ECO2011 Basic Microeconomics

Mankiw Chapter 6 (Government Policies)
Mankiw Chapter 8 (Taxation)
Pindyck Chapter 9 (Analysis of Competitive Markets)

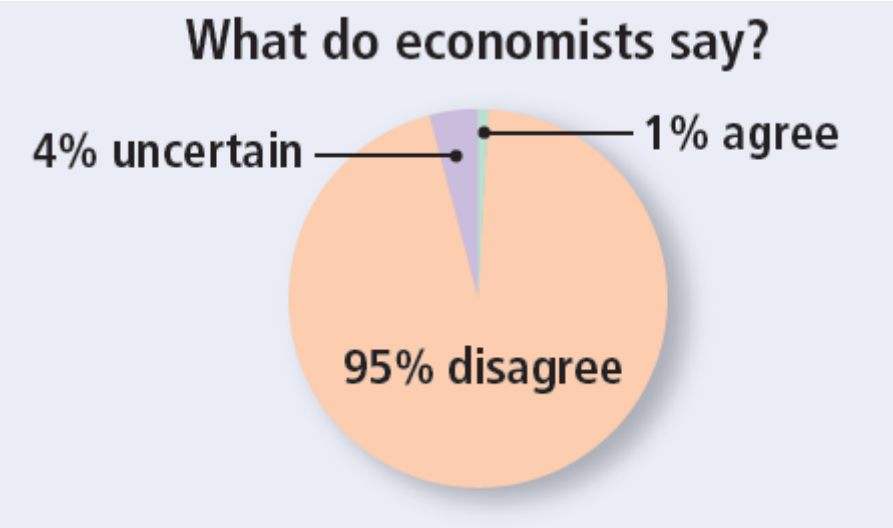
2023

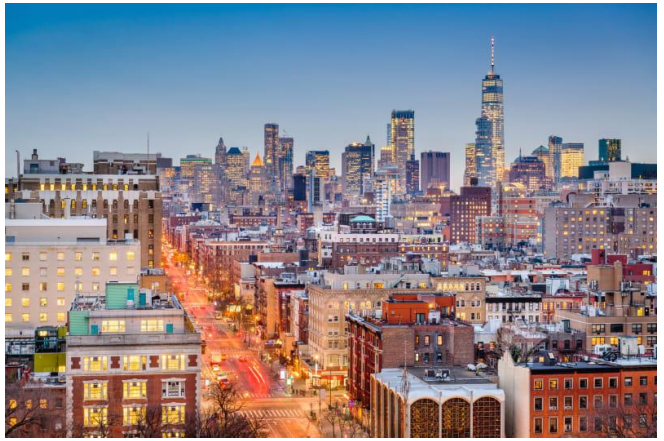
Government Policies That Alter the Private Market Outcome

- Price controls
  - Price ceiling: legal maximum on the price at which a good can be sold
    - Rent-control laws
  - Price floor: legal minimum on the price at which a good can be sold
    - Minimum wage laws
- Taxes: government can make buyers or sellers pay a specific amount on each unit

Case Study: Rent Control

- "Local ordinances that limit rent increases for some rental housing units, such as in New York and San Francisco, have had a positive impact over the past three decades on the amount and quality of broadly affordable rental housing in cities that have used them."





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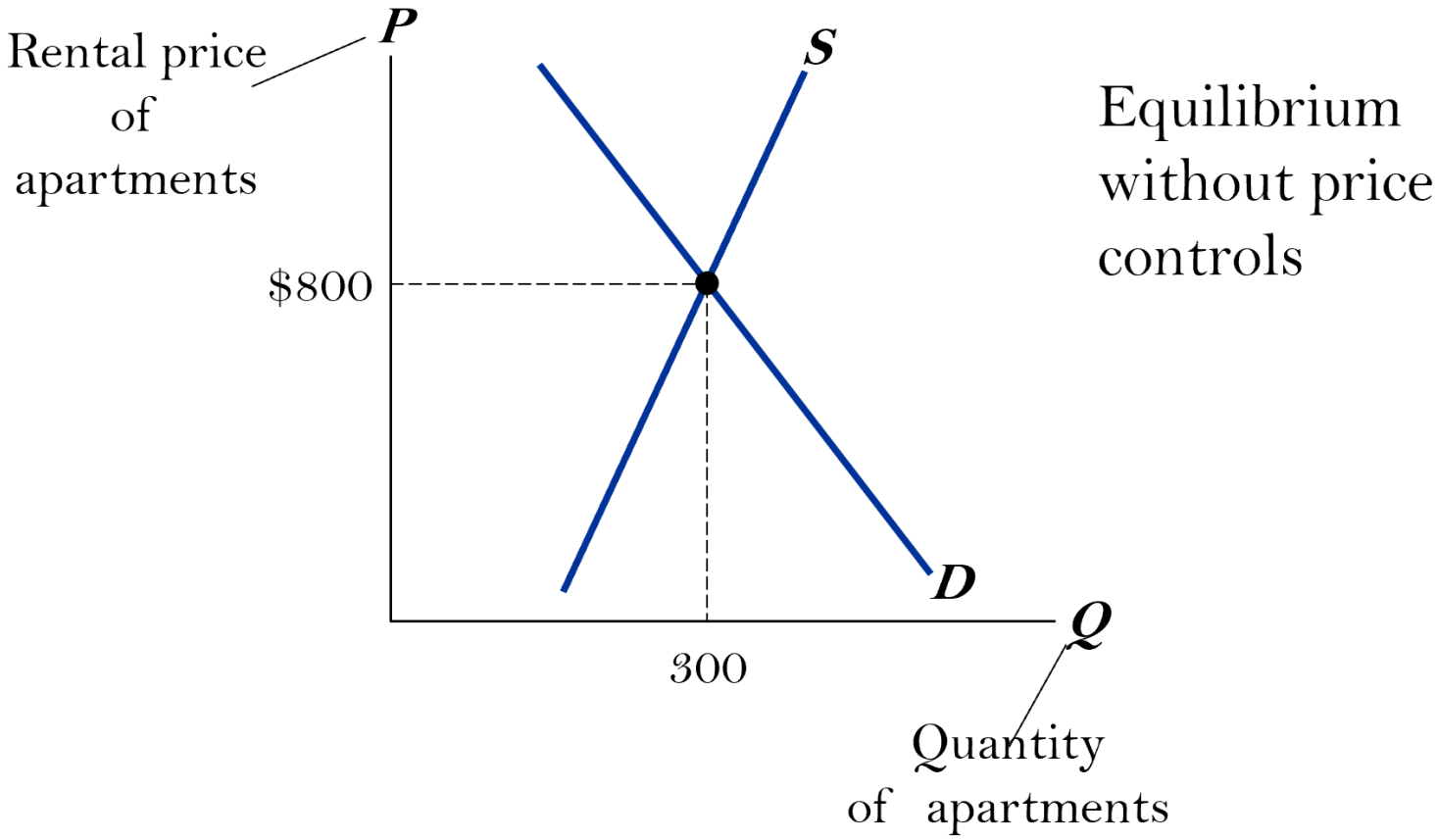
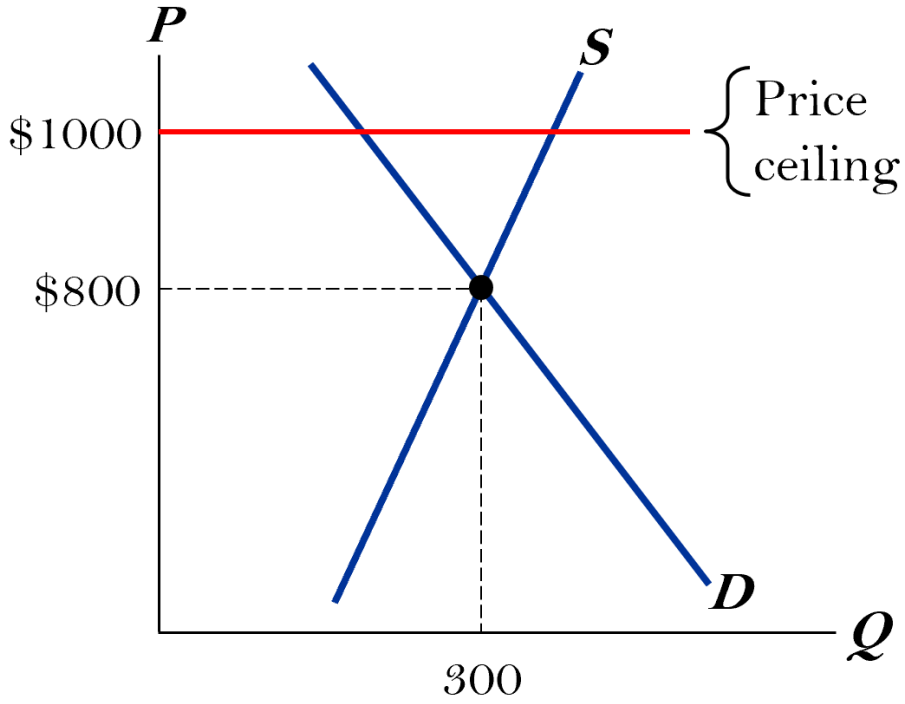
Example 1: The Market for Apartments



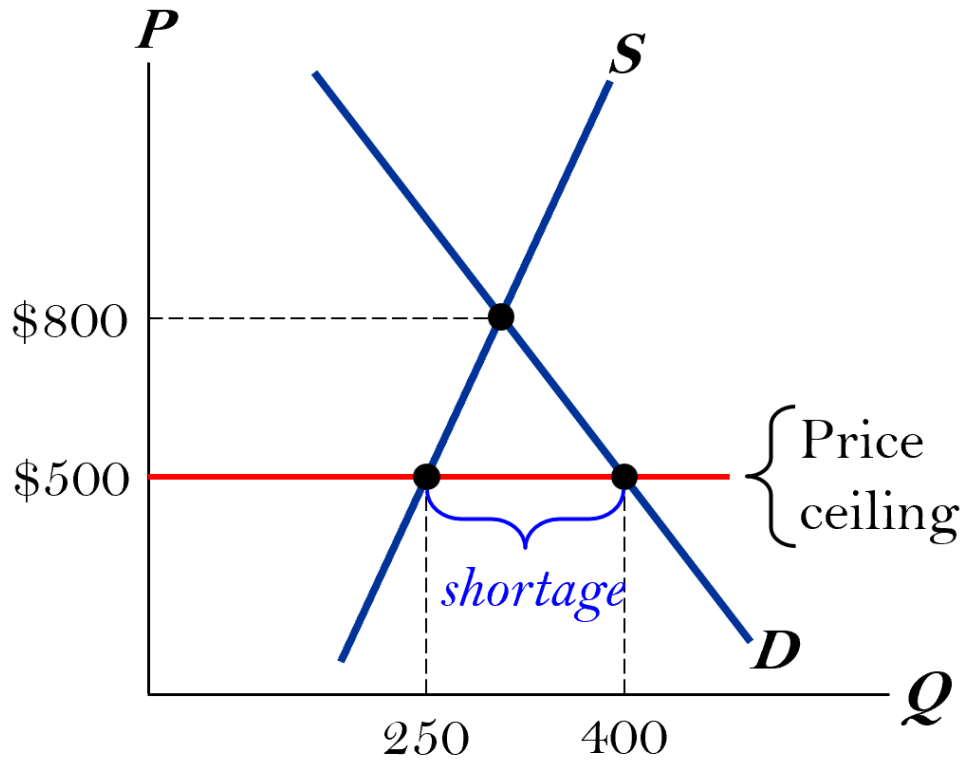
How Price Ceilings Affect Market Outcomes

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



How Price Ceilings Affect Market Outcomes

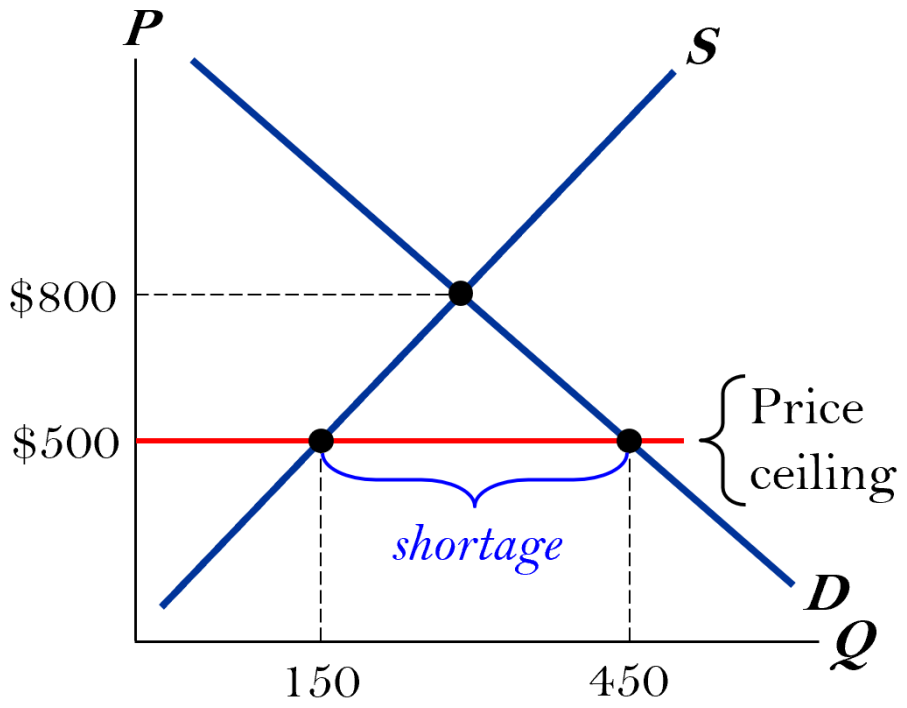
- The equilibrium price ($800) is above the ceiling and therefore illegal.
- The price ceiling is **binding**, causes a shortage.



How Price Ceilings Affect Market Outcomes

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

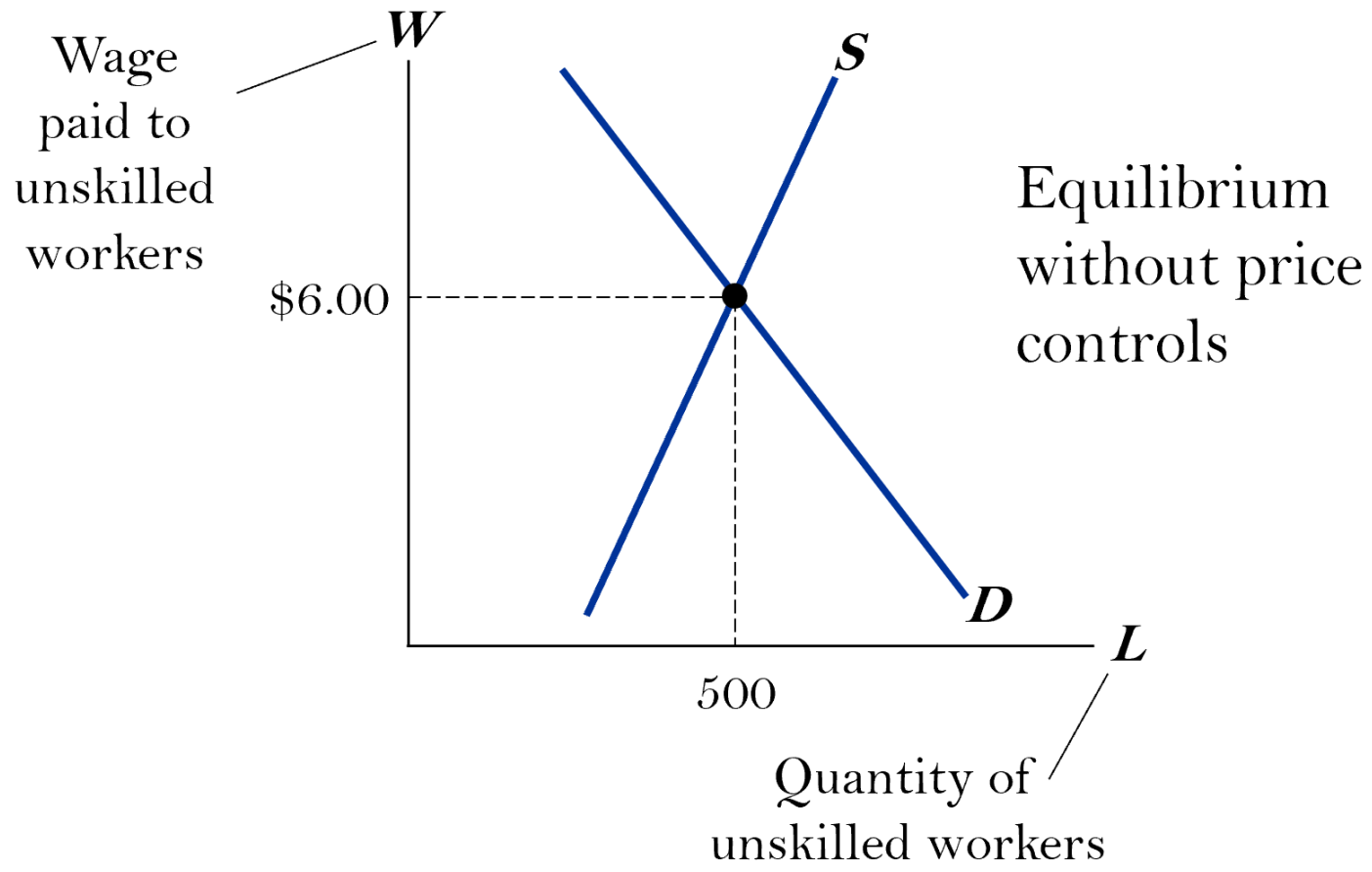
- So, the shortage is larger.



Shortages and Rationing

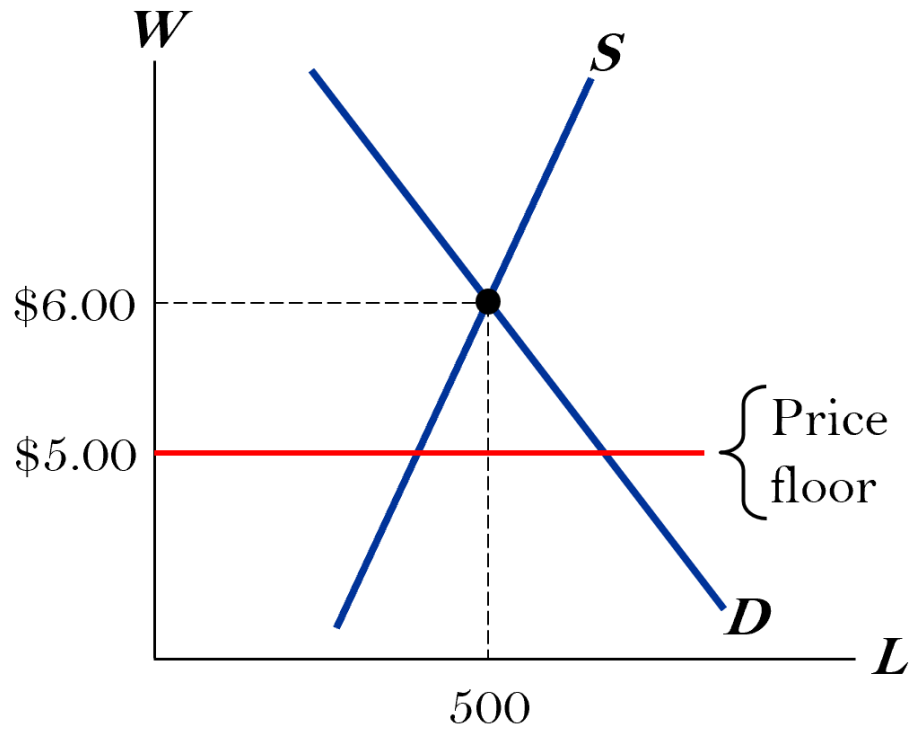
- Because of shortage
  - Sellers must ration the goods among buyers
- Some rationing mechanisms:
  - Long lines
  - Discrimination according to sellers' biases
  - Are often unfair and inefficient
    - The goods do not necessarily go to the buyers who value them most highly

Example 2: The Market for Unskilled Labor



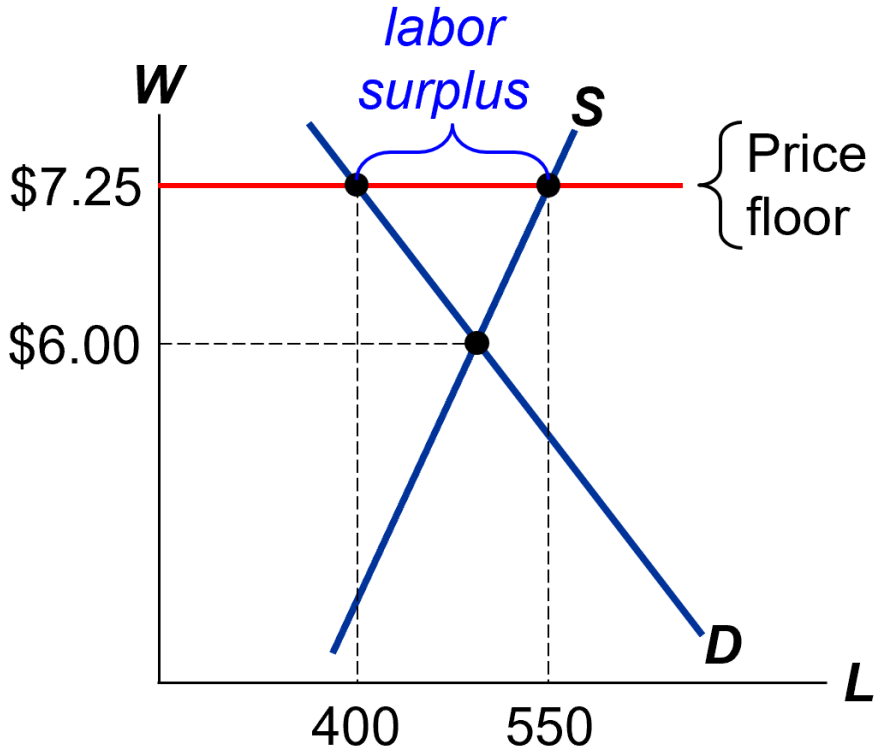
How Price Floors Affect Market Outcomes

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



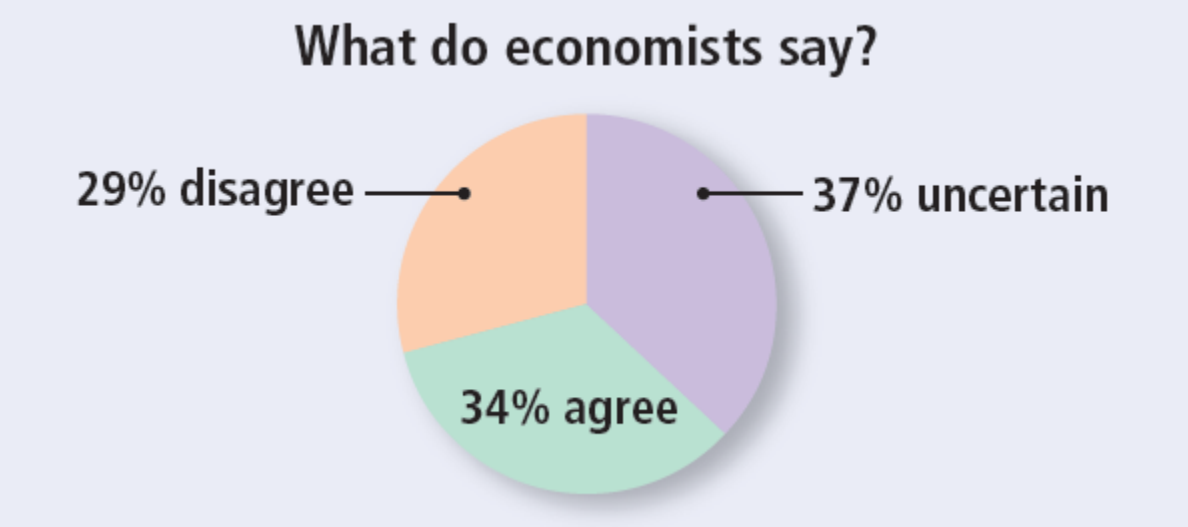
How Price Floors Affect Market Outcomes

- The equilibrium wage ($6) is below the floor and therefore illegal.
- The price floor is **binding**, causes a surplus (i.e., unemployment).
- Minimum wage laws do not affect highly skilled workers. They do affect teen workers. A 10% increase in the minimum wage raises teen unemployment by 1–3%.



The Minimum Wage

- "If the federal minimum wage is raised gradually to $15-per-hour by 2020, the employment rate for low-wage U.S. workers will be substantially lower than it would be under the status quo."



Active Learning 1 Price controls

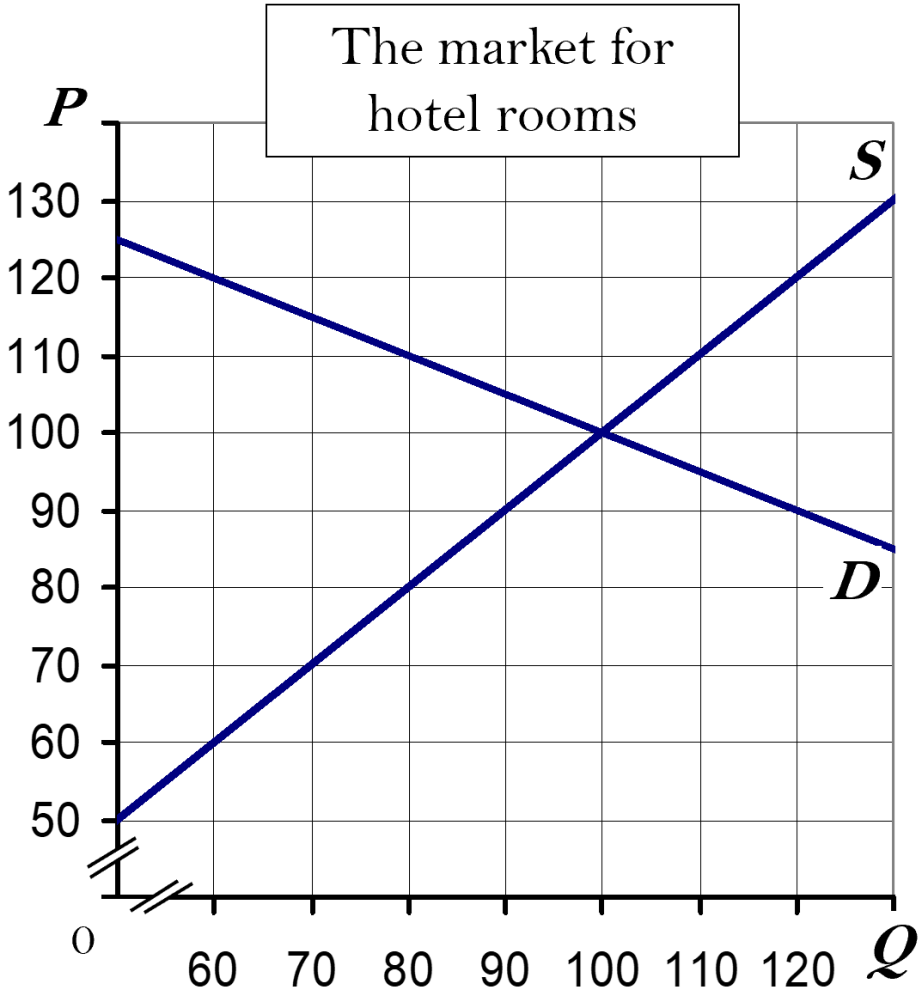
The market for hotel rooms is in equilibrium as in the graph.

- Determine the effects of:

A. $90 price ceiling

B. $90 price floor

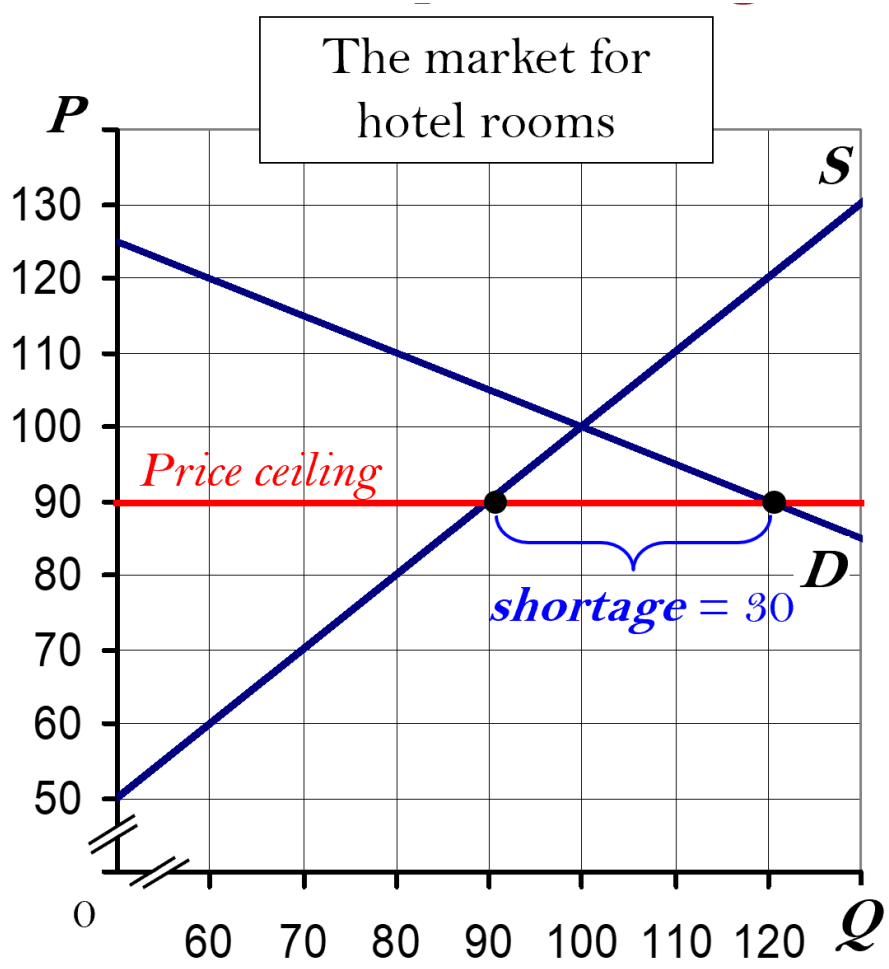
C. $120 price floor



Active Learning 1 A. $90 price ceiling

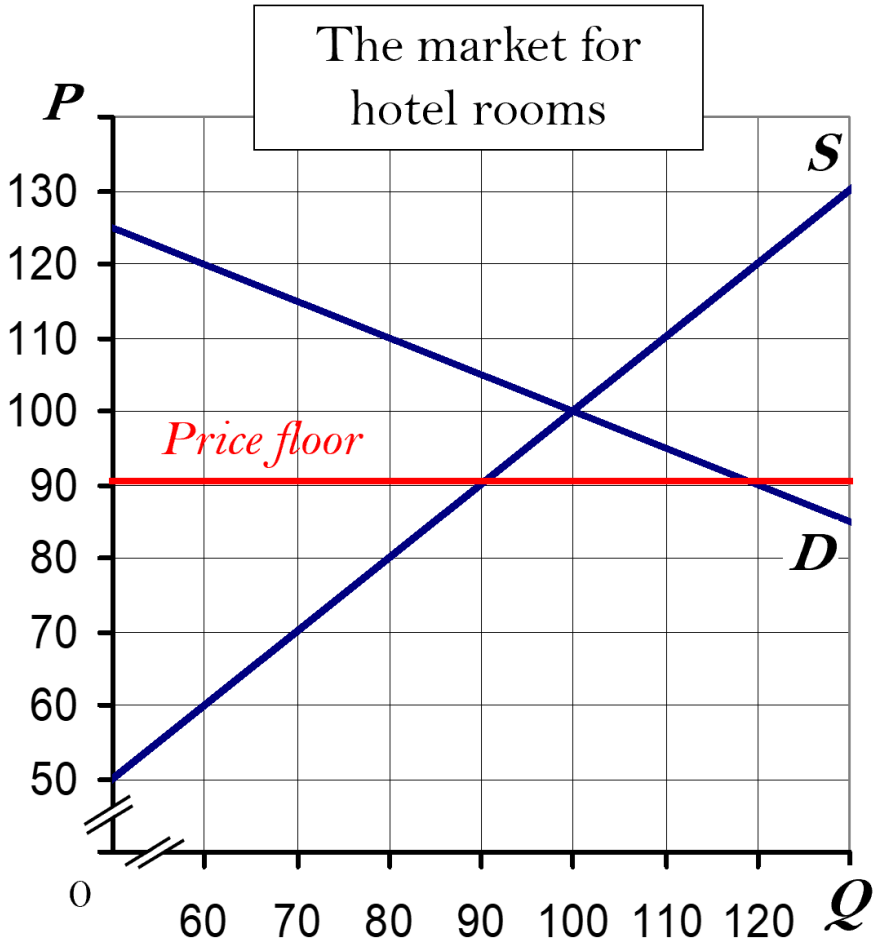
The price falls to $90.
(binding price ceiling below the equilibrium)

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



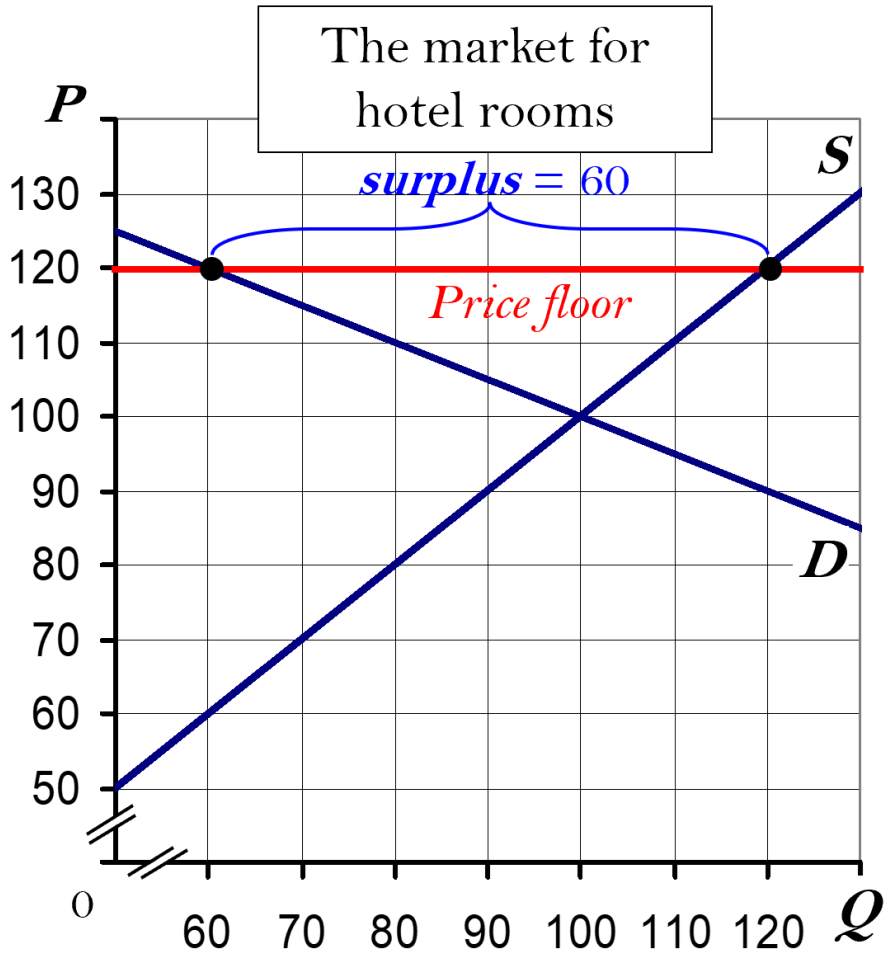
Active Learning 1 B. $90 price floor

- Equilibrium price is above the $90 price floor, so the price floor is not binding.
- P = $100,
  Q = 100 rooms.



Active Learning 1 C. $120 price floor

- The price rises to $120. (binding price floor above the equilibrium)
- Buyers demand 60 rooms, sellers supply 120, causing a surplus.



Evaluating Price Controls

- Markets are usually a good way to organize economic activity
  - Economists usually 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

Evaluating Price Controls

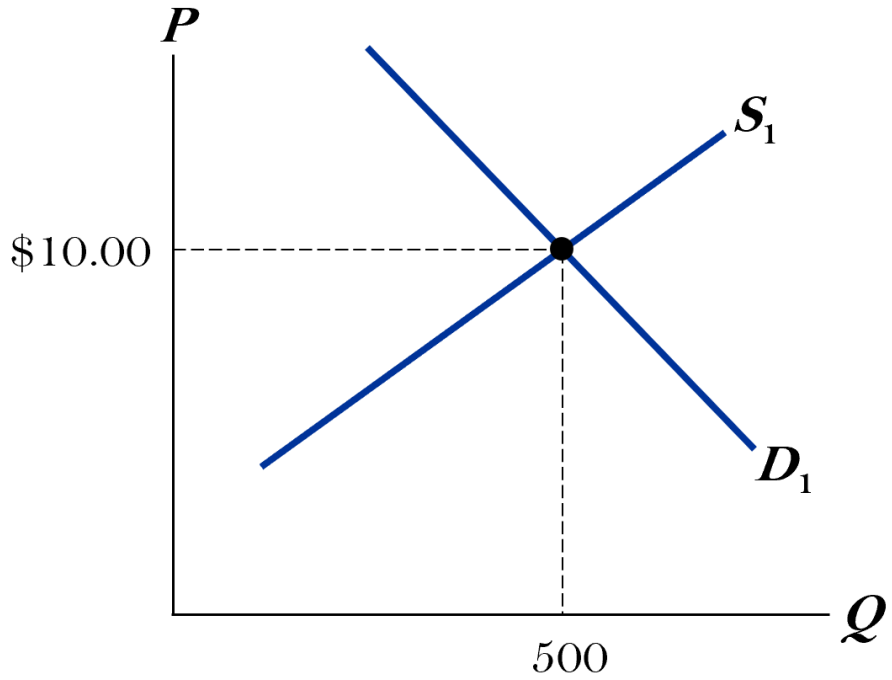
- Governments can sometimes improve market outcomes
  - Want to use price controls
    - Because of unfair market outcome
    - Aimed at helping the poor
  - Often hurt those they are trying to help
  - Other ways of helping those in need
    - Rent subsidies
    - Wage subsidies (earned income tax credit)

Taxes

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

Internet photo

Example 3: The Market for Pizza

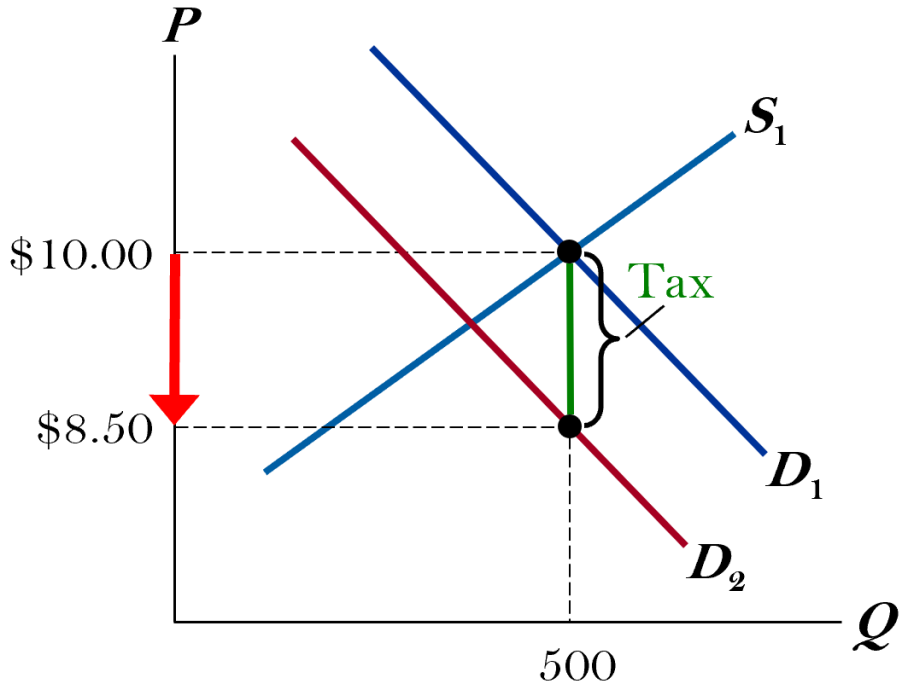


Equilibrium without tax

A Tax on Buyers

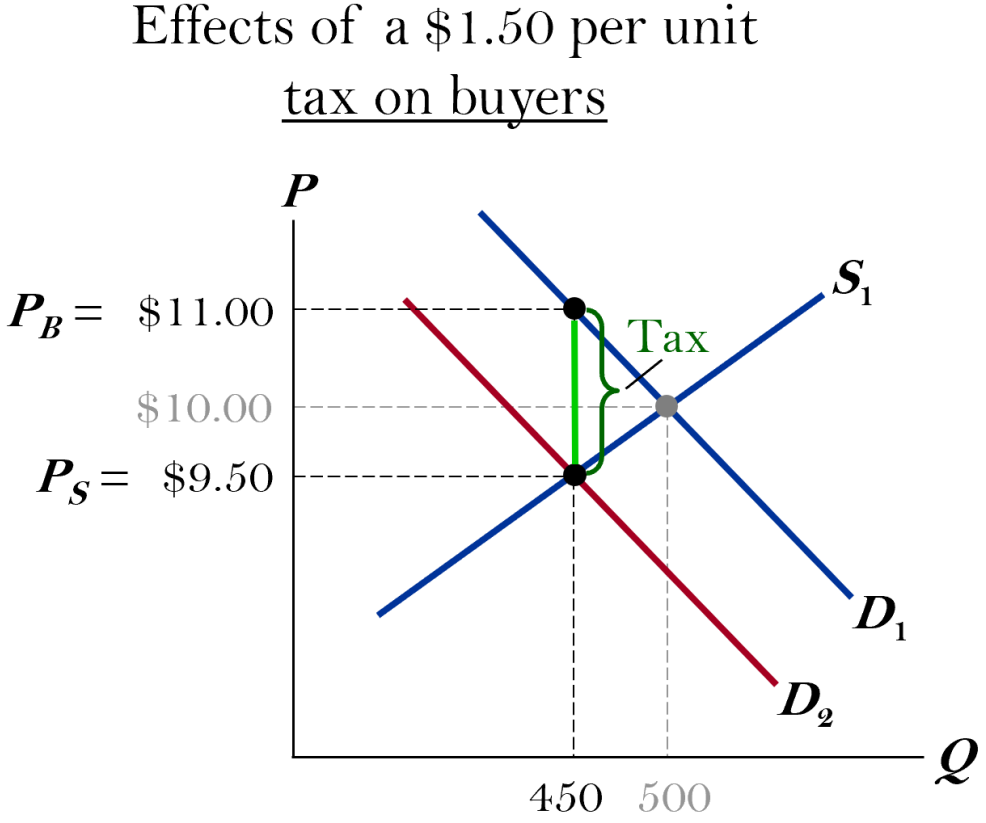
- **A tax on buyers shifts the *D* curve down by the amount of the tax.**
- The price buyers pay is now \$1.50 higher than the market price ***P***.
- ***P*** would have to fall by \$1.50 to make buyers willing to buy same ***Q*** as before.
- *E.g.*, if ***P*** falls from \$10.00 to \$8.50, buyers are still willing to purchase 500 pizzas.

Effects of a \$1.50 per unit tax on buyers



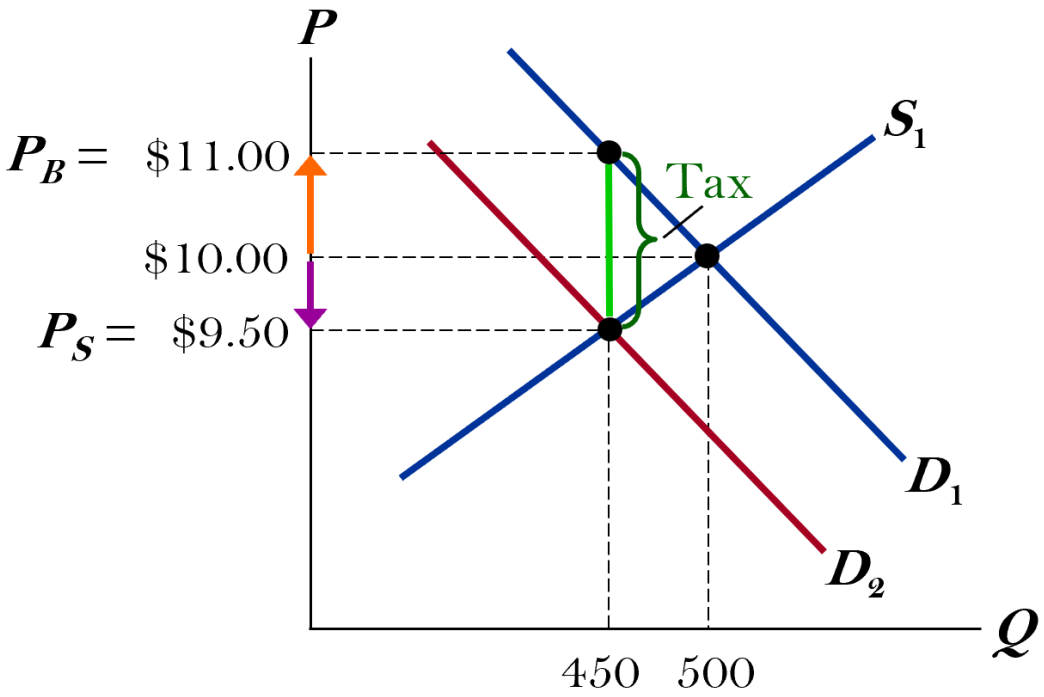
A Tax on Buyers

- New equilibrium:
  - Q = 450
  - Sellers receive P_S = \$9.50
  - Buyers pay P_B = \$11.00
- Difference between them = \$1.50 = tax



Tax Incidence

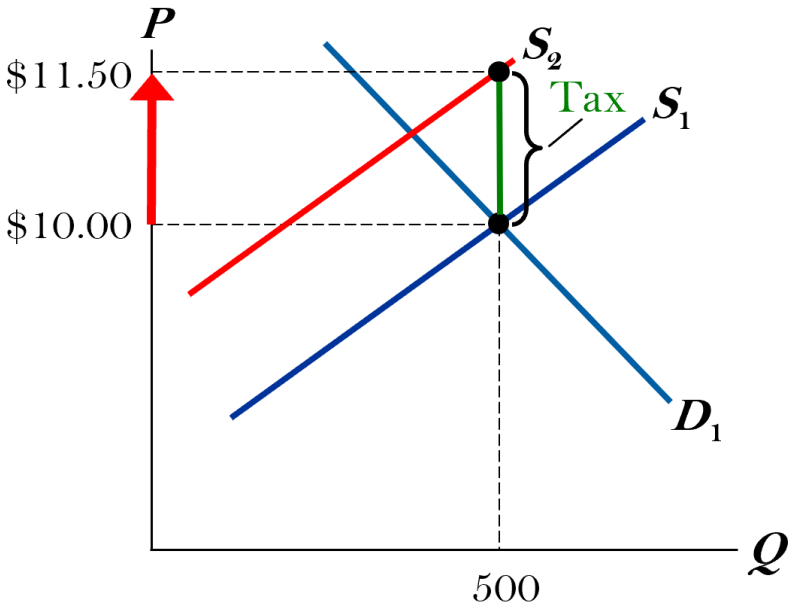
- Tax incidence: how the burden of a tax is shared among market participants
- In our example, buyers pay $1.00 more, sellers get $0.50 less.



A Tax on Sellers

- **A tax on sellers shifts the S curve up by the amount of the tax.**
- 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.

Effects of a $1.50 per unit tax on sellers



A Tax on Sellers

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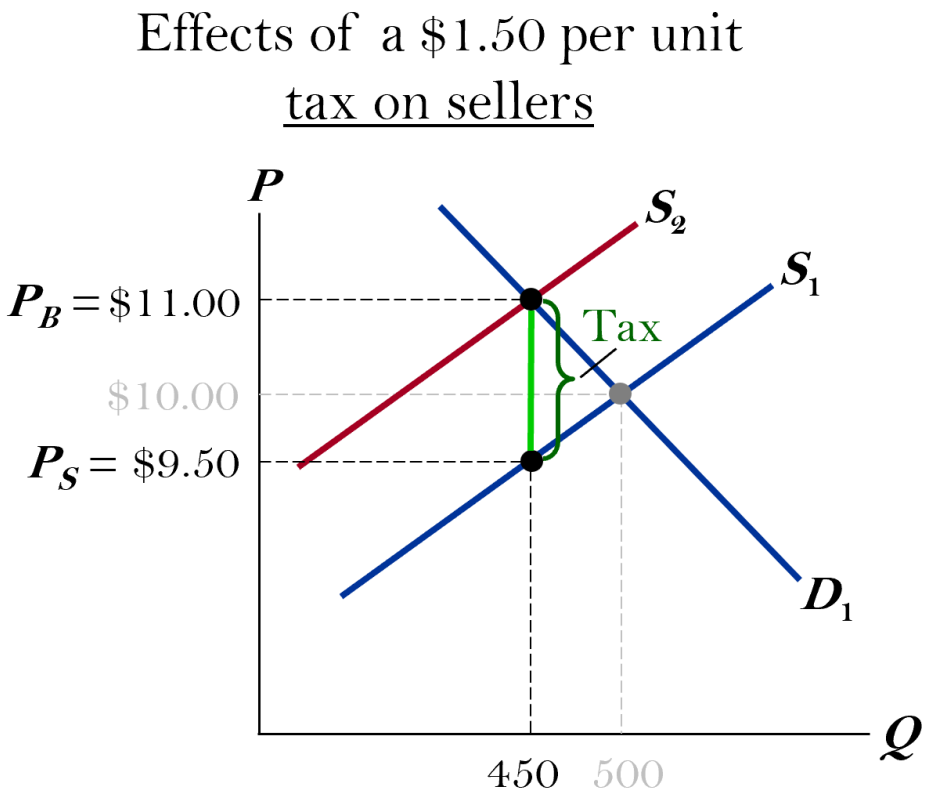
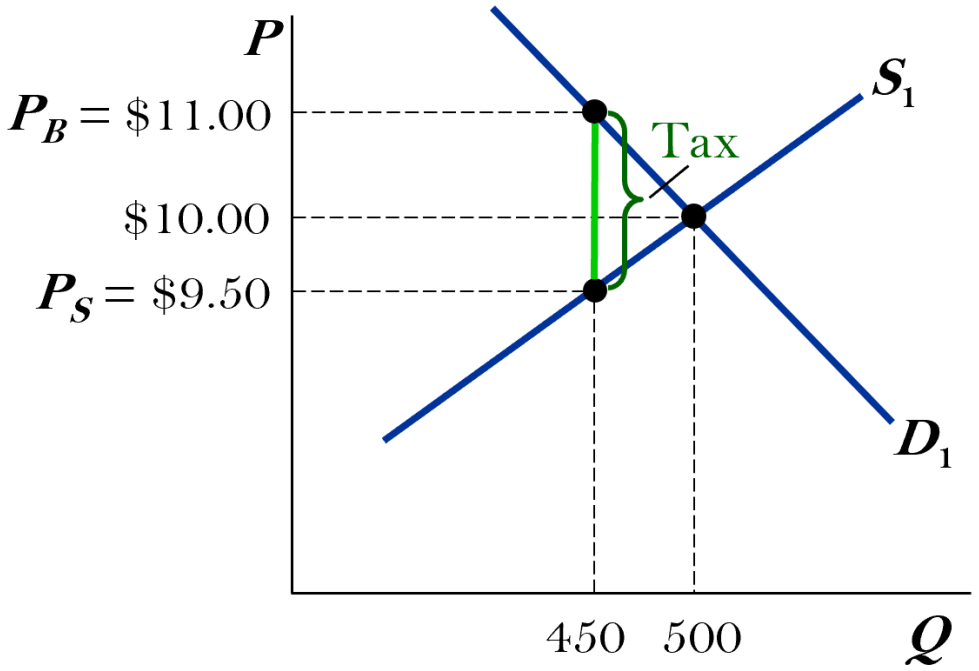


The Outcome Is the Same in Both Cases!

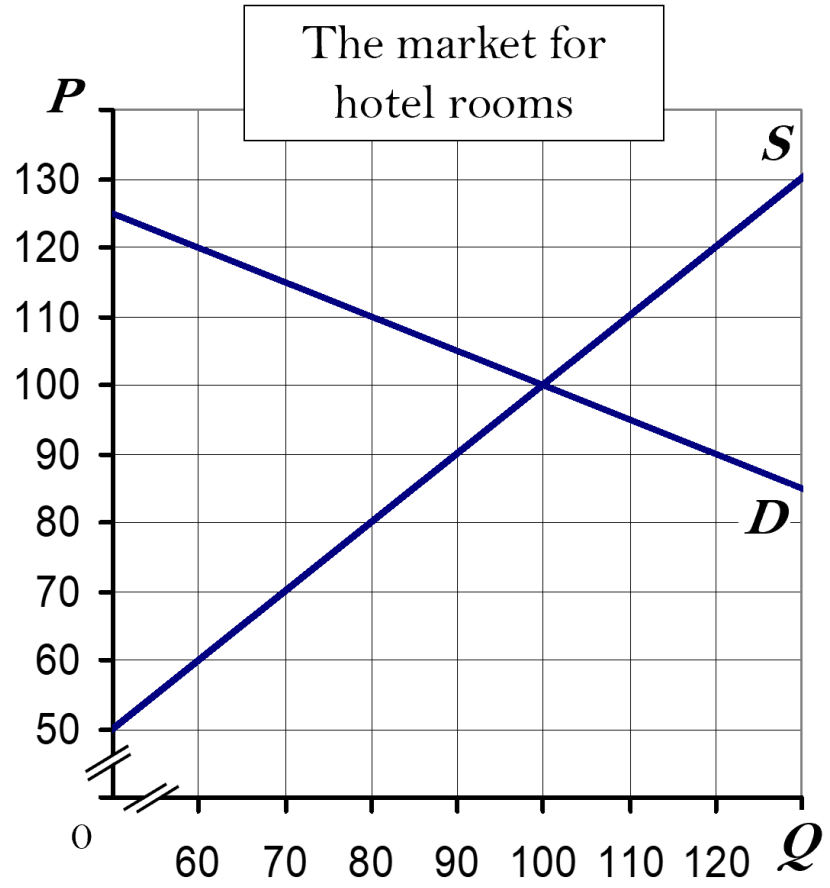
- The effects on P and Q, and the tax incidence are the same whether the tax is imposed on buyers or sellers!
- A tax drives a wedge between the price buyers pay and the price sellers receive.



Active Learning 2 Effects of a tax

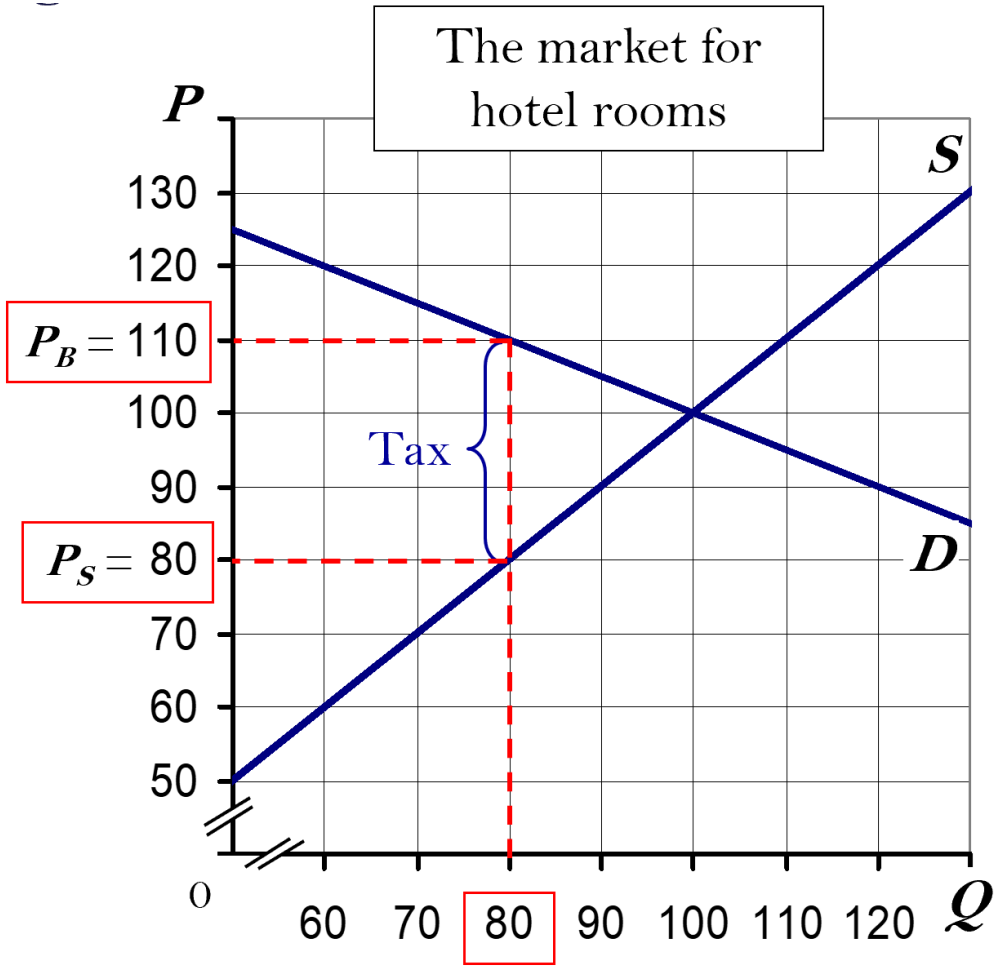
The market for hotel rooms is in equilibrium as in the graph.

- Suppose the government imposes a tax on buyers of $30 per room
- Find the new Q, P_B, P_S, and incidence of tax.



Active Learning 2 Answers

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



Example: A Tax on Gasoline

$Q^D = 150 - 25P_b$ *(Demand)*

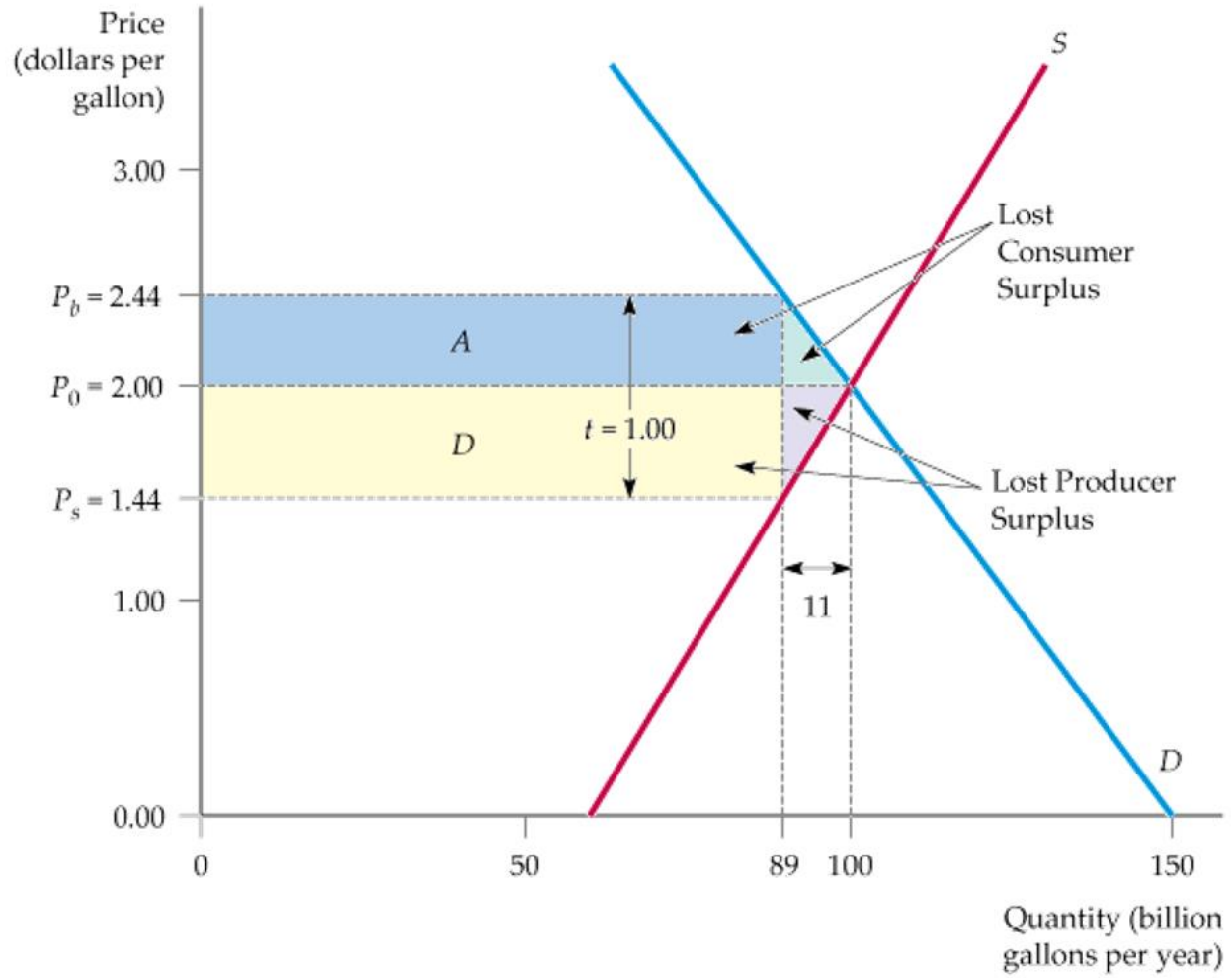
$Q^S = 60 + 20P_s$ (Supply)

$Q^D = Q^S$ (Supply must equal demand)

$P_b - P_s = 1.00$ (Government must receive \$1.00/gallon)

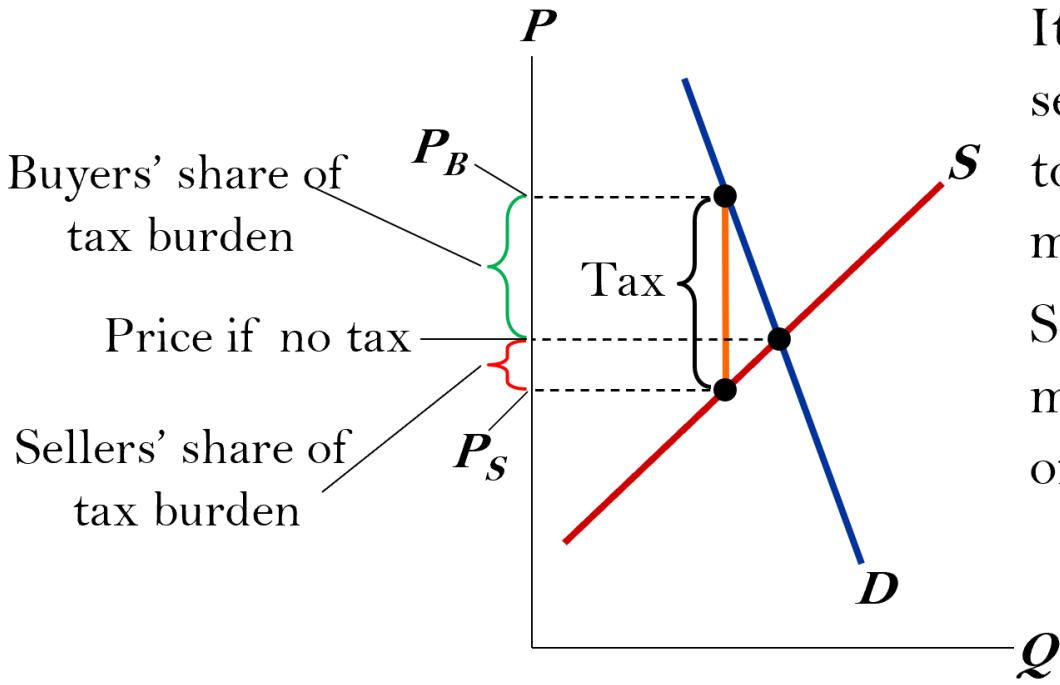
Calculate equilibrium Q^D, Q^S, P_b, P_s, CS, PS, tax revenue, deadweight loss

Example: A Tax on Gasoline



Elasticity and Tax Incidence

CASE 1: Supply is more elastic than demand

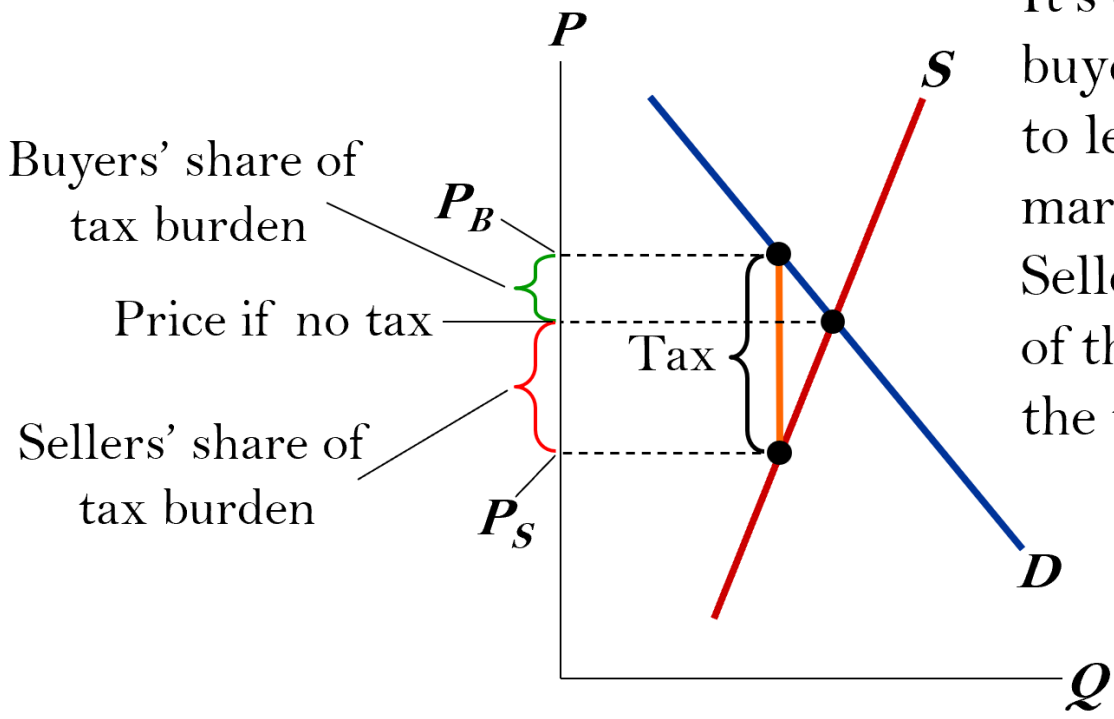


It's easier for sellers than buyers to leave the market.

So buyers bear most of the burden of the tax.

Elasticity and Tax Incidence

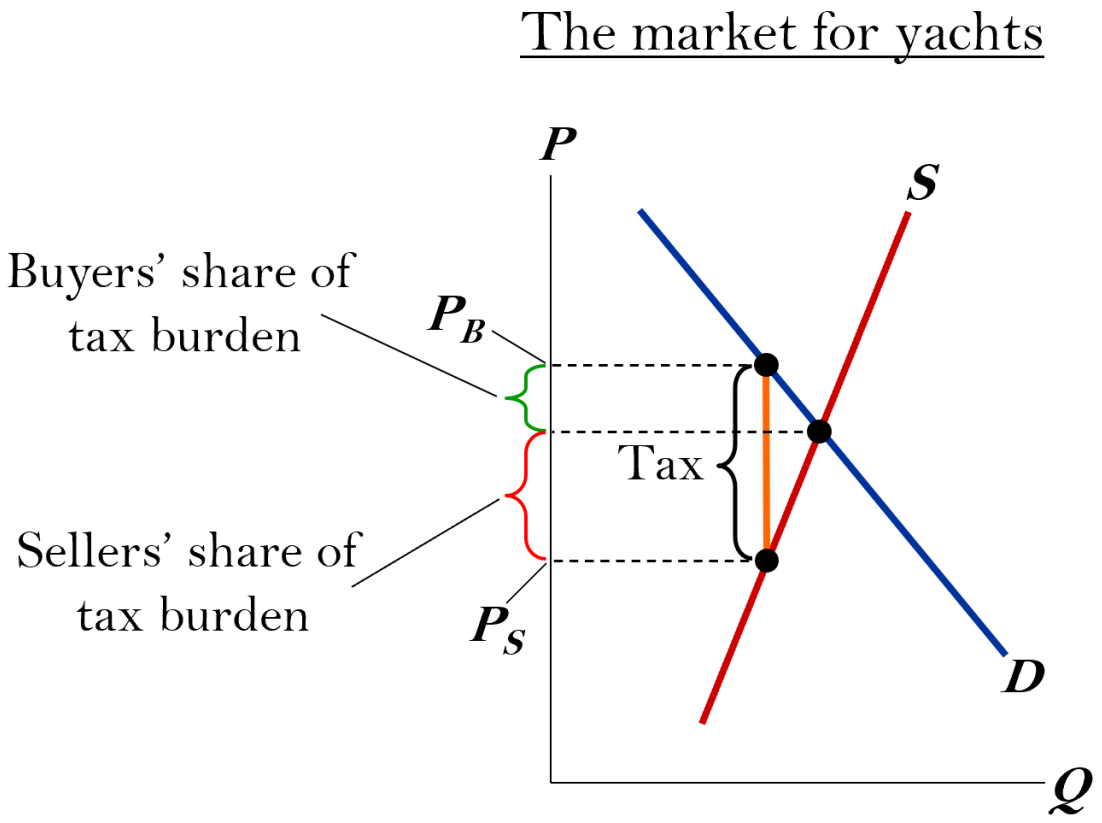
CASE 2: Demand is more elastic than supply



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

Case Study: Who pays the luxury tax?

- 1990, Congress adopted a new luxury tax
  - On yachts, private airplanes, furs, jewelry, expensive cars
  - Goal: to raise revenue from those who could most easily afford to pay
  - Luxury items
    - Demand is quite elastic
    - In the short run, supply is relatively inelastic
    - Hence, companies that build yachts pay most of the tax.



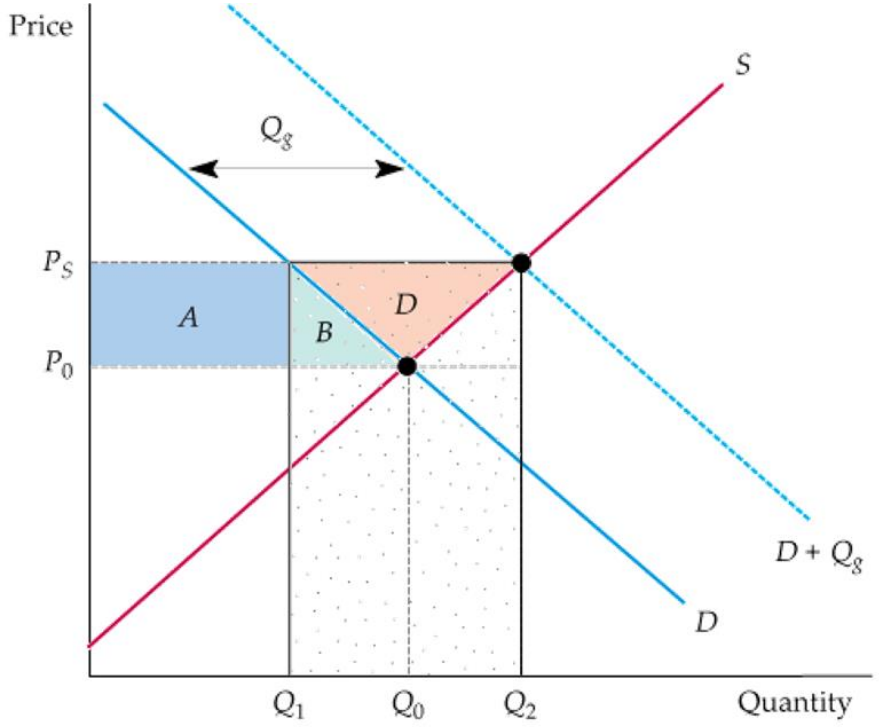
Active Learning 3 The 2011 payroll tax cut

Prior to 2011, the Social Security payroll tax was 6.2% taken from workers' pay and 6.2% paid by employers (total 12.4%). The Tax Relief Act (2010) reduced the worker's portion from 6.2% to 4.2% in 2011, but left the employer's portion at 6.2%.

- Should this change have increased the typical worker's take-home pay by exactly 2%, more than 2%, or less than 2%? Do any elasticities affect your answer? Explain.
- FOLLOW-UP QUESTION: Who gets the bigger share of this tax cut, workers or employers? How do elasticities determine the answer?

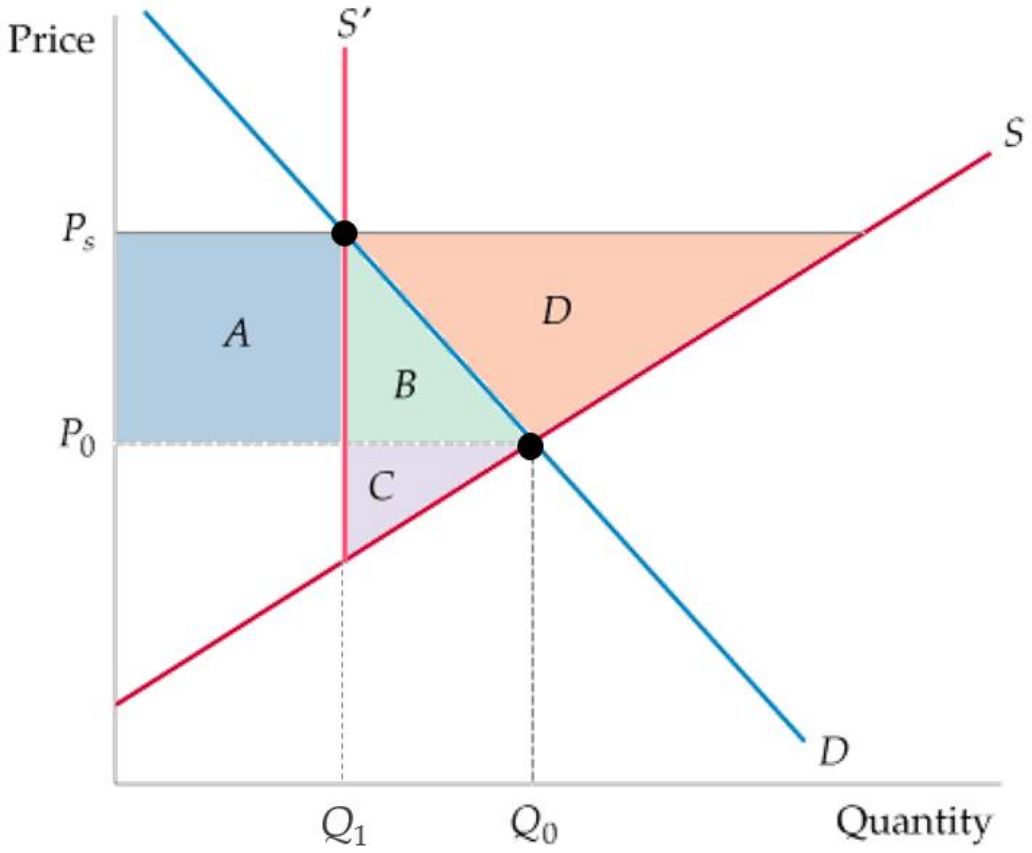
Price Supports

- Price Support
  - Price set by government above free-market level and maintained by governmental purchases of excess supply.
  - To maintain a price Ps above the market-clearing price P0, the government buys a quantity?
  - The gain to producers is ? The loss to consumers is ?
  - The cost to the government is?
  - What is total change in welfare? Is it positive or negative?



Production Quotas

- To maintain a price Ps above the market-clearing price P0, the government can restrict supply to Q1 by imposing production quotas (as with taxicab medallions in the following example).
- What's the deadweight loss in this case?



Case: Why Can't I Find A Taxi?

The city of New York limits the number of taxis by requiring each taxi to have a medallion (essentially a permit), and then limiting the number of medallions. In 2011 there were 13,150 medallions in New York—roughly the same number as in 1937. Why not just issue more medallions? The reason is simple. Doing so would incur the wrath of the current owners of medallions. Medallions can be bought and sold by the companies that own them.

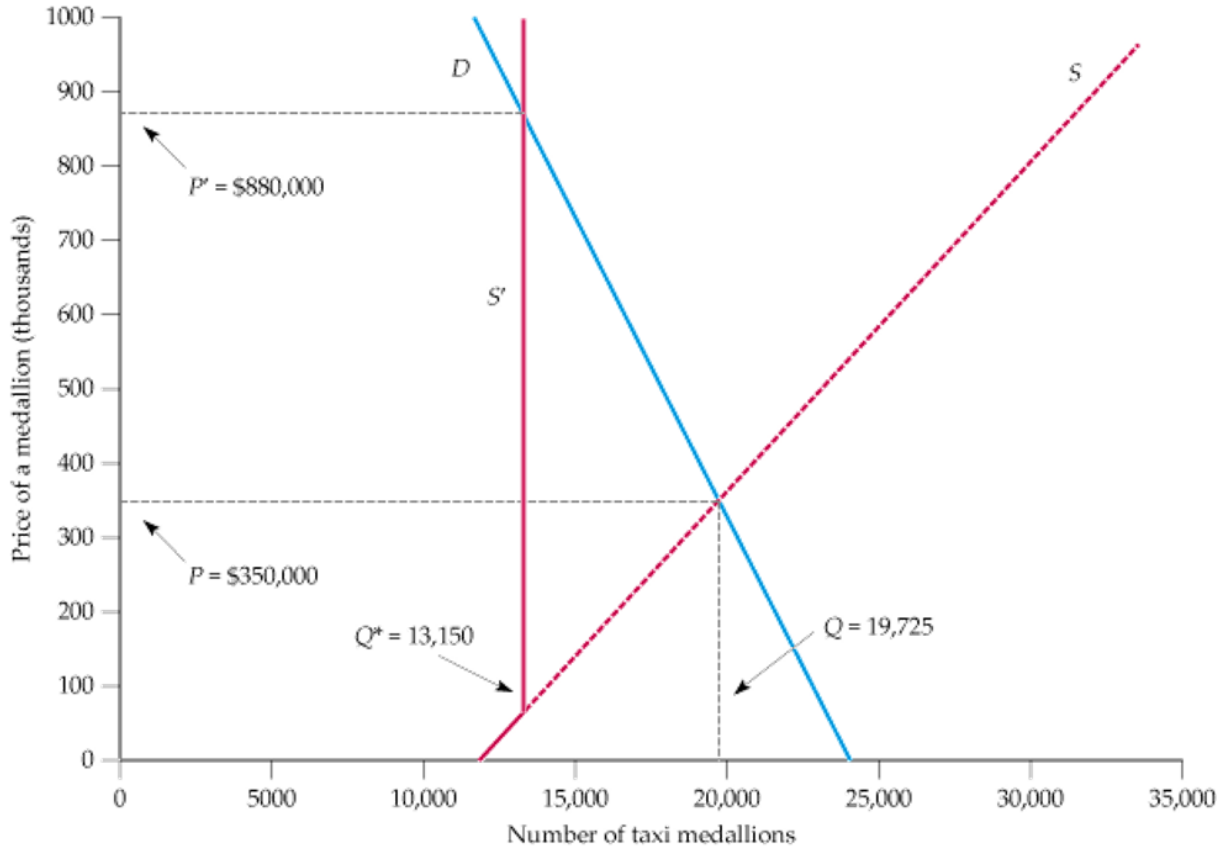
In 1937, there were plenty of medallions to go around, so they had little value. By 1947, the value of a medallion had increased to $2,500, by 1980 to $55,000, and by 2011 to $880,000. That's right—because New York City won't issue more medallions, the value of a taxi medallion is approaching $1 million!

But of course that value would drop sharply if the city starting issuing more medallions. So the New York taxi companies that collectively own the 13,150 available medallions have done everything possible to prevent the city from issuing any more—and have succeeded in their efforts.

If the city were to issue another 7,000 medallions for a total of about 20,000, demand and supply would equilibrate at a price of about $350,000 per medallion– still a lot, but just enough to lease cabs, run a taxi business, and still make a profit.

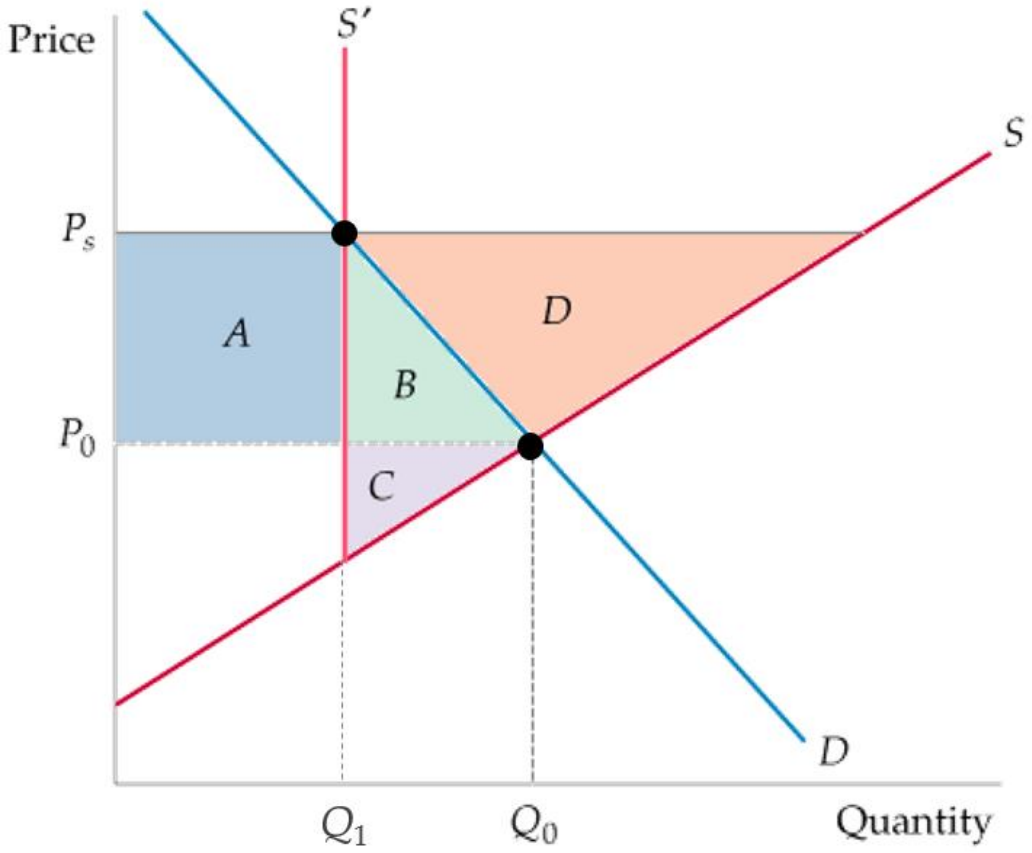
Case: Why Can't I Find A Taxi?

- The demand curve D shows the quantity of medallions demanded by taxi companies as a function of the price of a medallion.
- The supply curve S shows the number of medallions that would be sold by current owners as a function of price.
- New York limits the quantity to 13,150, so the supply curve becomes vertical and intersects demand at $880,000, the market price of a medallion in 2011.



Incentive Program

- To maintain a price Ps above the market-clearing price P0, the government can also restrict supply to Q1 by giving producers a financial incentive to reduce output (as with acreage limitations in agriculture).
- What's the deadweight loss in this case?

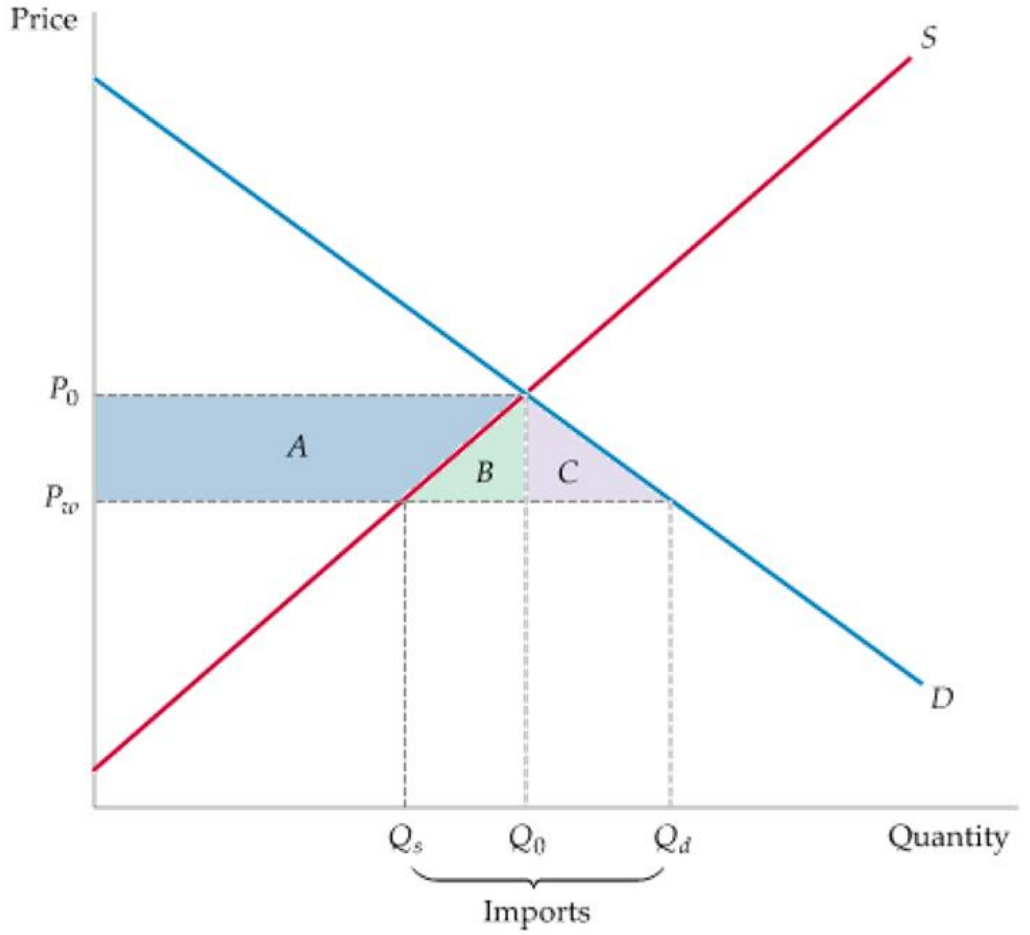


Import Quotas and Tariffs

- Import quota: Limit on the quantity of a good that can be imported.
- Tariff: Tax on an imported good.

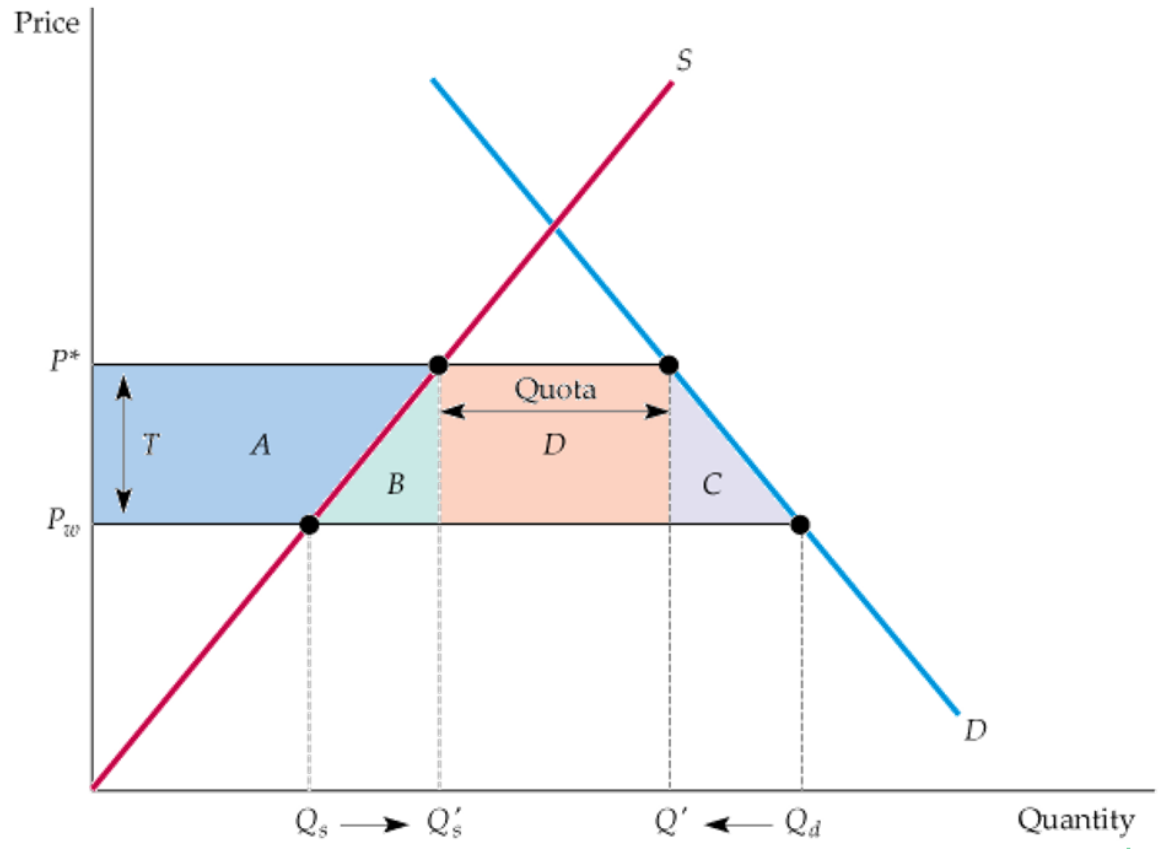
Import Tariff or Quota That Eliminates Imports

- In a free market, the domestic price equals the world price Pw.
- A total Qd is consumed, of which Qs is supplied domestically and the rest imported.
- When imports are eliminated, the price is increased to P0.
- The gain to producers is trapezoid A.
- The loss to consumers is A + B + C, so the deadweight loss is B + C.



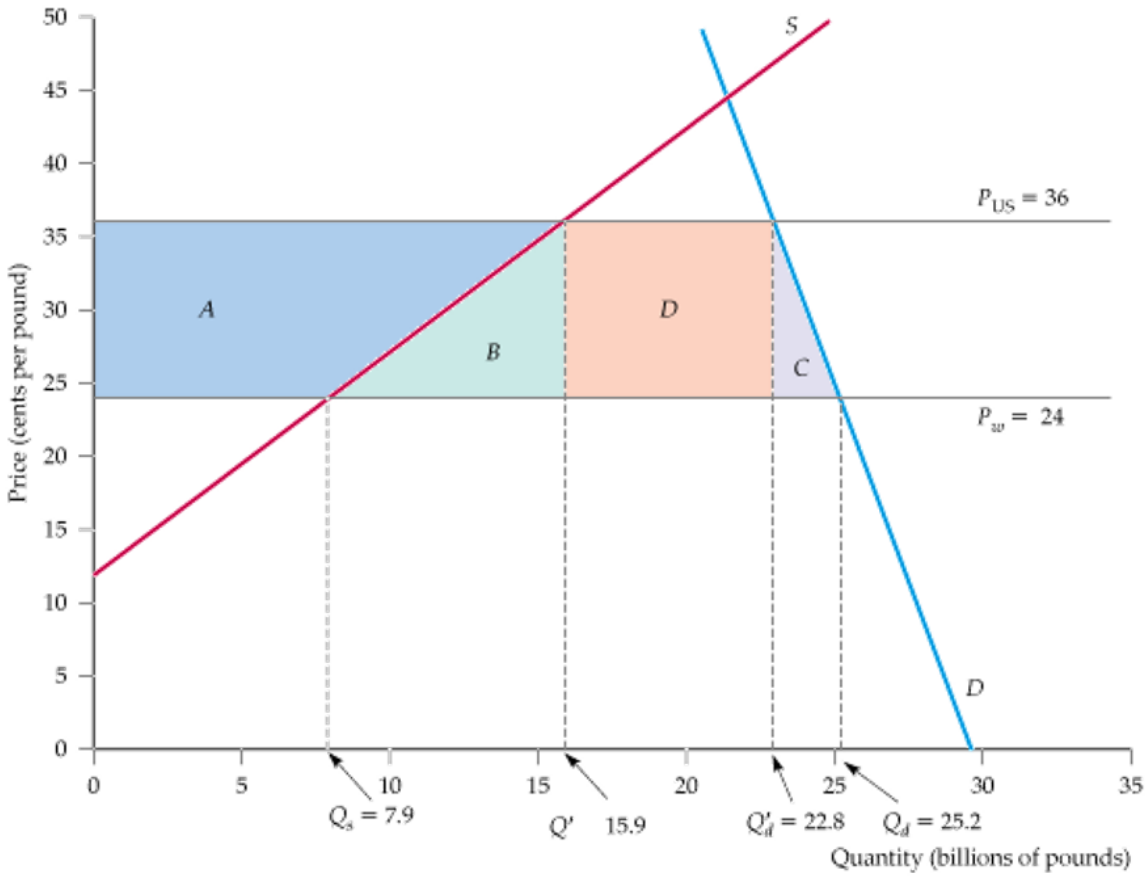
Import Tariff or Quota (General Case)

- When imports are reduced, the domestic price is increased from Pw to P*. This can be achieved by a quota, or by a tariff T = P* – Pw.
- Trapezoid A is again the gain to domestic producers.
- The loss to consumers is A + B + C + D.
- If a tariff is used, the government gains D, the revenue from the tariff. The net domestic loss is B + C.
- If a quota is used instead, rectangle D becomes part of the profits of foreign producers, and the net domestic loss is B + C + D.



Case: The Sugar Quota

- In recent years, the world price of sugar has been between 10 and 28 cents per pound, while the U.S. price has been 30 to 40 cents per pound. Why?
- By restricting imports, the U.S. government protects the $4 billion domestic sugar industry, which would virtually be put out of business if it had to compete with low-cost foreign producers. This policy has been good for U.S. sugar producers, but bad for consumers.



Can You Answer the Following 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?

End