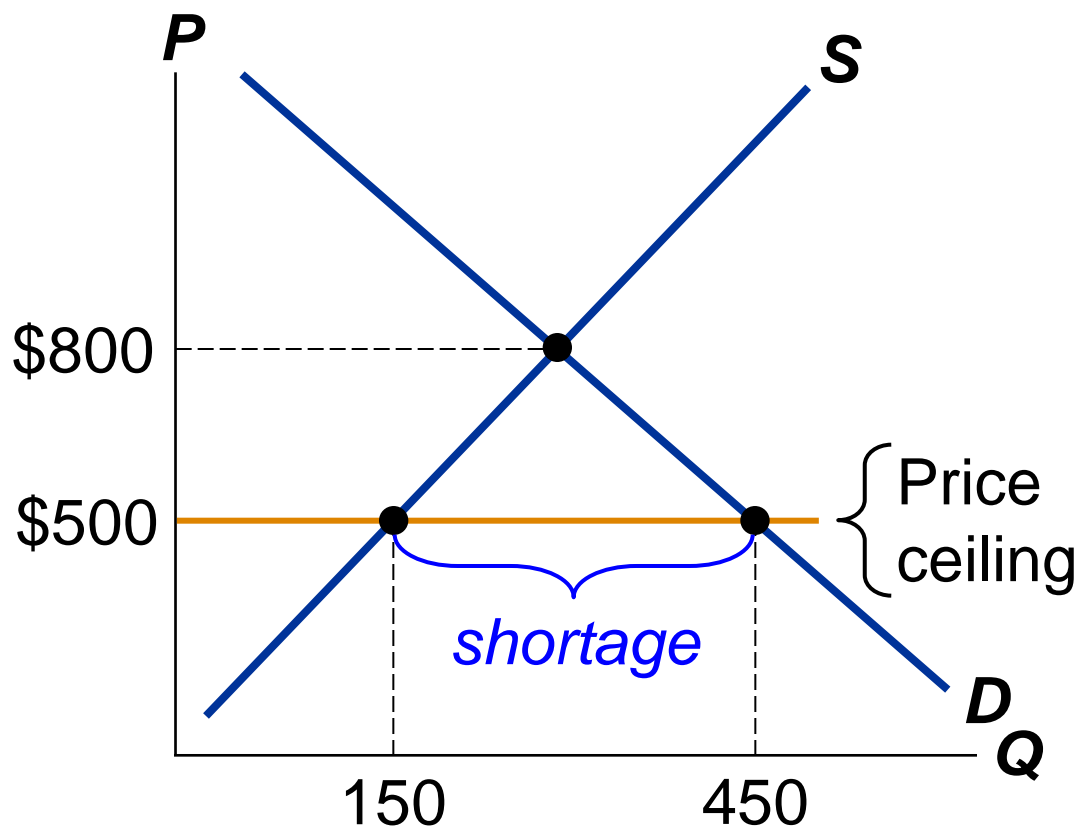


How Price Ceilings Affect Market Outcomes

In the long run,
supply and
demand
are more



So, the
shortage
is larger.



Shortages and Rationing

- With a shortage, sellers must

- Some

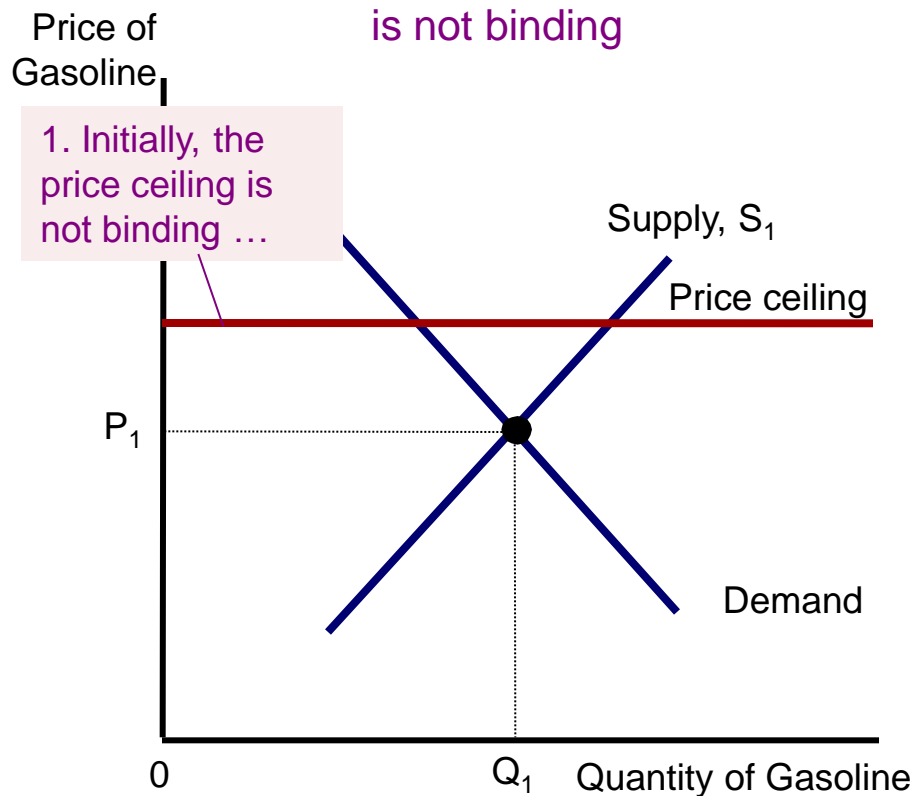
:
 - (1) Long lines
 - (2) Discrimination according to sellers' biases
- These mechanisms are often unfair, and inefficient.
- In contrast, when prices are not controlled, the rationing mechanism is efficient (the goods go to the buyers that value them most highly) and impersonal (and thus fair).

Example 1.5: Lines at the gas pump

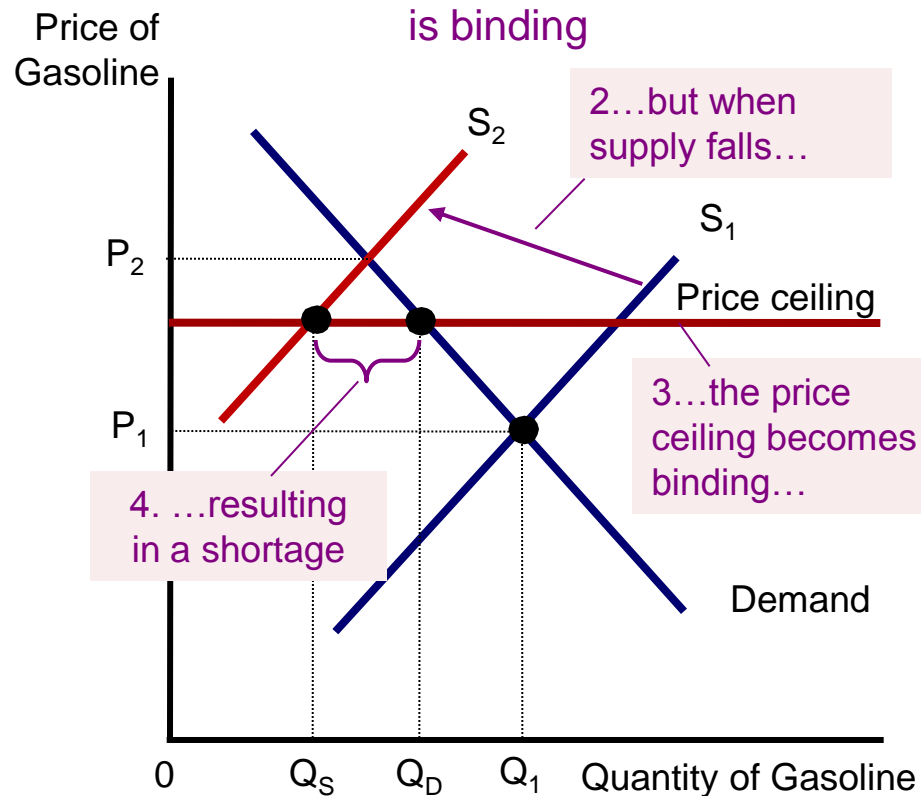
- 1973, OPEC raised the price of crude oil
 - Reduced the supply of gasoline
 - Long lines at gas stations
- What was responsible for the long gas lines?
 - OPEC: created shortage of gasoline
 - U.S. government regulations: price ceiling on gasoline
 - Before OPEC raised the price of crude oil
 - Equilibrium price - below price ceiling: no effect
 - When the price of crude oil rose
 - Reduced the supply of gasoline
 - Equilibrium price – above price ceiling: shortage

The market for gasoline with a price ceiling

(a) The price ceiling on gasoline is not binding



(b) The price ceiling on gasoline is binding



Panel (a) shows the gasoline market when the price ceiling is not binding because the equilibrium price, P_1 , is below the ceiling. Panel (b) shows the gasoline market after an increase in the price of crude oil (an input into making gasoline) shifts the supply curve to the left from S_1 to S_2 . In an unregulated market, the price would have risen from P_1 to P_2 . The price ceiling, however, prevents this from happening. At the binding price ceiling, consumers are willing to buy Q_D , but producers of gasoline are willing to sell only Q_S . The difference between quantity demanded and quantity supplied, $Q_D - Q_S$, measures the gasoline shortage.

Example 2: Price Floor

The minimum wage

- Price floor: [minimum wage](#) (video)
 - Lowest legal price for labor that any employer may pay
- Fair Labor Standards Act of 1938
 - Ensure workers a minimally adequate standard of living
- Now at _____ per hour

The minimum wage

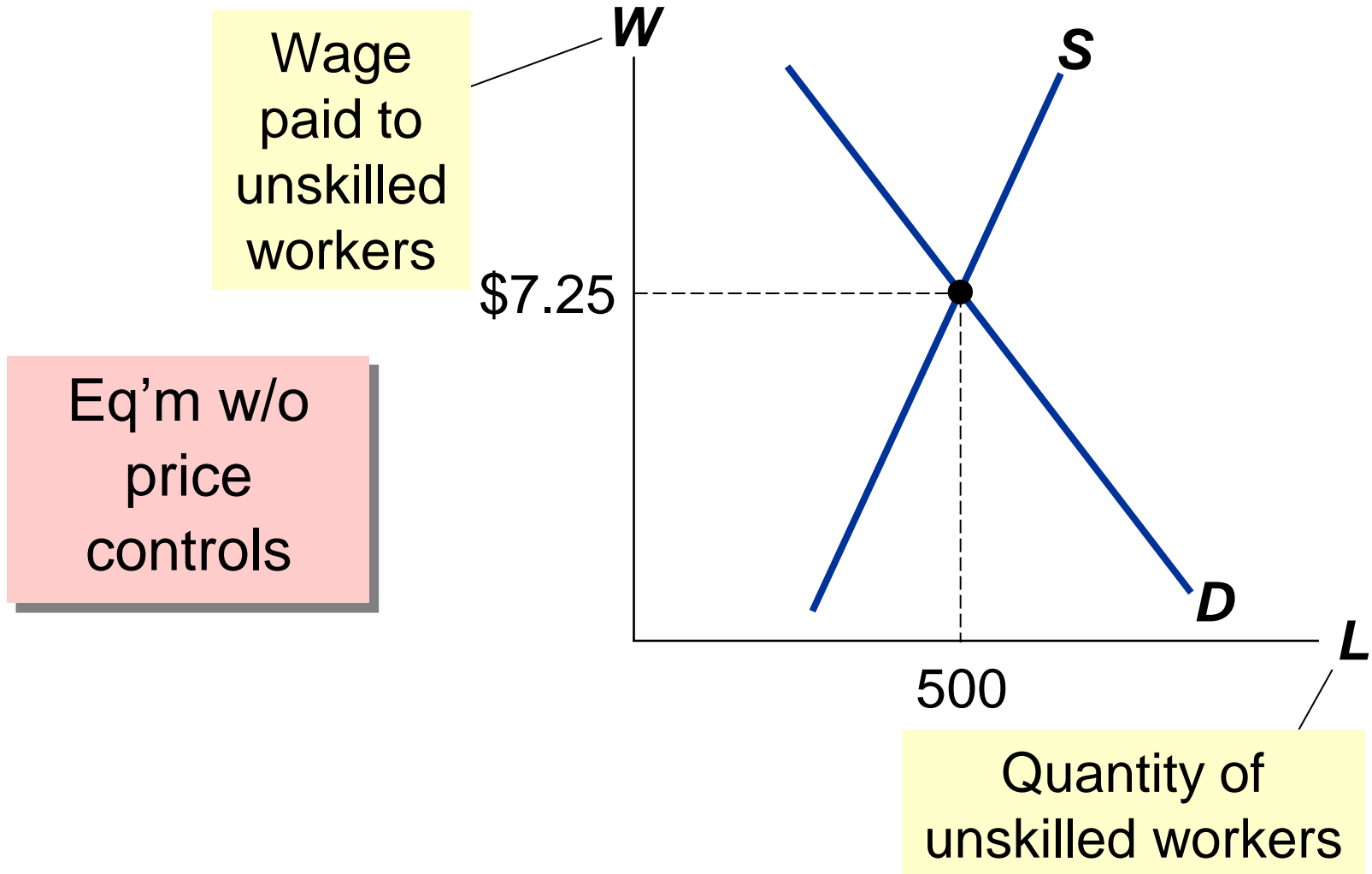
- Market for labor
 - Workers - _____
 - Firms – _____
- If minimum wage – above equilibrium
 - Unemployment
 - Higher income - workers who have jobs
 - Lower income - workers who cannot find jobs

The minimum wage

- Impact of the minimum wage
 - Workers with high skills and much experience
 - Not affected: Equilibrium wages - above the minimum
 - Minimum wage - not binding
 - Teenage labor – least skilled and least experienced
 - Low equilibrium wages
 - Willing to accept a lower wage in exchange for on-the-job training
 - Minimum wage – binding

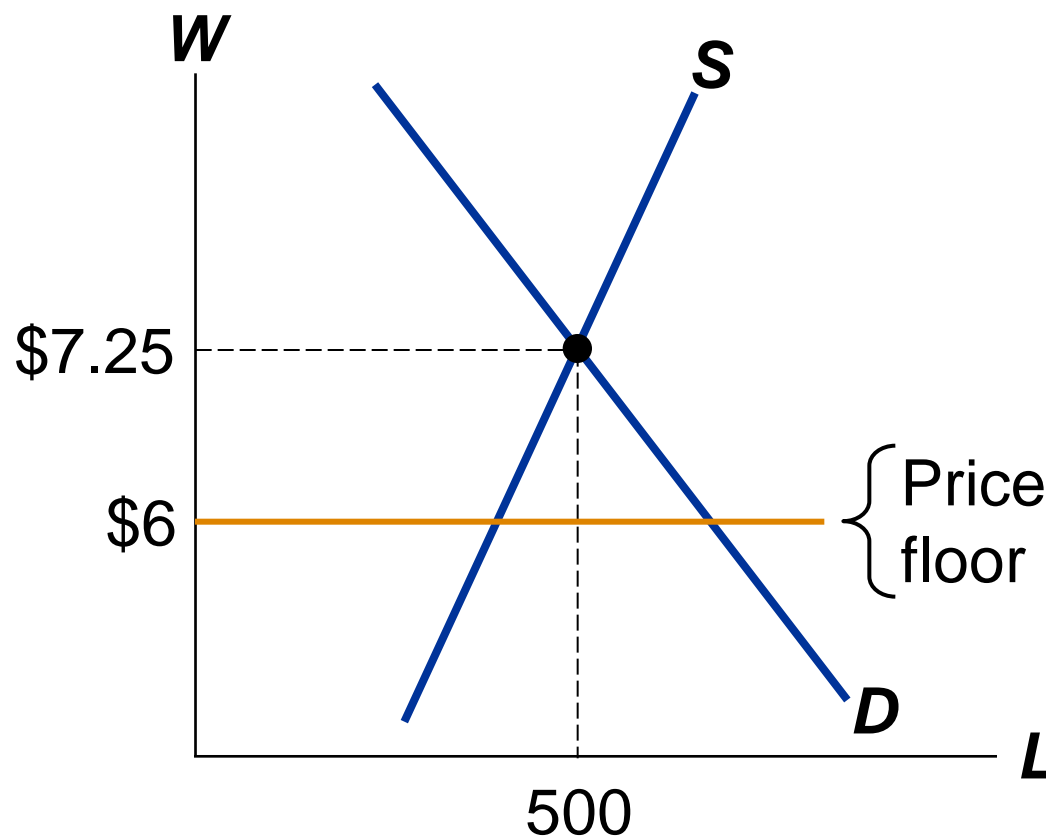
EXAMPLE 2: The Market for Unskilled Labor

Price Floor - Minimum Wage



How Price Floors Affect Market Outcomes

A price floor
_____ the
eq'm price is
not binding –
has no effect
on the market
outcome.

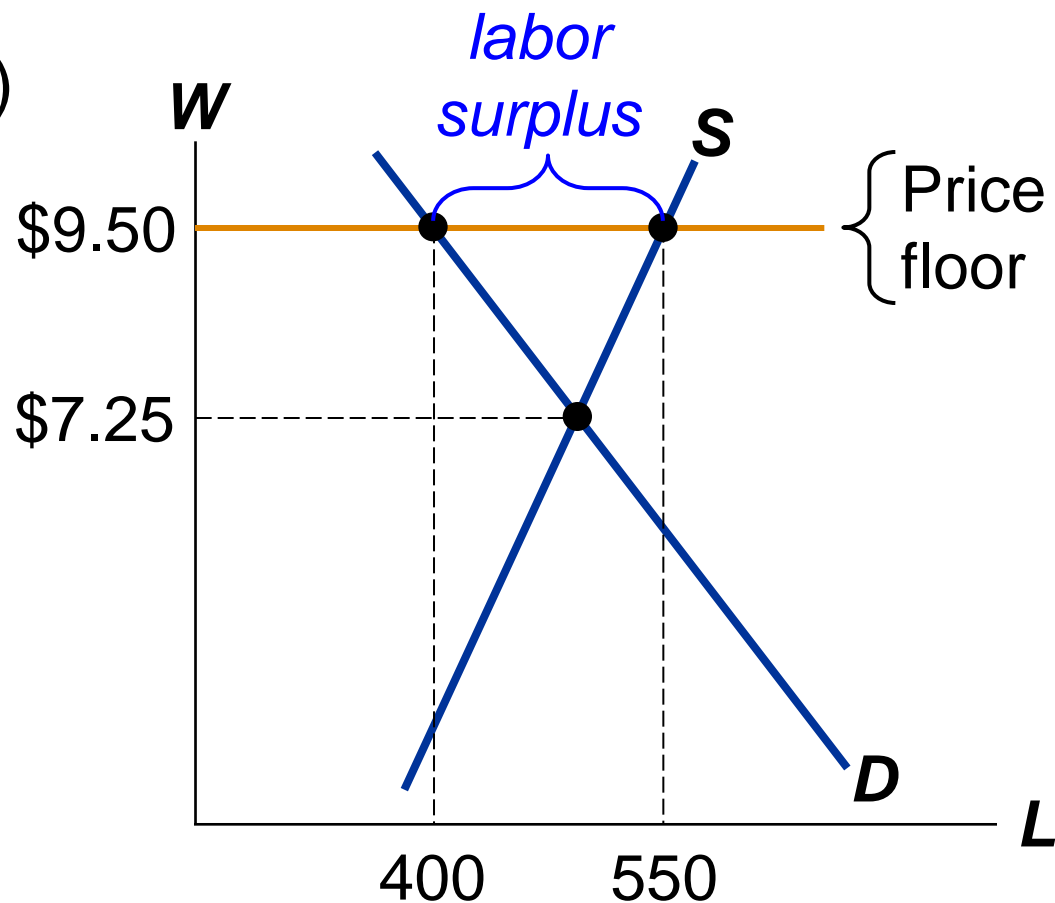


How Price Floors Affect Market Outcomes

The eq'm wage (\$4) is below the floor and therefore illegal.

The floor is a **binding constraint** on the wage, causes a

(i.e., unemployment).



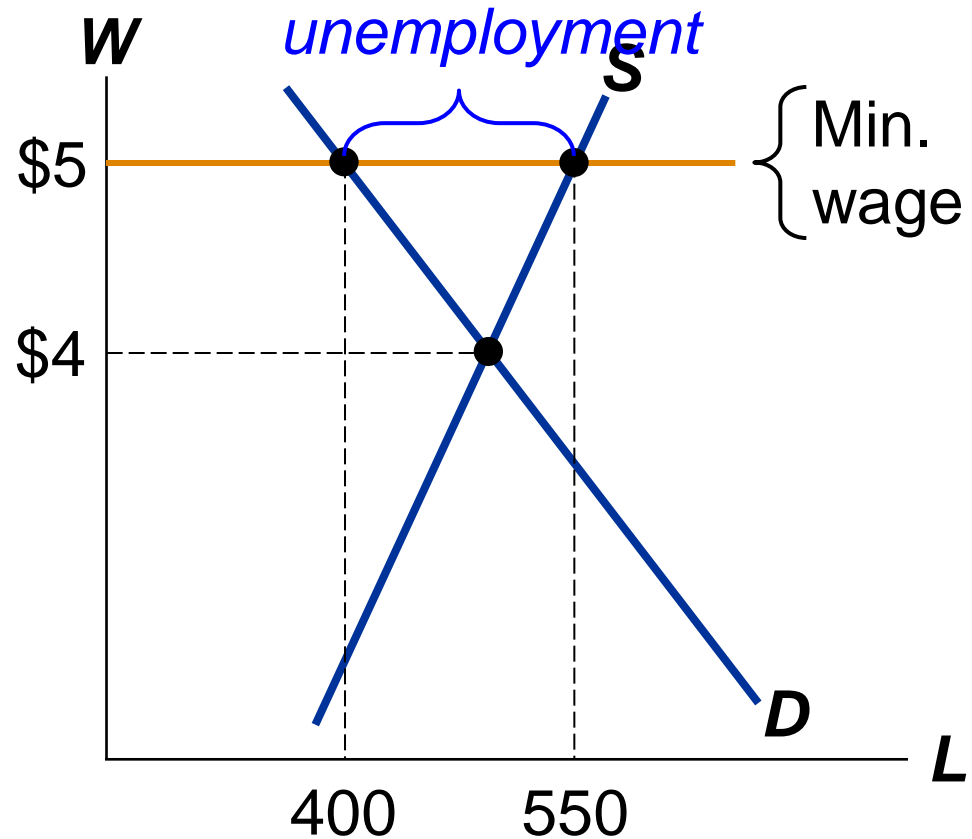
The Minimum Wage

Min wage laws do not affect highly skilled workers.

They do affect teen workers.

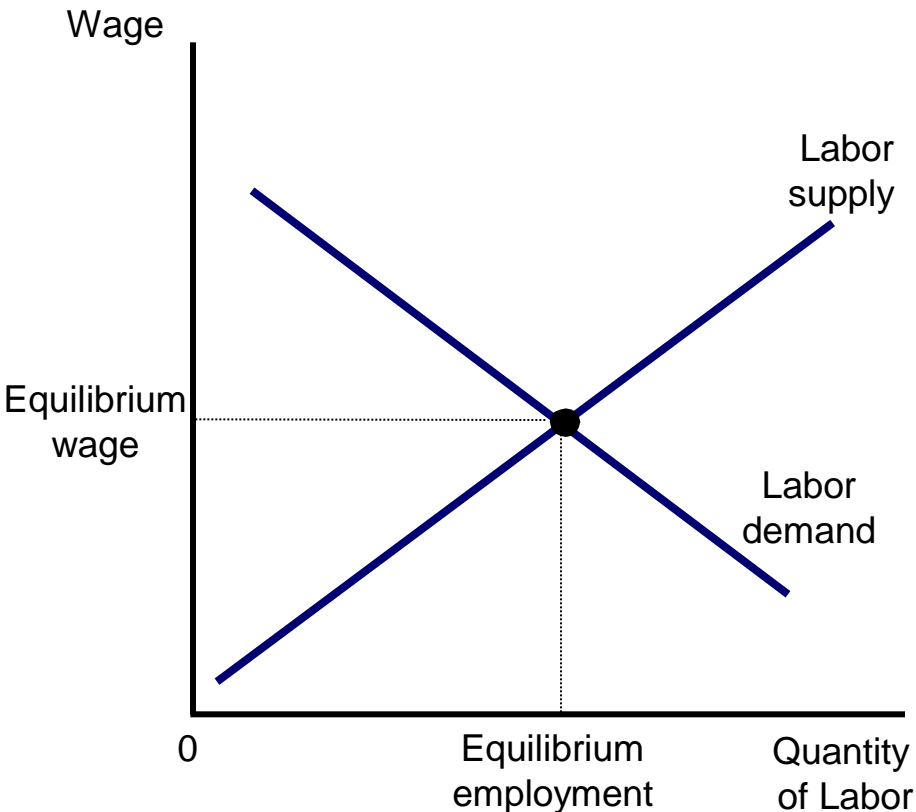
Studies:

A 10% increase in the min wage raises teen unemployment by 1-3%.

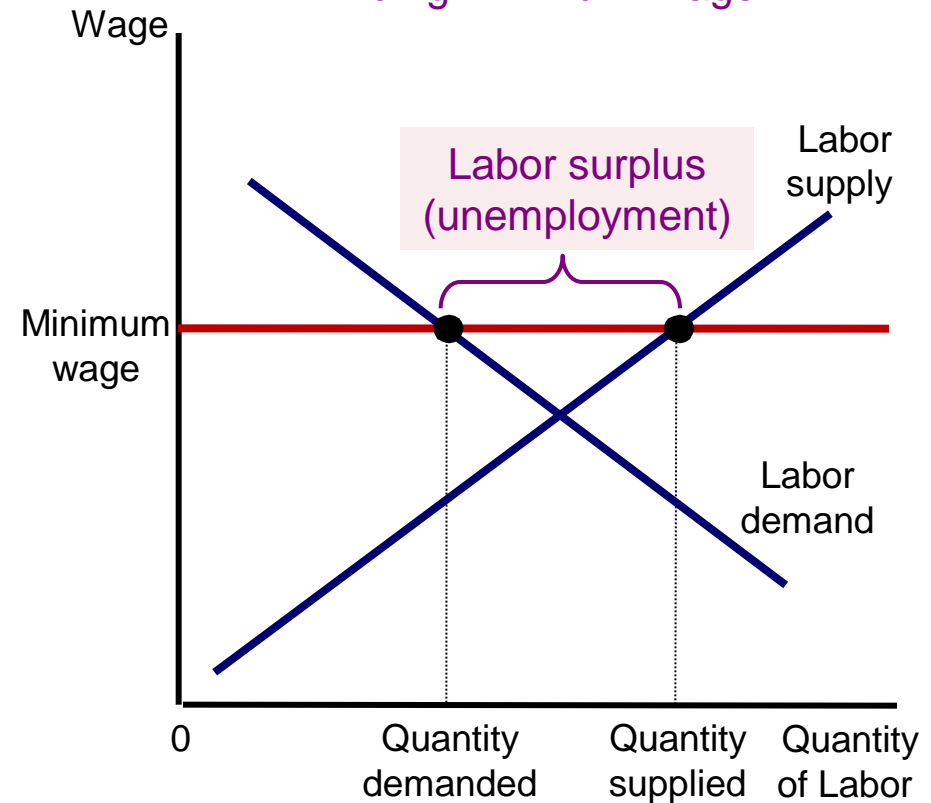


How the minimum wage affects the labor market

(a) A free labor market



(b) A Labor Market with a Binding Minimum Wage



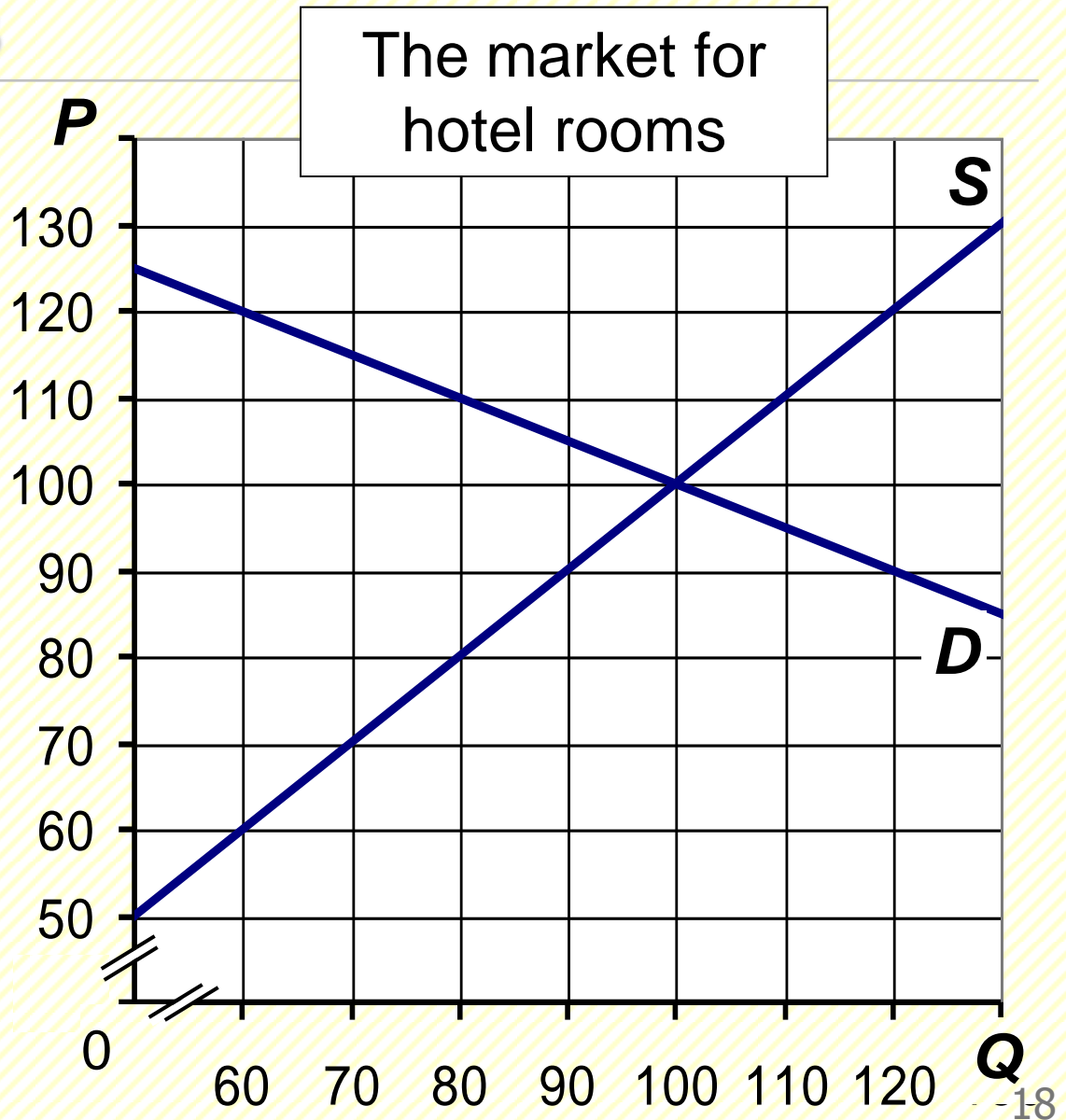
Panel (a) shows a labor market in which the wage adjusts to balance labor supply and labor demand. Panel (b) shows the impact of a binding minimum wage. Because the minimum wage is a price floor, it causes a surplus: The quantity of labor supplied exceeds the quantity demanded. The result is unemployment.

ACTIVE LEARNING 1

Price controls

Determine effects of:

- A. \$90 price ceiling
- B. \$90 price floor
- C. \$120 price floor

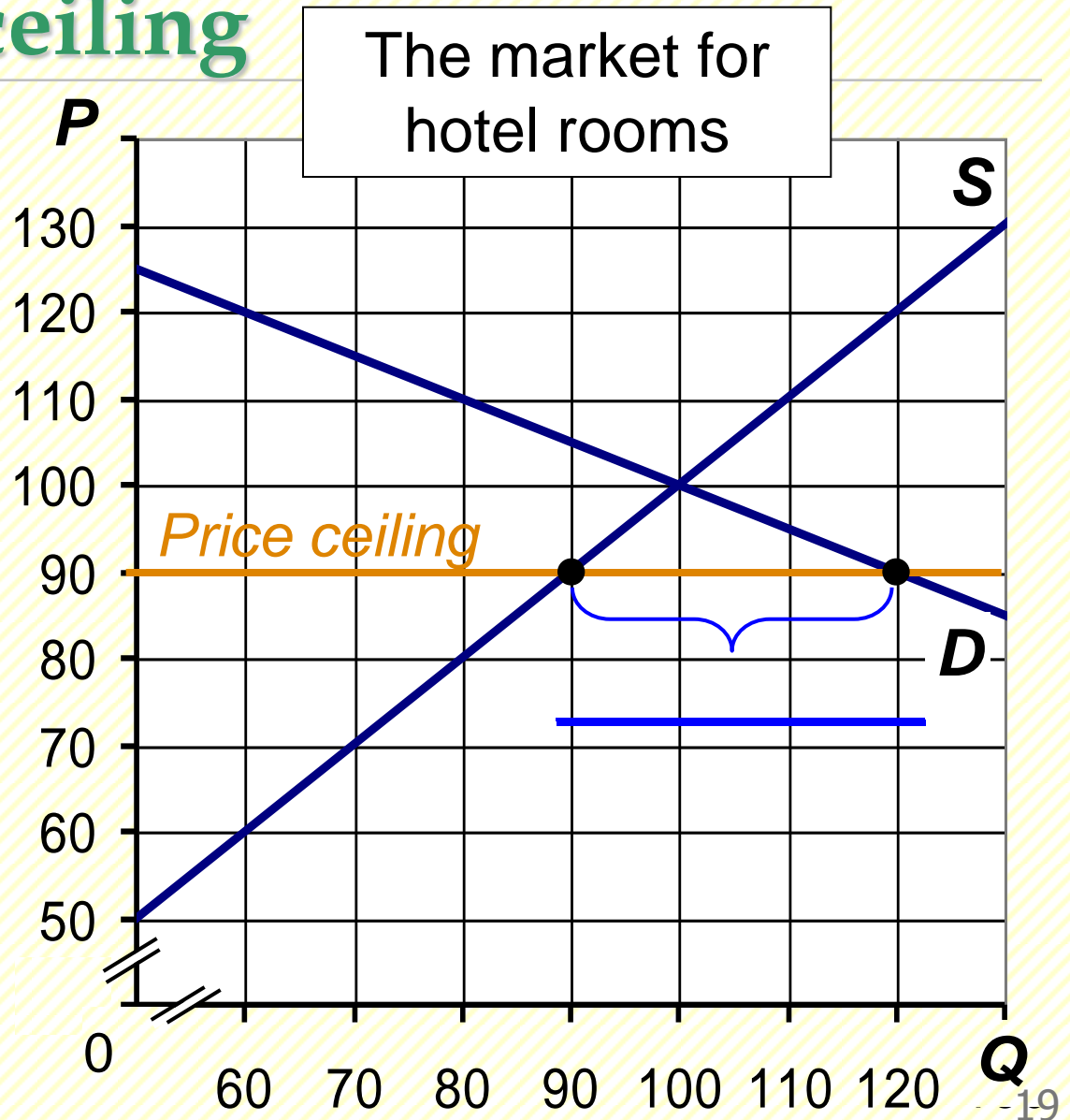


ACTIVE LEARNING 1

A. \$90 price ceiling

The price falls to \$90.

Buyers demand 120 rooms, sellers supply 90, leaving a shortage.

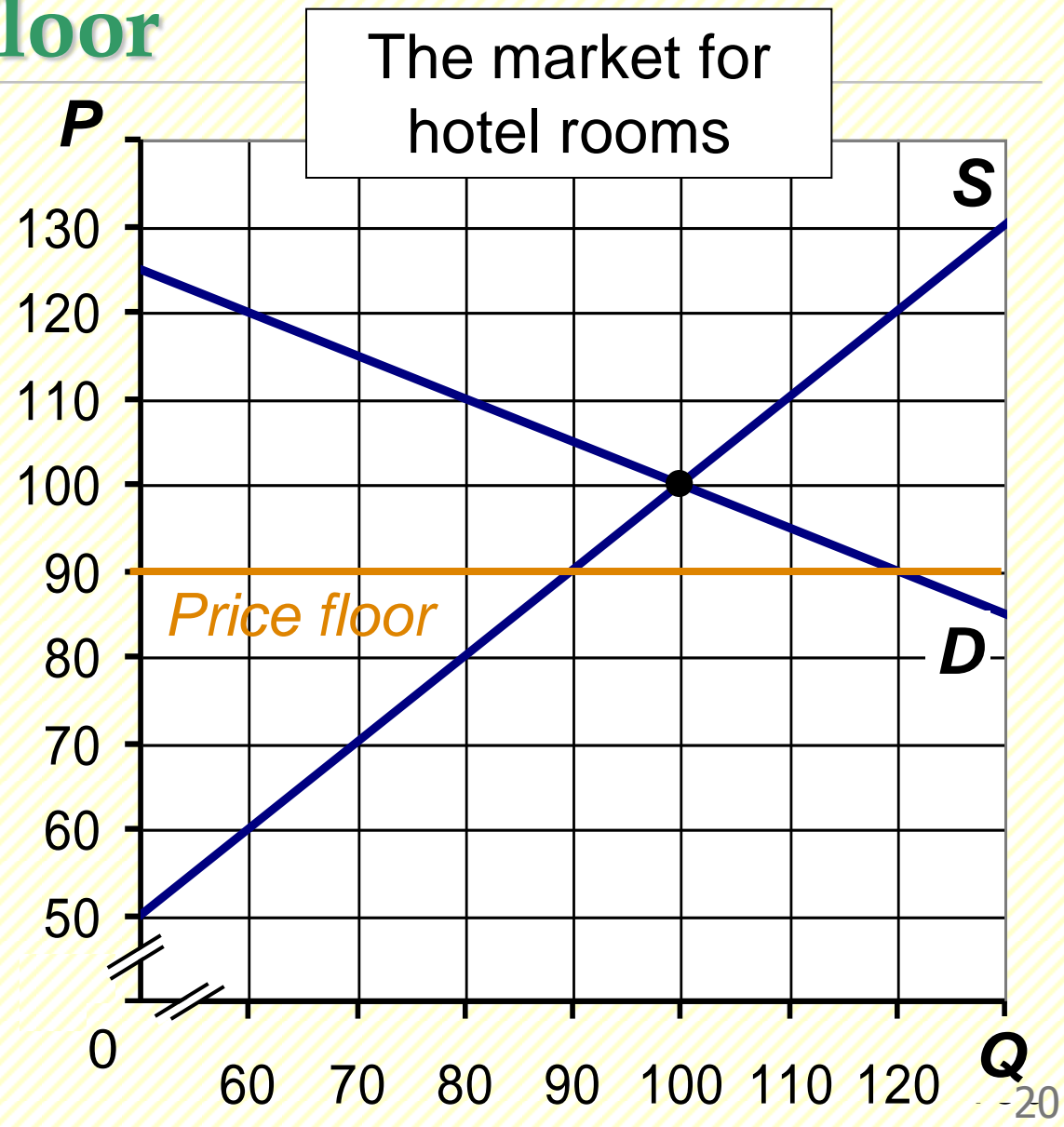


ACTIVE LEARNING 1

B. \$90 price floor

Eq'm price is above the floor, so floor is not binding.

$P = \$100$,
 $Q = 100$ rooms.

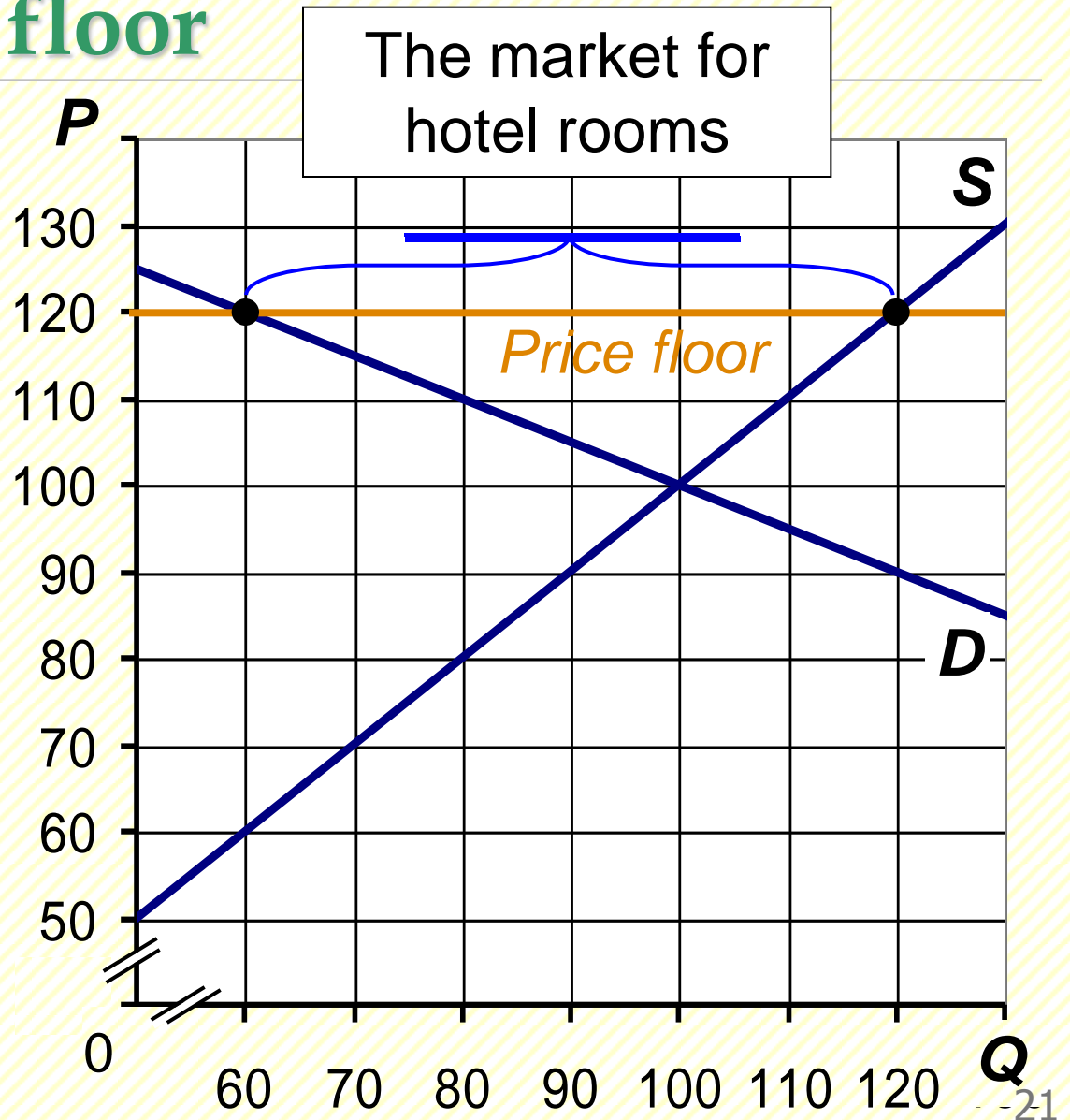


ACTIVE LEARNING 1

C. \$120 price floor

The price rises to \$120.

Buyers demand 60 rooms, sellers supply 120, causing a surplus.



Evaluating Price Controls

- Recall one of the Ten Principles from Chapter 1:
Markets are usually a good way to organize economic activity.
- Prices are the signals that guide the allocation of society's resources. This allocation is altered when policymakers restrict prices.
- Price controls often intended to help the poor, but often hurt more than help.

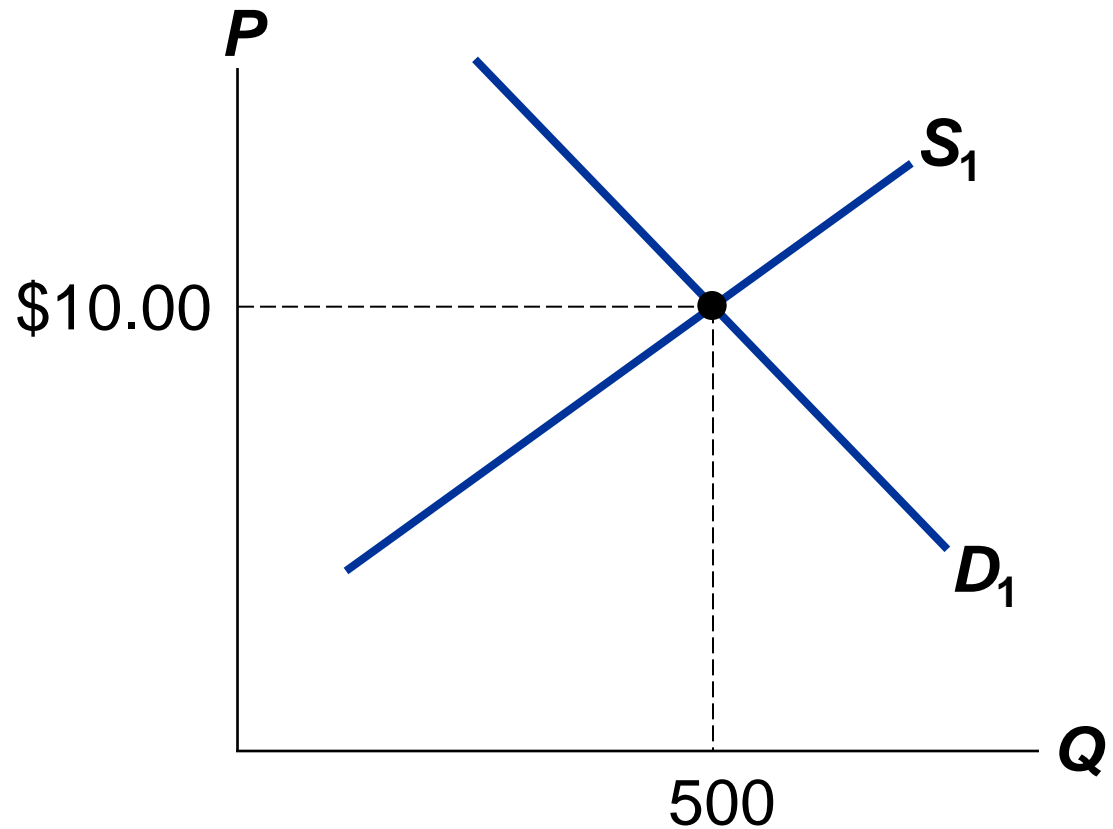
Taxes

- The govt levies taxes on many goods & services to raise revenue to pay for national defense, public schools, etc.
- The govt can make buyers or sellers pay the tax.
- The tax can be a % of the good's price, or a specific amount for each unit sold.
 - For simplicity, we analyze _____ only.

EXAMPLE 3: The Market for Pizza

Why put a tax on pizza?

Eq'm
w/o tax



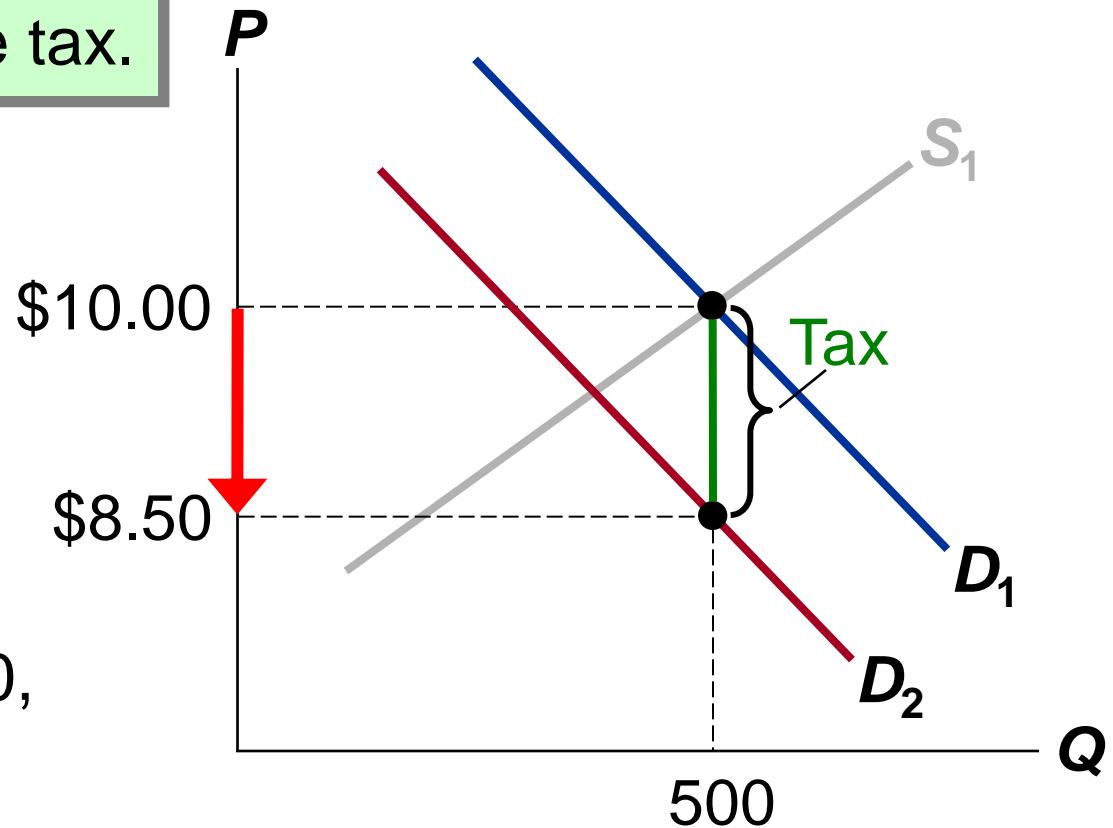
A Tax on Buyers

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

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 still willing to purchase 500 pizzas.

Effects of a \$1.50 per unit tax on buyers



A Tax on Buyers

New eq'm:

$Q = 450$

Sellers
receive

$P_B = \$11.00$

\$10.00

Buyers pay

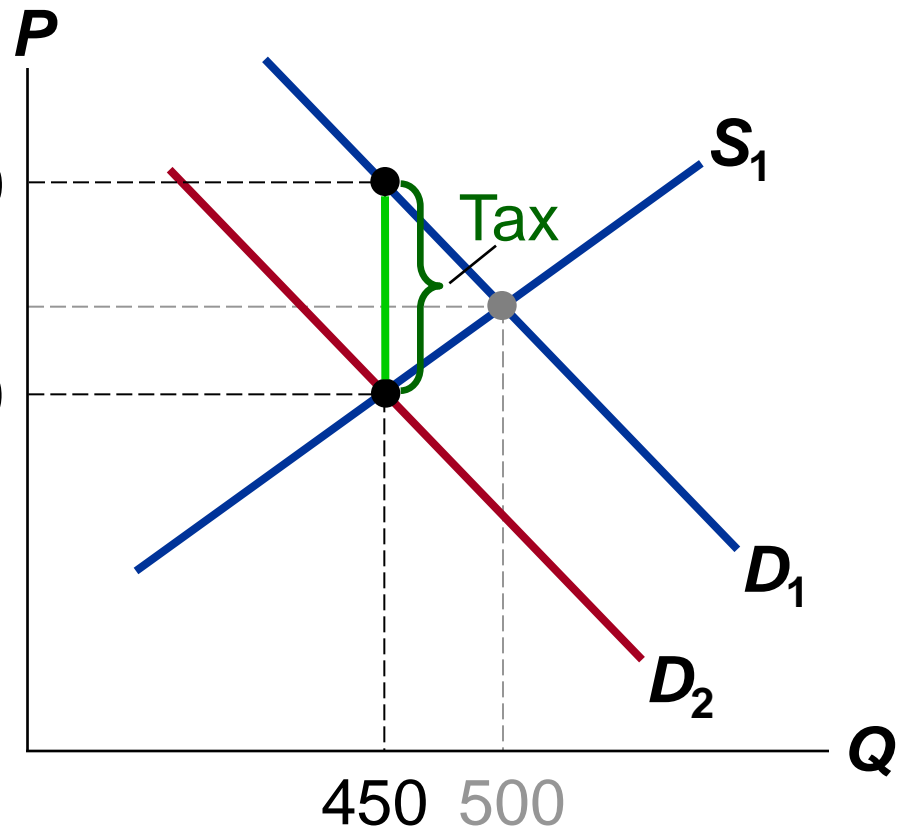
$P_S = \$9.50$

Difference

between them

= \$1.50 = tax

Effects of a \$1.50 per
unit tax on buyers



The Incidence of a Tax:

how the burden of a tax is shared among market participants

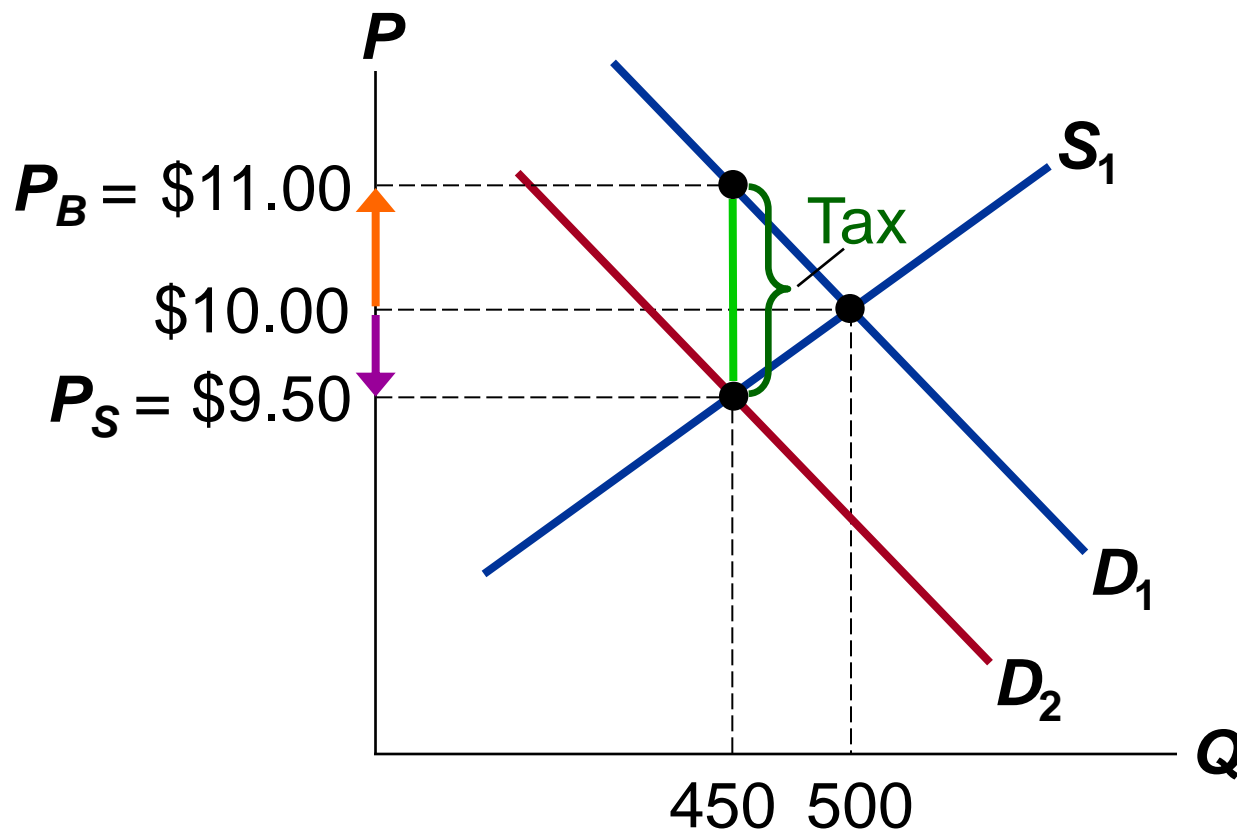
In our example,

buyers pay

_____ ,

sellers get

_____ .



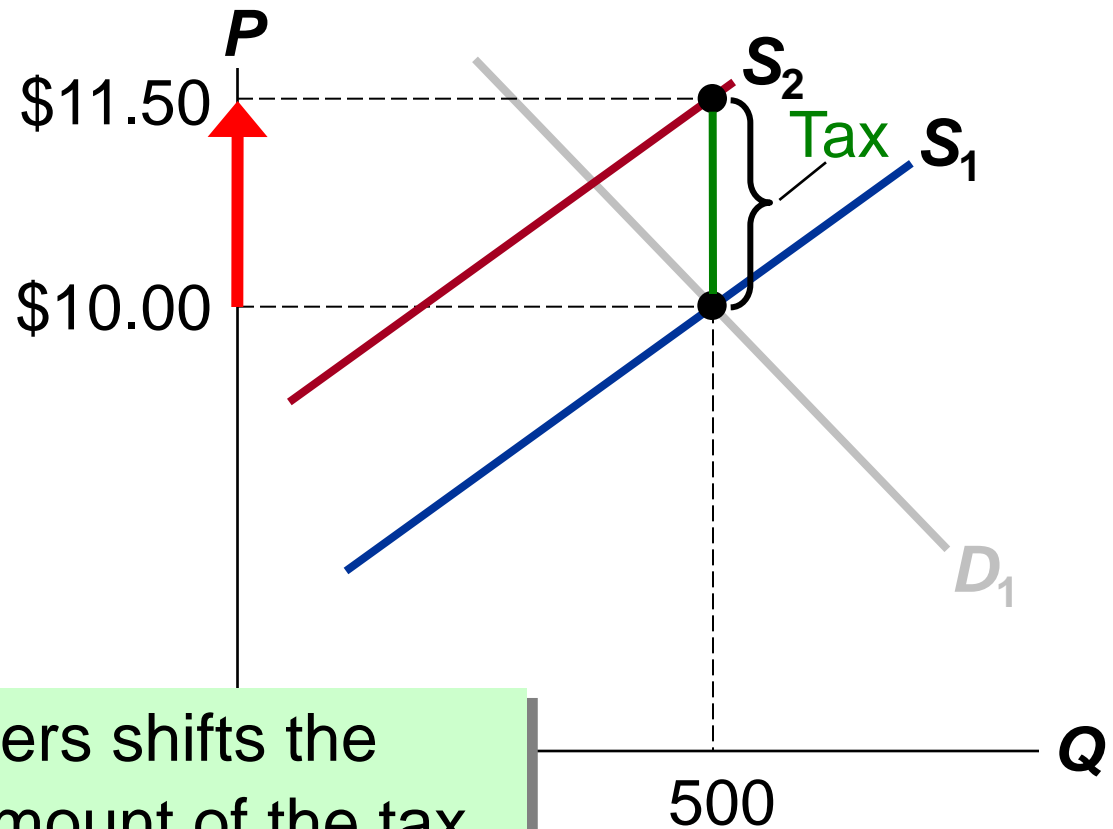
A Tax on Sellers

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.

Effects of a \$1.50 per unit tax on sellers



A Tax on Sellers

New eq'm:

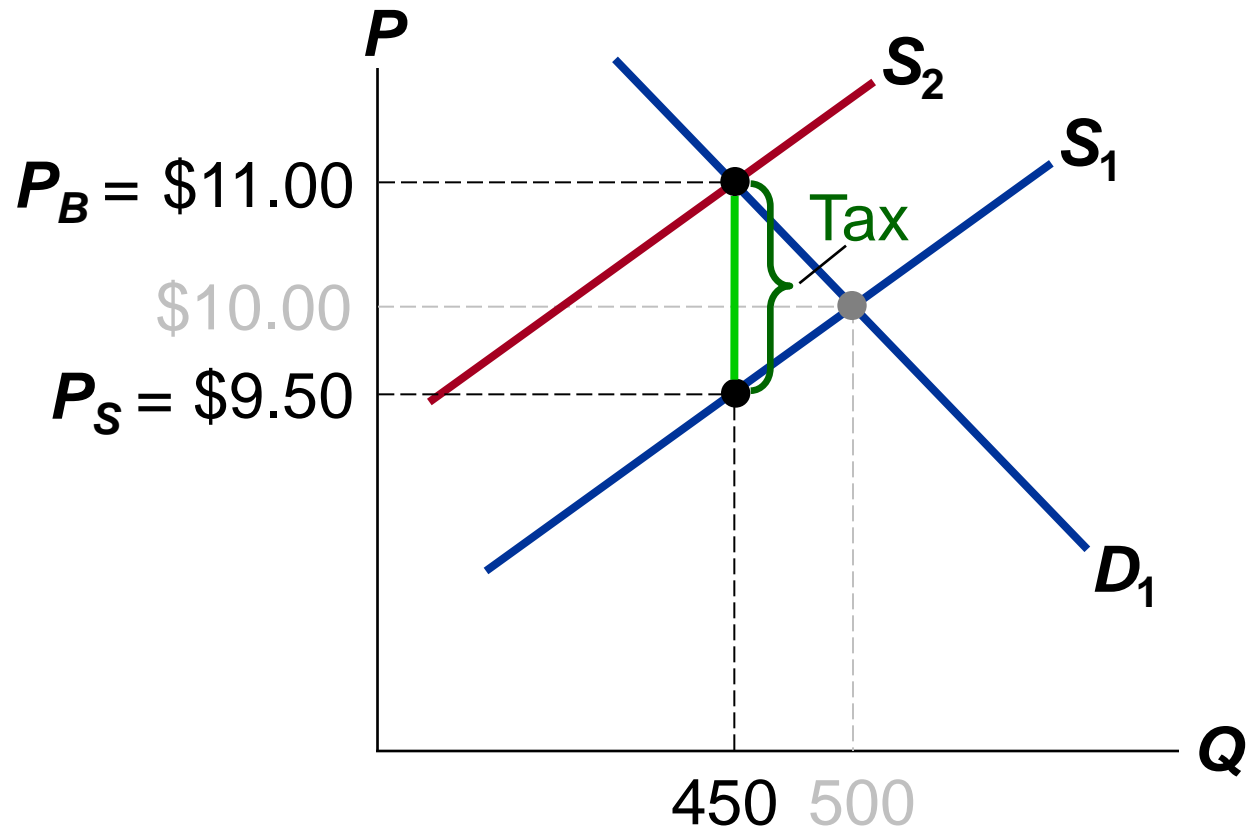
$$Q = 450$$

Buyers pay
 $P_B = \$11.00$

Sellers
receive
 $P_S = \$9.50$

Difference
between them
= $\$1.50 = \text{tax}$

Effects of a \$1.50 per
unit tax on sellers

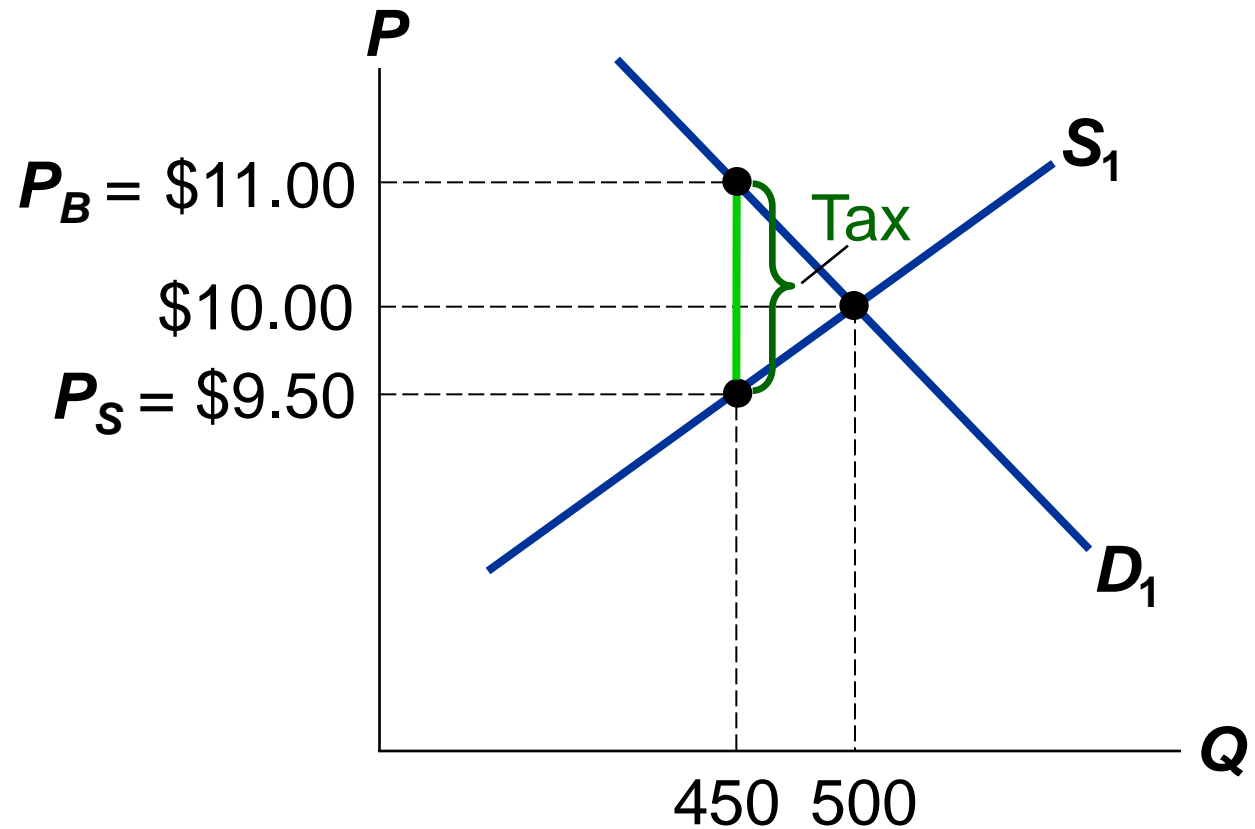


The Outcome Is the Same in Both Cases!

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

What matters
is this:

between the
price buyers
pay and the
price sellers
receive.

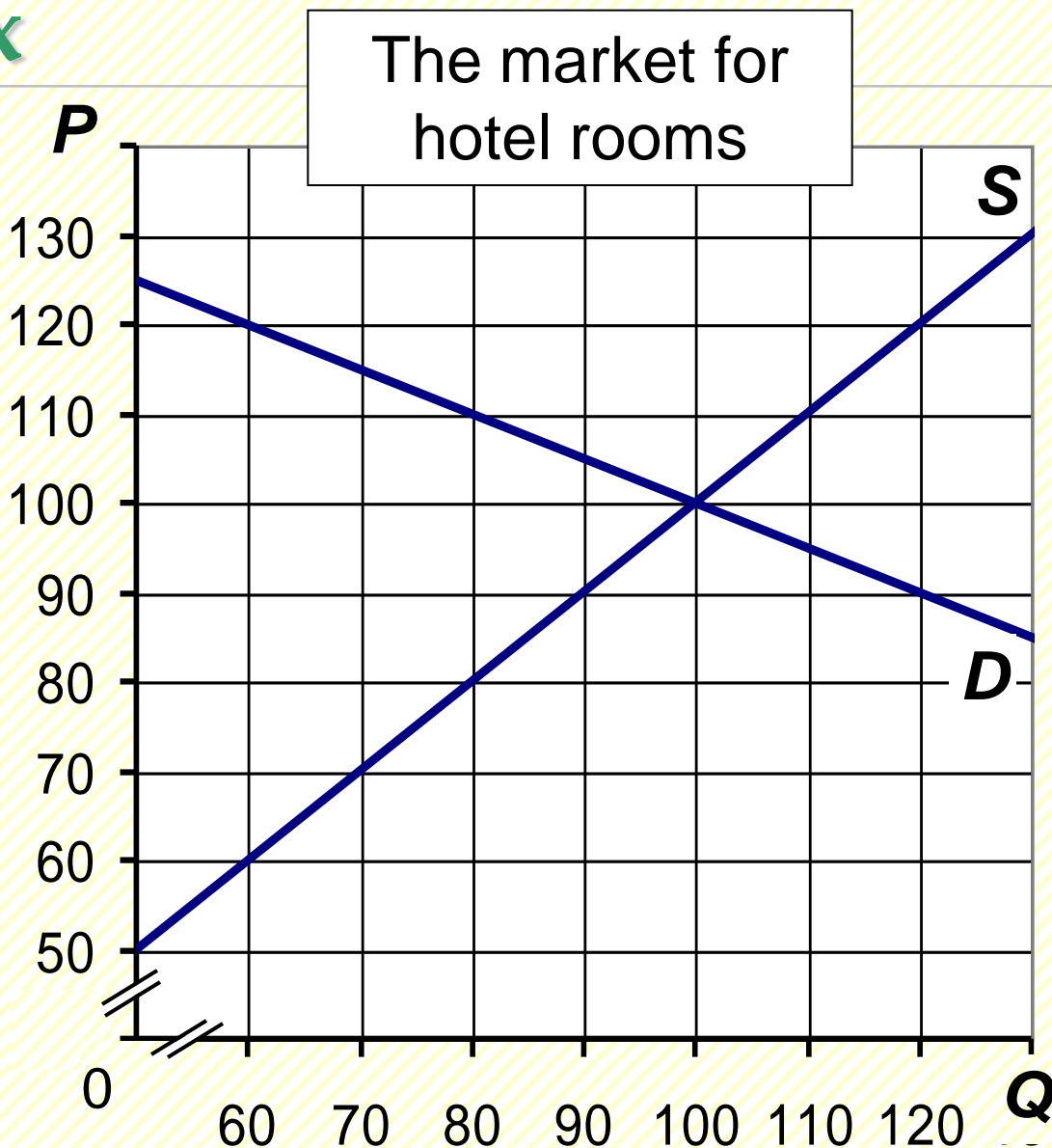


ACTIVE LEARNING 2

Effects of a tax

Suppose govt imposes a tax on buyers of \$30 per room.

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



ACTIVE LEARNING 2

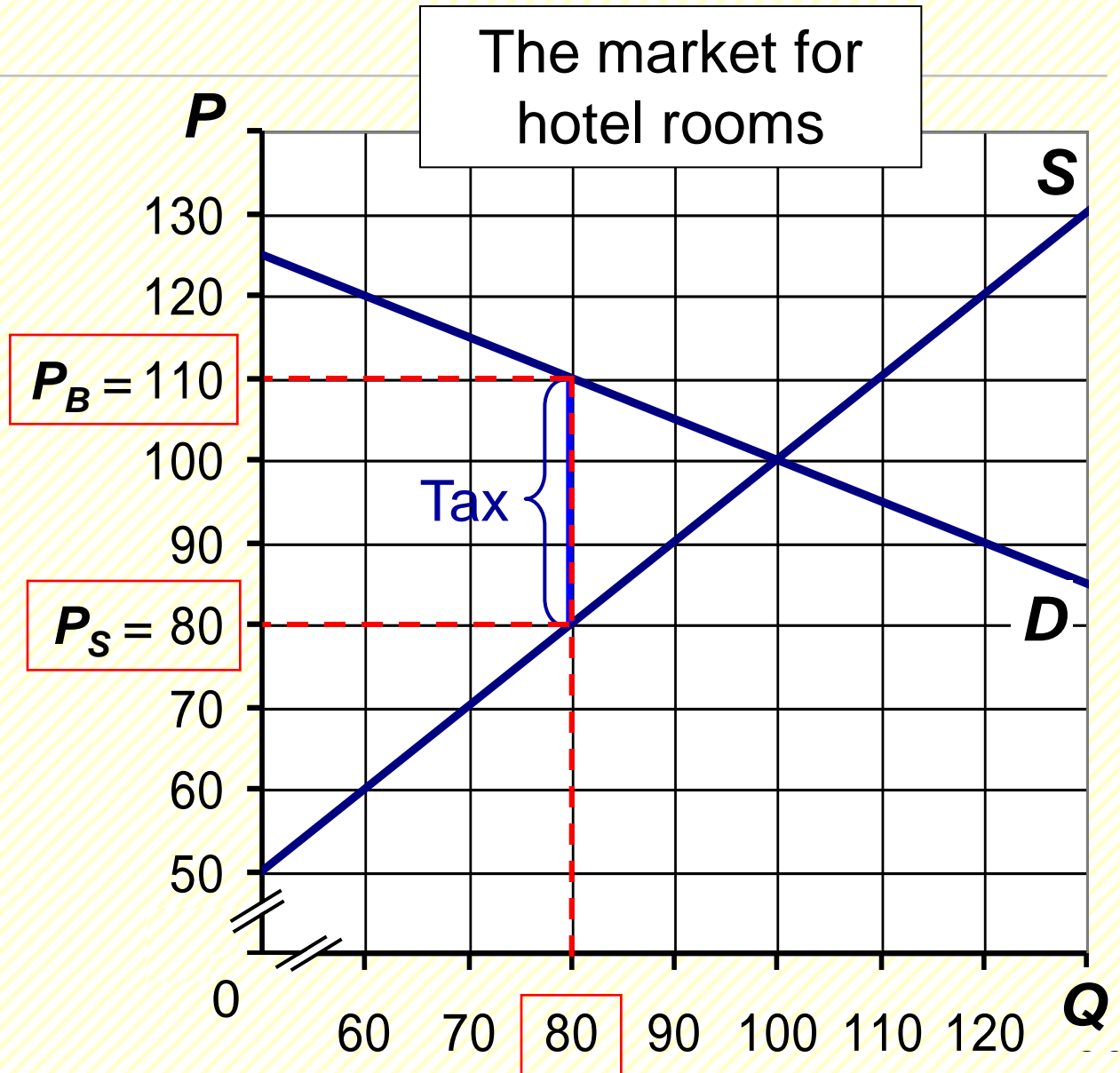
Answers

$$Q = 80$$

$$P_B = \$110$$

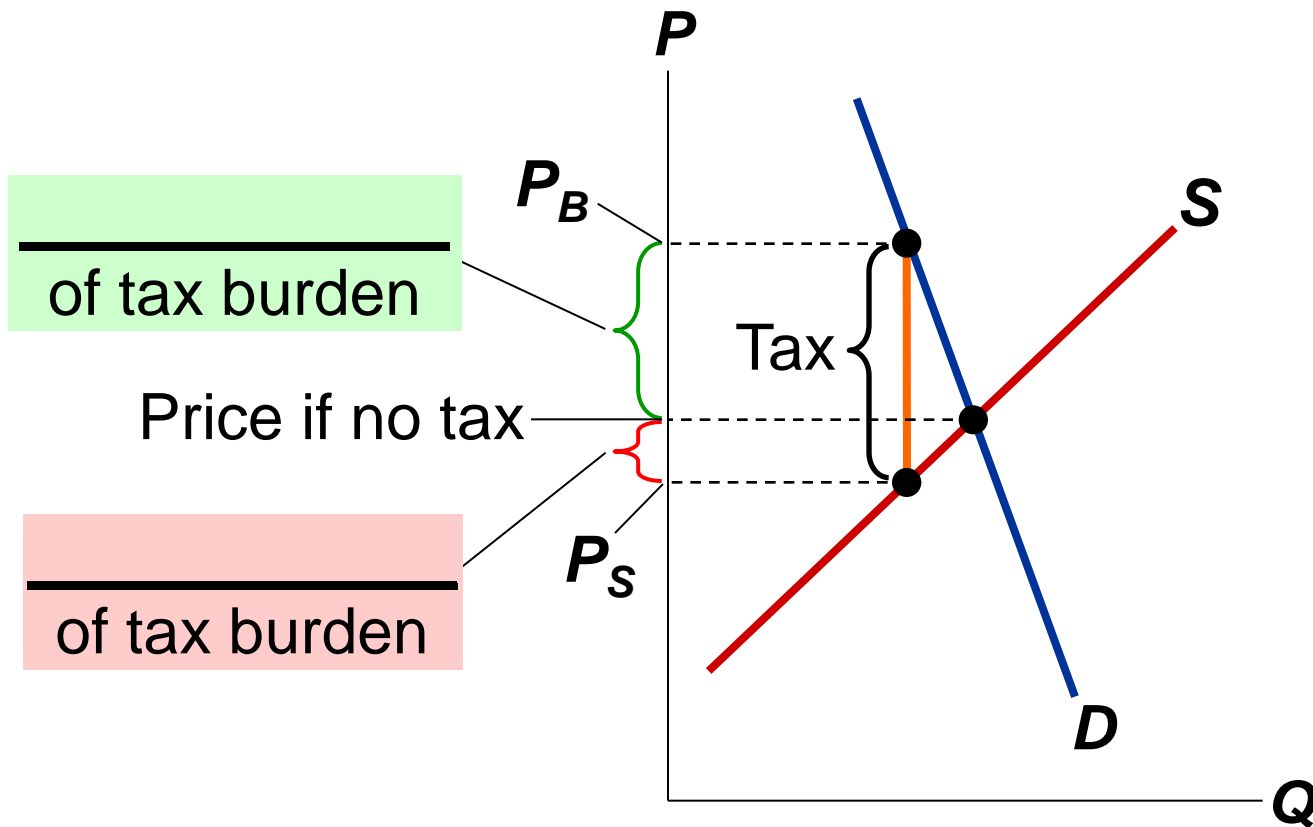
$$P_S = \$80$$

Incidence



Elasticity and Tax Incidence

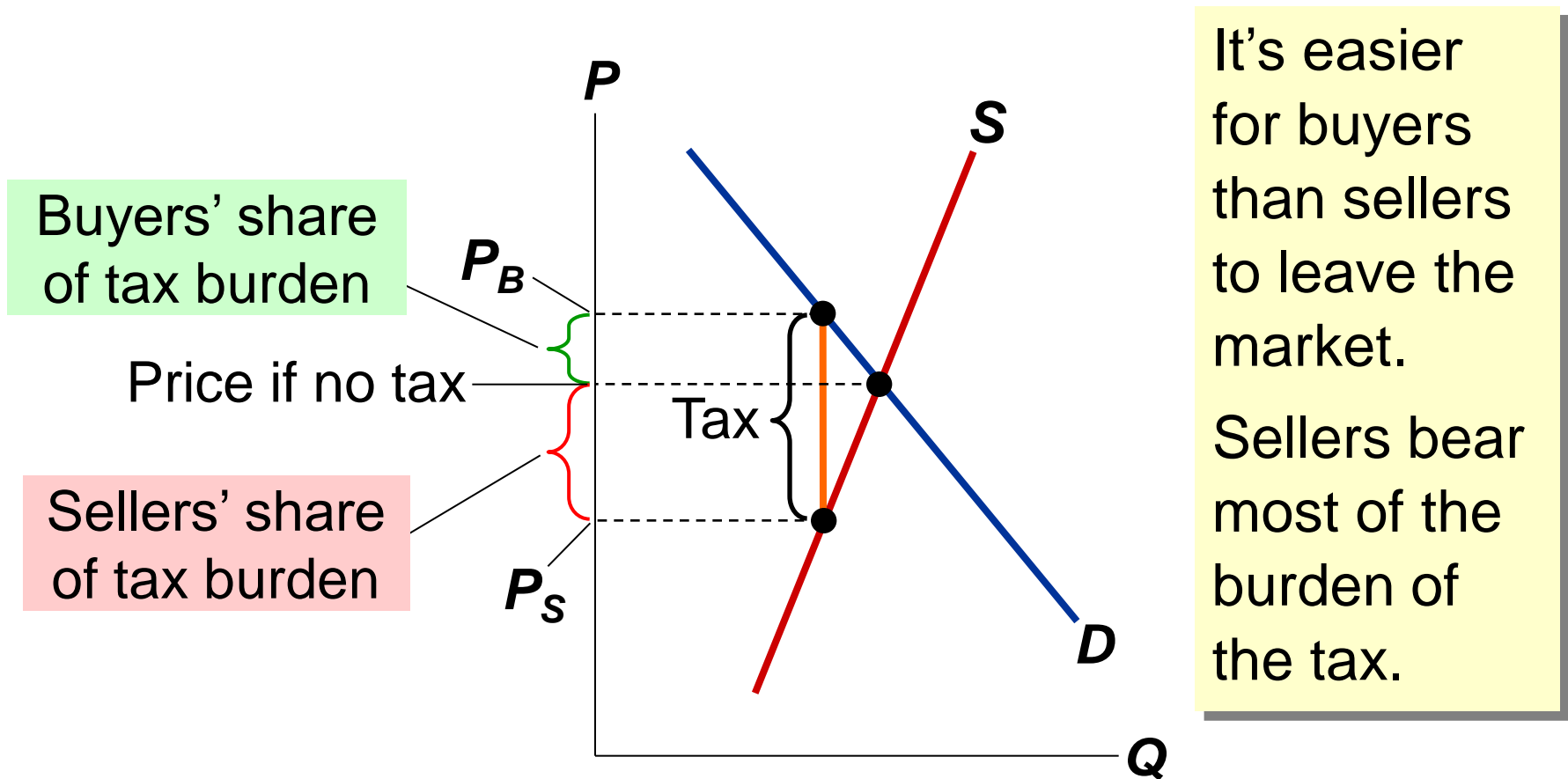
CASE 1: Supply is more elastic than demand



It's easier for sellers than buyers to leave the market. So buyers bear most of the burden of the tax.

Elasticity and Tax Incidence

CASE 2: Demand is more elastic than supply



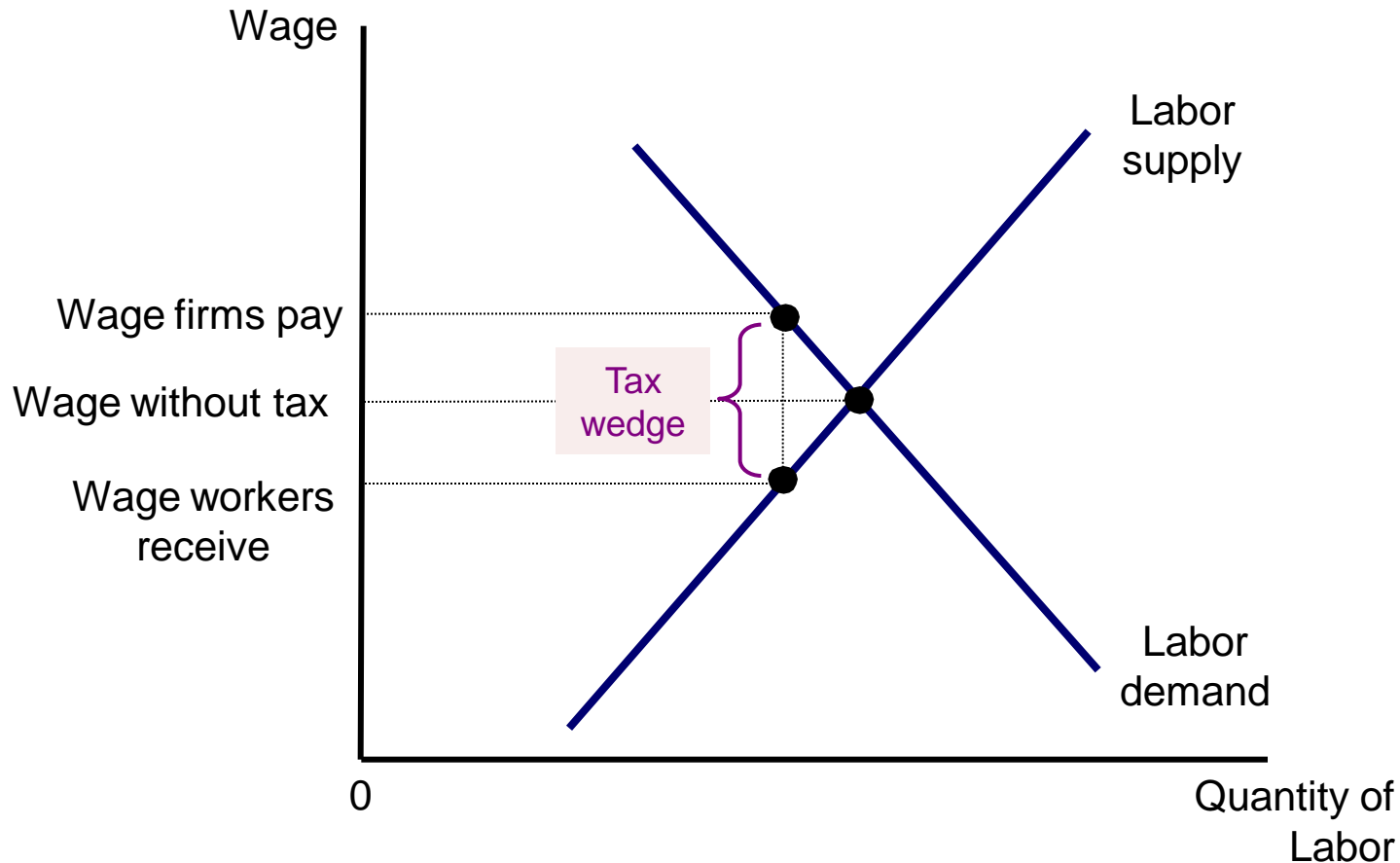
Can congress distribute the burden of a payroll tax?

- Payroll taxes
 - Deducted from the amount you earned
- By law, the tax burden:
 - Half of the tax - _____
 - Out of firm's revenue
 - Half of the tax - _____
 - Deducted from workers' paychecks
- Tax incidence analysis
 - Payroll tax = tax on a good
 - Good = labor
 - Price = wage

Can congress distribute the burden of a payroll tax?

- Wage received by workers falls
- Wage paid by firms rises
- Workers and firms share the burden of the tax
 - Not necessarily fifty-fifty as the legislation requires
- Lawmakers
 - Can decide whether a tax comes from the buyer's pocket or from the seller's
 - Cannot legislate the true burden of a tax
- Tax incidence: _____

A payroll tax



A payroll tax places a wedge between the wage that workers receive and the wage that firms pay. Comparing wages with and without the tax, you can see that workers and firms share the tax burden. This division of the tax burden between workers and firms does not depend on whether the government levies the tax on workers, levies the tax on firms, or divides the tax equally between the two groups.

Taxes

- Elasticity and tax incidence
- Dividing the tax burden
 - Very elastic supply and relatively inelastic demand
 - Sellers – _____
 - Buyers – _____
 - Relatively inelastic supply and very elastic demand
 - Sellers – _____
 - Buyers – _____

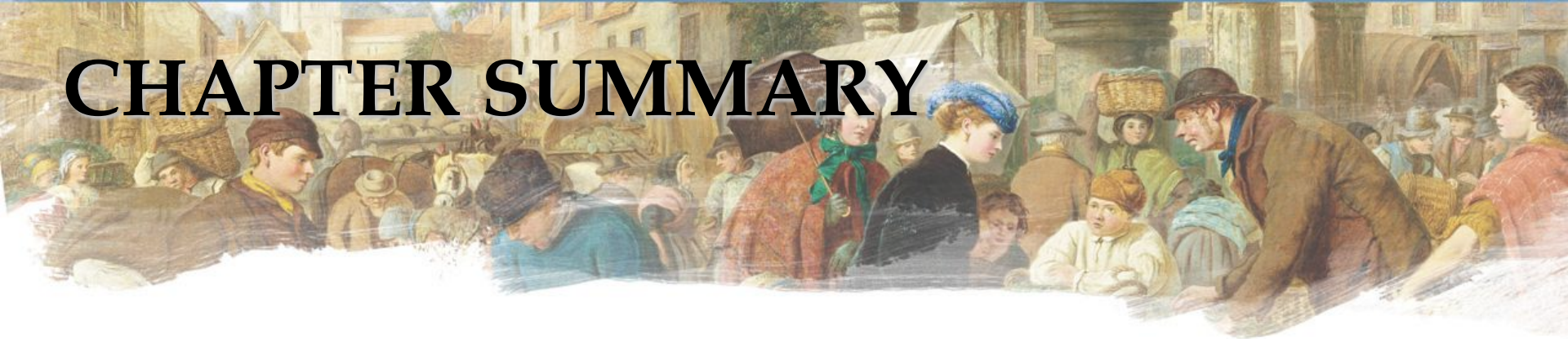
Taxes

- Tax burden - falls more heavily on the side of the market that is _____
 - Small elasticity (inelastic) of demand
 - Buyers do not have good alternatives to consuming this good
 - Small elasticity (inelastic) of supply
 - Sellers do not have good alternatives to producing this good

CONCLUSION: Government Policies and the Allocation of Resources

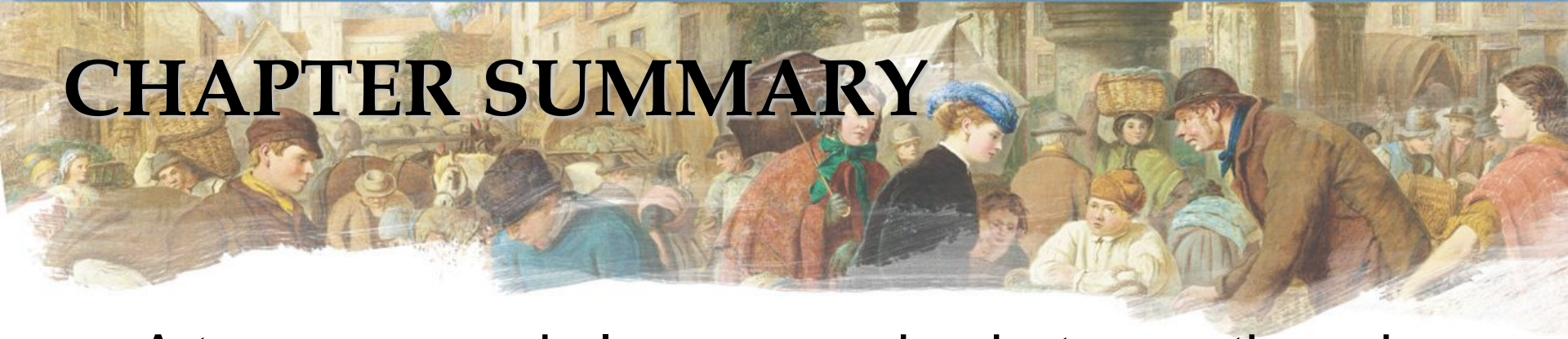
- Each of the policies in this chapter affects the allocation of society's resources.
 - *Example 1:* A tax on pizza reduces eq'm Q .
With less production of pizza, resources (workers, ovens, cheese) will become available to other industries.
 - *Example 2:* A binding minimum wage causes a surplus of workers, a waste of resources.
- So, it's important for policymakers to apply such policies very carefully.

CHAPTER SUMMARY



- A price ceiling is a legal maximum on the price of a good. An example is rent control. If the price ceiling is below the eq'm price, it is binding and causes a shortage.
- A price floor is a legal minimum on the price of a good. An example is the minimum wage. If the price floor is above the eq'm price, it is binding and causes a surplus. The labor surplus caused by the minimum wage is unemployment.

CHAPTER SUMMARY



- A tax on a good places a wedge between the price buyers pay and the price sellers receive, and causes the eq'm quantity to fall, whether the tax is imposed on buyers or sellers.
- The incidence of a tax is the division of the burden of the tax between buyers and sellers, and does not depend on whether the tax is imposed on buyers or sellers.
- The incidence of the tax depends on the price elasticities of supply and demand.