N. GREGORY MANKIW

PRINCIPLES OF

ECONOMICS

Eight Edition

CHAPTER 6

Supply, Demand, and Government Policies

PowerPoint Slides prepared by:
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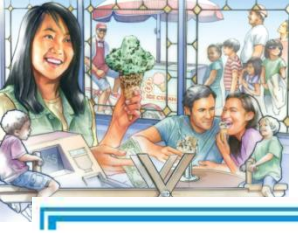
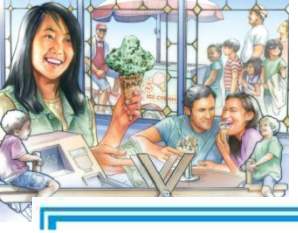


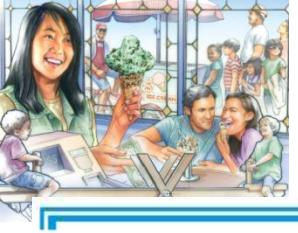
Controls on Prices, Part 1

- 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, Part 2

- 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

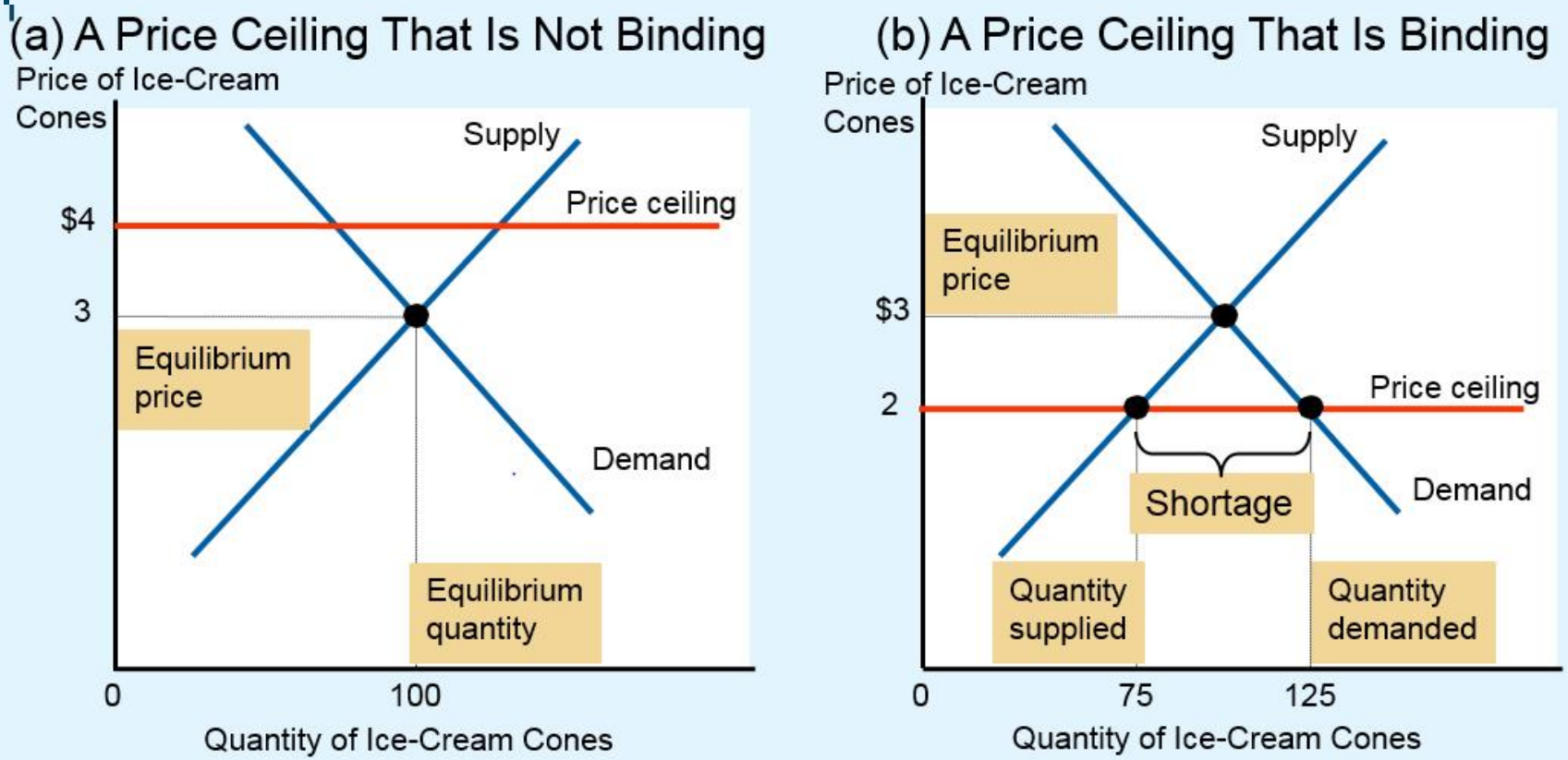


Controls on Prices, Part 3

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
  - Sellers must ration the scarce goods
  - Rationing mechanisms: long lines, discrimination according to sellers bias

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, the price ceiling 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.

CASE STUDY

Lines at the gas pump, Part 1

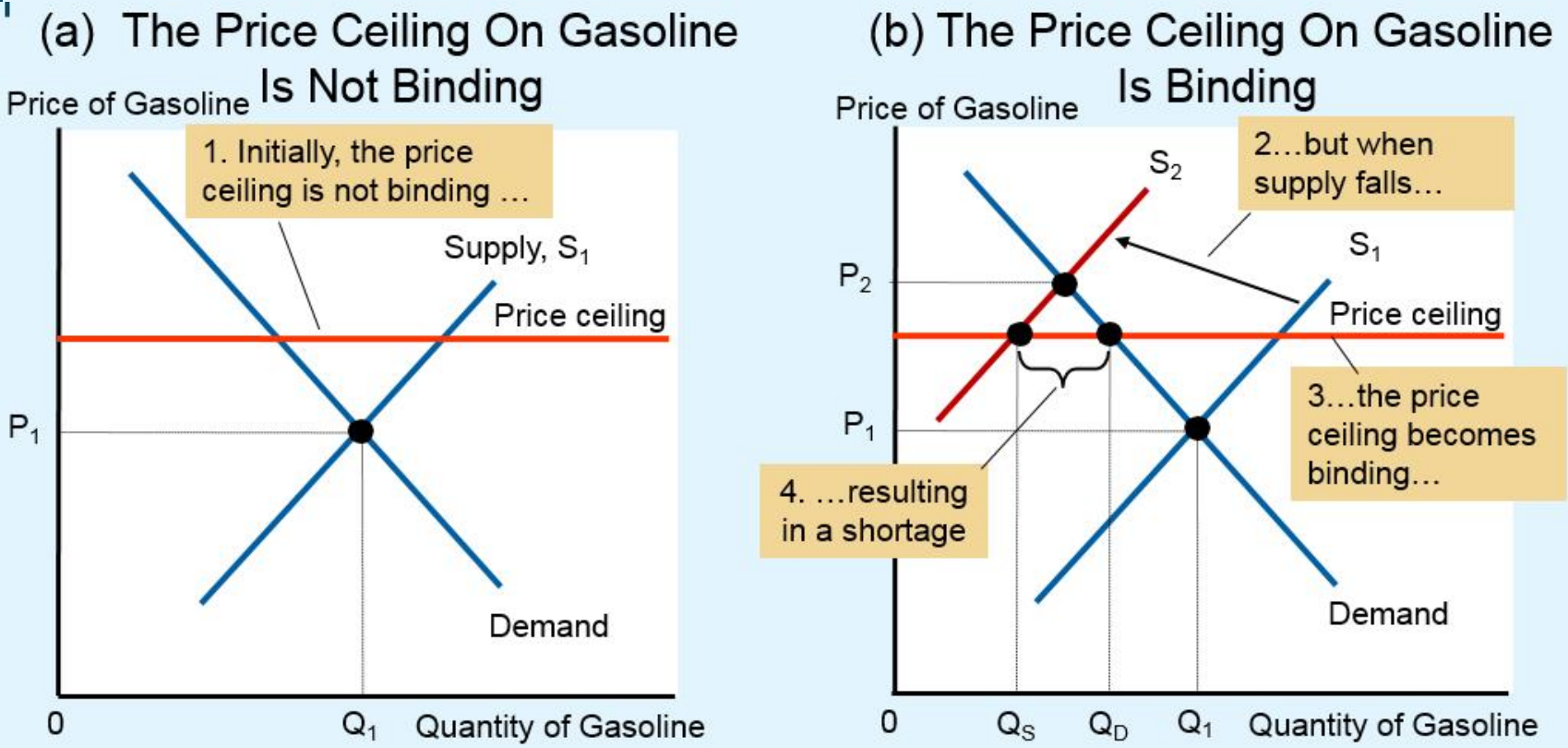
- 1973, OPEC raised the price of crude oil
  - Reduced the supply of gasoline
  - Long lines at gas stations
- What was responsible for the long gas lines?
  - OPEC
    - Shortage of gasoline
  - U.S. government regulations
    - Price ceiling on gasoline

CASE STUDY

Lines at the gas pump, Part 2

- Price ceiling on gasoline
  - Before OPEC raised the price of crude oil
    - Equilibrium price was below the price ceiling
    - No effect on the market
  - When the price of crude oil rose
    - Decrease in the supply of gasoline
    - Equilibrium price was above the price ceiling
    - Binding price ceiling: Severe shortage
- Laws regulating the price of gasoline were repealed

Figure 2 The Market for Gasoline with a Price Ceiling

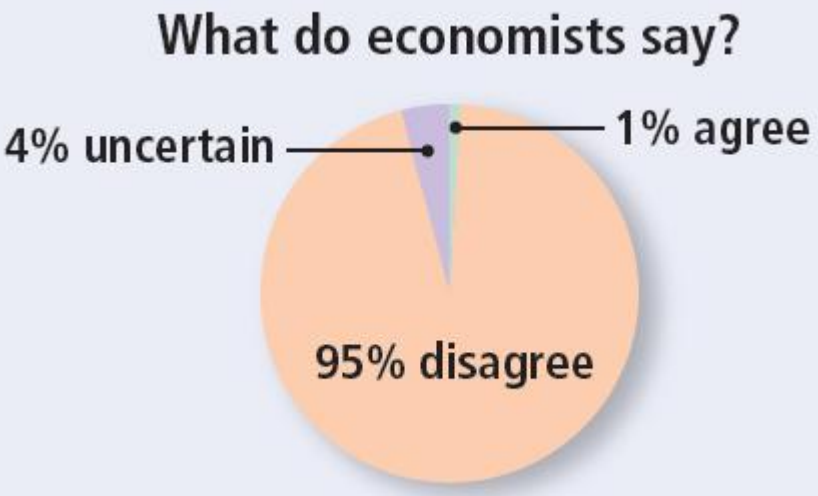


Panel (a) shows the gasoline market when the price ceiling is not binding because the equilibrium price, P_1, is below the ceiling. Panel (b) shows the gasoline market after an increase in the price of crude oil (an input into making gasoline) shifts the supply curve to the left from S_1 to S_2. In an 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.

ASK THE EXPERTS, Part 1

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."



CASE STUDY Rent control in the short run and the long run, Part 1

- Price ceiling: rent control
  - Local government places a ceiling on rents
  - Goal: to help the poor
    - Making housing more affordable
  - Critique
    - Highly inefficient way to help the poor raise their standard of living

CASE STUDY

Rent control in the short run and the long run, Part 2

- Adverse effects in the short run
  - Supply and demand for housing are inelastic in the short run
  - Small shortage
  - Reduced rents

CASE STUDY

Rent control in the short run and the long run, Part 3

- Adverse effects in the long run
  - Supply and demand are more elastic
  - Landlords
    - Are not building new apartments
    - Are failing to maintain existing ones
  - People
    - Find their own apartments
    - Induce more people to move into a city
  - Large shortage of housing

CASE STUDY

Rent control in the short run and the long run, Part 4

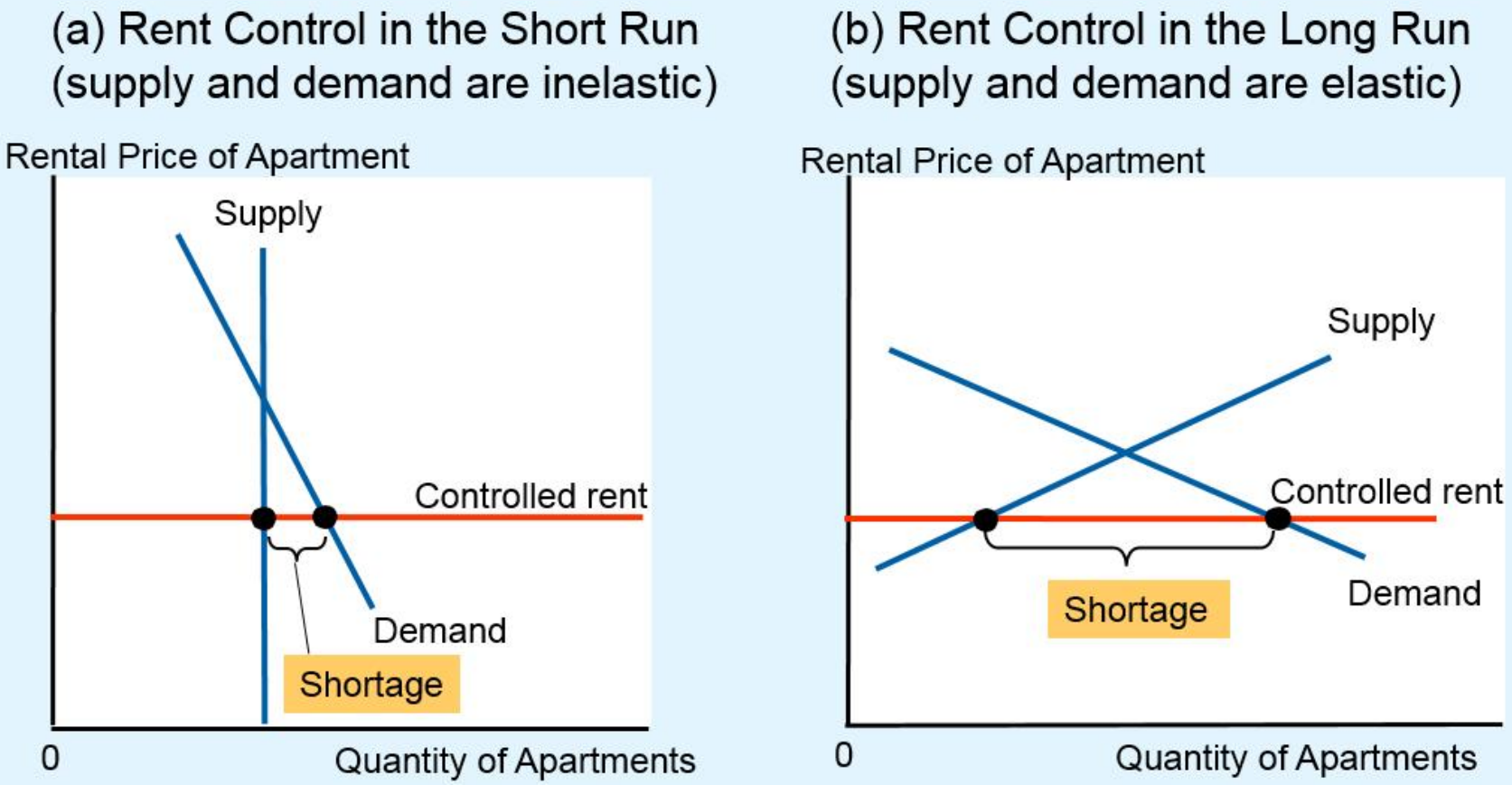
- Adverse effects in the long run
  - Rationing mechanisms
    - Long waiting lists
    - Preference to tenants without children
    - Discriminate on the basis of race
    - Bribes to building superintendents
- People respond to incentives
  - Free markets
    - Landlords – clean and safe buildings
    - Higher prices

CASE STUDY

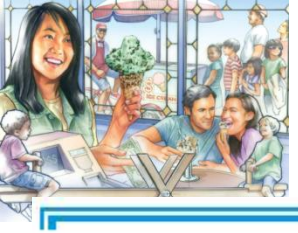
Rent control in the short run and the long run, Part 5

- People respond to incentives
  - Rent control
    - Shortages and waiting lists
    - Landlords lose their incentive to respond to tenants' concerns
    - Tenants get lower rents and lower-quality housing
- Policymakers – additional regulations
  - Difficult and costly to enforce

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 large shortage.

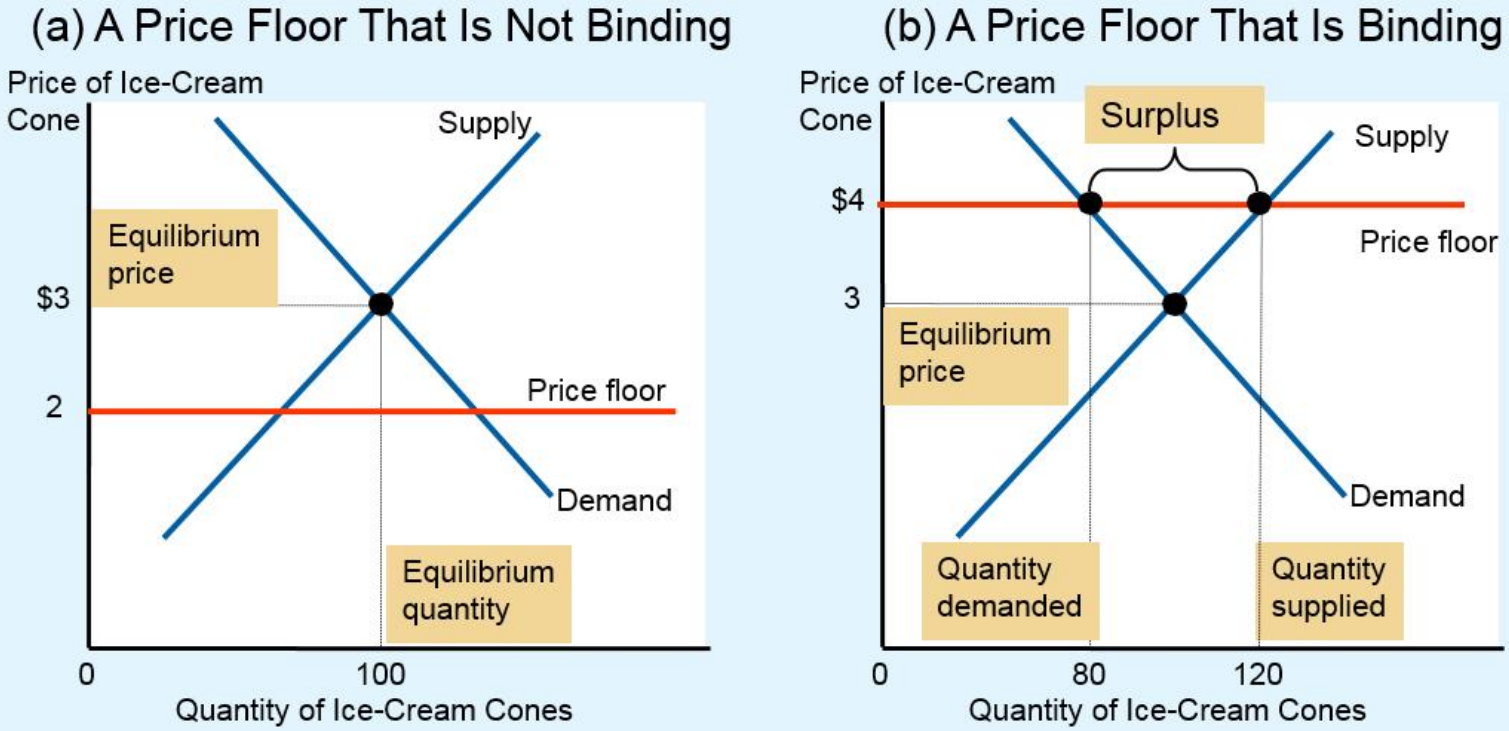


Controls on Prices, Part 4

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
  - Some sellers are unable to sell what they want
  - Rationing mechanisms: not desirable

Figure 4 A Market with a Price Floor

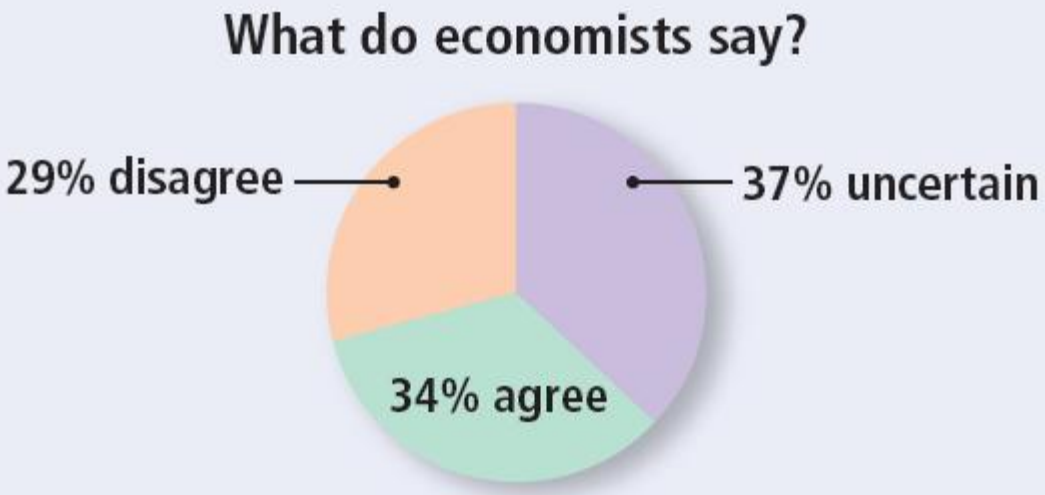


In panel (a), the government imposes a price floor of $2. Because this is below the equilibrium price of $3, the price floor has no effect. The market price adjusts to balance supply and demand. At the equilibrium, quantity supplied and quantity demanded both equal 100 cones. In panel (b), the government 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.

ASK THE EXPERTS, Part 2

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."



CASE STUDY

The minimum wage, Part 1

- Price floor: minimum wage
  - Lowest price for labor that any employer may pay
- Fair Labor Standards Act of 1938
  - Ensures workers a minimally adequate standard of living
- 2015, federal minimum wage, $7.25/hour
  - Some states mandate minimum wages above the federal level

CASE STUDY

The minimum wage, Part 2

- France
  - Average income is 30% lower than in the U.S.
  - Minimum wage is more than 30% higher
- Market for labor
  - Workers supply labor
  - Firms demand labor

CASE STUDY

The minimum wage, Part 3

- If minimum wage is above equilibrium
  - Unemployment
  - Higher income for workers who have jobs
  - Lower income for workers who cannot find jobs
- Impact of the minimum wage on highly skilled and experienced workers
  - No effect: their equilibrium wages are well above the minimum
  - Minimum wage: not binding

CASE STUDY

The minimum wage, Part 4

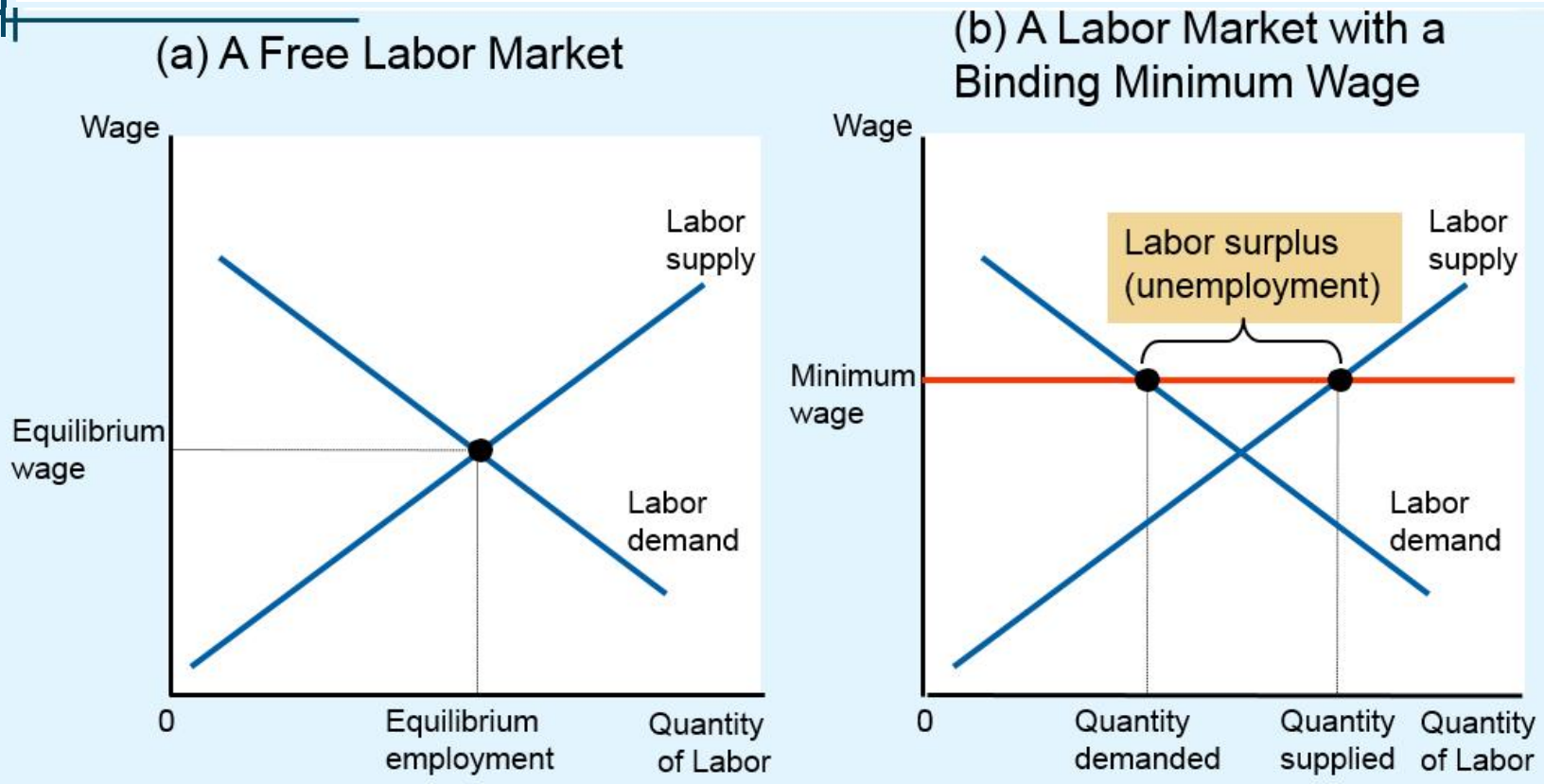
- Impact of the minimum wage on teenage labor
  - Least skilled and least experienced
  - Low equilibrium wages
  - Willing to accept a lower wage in exchange for on-the-job training
  - Minimum wage: binding

CASE STUDY

The minimum wage, Part 5

- Teenage labor market
  - A 10% increase in the minimum wage depresses teenage employment between 1 and 3%
  - Some teenagers who are still attending high school choose to drop out and take jobs
    - Displace other teenagers who had already dropped out of school and who now become unemployed

Figure 5 How Minimum Wage Affects Labor Market

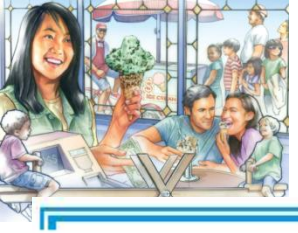


Panel (a) shows a labor market in which the wage adjusts to balance labor supply and labor demand.
Panel (b) shows the impact of a binding minimum wage. Because the minimum wage is a price floor, it causes a surplus: The quantity of labor supplied exceeds the quantity demanded. The result is unemployment.

CASE STUDY

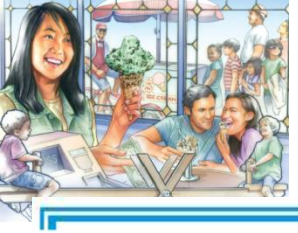
The minimum wage, Part 6

- Advocates of the minimum wage
  - Raise the income of the working poor
    - Workers who earn the minimum wage can afford only a meager standard of living
- Opponents of the minimum wage
  - Not the best way to combat poverty
    - Unemployment, encourages teenagers to drop out of school, prevents some unskilled workers from getting on-the-job training
  - Poorly targeted policy



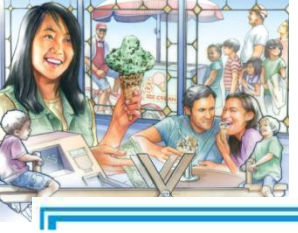
Evaluating Price Controls, Part 1

- 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



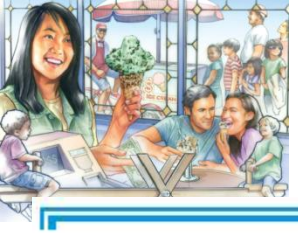
Evaluating Price Controls, Part 2

- 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)



Taxes, Part 1

- 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

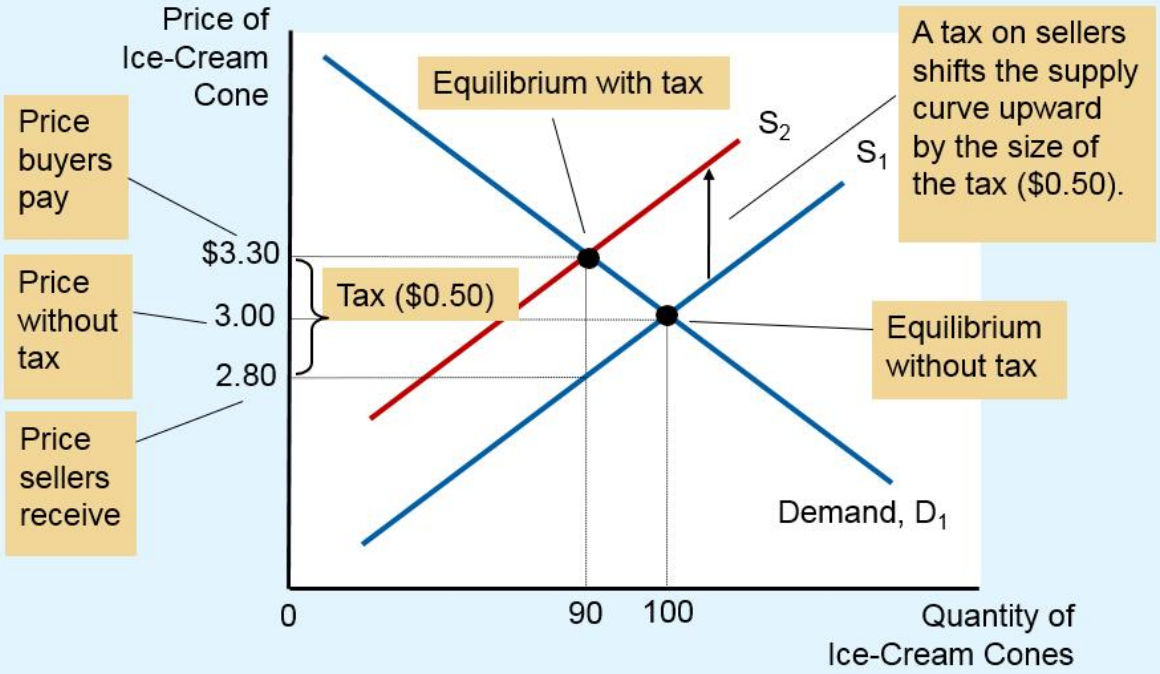


Taxes, Part 2

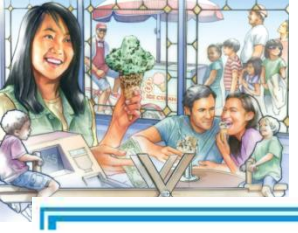
How taxes on sellers affect market outcomes

- 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



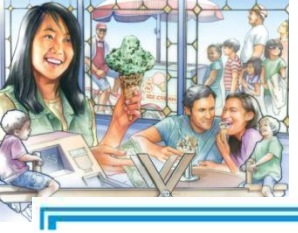
When a tax of \$0.50 is levied on sellers, the supply curve shifts up by \$0.50 from S_1 to S_2. The equilibrium quantity falls from 100 to 90 cones. The price that buyers pay rises from \$3.00 to \$3.30. The price that sellers receive (after paying the tax) falls from \$3.00 to \$2.80. Even though the tax is levied on sellers, buyers and sellers share the burden of the tax.



Taxes, Part 3

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

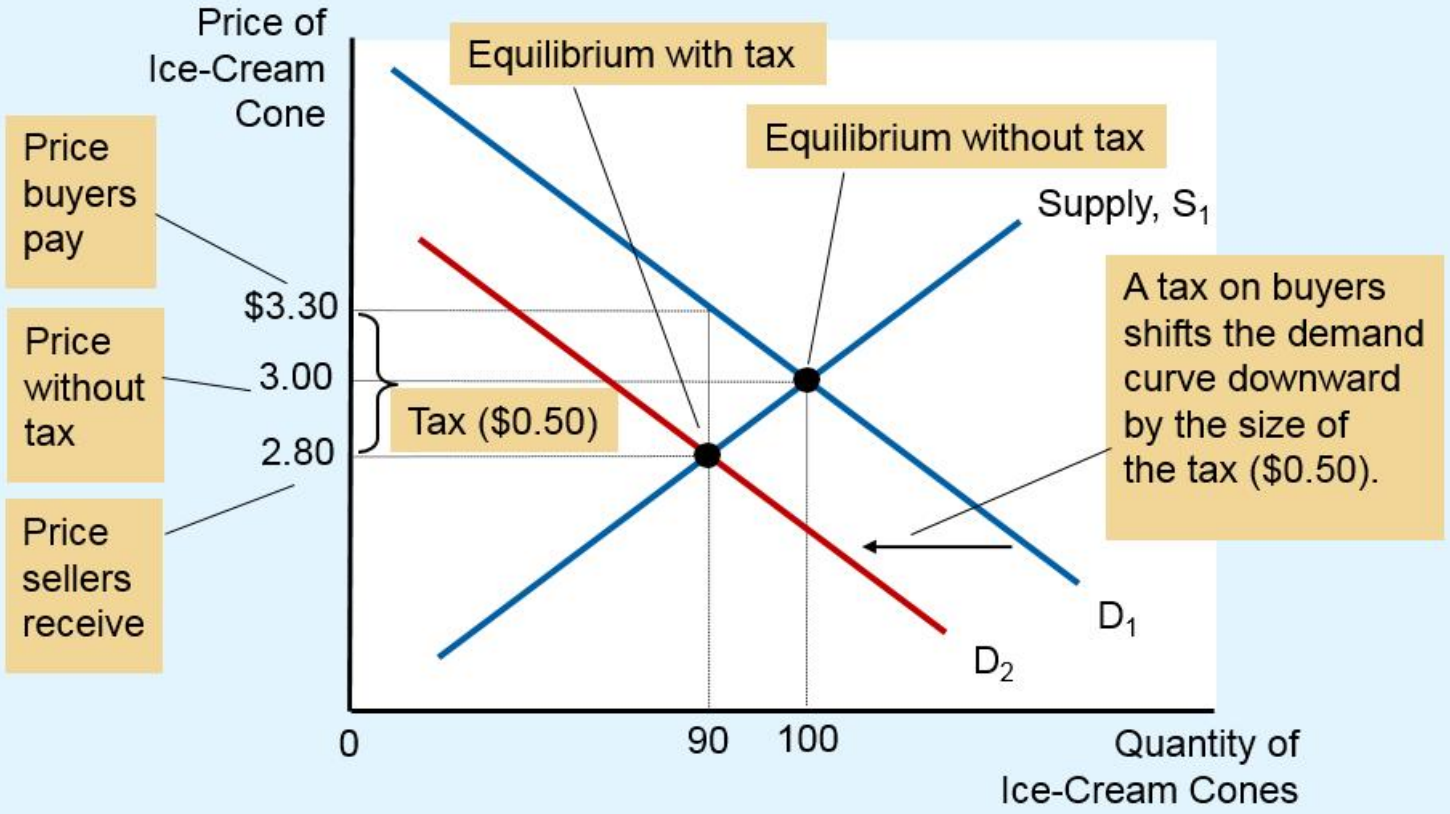


Taxes, Part 4

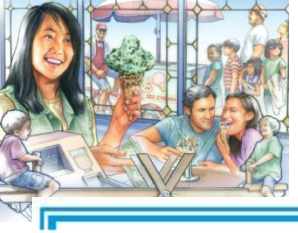
How taxes on buyers affect market outcomes

- 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



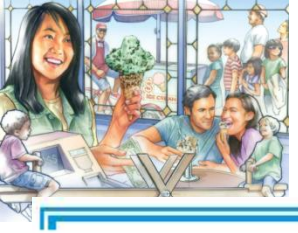
When a tax of \$0.50 is levied on buyers, the demand curve shifts down by \$0.50 from D_1 to D_2. The equilibrium quantity falls from 100 to 90 cones. The price that sellers receive falls from \$3.00 to \$2.80. The price that buyers pay (including the tax) rises from \$3.00 to \$3.30. Even though the tax is levied on buyers, buyers and sellers share the burden of the tax.



Taxes, Part 5

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



Taxes, Part 6

Taxes levied on sellers and taxes levied on buyers are equivalent

- Wedge between the price that buyers pay and the price that sellers receive
  - The same, regardless of whether the tax is levied on buyers or sellers
- Shifts the relative position of the supply and demand curves
  - Buyers and sellers share the tax burden

CASE STUDY

Can Congress distribute the burden of a payroll tax?, Part 1

- Payroll taxes
  - Deducted from the amount you earned
- By law, the tax burden:
  - Half of the tax is paid by firms
    - Out of firm's revenue
  - Half of the tax is paid by workers
    - Deducted from workers' paychecks

CASE STUDY

Can Congress distribute the burden of a payroll tax?, Part 2

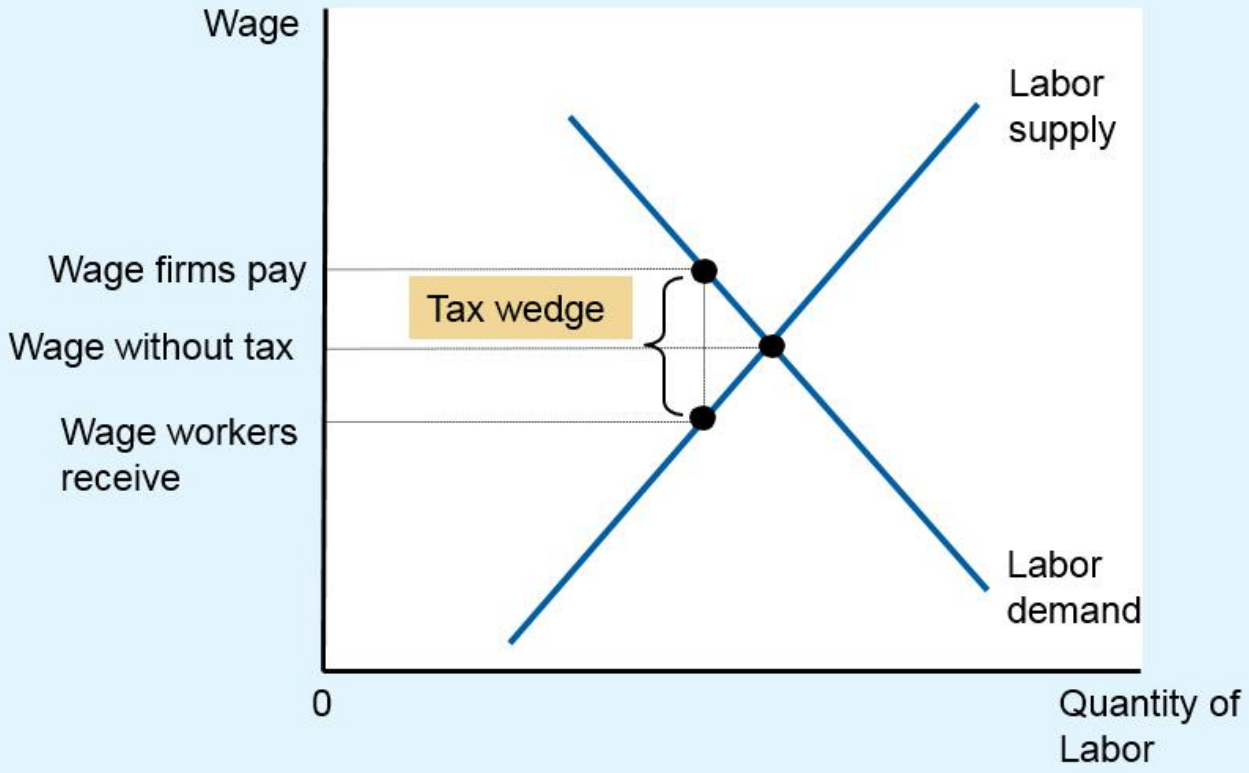
- Tax incidence analysis
  - Payroll tax as a tax on a good
    - The good is labor
    - The price is the wage
- Introduce payroll tax
  - Wage received by workers falls
  - Wage paid by firms rises
  - Workers and firms share the tax burden
    - Not necessarily 50 – 50 as required

CASE STUDY

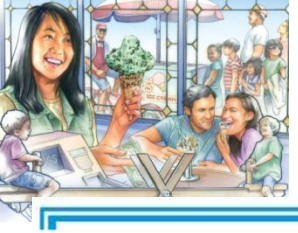
Can Congress distribute the burden of a payroll tax?, Part 3

- 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
  - Determined by the forces of supply and demand

Figure 8 A Payroll Tax



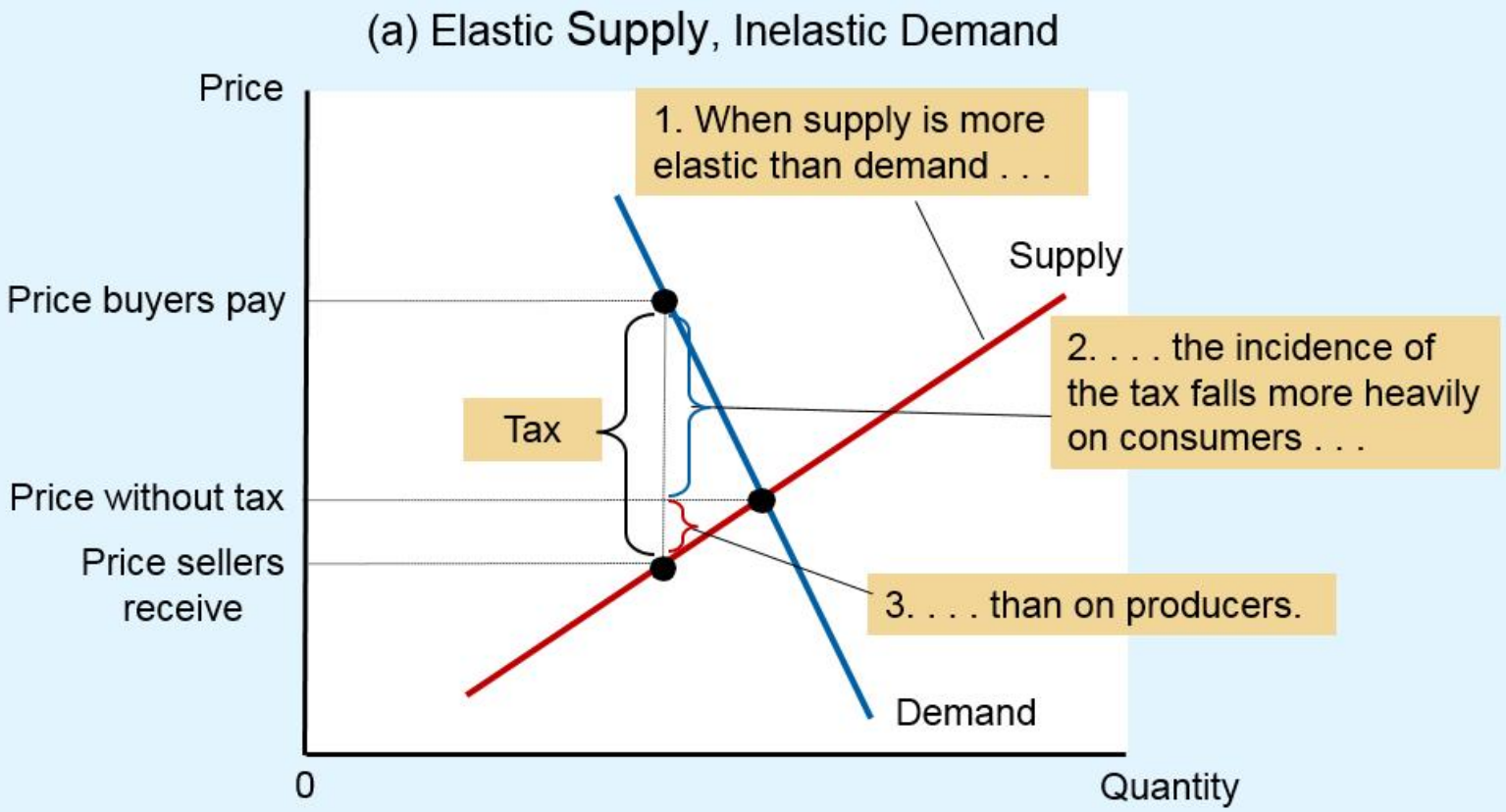
A payroll tax places a wedge between the wage that workers receive and the wage that firms pay. Comparing wages with and without the tax, you can see that workers and firms share the tax burden. This division of the tax burden between workers and firms does not depend on whether the government levies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



Taxes, Part 7

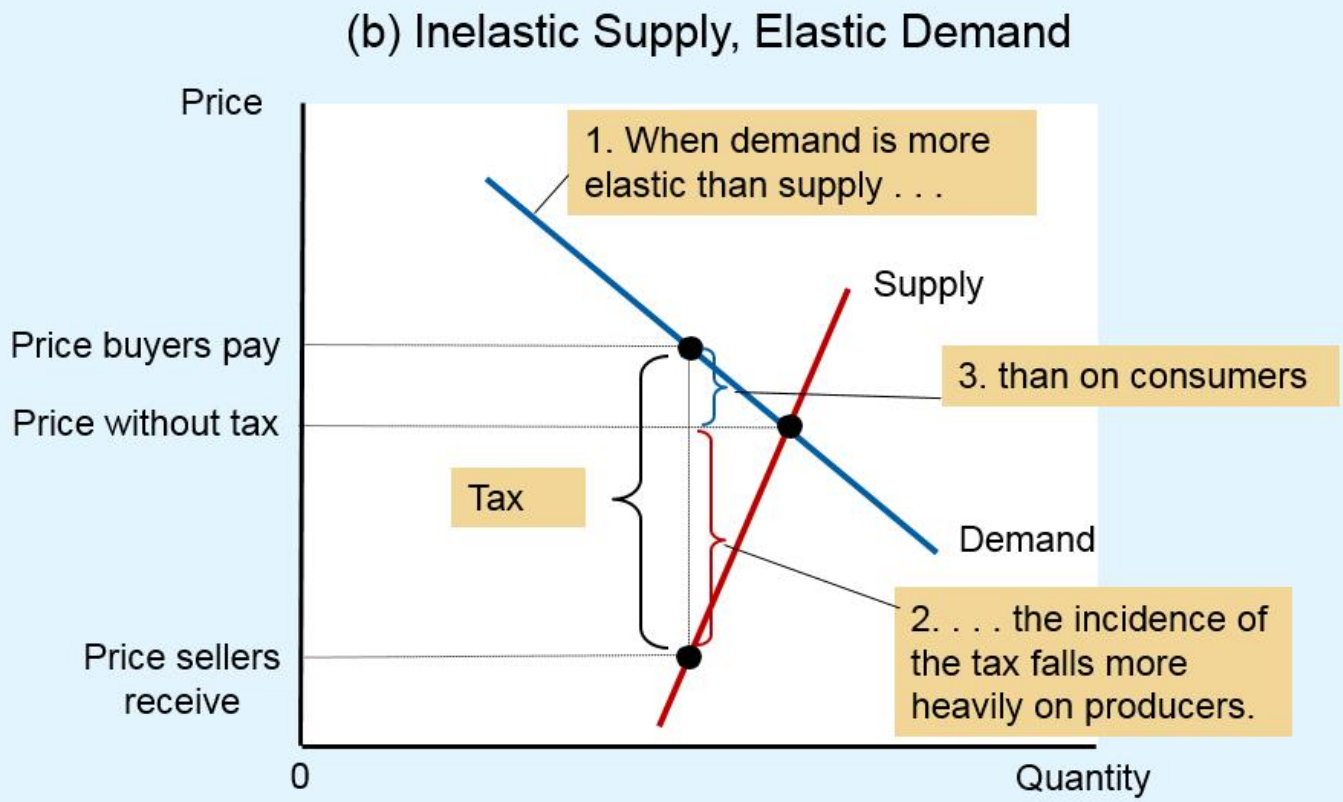
- Elasticity and tax incidence
  - Very elastic supply and relatively inelastic demand
    - Sellers bear a small burden of tax
    - Buyers bear most of the burden
  - Relatively inelastic supply and very elastic demand
    - Sellers bear most of the tax burden
    - Buyers bear a small burden

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

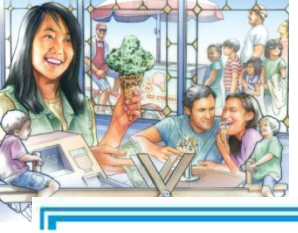


In panel (a), the supply curve is elastic, and the demand curve is inelastic. In this case, the price received by sellers falls only slightly, while the price paid by buyers rises substantially. Thus, buyers bear most of the burden of the tax.

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



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, Part 8

- 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

CASE STUDY

Who pays the luxury tax?, Part 1

- 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
    - Supply is relatively inelastic

CASE STUDY

Who pays the luxury tax?, Part 2

- Outcome:
  - Burden of a tax falls largely on the suppliers
    - Relatively inelastic supply
- 1993: most of the luxury tax was repealed

BLEND IMAGES/GETTY IMAGES

"If this boat were any more expensive, we'd be playing golf."