

# Chapter 6

## Supply, Demand, and Government Policies

# Controls on Prices

- Price controls
  - Policymakers believe that the market price of a good or service is unfair to buyers or sellers
  - Can generate inequities
- Taxes
  - To raise revenue for public purposes
  - To influence market outcomes

# Controls on Prices

- Price ceiling

- A legal maximum on the price at which a good can be sold
- Rent-control laws

- Price floor

- A legal minimum on the price at which a good can be sold
- Minimum wage laws

# Controls on Prices

## How price ceilings affect market outcomes

### – Not binding

- Set above the equilibrium price
- No effect on the price or quantity sold

### – Binding constraint

- Set below the equilibrium price: Shortage

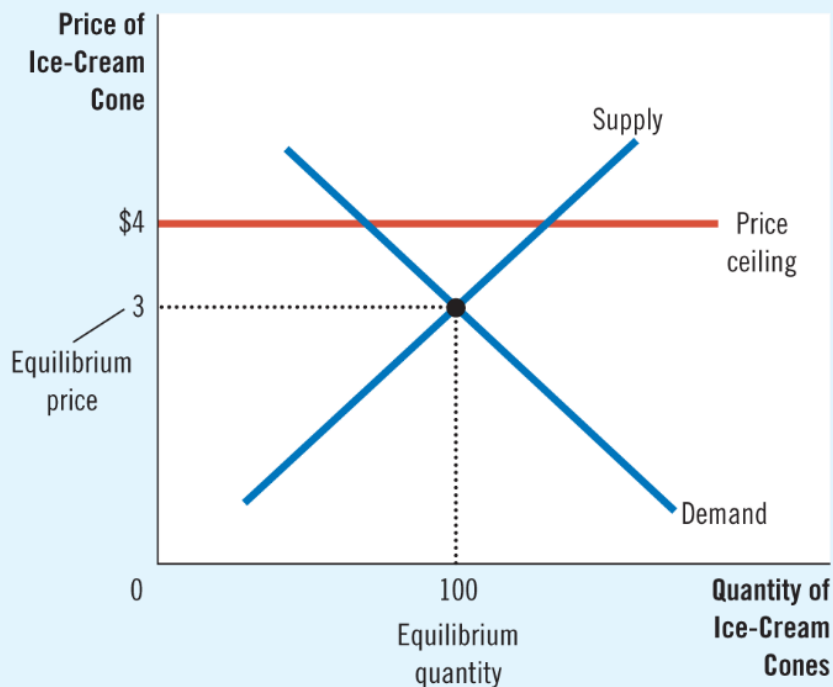
# Figure 1 A Market with a Price Ceiling

In panel (a), the government imposes a price ceiling of \$4. Because the price ceiling is above the equilibrium price of \$3, it has no effect, and the market can reach the equilibrium of supply and demand. In this equilibrium, quantity supplied and quantity demanded both equal 100 cones. In panel (b), the government imposes a price ceiling of \$2. Because the price ceiling is below the equilibrium price of \$3, the market price equals \$2. At this price, 125 cones are demanded and only 75 are supplied, so there is a shortage of 50 cones.

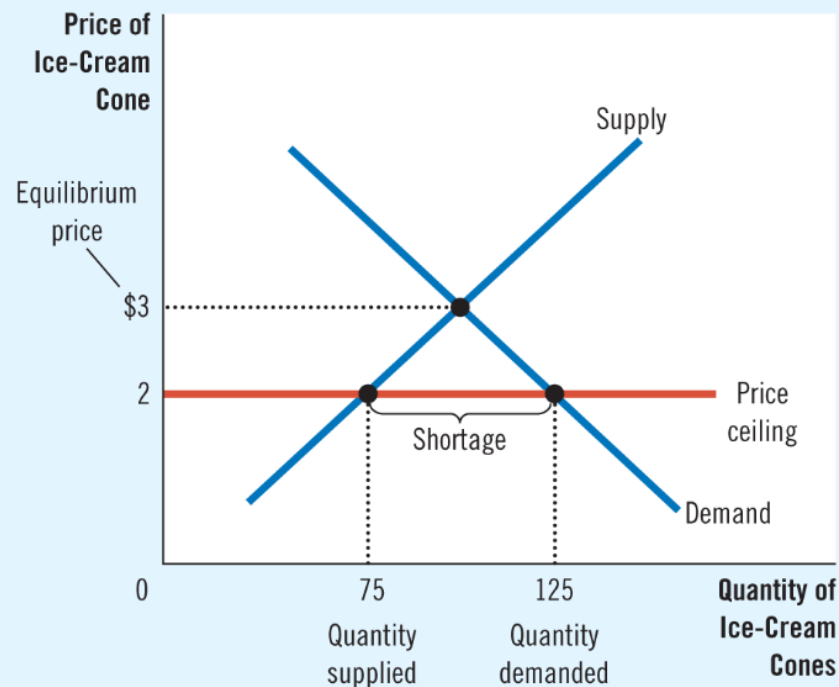
**FIGURE 1**

**A Market with a Price Ceiling**

(a) A Price Ceiling That Is Not Binding



(b) A Price Ceiling That Is Binding



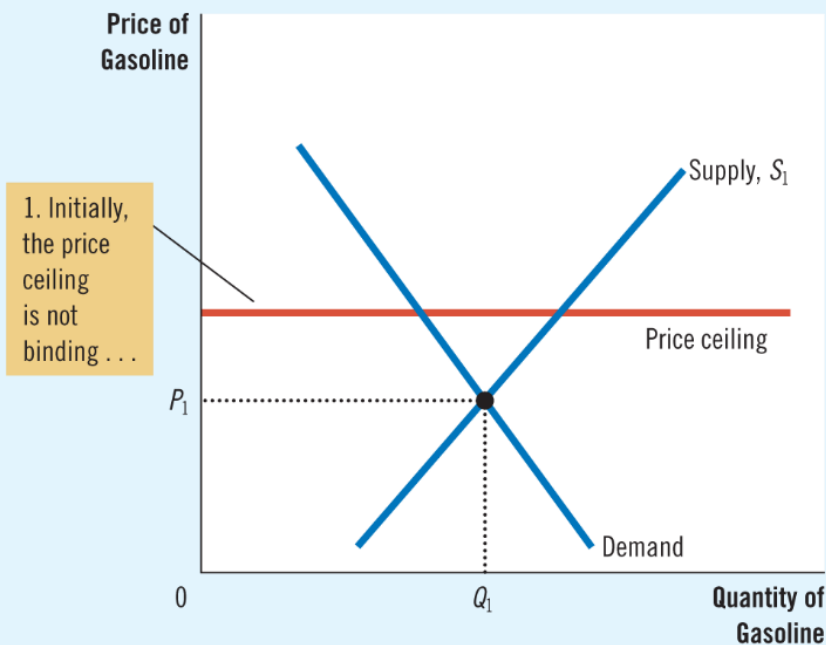
# Figure 2 The Market for Gasoline with a Price Ceiling

**FIGURE 2**

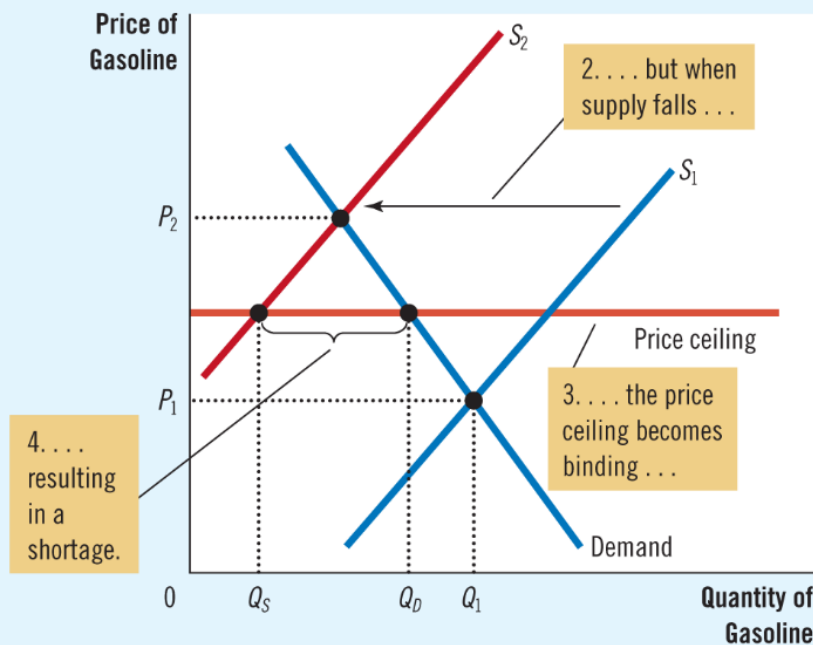
**The Market for Gasoline with a Price Ceiling**

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.

(a) The Price Ceiling on Gasoline Is Not Binding



(b) The Price Ceiling on Gasoline Is Binding



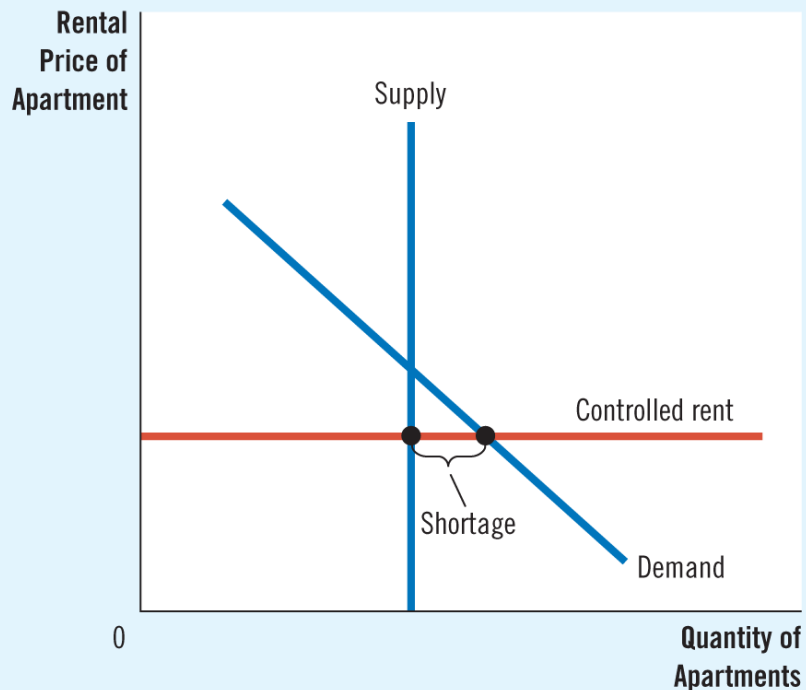
# Figure 3 Rent Control in Short Run and in Long Run

Panel (a) shows the short-run effects of rent control: Because the supply and demand curves for apartments are relatively inelastic, the price ceiling imposed by a rent-control law causes only a small shortage of housing. Panel (b) shows the long-run effects of rent control: Because the supply and demand curves for apartments are more elastic, rent control causes a larger shortage.

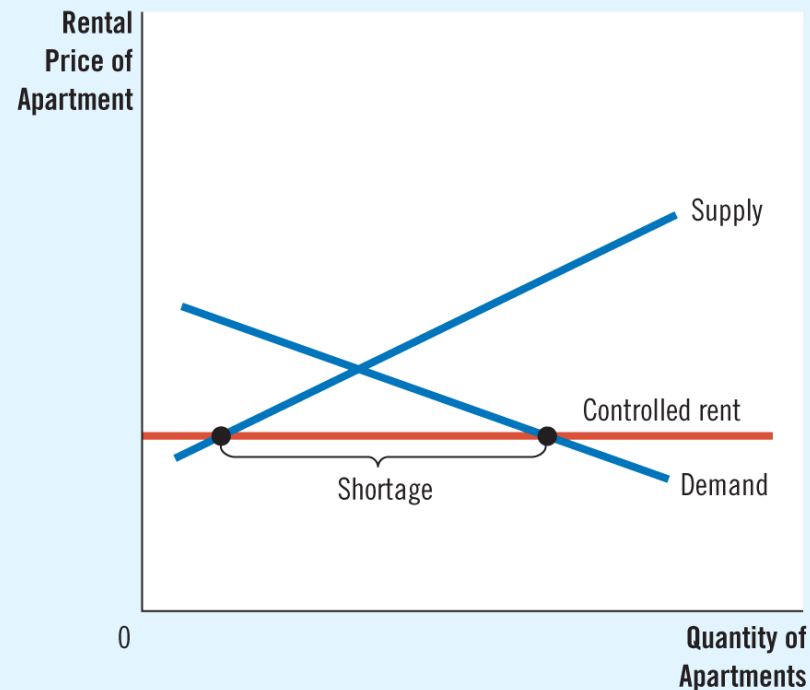
**FIGURE 3**

**Rent Control in the Short Run and in the Long Run**

**(a) Rent Control in the Short Run**  
(supply and demand are inelastic)



**(b) Rent Control in the Long Run**  
(supply and demand are elastic)



# Controls on Prices

## How price floors affect market outcomes

### – Not binding

- Set below the equilibrium price
- No effect on the market

### – Binding constraint

- Set above the equilibrium price: Surplus



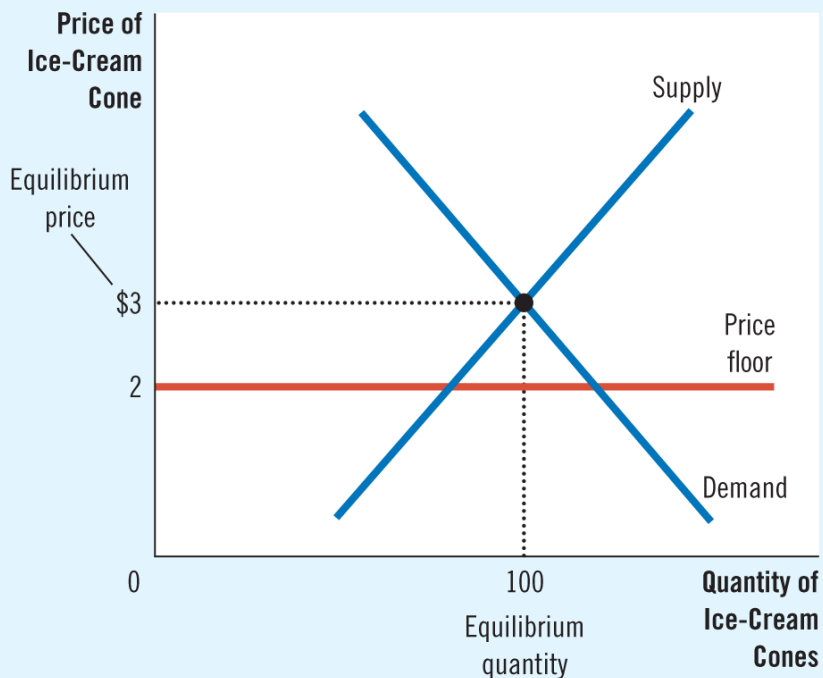
# Figure 4 A Market with a Price Floor

In panel (a), the government imposes a price floor of \$2. Because the price floor is below the equilibrium price of \$3, it has no effect. The market price adjusts to balance supply and demand. At the equilibrium, quantity supplied and quantity demanded both equal 100 cones. In panel (b), the government imposes a price floor of \$4, which is above the equilibrium price of \$3. Therefore, the market price equals \$4. Because 120 cones are supplied at this price and only 80 are demanded, there is a surplus of 40 cones.

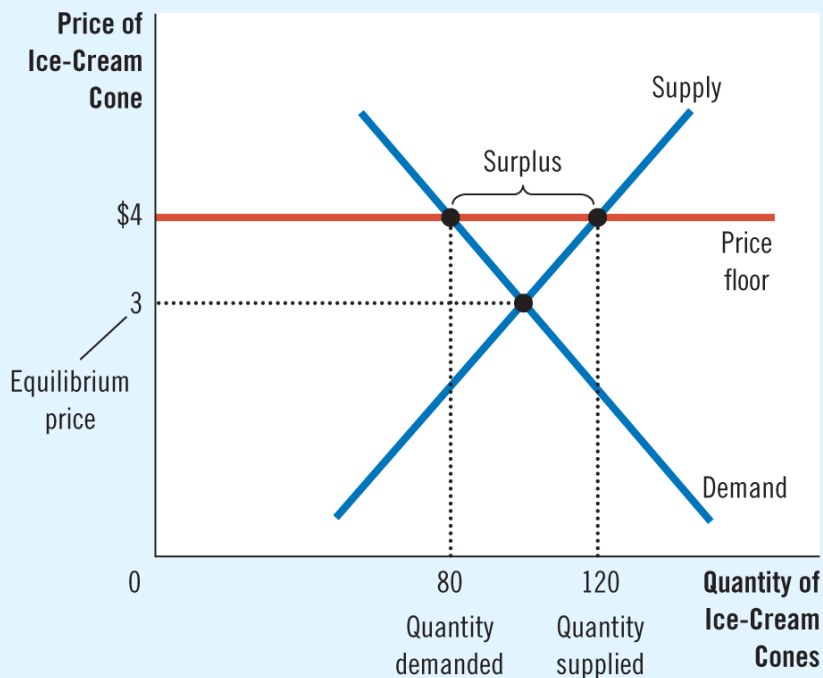
**FIGURE 4**

**A Market with a Price Floor**

**(a) A Price Floor That Is Not Binding**



**(b) A Price Floor That Is Binding**



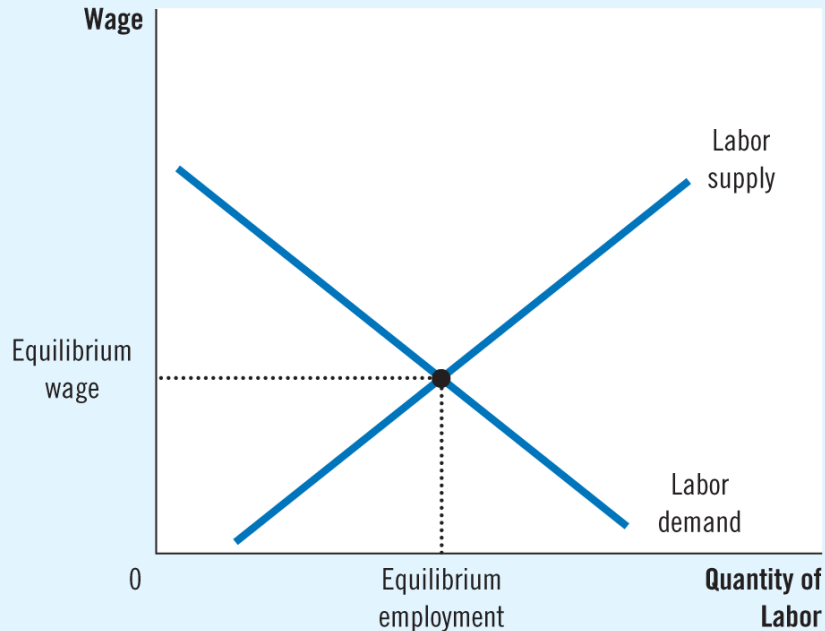
# Figure 5 How Minimum Wage Affects Labor Market

## FIGURE 5

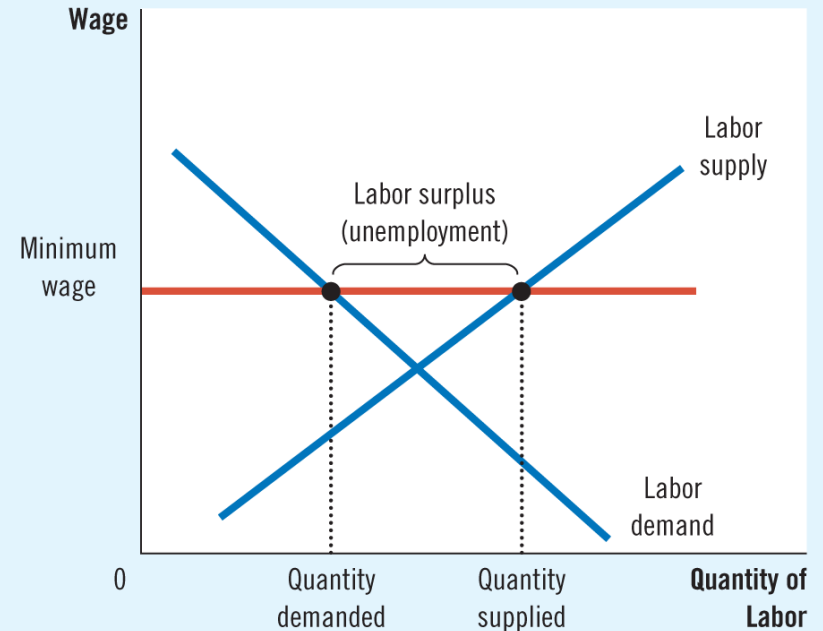
### How the Minimum Wage Affects the Labor Market

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.

(a) A Free Labor Market



(b) A Labor Market with a Binding Minimum Wage



# Taxes

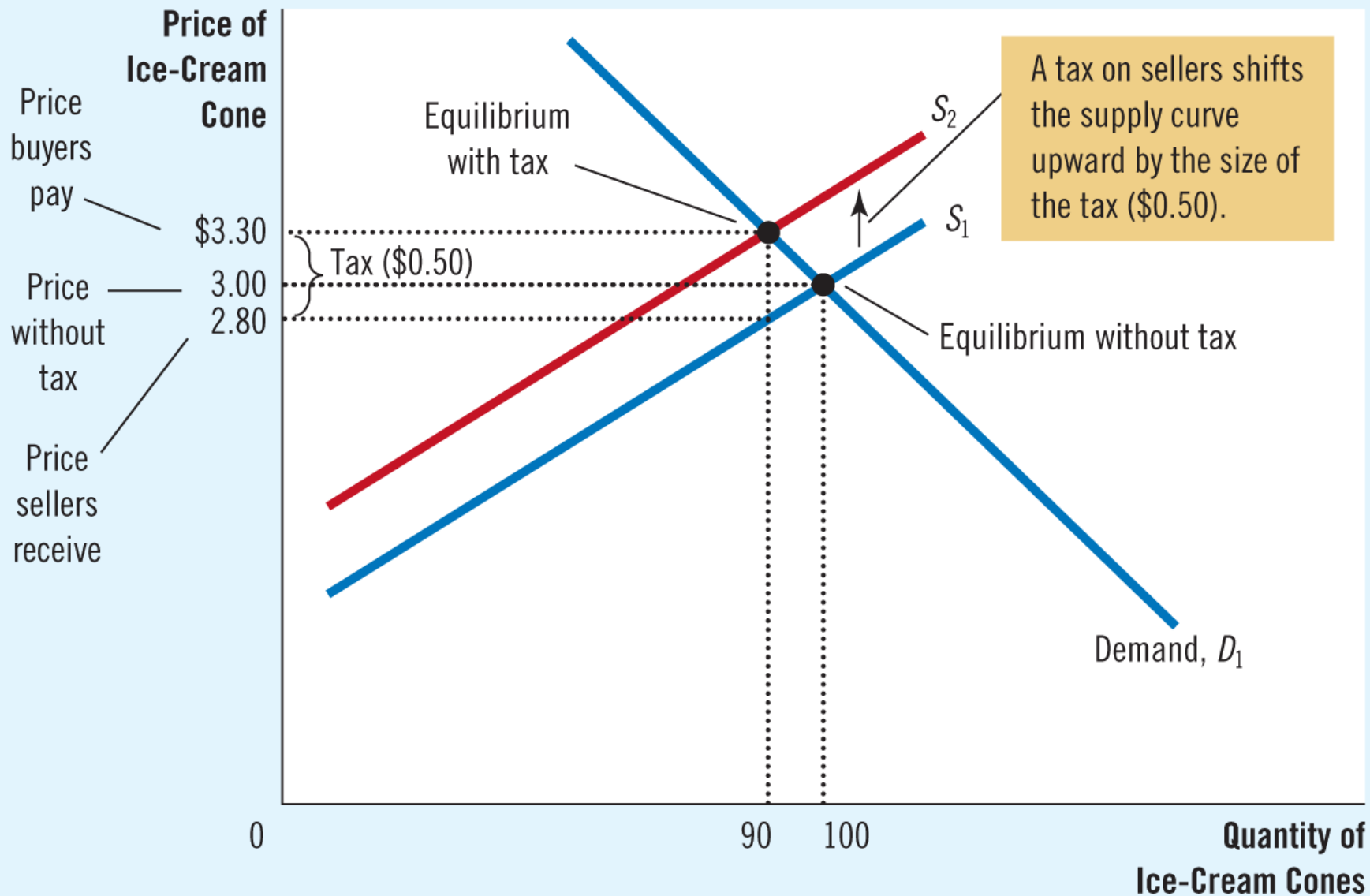
- Government uses taxes
  - To raise revenue for public projects
    - Roads, schools, and national defense
- **Tax incidence**
  - Manner in which the **burden of a tax is shared among participants** in a market

# Taxes

## How taxes on sellers affect market outcomes

- Immediate impact on sellers: shift in supply
- Supply curve shifts left
- Higher equilibrium price
- Lower equilibrium quantity
- The tax reduces the size of the market

# Figure 6 A Tax on Sellers



# Taxes

## How taxes on sellers affect market outcomes

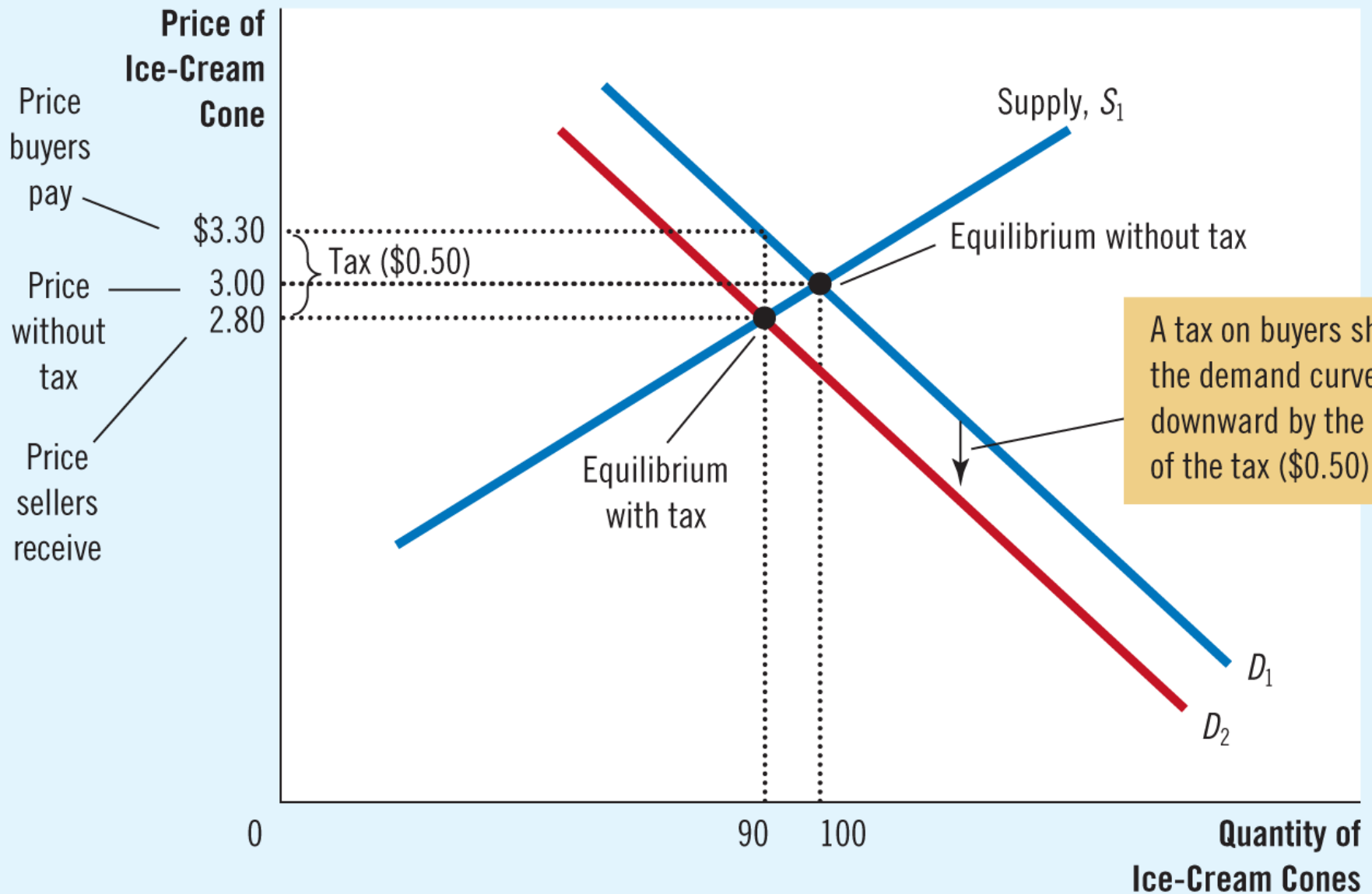
- Taxes discourage market activity
- Buyers and sellers share the burden of tax
- Buyers pay more, are worse off
- Sellers receive less, are worse off
  - Get the higher price but pay the tax
  - Overall: effective price fall

# Taxes

## How taxes on buyers affect market outcomes

- Initial impact on the demand
- Demand curve shifts left
- Lower equilibrium price
- Lower equilibrium quantity
- The tax reduces the size of the market

# Figure 7 A Tax on Buyers





# Taxes

## How taxes on buyers affect market outcomes

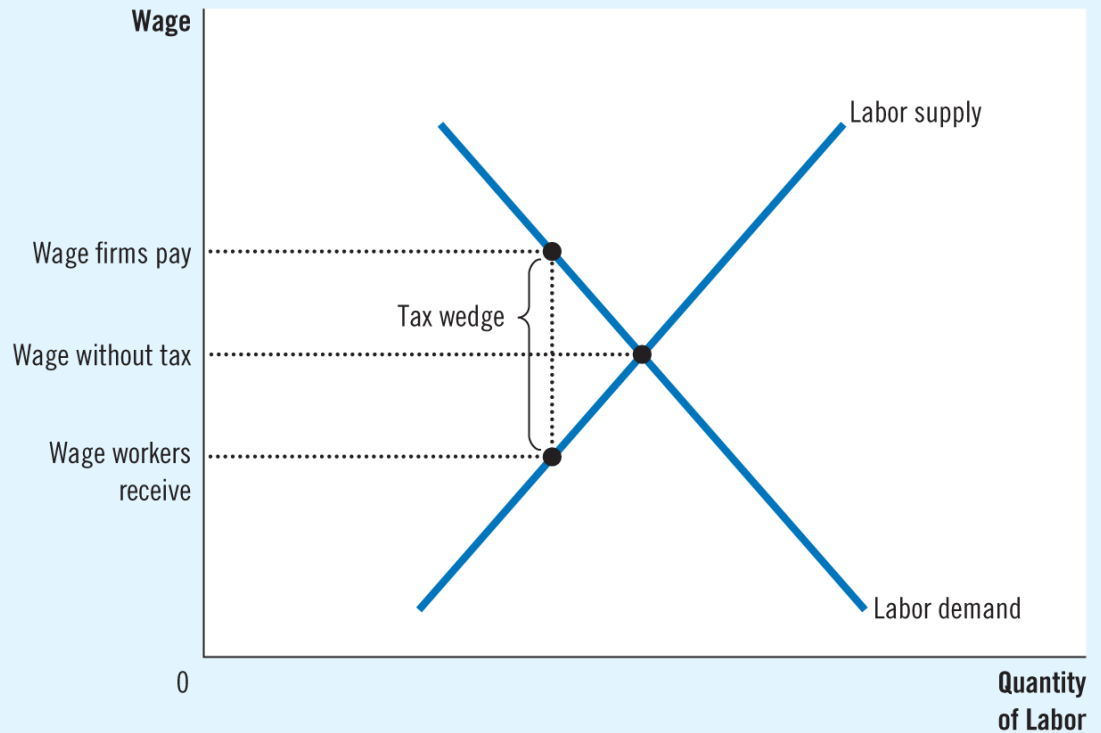
- Buyers and sellers share the burden of tax
- Sellers get a lower price, are worse off
- Buyers pay a lower market price, are worse off
  - Effective price (with tax) rises

# Figure 8 A Payroll Tax

## FIGURE 8

### 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
  - Very elastic supply and relatively inelastic demand
    - Sellers bear a small burden of tax
    - Buyers bear most of the burden
  - Relatively inelastic supply and very elastic demand
    - Sellers bear most of the tax burden
    - Buyers bear a small burden

# Figure 9 How the Burden of a Tax Is Divided, Part 1

(a) Elastic Supply, Inelastic Demand

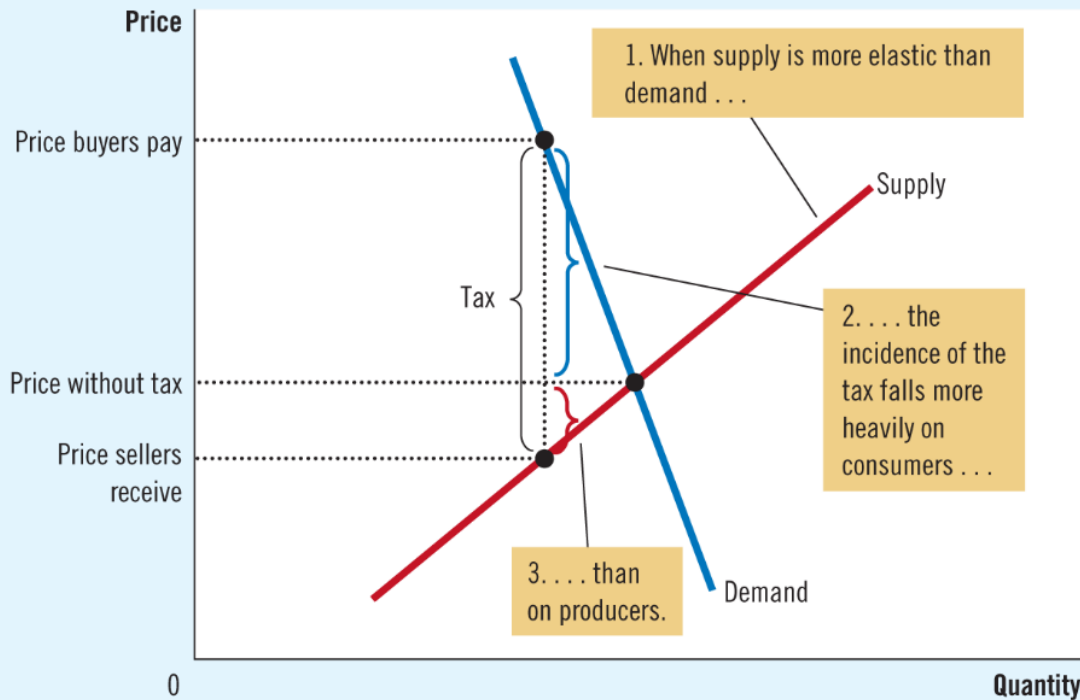


FIGURE 9

## How the Burden of a Tax Is Divided

In panel (a), the supply curve is elastic, and the demand curve is inelastic. In this case, the price received by sellers falls only slightly, while the price paid by buyers rises substantially. Thus, buyers bear most of the burden of the tax. In panel (b), the supply curve is inelastic, and the demand curve is elastic. In this case, the price received by sellers falls substantially, while the price paid by buyers rises only slightly. Thus, sellers bear most of the burden of the tax.

# Figure 9 How the Burden of a Tax Is Divided, Part 2

(b) Inelastic Supply, Elastic Demand

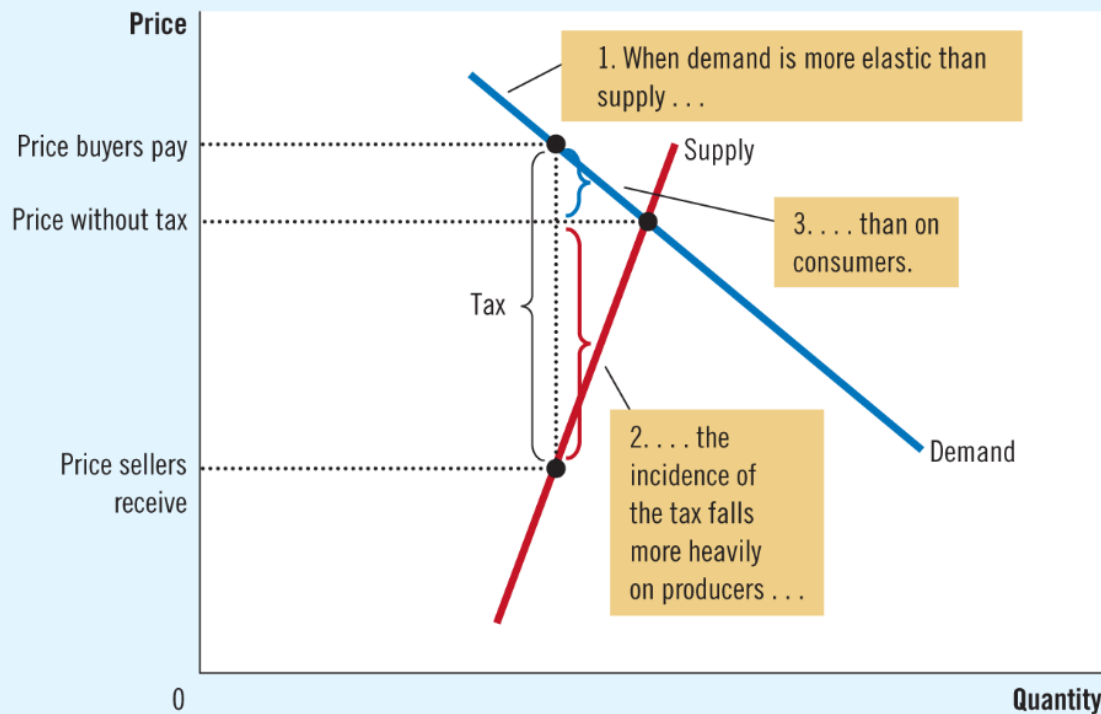


FIGURE 9

## How the Burden of a Tax Is Divided

In panel (a), the supply curve is elastic, and the demand curve is inelastic. In this case, the price received by sellers falls only slightly, while the price paid by buyers rises substantially. Thus, buyers bear most of the burden of the tax. In panel (b), the supply curve is inelastic, and the demand curve is elastic. In this case, the price received by sellers falls substantially, while the price paid by buyers rises only slightly. Thus, sellers bear most of the burden of the tax.

# Taxes

- Tax burden
  - Falls more heavily on the side of the market that is less elastic
  - Small elasticity of demand
    - Buyers do not have good alternatives to consuming this good
  - Small elasticity of supply
    - Sellers do not have good alternatives to producing this good