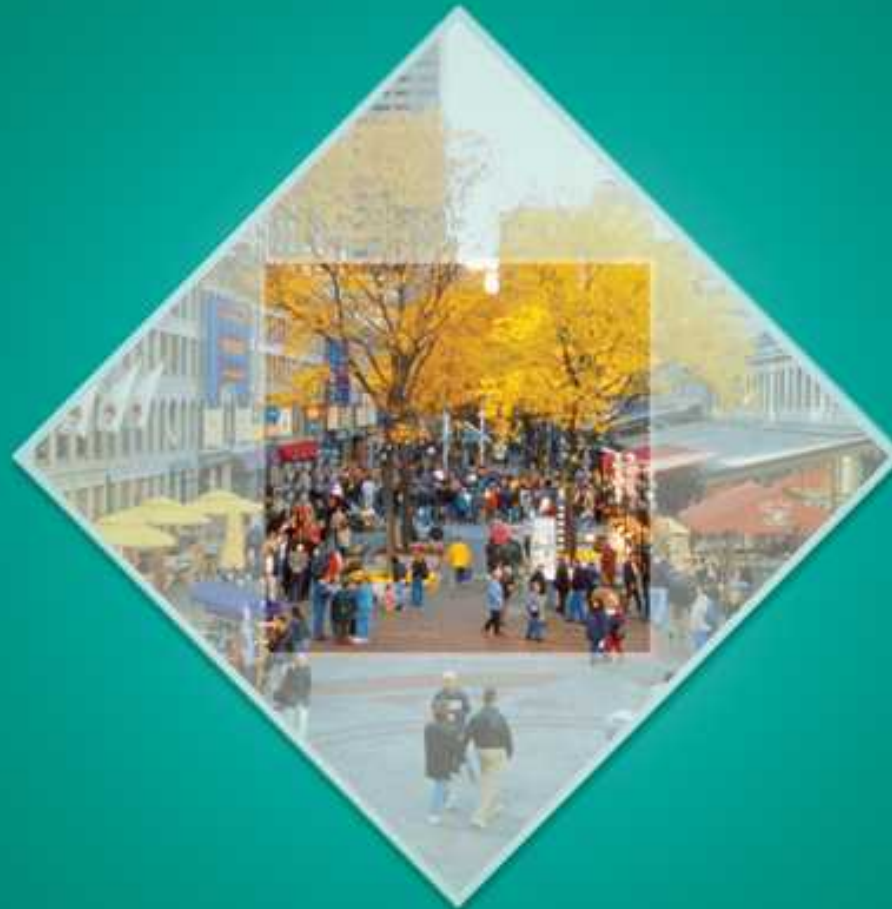


PARKIN
MICROECONOMICS
TENTH EDITION



6

GOVERNMENT ACTIONS IN MARKETS



After studying this chapter,
you will be able to:

- ◆ Explain how rent ceilings create housing shortages and inefficiency
- ◆ Explain how minimum wage laws create unemployment and inefficiency
- ◆ Explain the effects of a tax
- ◆ Explain the effects of production quotas and subsidies on production, costs, and prices
- ◆ Explain how markets for illegal goods work

Raise The Minimum Wage

For 7.3 Million Americans



Even though house prices have fallen, some rents have risen.

Can governments cap rents to help renters?

Can governments make housing more affordable by raising incomes with minimum wage laws?

The government taxes almost everything we buy.

But who actually pays and who benefits when a tax is cut: buyers or sellers?

The government limit the quantities that some farmers may produce and subsidizes other farmers.

Do production limits and subsidies help to make markets efficient?

A Housing Market with a Rent Ceiling

A **price ceiling** or **price cap** is a regulation that makes it illegal to charge a price higher than a specified level.

When a price ceiling is applied to a housing market it is called a **rent ceiling**.

If the rent ceiling is set *above* the equilibrium rent, it has no effect. The market works as if there were no ceiling.

But if the rent ceiling is set *below* the equilibrium rent, it has powerful effects.

A Housing Market with a Rent Ceiling



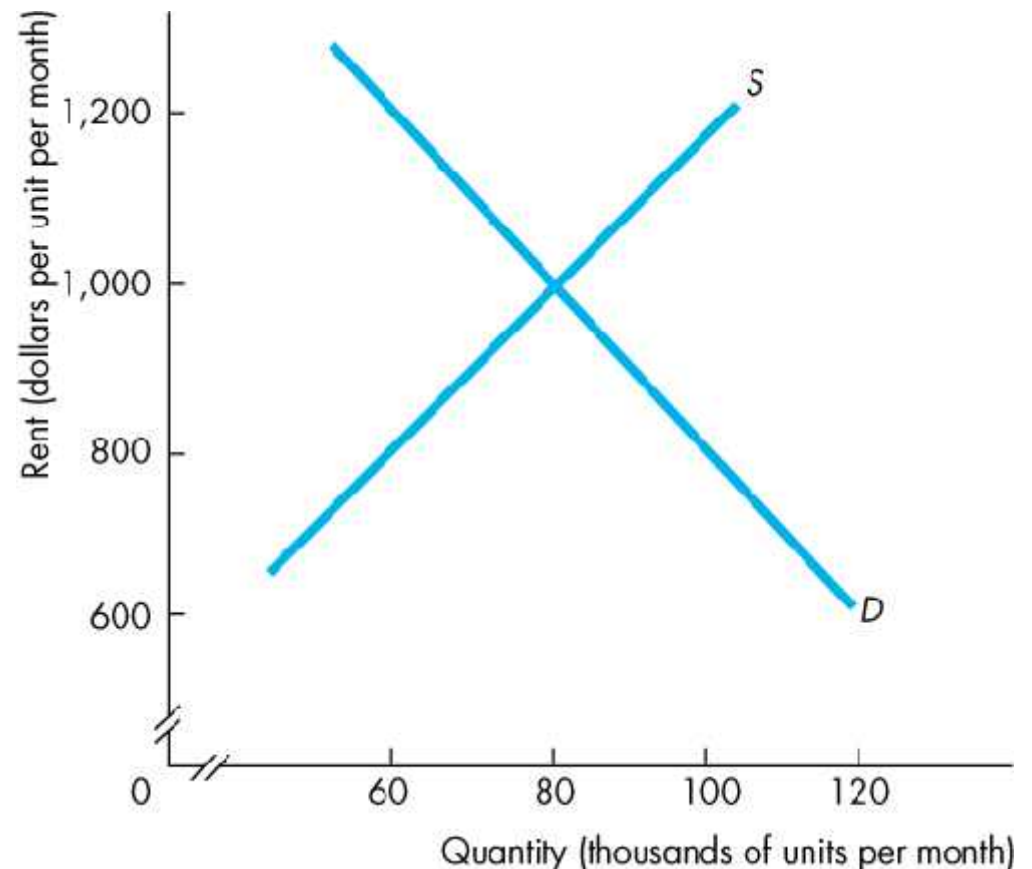
Housing Shortage

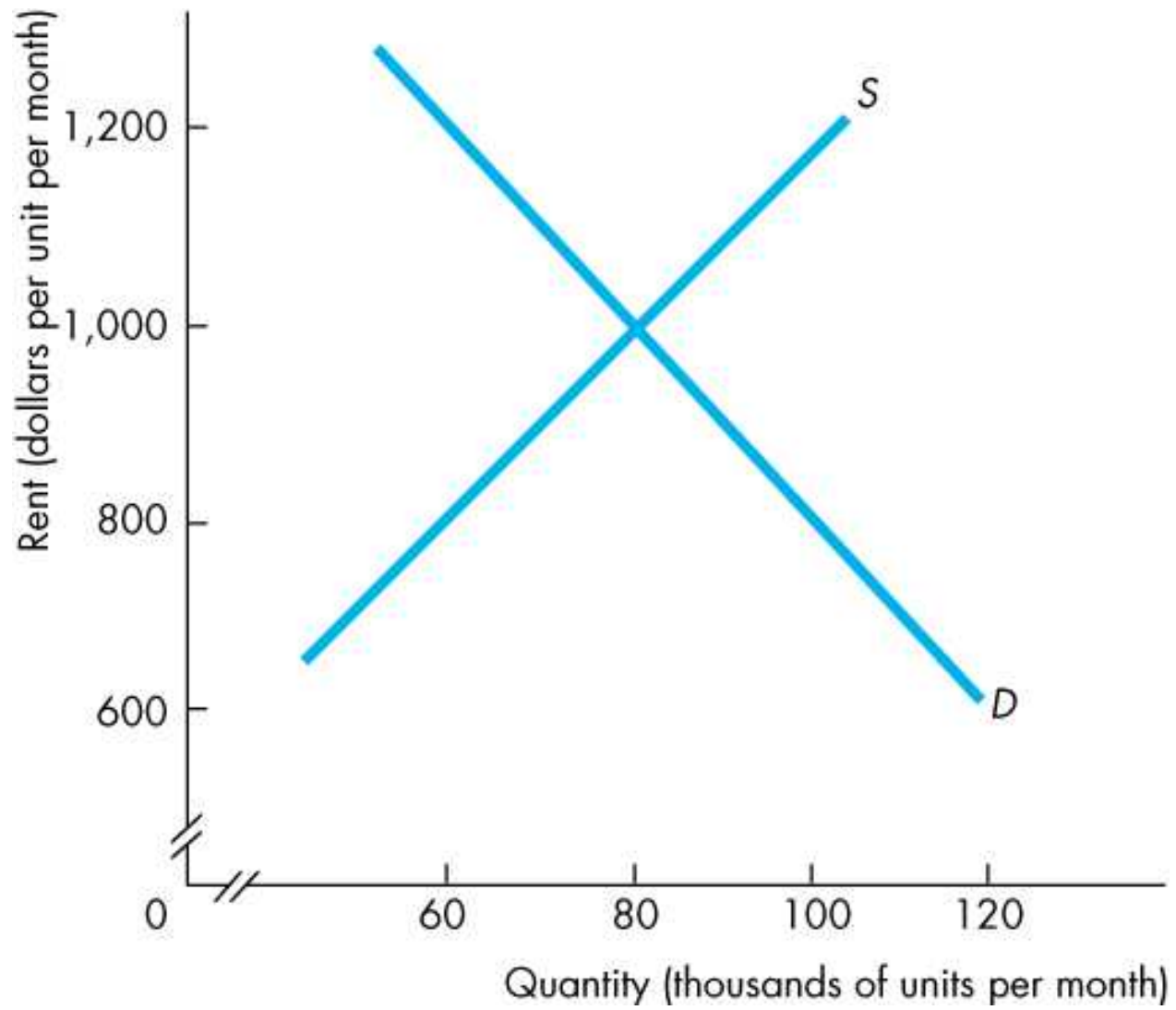
Figure 6.1 shows the effects of a rent ceiling that is set *below* the equilibrium rent.

The equilibrium rent is \$1,000 a month.

A rent ceiling is set at \$800 a month.

So the equilibrium rent is in the illegal region.

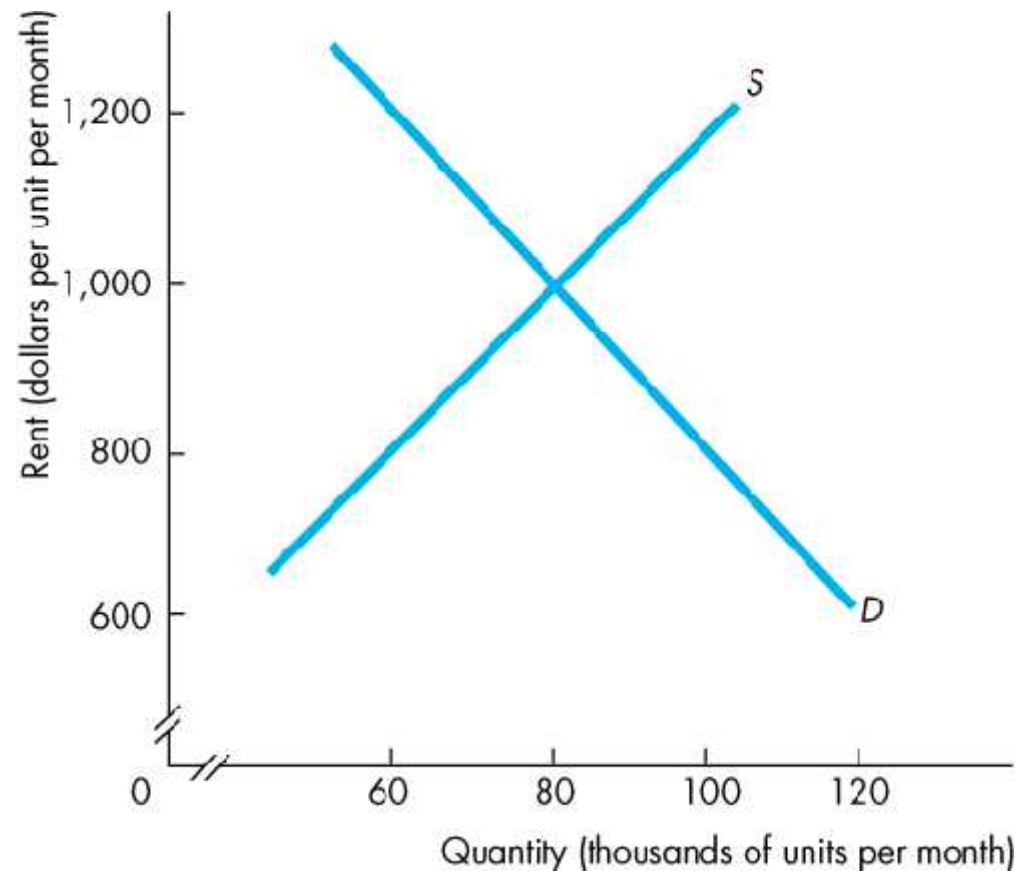




A Housing Market with a Rent Ceiling

At the rent ceiling, the quantity of housing demanded exceeds the quantity supplied.

There is a shortage of housing.

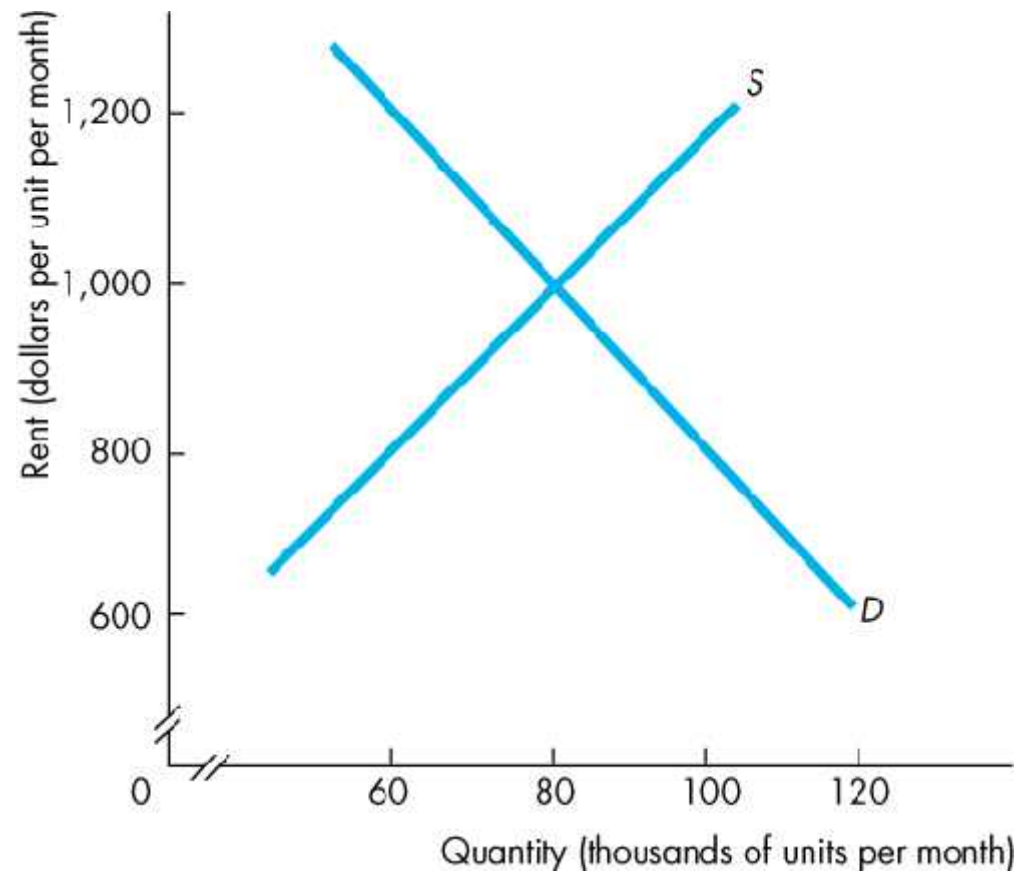


A Housing Market with a Rent Ceiling

Because the legal price cannot eliminate the shortage, other mechanisms operate:

- Increased search activity
- A black market

With the shortage, someone is willing to pay up to \$1,200 a month.



A Housing Market with a Rent Ceiling

Increased Search Activity

The time spent looking for someone with whom to do business is called **search activity**.

When a price is regulated and there is a shortage, search activity increases.

Search activity is costly and the opportunity cost of housing equals its rent (regulated) plus the opportunity cost of the search activity (unregulated).

Because the quantity of housing is less than the quantity in an unregulated market, the opportunity cost of housing exceeds the unregulated rent.

A Housing Market with a Rent Ceiling

A Black Market

A **black market** is an illegal market that operates alongside a legal market in which a price ceiling or other restriction has been imposed.

A shortage of housing creates a black market in housing.

Illegal arrangements are made between renters and landlords at rents above the rent ceiling—and generally above what the rent would have been in an unregulated market.

A Housing Market with a Rent Ceiling

Inefficiency of a Rent Ceiling

A rent ceiling set below the equilibrium rent leads to an inefficient underproduction of housing services.

The marginal social benefit from housing services exceeds its marginal social cost and a deadweight loss arises.

Figure 6.2 illustrates this inefficiency.

A Housing Market with a Rent Ceiling



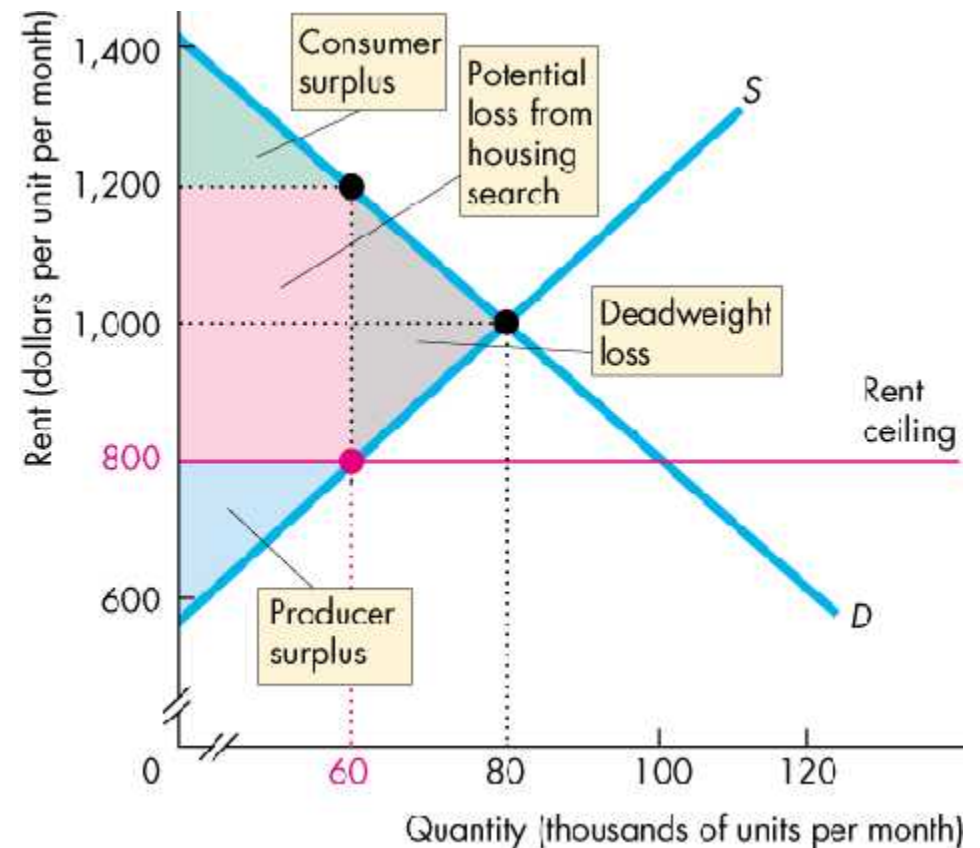
A rent ceiling decreases the quantity of housing supplied to less than the efficient quantity.

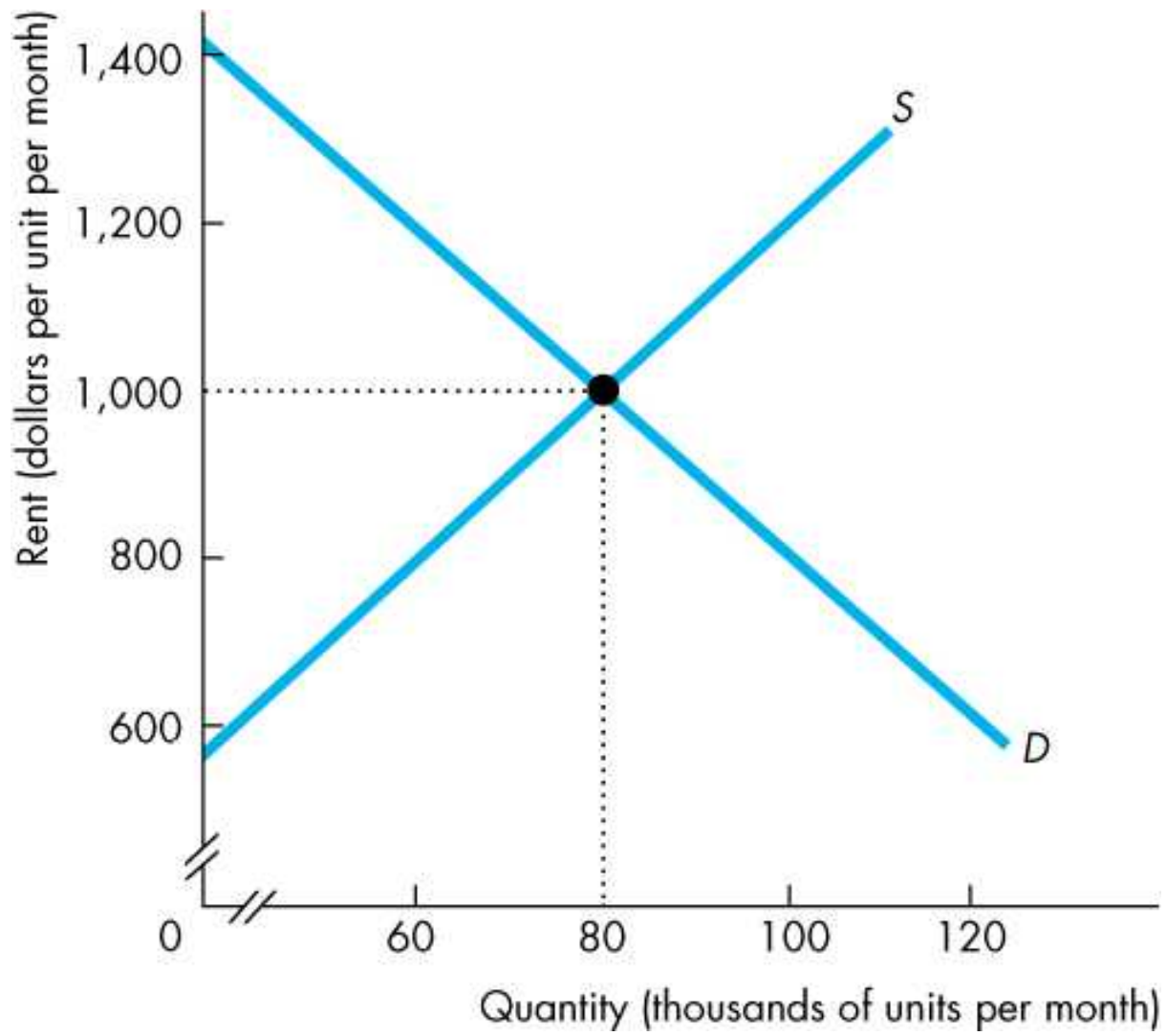
A deadweight loss arises.

Producer surplus shrinks.

Consumer surplus shrinks.

There is a potential loss from increased search activity.





A Housing Market with a Rent Ceiling

Are Rent Ceilings Fair?

According to the *fair rules* view, a rent ceiling is unfair because it blocks voluntary exchange.

According to the *fair results* view, a rent ceiling is unfair because it does not generally benefit the poor.

A rent ceiling decreases the quantity of housing and the scarce housing is allocated by

- Lottery
- First-come, first-served
- Discrimination

A Housing Market with a Rent Ceiling

A lottery gives scarce housing to the lucky.

A first-come, first served gives scarce housing to those who have the greatest foresight and get their names on the list first.

Discrimination gives scarce housing to friends, family members, or those of the selected race or sex.

None of these methods leads to a fair outcome.

A Labor Market with a Minimum Wage

A **price floor** is a regulation that makes it illegal to trade at a price lower than a specified level.

When a price floor is applied to labor markets, it is called a **minimum wage**.

If the minimum wage is set *below* the equilibrium wage rate, it has no effect. The market works as if there were no minimum wage.

If the minimum wage is set *above* the equilibrium wage rate, it has powerful effects.

A Labor Market with a Minimum Wage

Minimum Wage Brings Unemployment

If the minimum wage is set *above* the equilibrium wage rate, the quantity of labor supplied by workers *exceeds* the quantity demanded by employers.

There is a surplus of labor.

The quantity of labor hired at the minimum wage is *less* than the quantity that would be hired in an unregulated labor market.

Because the legal wage rate cannot eliminate the surplus, the minimum wage creates unemployment.



A Labor Market with a Minimum Wage

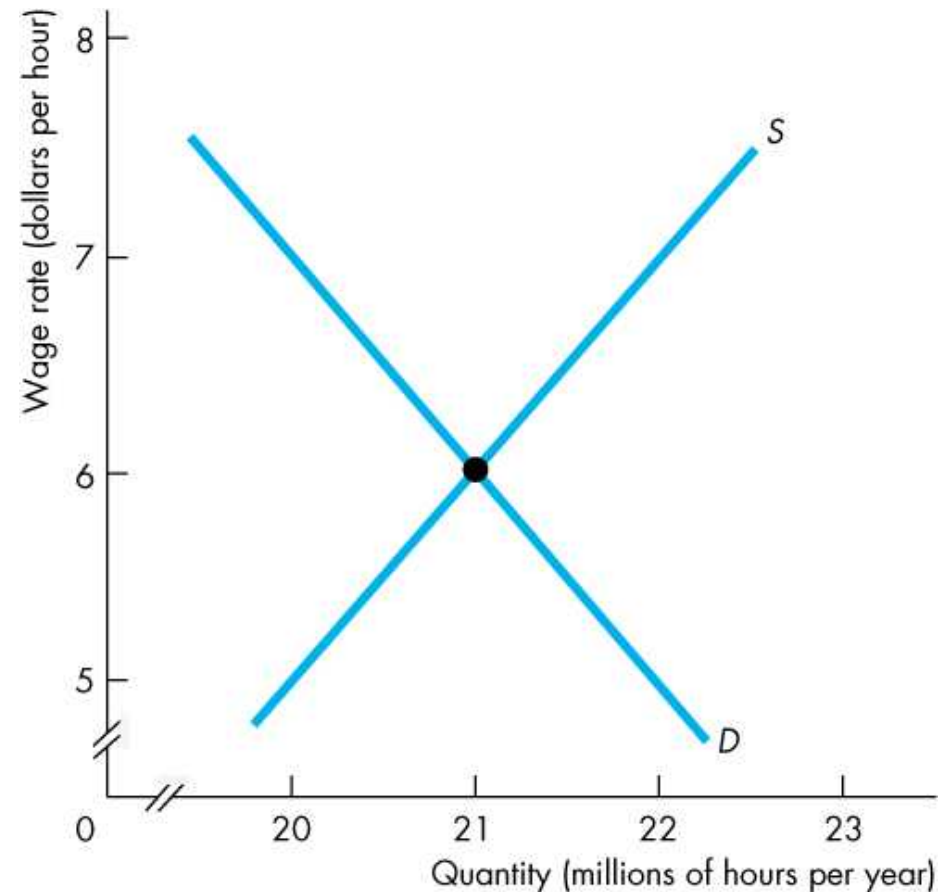


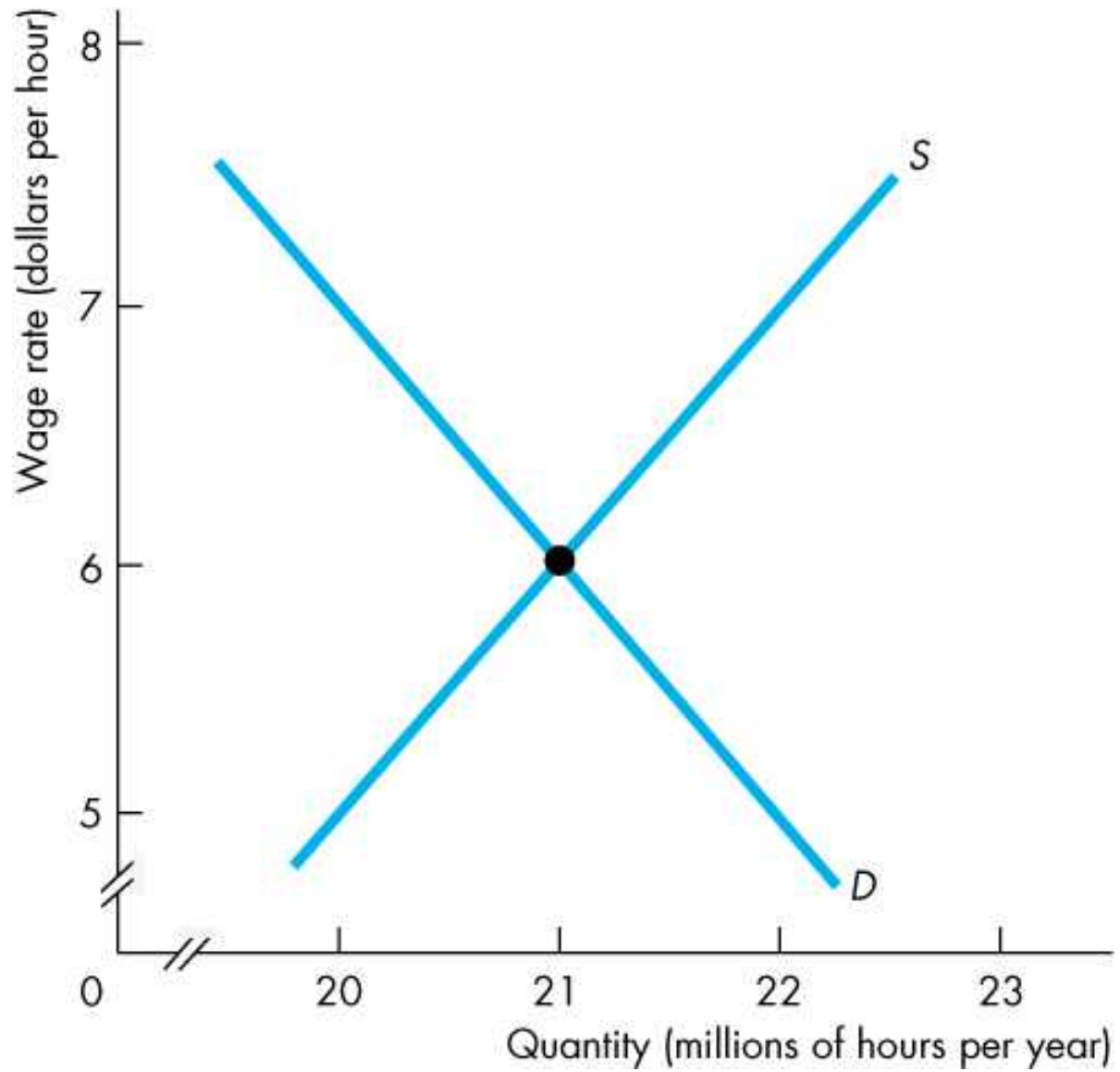
The equilibrium wage rate is \$6 an hour.

The minimum wage rate is set at \$7 an hour.

So the equilibrium wage rate is in the illegal region.

The quantity of labor employed is the quantity demanded.

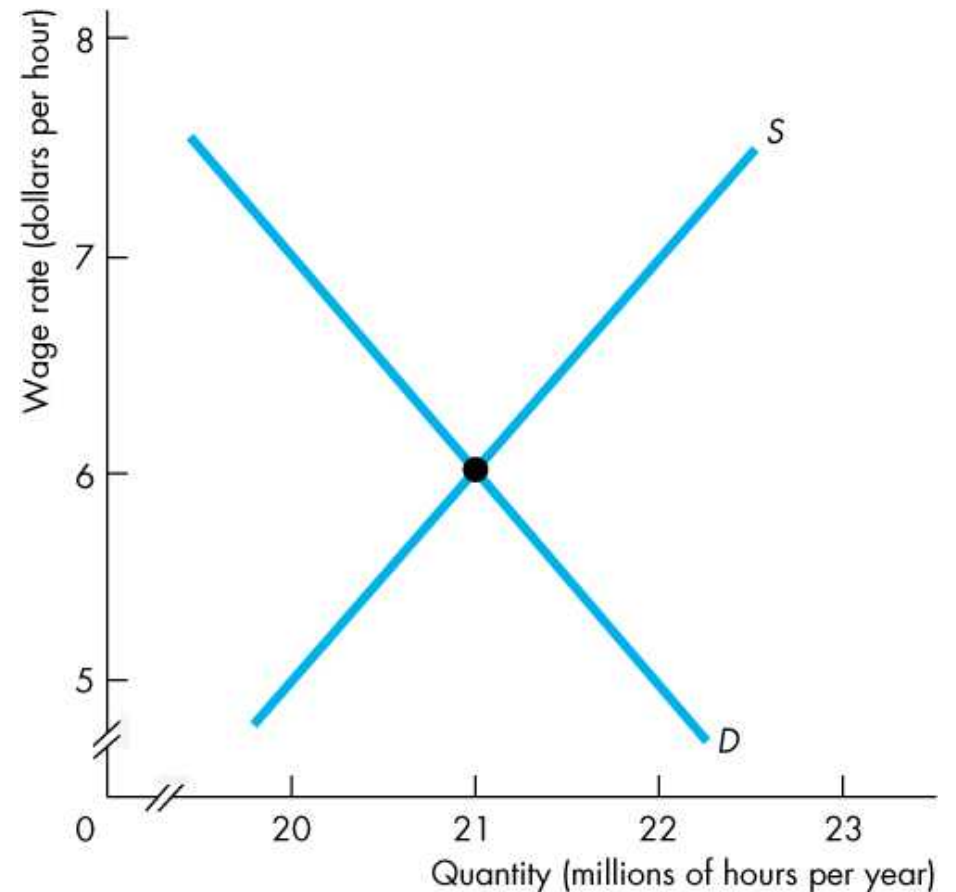




A Labor Market with a Minimum Wage

The quantity of labor supplied exceeds the quantity demanded and unemployment is created.

With only 20 million hours demanded, some workers are willing to supply the last hour demanded for \$8.



A Labor Market with a Minimum Wage

Inefficiency of a Minimum Wage

A minimum wage leads to an inefficient outcome.

The quantity of labor employed is less than the efficient quantity.

The supply of labor measures the marginal social cost of labor to workers (leisure forgone).

The demand for labor measures the marginal social benefit from labor (value of goods produced).

Figure 6.4 illustrates this inefficient outcome.



A Labor Market with a Minimum Wage

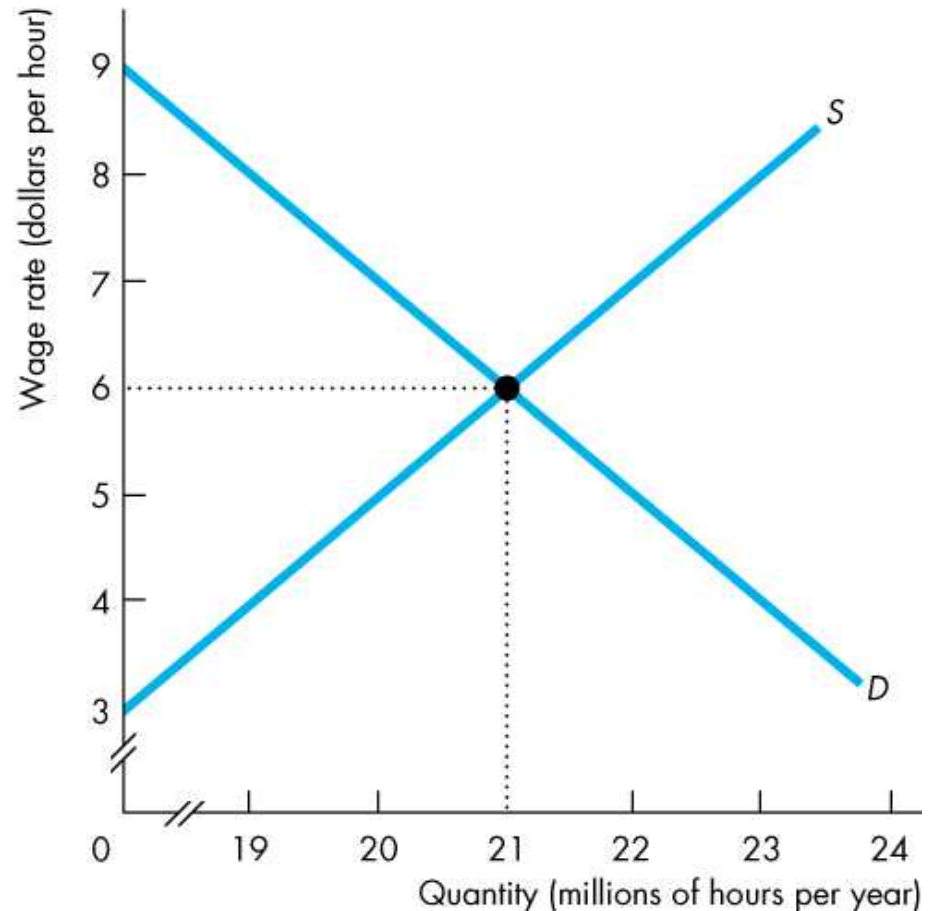


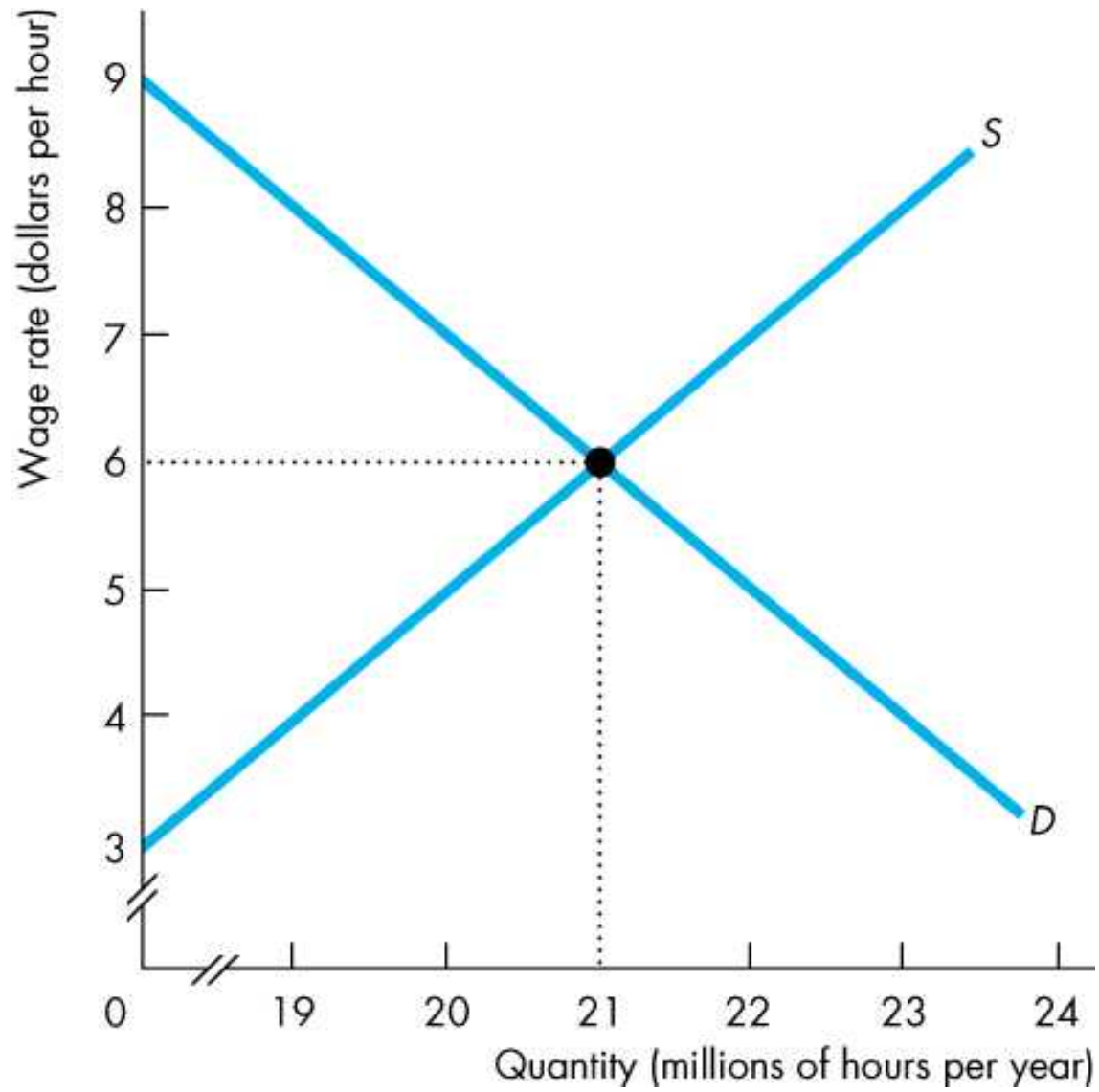
A minimum wage set above the equilibrium wage decreases the quantity of labor employed.

A deadweight loss arises.

The potential loss from increased job search decreases both workers' surplus and firms' surplus.

The full loss is the sum of the red and gray areas.





A Labor Market with a Minimum Wage

Is the Minimum Wage Fair?

A minimum wage rate in the United States is set by the federal government's Fair Labor Standards Act.

In 2009, the federal minimum wage rate was \$7.25 an hour.

Some state governments have set minimum wages above the federal minimum wage rate.

Most economists believe that minimum wage laws increase the unemployment rate of low-skilled younger workers.



Taxes

Everything you earn and most things you buy are taxed.

Who *really* pays these taxes?

Income tax and the Social Security tax are deducted from your pay, and state sales tax is added to the price of the things you buy, so isn't it obvious that *you* pay these taxes?

Isn't it equally obvious that your employer pays the employer's contribution to the Social Security tax?

You're going to discover that it isn't obvious who pays a tax and that lawmakers don't decide who will pay!

Taxes

Tax Incidence

Tax incidence is the division of the burden of a tax between buyers and sellers.

When an item is taxed, its price might rise by the full amount of the tax, by a lesser amount, or not at all.

If the price rises by the full amount of the tax, buyers pay the tax.

If the price rise by a lesser amount than the tax, buyers and sellers share the burden of the tax.

If the price doesn't rise at all, sellers pay the tax.



Taxes

Tax incidence doesn't depend on tax law!

The law might impose a tax on buyers or sellers, but the outcome will be the same.

To see why, we look at the tax on cigarettes in New York City.

On July 1, 2002, New York City raised the tax on the sales of cigarettes from almost nothing to \$1.50 a pack.

What are the effects of this tax?

Taxes



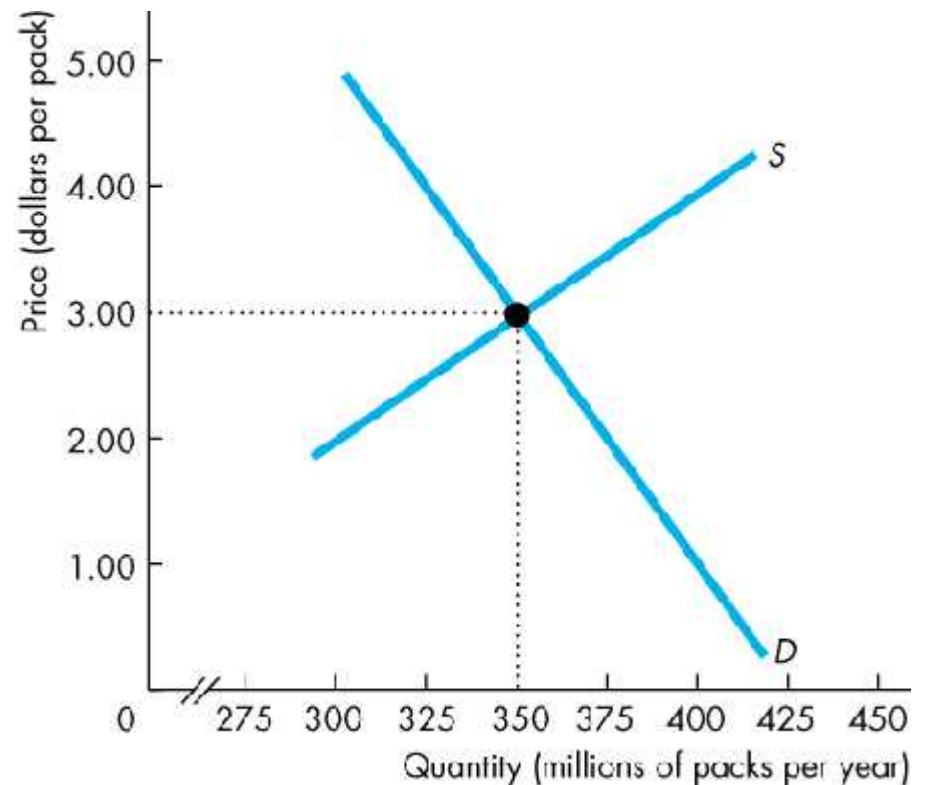
A Tax on Sellers

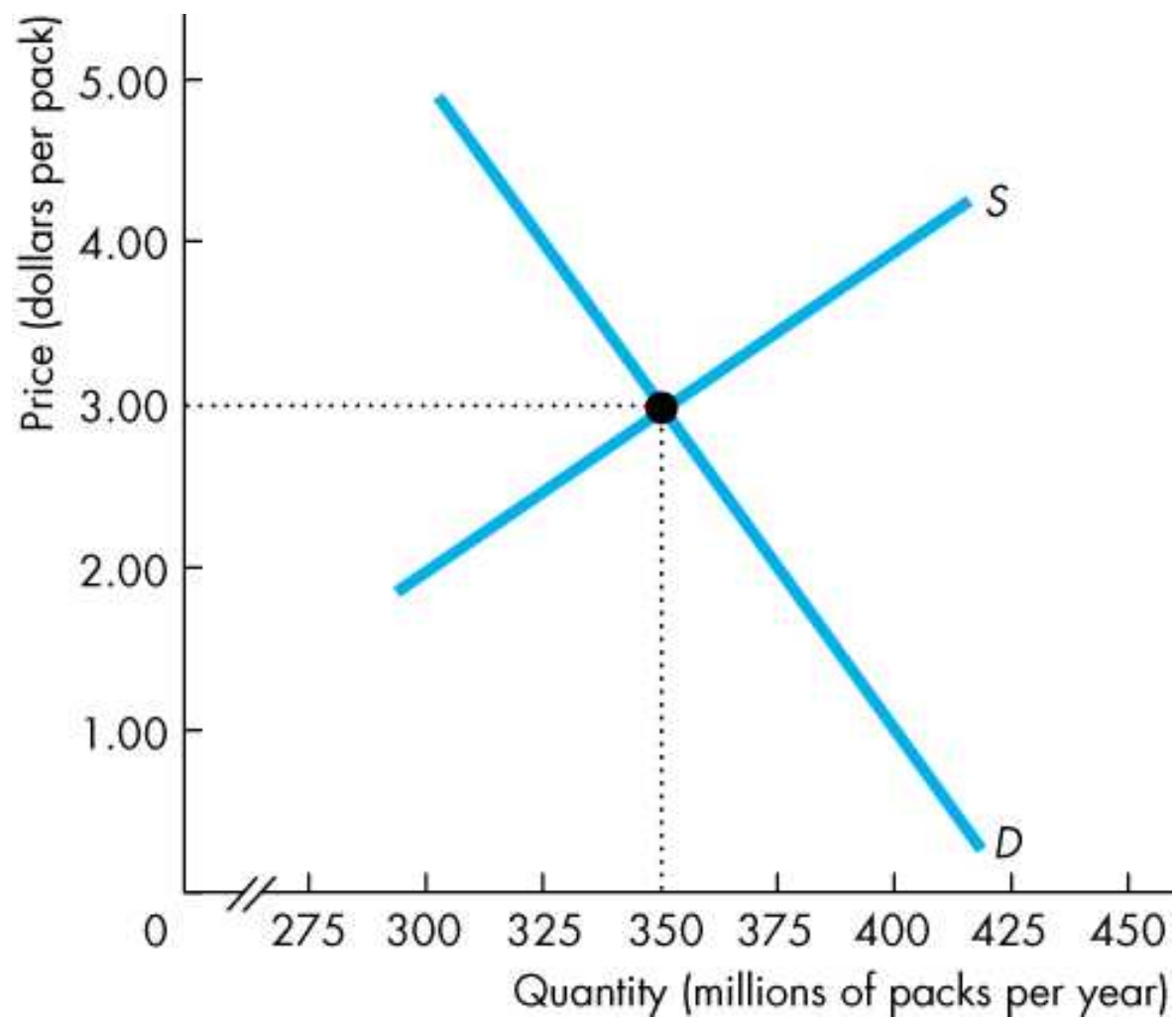
Figure 6.5 shows the effects of this tax.

With no tax, the equilibrium price is \$3.00 a pack.

A tax on sellers of \$1.50 a pack is introduced.

Supply decreases and the curve $S + \text{tax on sellers}$ shows the new supply curve.



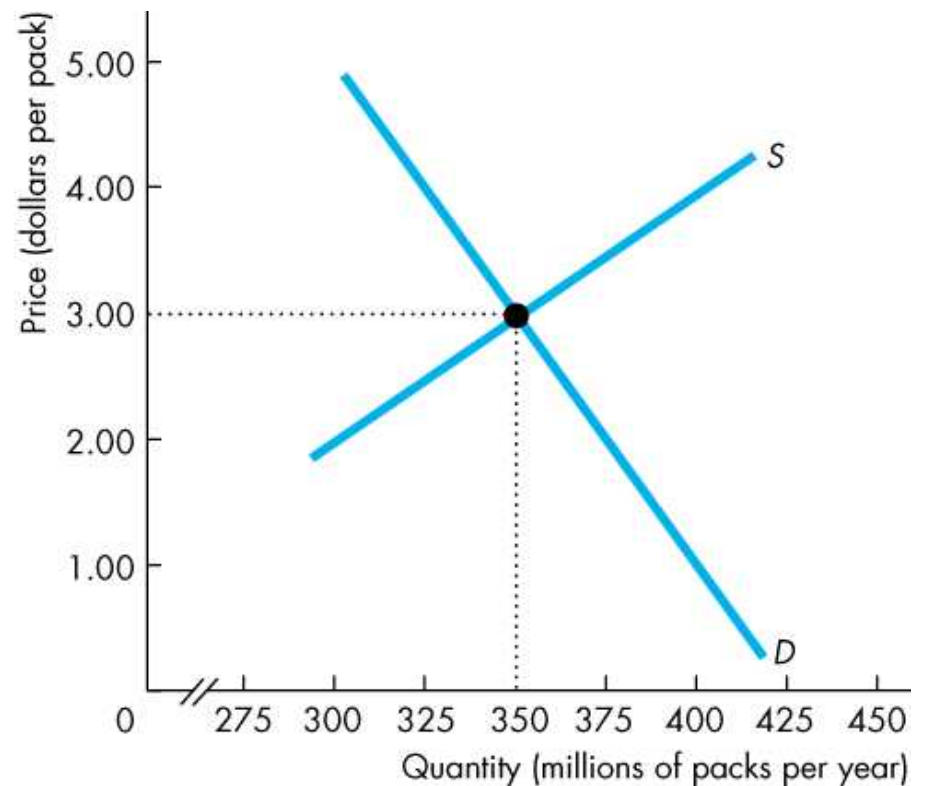


Taxes

The market price paid by buyers rises to \$4.00 a pack and the quantity bought decreases.

The price received by the sellers falls to \$2.50 a pack.

So with the tax of \$1.50 a pack, buyers pay \$1.00 a pack more and sellers receive 50¢ a pack less.



Taxes

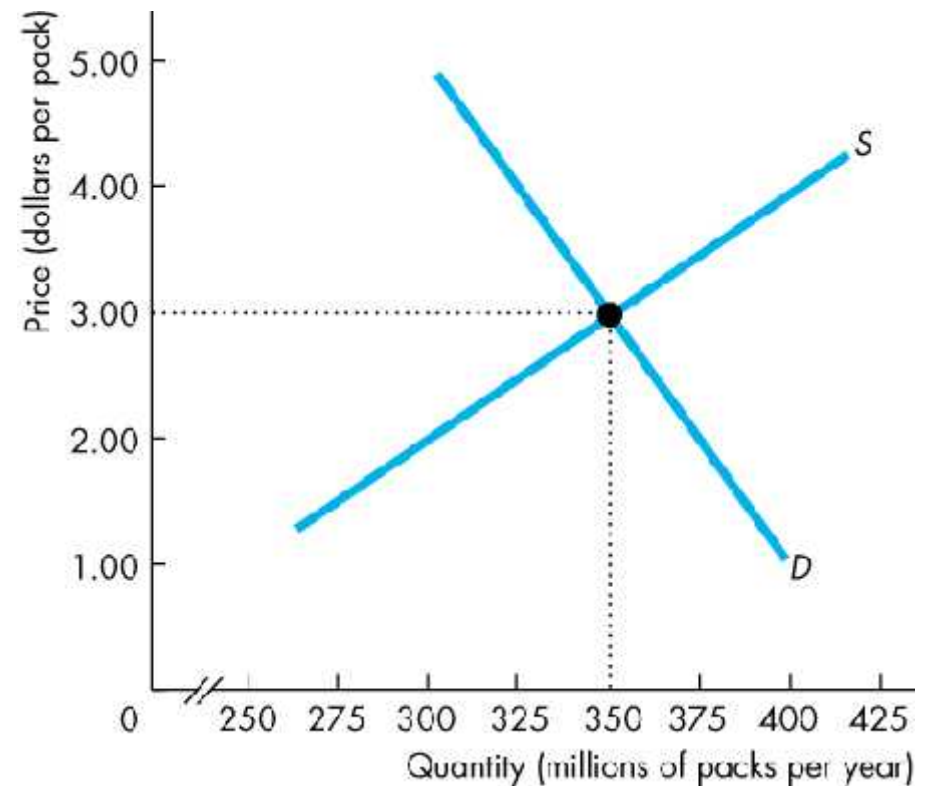


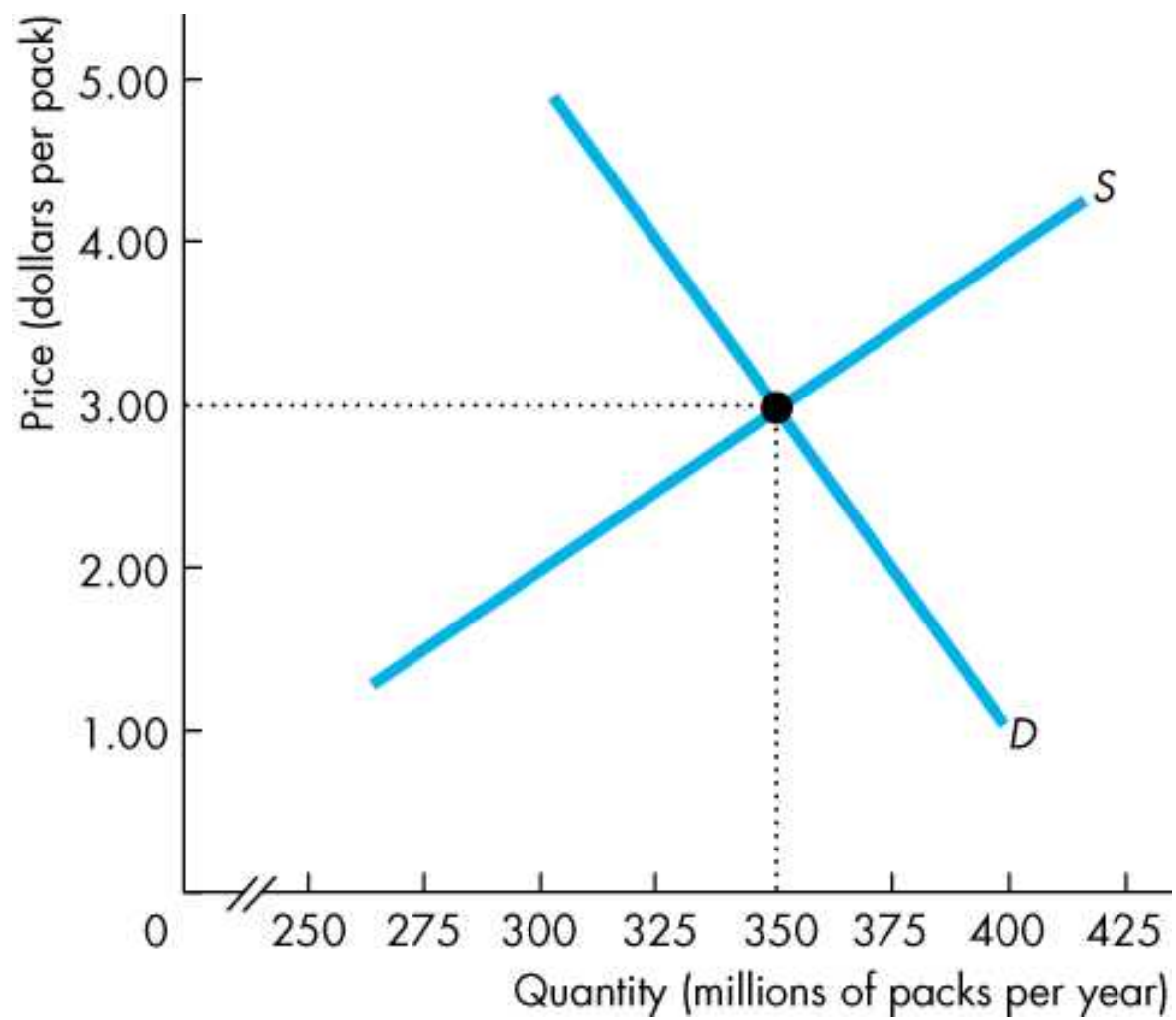
A Tax on Buyers

Again, with no tax, the equilibrium price is \$3.00 a pack.

A tax on buyers of \$1.50 a pack is introduced.

Demand decreases and the curve $D > \text{tax on buyers}$ shows the new demand curve.



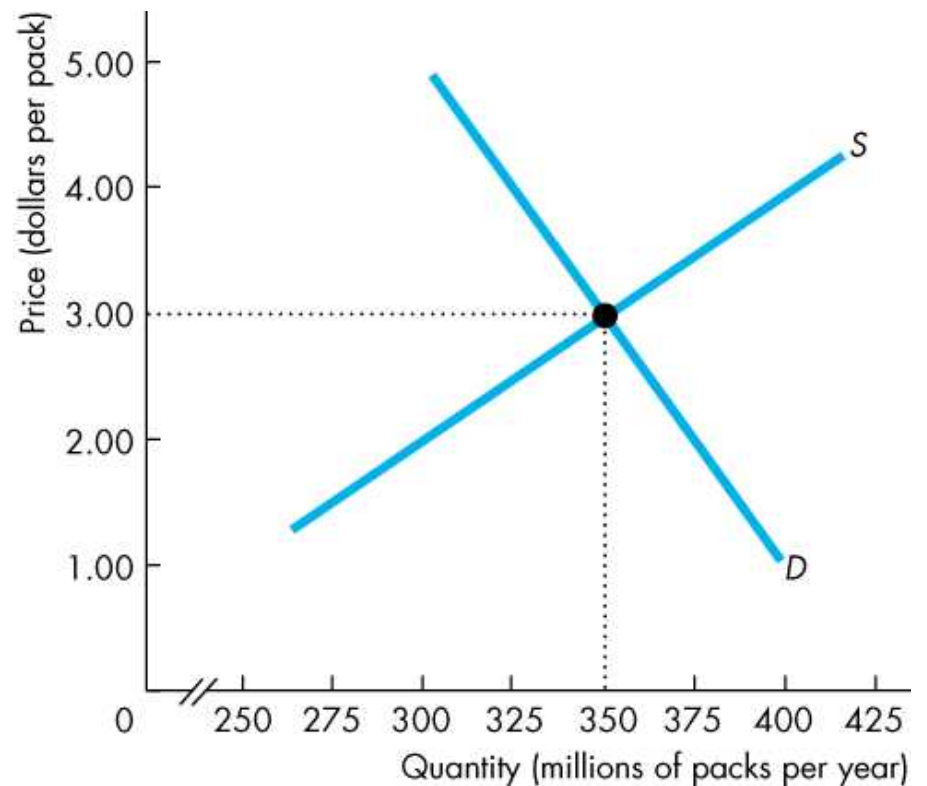


Taxes

The price received by sellers falls to \$2.50 a pack and the quantity decreases.

The price paid by buyers rises to \$4.00 a pack.

So with the tax of \$1.50 a pack, buyers pay \$1.00 a pack more and sellers receive 50¢ a pack less.



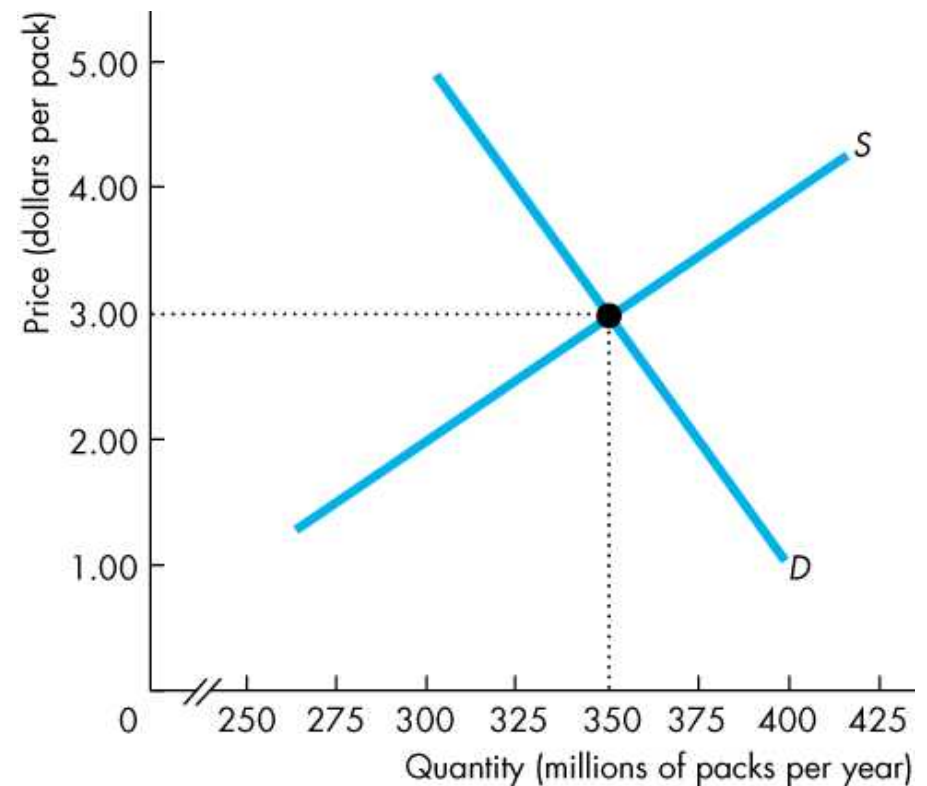
Taxes

So, exactly as before
when sellers were taxed:

Buyers pay \$1.00 of the
tax.

Sellers pay the other 50¢
of the tax.

Tax incidence is the same
regardless of whether the
law says sellers pay or
buyers pay.



Taxes

Tax Incidence and Elasticity of Demand

The division of the tax between buyers and sellers depends on the elasticities of demand and supply.

To see how, we look at two extreme cases.

- Perfectly inelastic demand: Buyers pay the entire tax.
- Perfectly elastic demand: Sellers pay the entire tax.

The more inelastic the demand, the larger is the buyers' share of the tax.

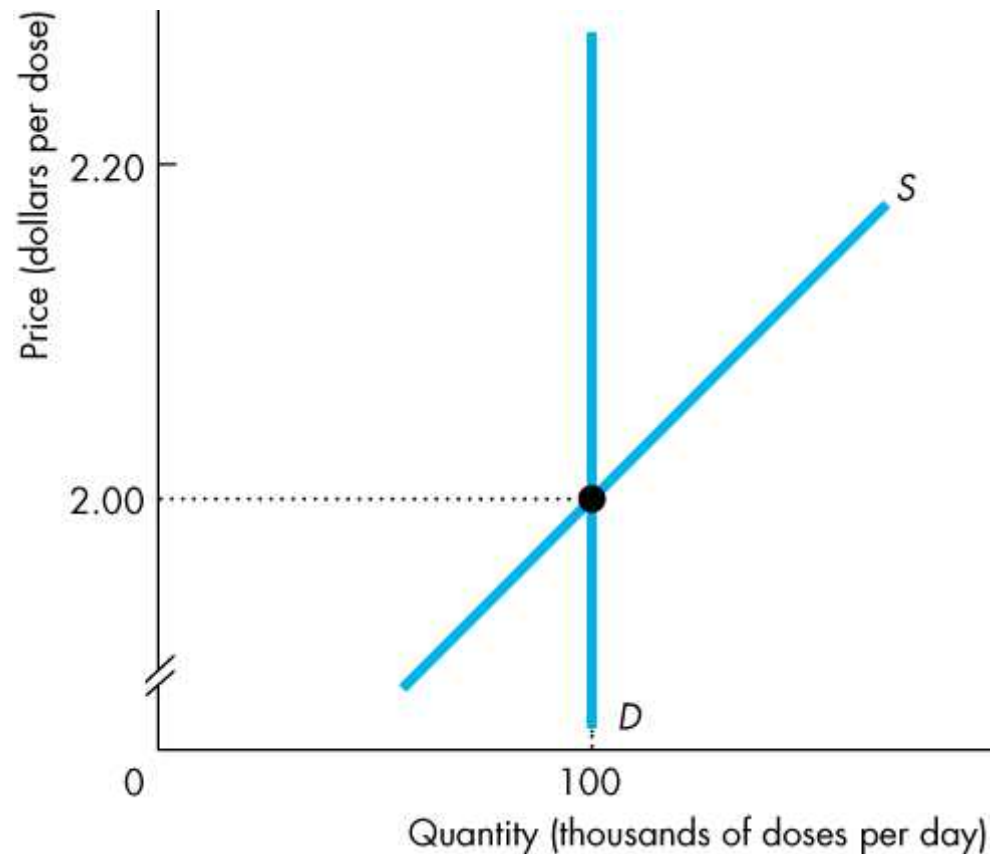
Taxes

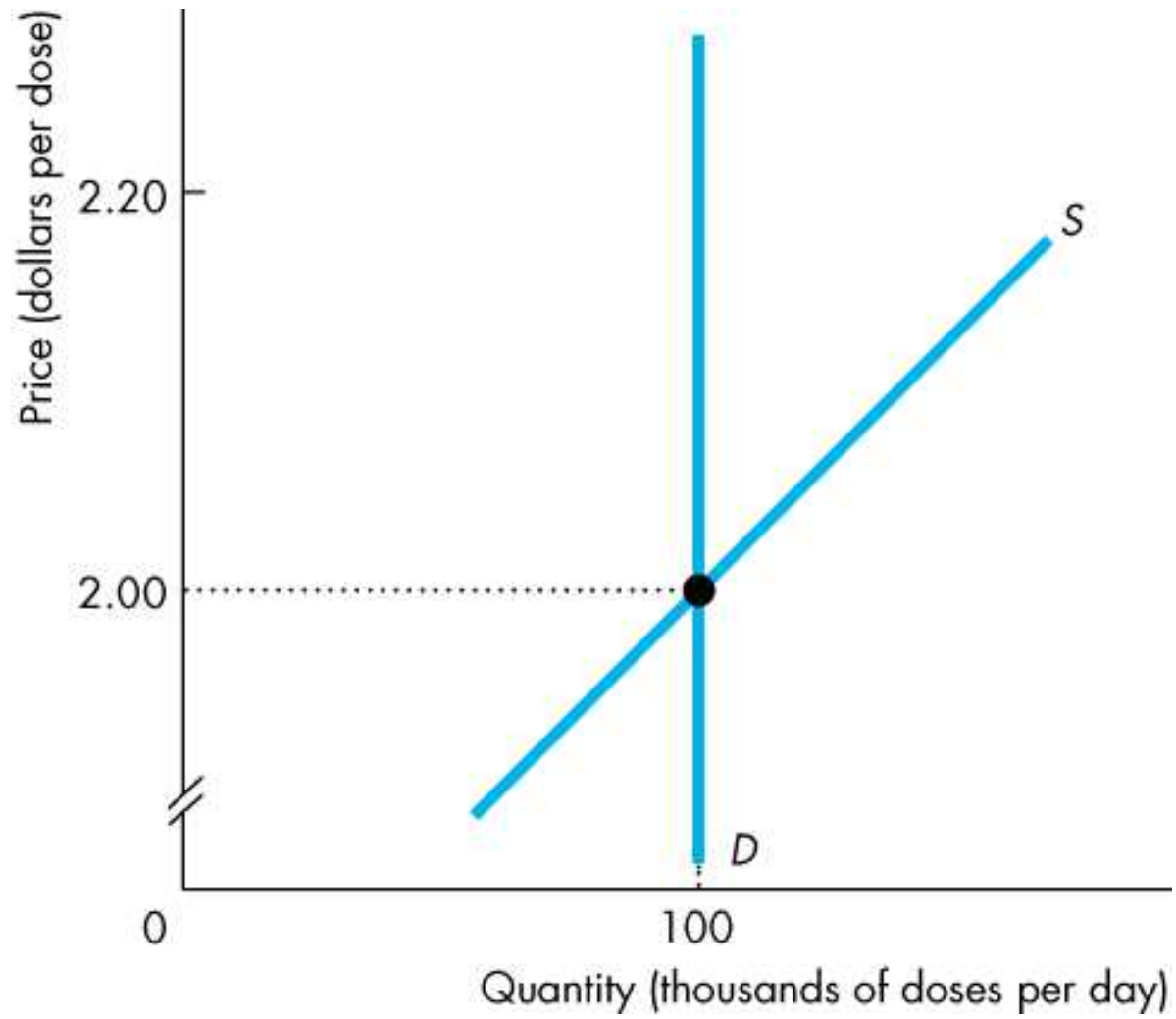


Perfectly Inelastic Demand

Demand for this good is perfectly inelastic—the demand curve is vertical.

When a tax is imposed on this good, buyers pay the entire tax.





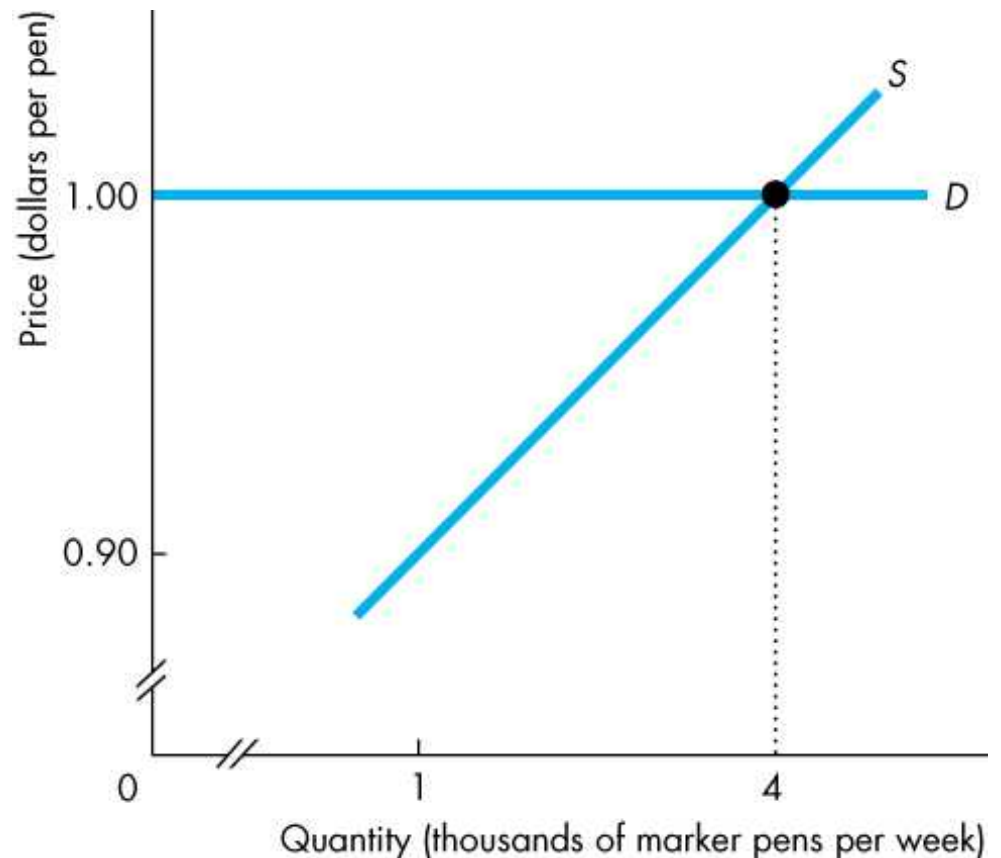
Taxes

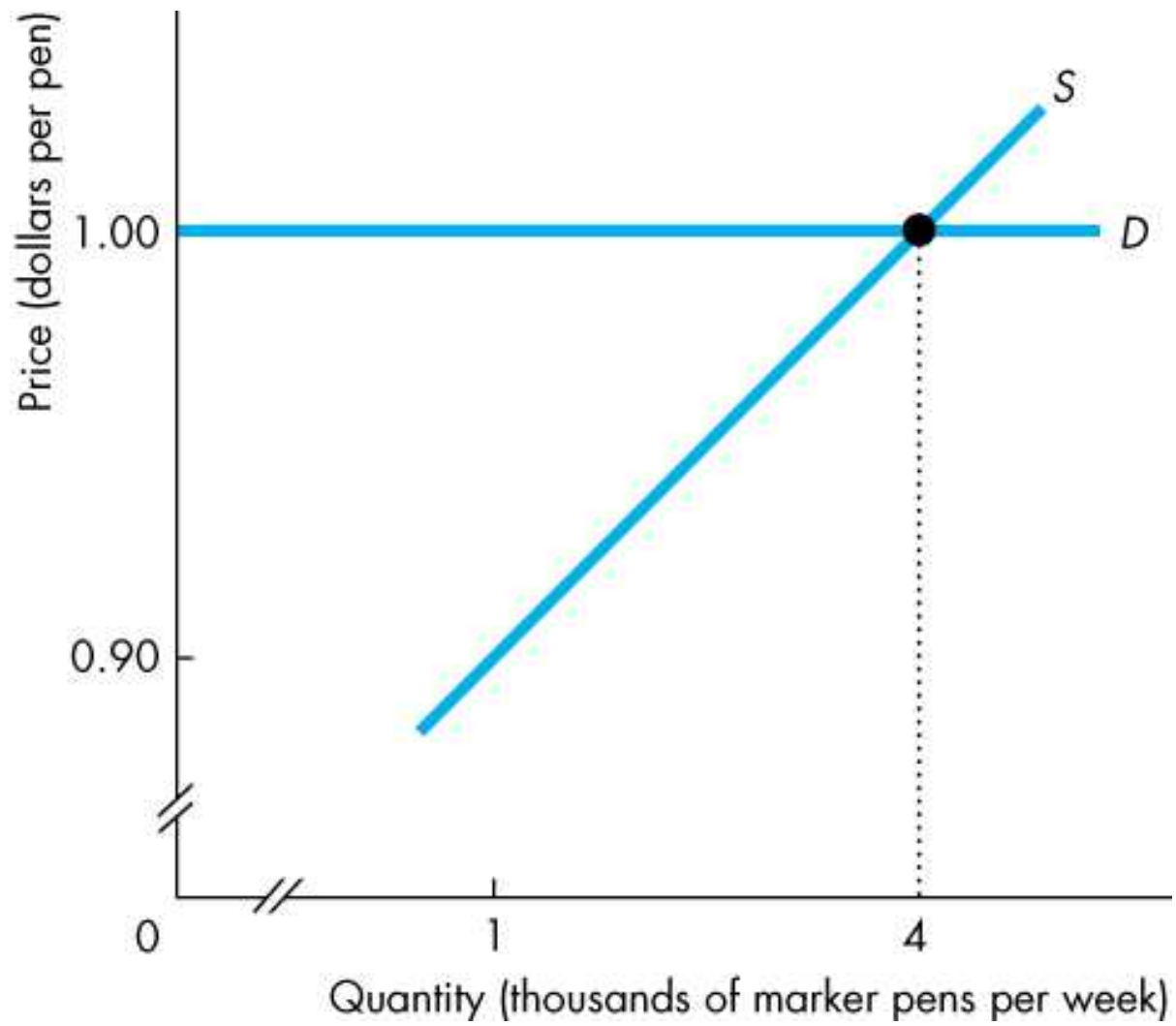


Perfectly Elastic Demand

The demand for this good is perfectly elastic—the demand curve is horizontal.

When a tax is imposed on this good, sellers pay the entire tax.





Taxes

Tax Incidence and Elasticity of Supply

To see the effect of the elasticity of supply on the division of the tax payment, we again look at two extreme cases.

- Perfectly inelastic supply: Sellers pay the entire tax.
- Perfectly elastic supply: Buyers pay the entire tax.

The more elastic the supply, the larger is the buyers' share of the tax.

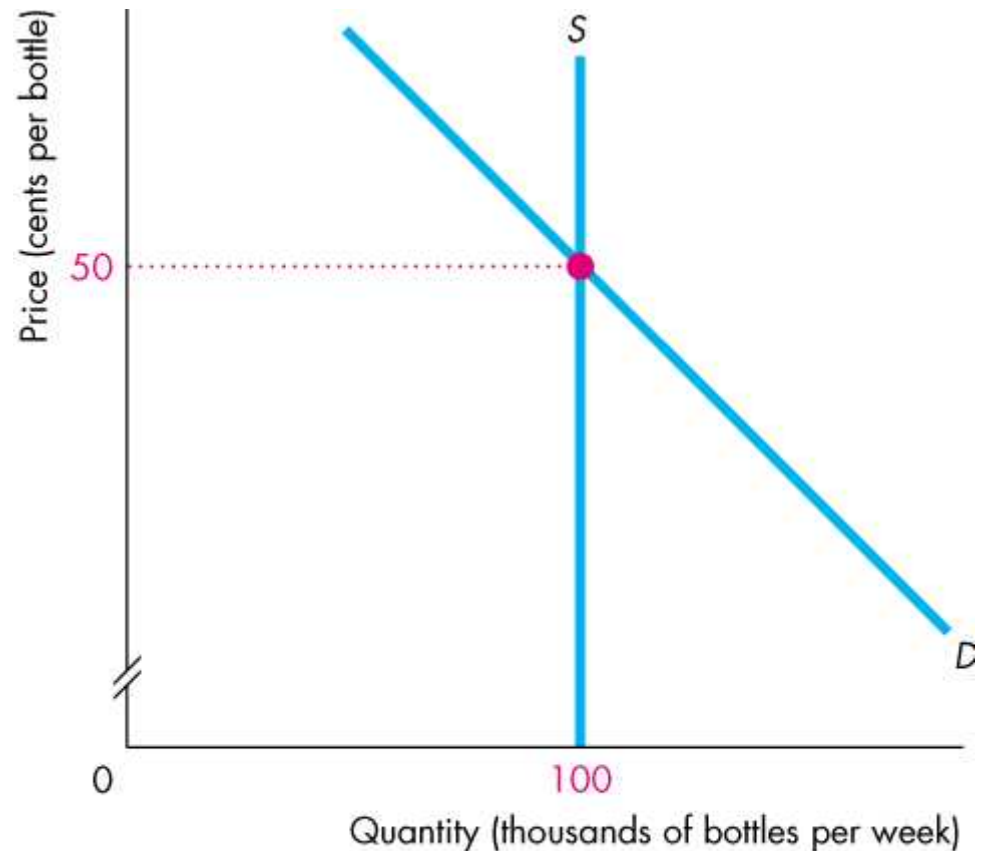
Taxes



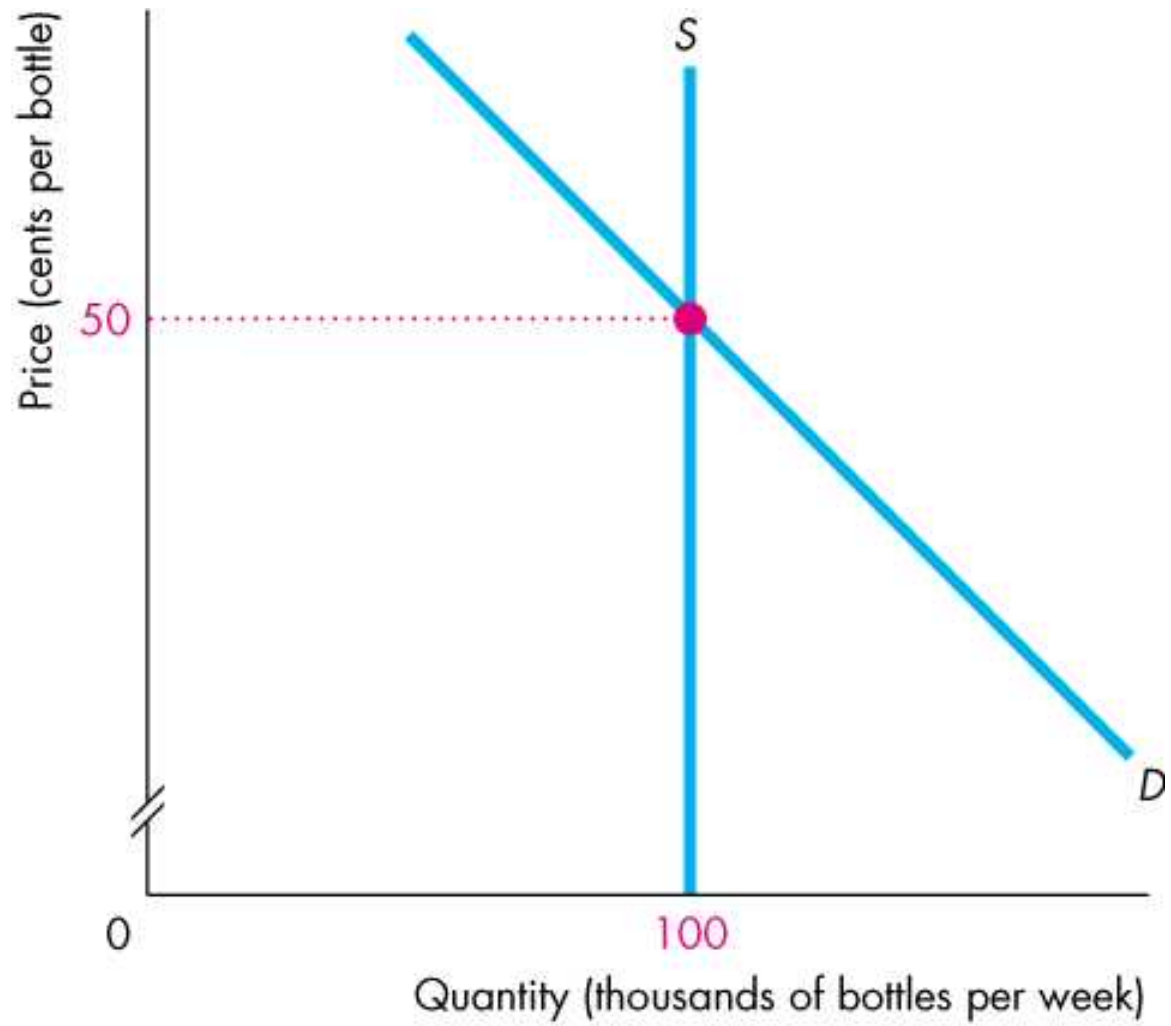
Perfectly Inelastic Supply

The supply of this good is perfectly inelastic—the supply curve is vertical.

When a tax is imposed on this good, sellers pay the entire tax.



(a) Perfectly inelastic supply



(a) Perfectly inelastic supply

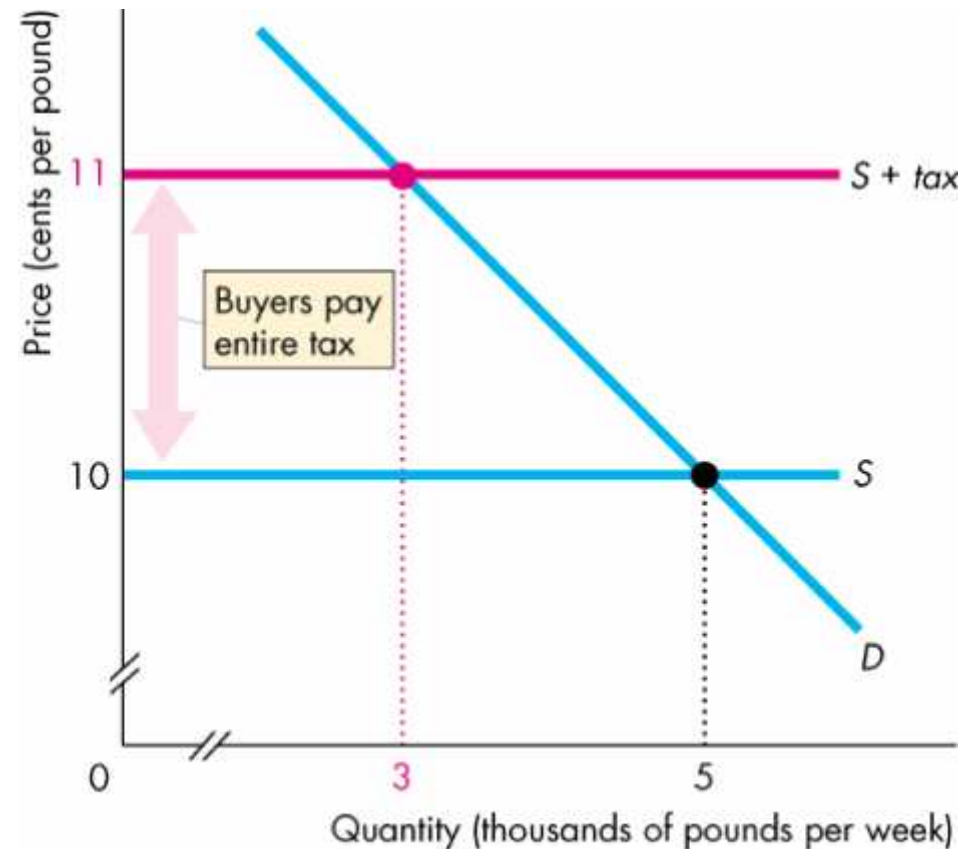
Taxes



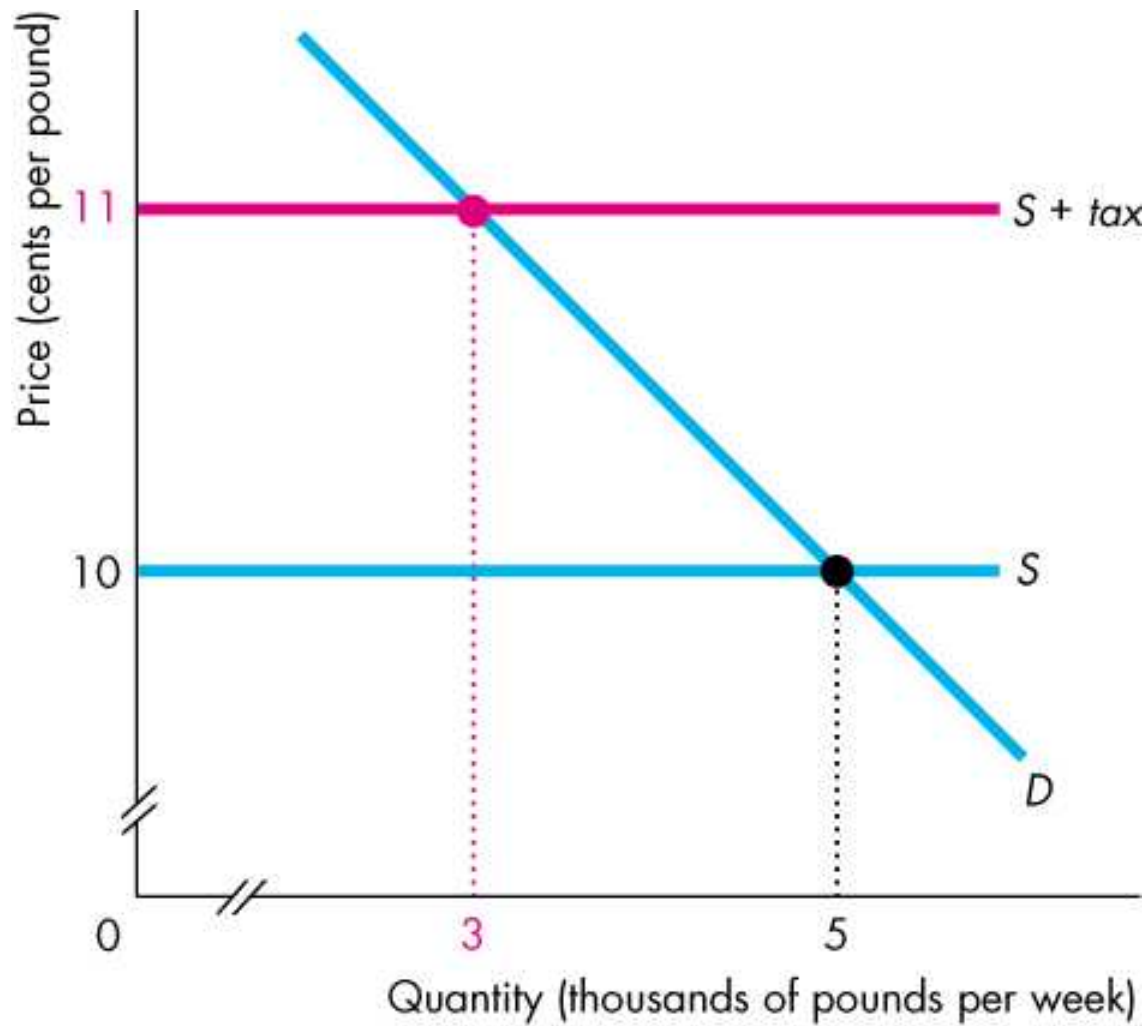
Perfectly Elastic Supply

The supply of this good is perfectly elastic—the supply curve is horizontal.

When a tax is imposed on this good, buyers pay the entire tax.



(b) Perfectly elastic supply



(b) Perfectly elastic supply



Taxes

Taxes in Practice

Taxes usually are levied on goods and services with an inelastic demand or an inelastic supply.

Alcohol, tobacco, and gasoline have inelastic demand, so the buyers of these items pay most the tax on them.

Labor has a low elasticity of supply, so the seller—the worker—pays most of the income tax and most of the Social Security tax.

Taxes

Taxes and Efficiency

Except in the extreme cases of perfectly inelastic demand or perfectly inelastic supply when the quantity remains the same, imposing a tax creates inefficiency.

Figure 6.10 shows the inefficiency created by a \$20 tax on MP3 players.

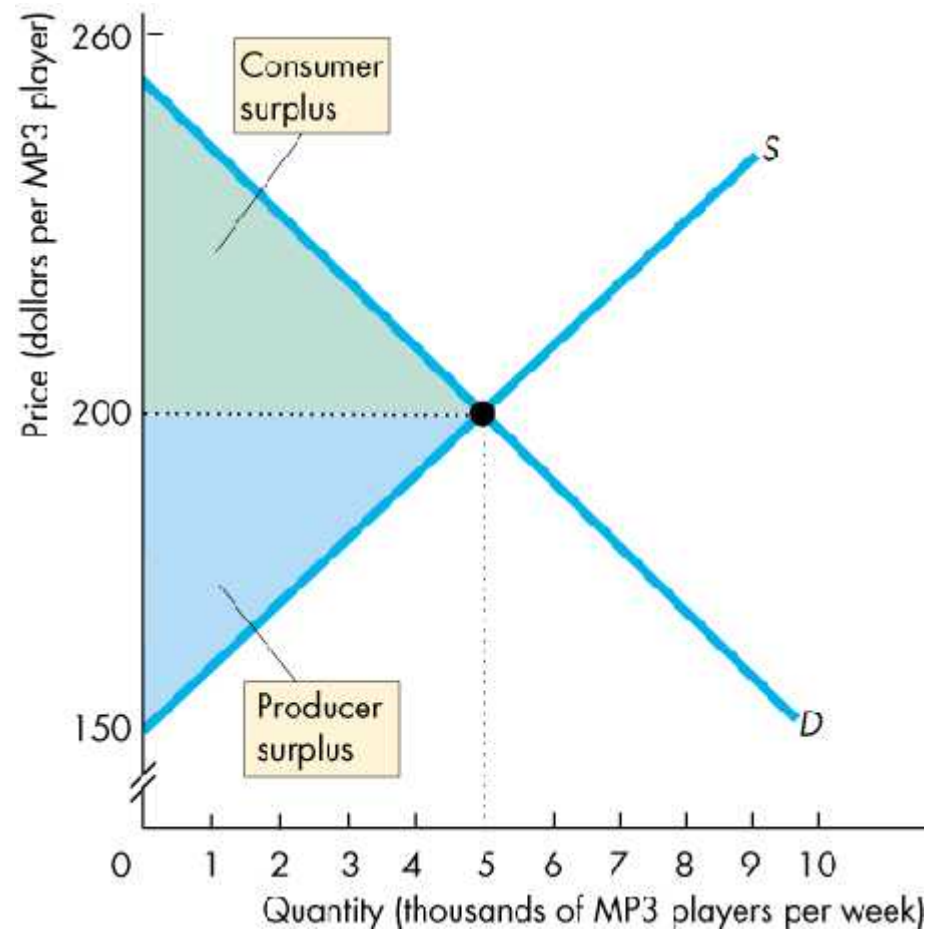
Taxes

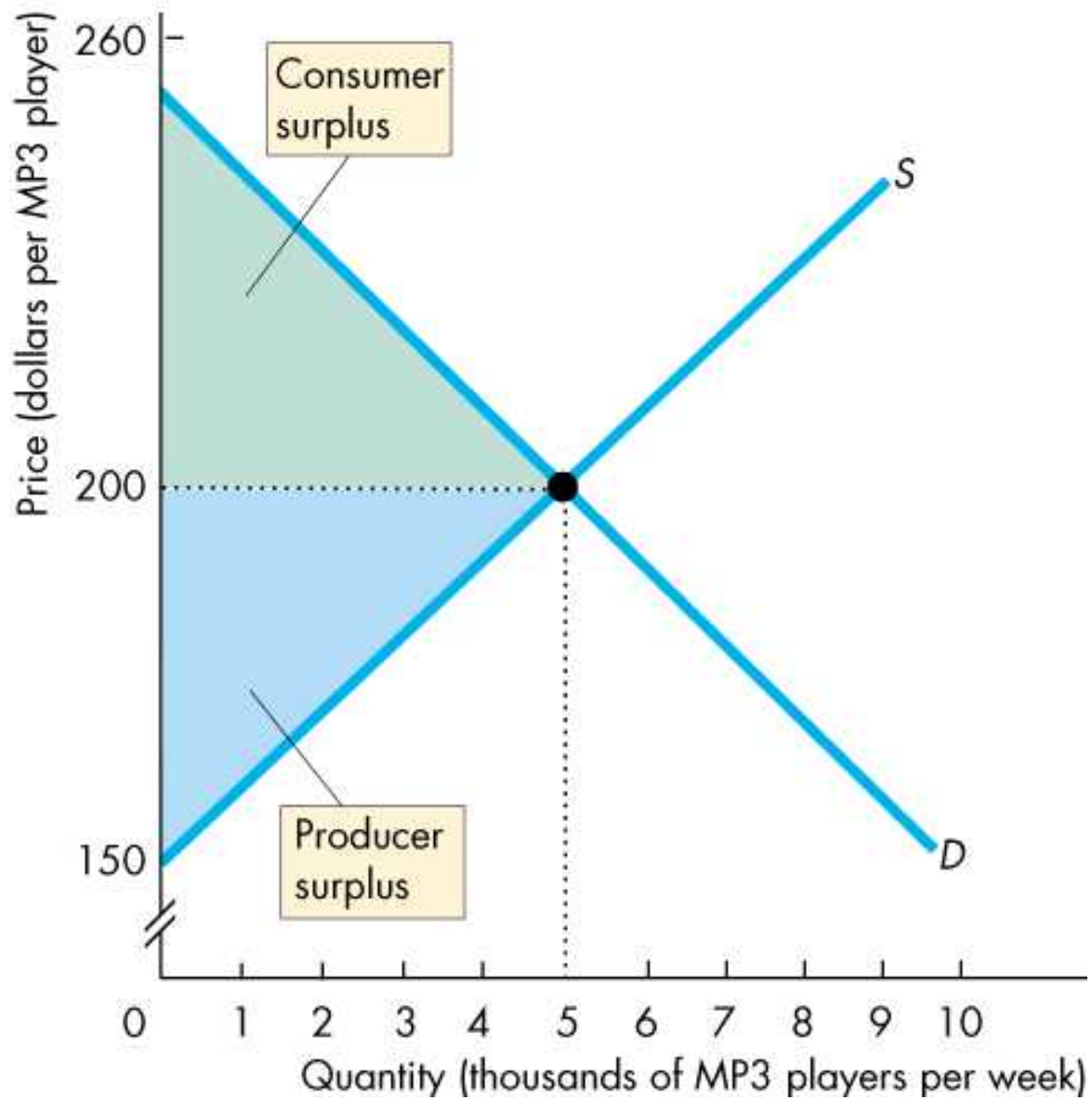


With no tax, marginal social benefit equals marginal social cost and the market is efficient.

Total surplus (the sum of consumer surplus and producer surplus) is maximized.

The tax decreases the quantity, raises the buyers' price, and lowers the sellers' price.



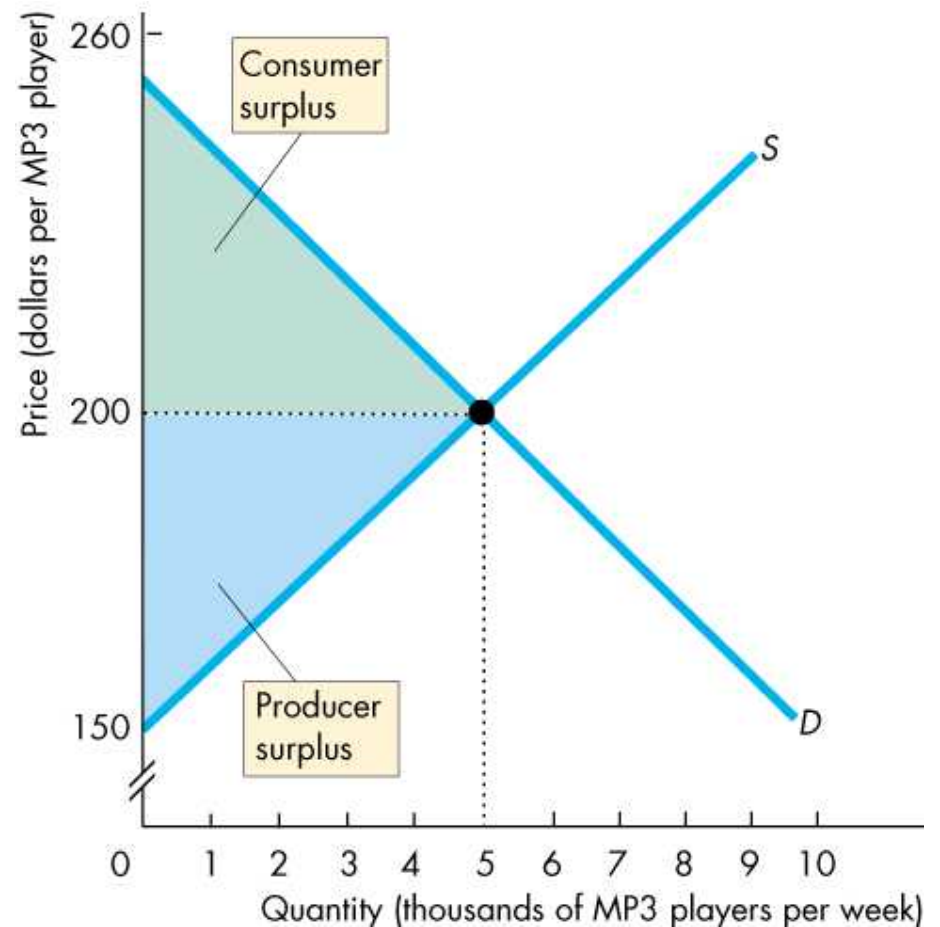


Taxes

Marginal social benefit exceeds marginal social cost and the tax is inefficient.

The tax revenue takes part of the total surplus.

The decreased quantity creates a deadweight loss.



Taxes

Taxes and Fairness

Economists propose two conflicting principles of fairness to apply to a tax system:

- The benefits principle
- The ability-to-pay principle



Taxes

The Benefits Principle

The *benefits principle* is the proposition that people should pay taxes equal to the benefits they receive from the services provided by government.

This arrangement is fair because it means that those who benefit most pay the most taxes.

Taxes

The Ability-to-Pay Principle

The *ability-to-pay principle* is the proposition that people should pay taxes according to how easily they can bear the burden of the tax.

A rich person can more easily bear the burden than a poor person can.

So the ability-to-pay principle can reinforce the benefits principle to justify high rates of income tax on high incomes.

Production Quotas and Subsidies

Intervention in markets for farm products takes two main forms:

- Production quotas
- Subsidies

A **production quota** is an upper limit to the quantity of a good that may be produced during a specified period.

A **subsidy** is a payment made by the government to a producer.

Production Quotas and Subsidies

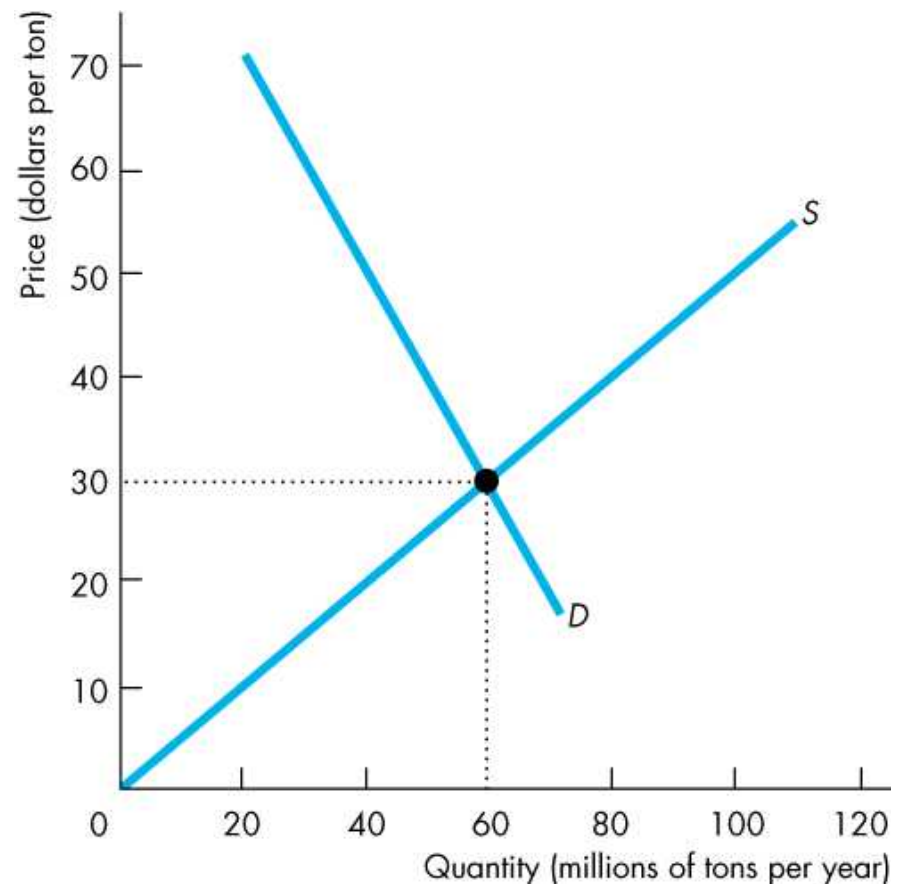


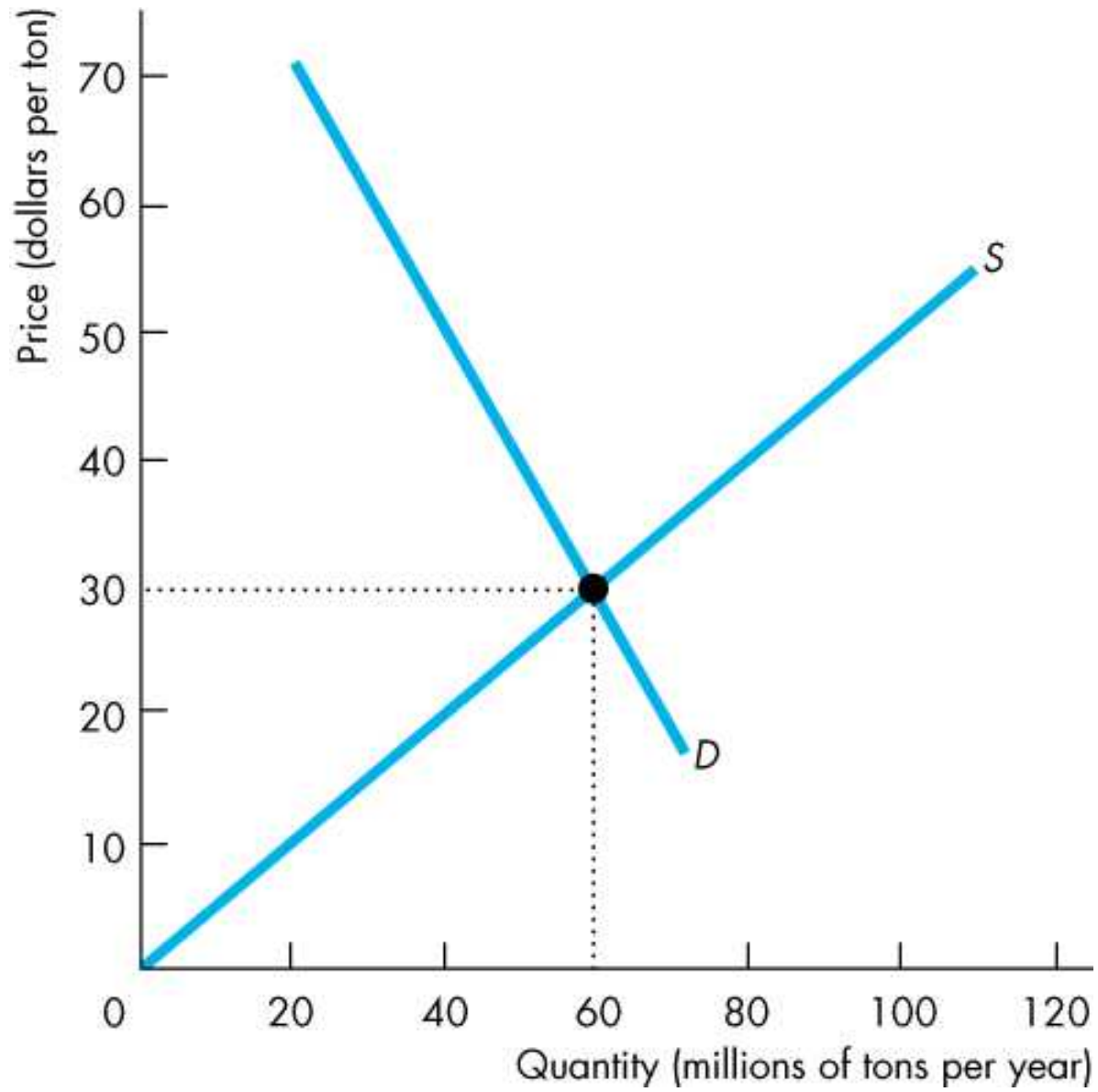
Production Quotas

With no quota, the price is \$30 a ton and 60 million tons a year are produced.

With the production quota of 40 million tons a year, quantity decreases to 40 million tons a year.

The market price rises to \$50 a ton and marginal cost falls to \$20 a ton.





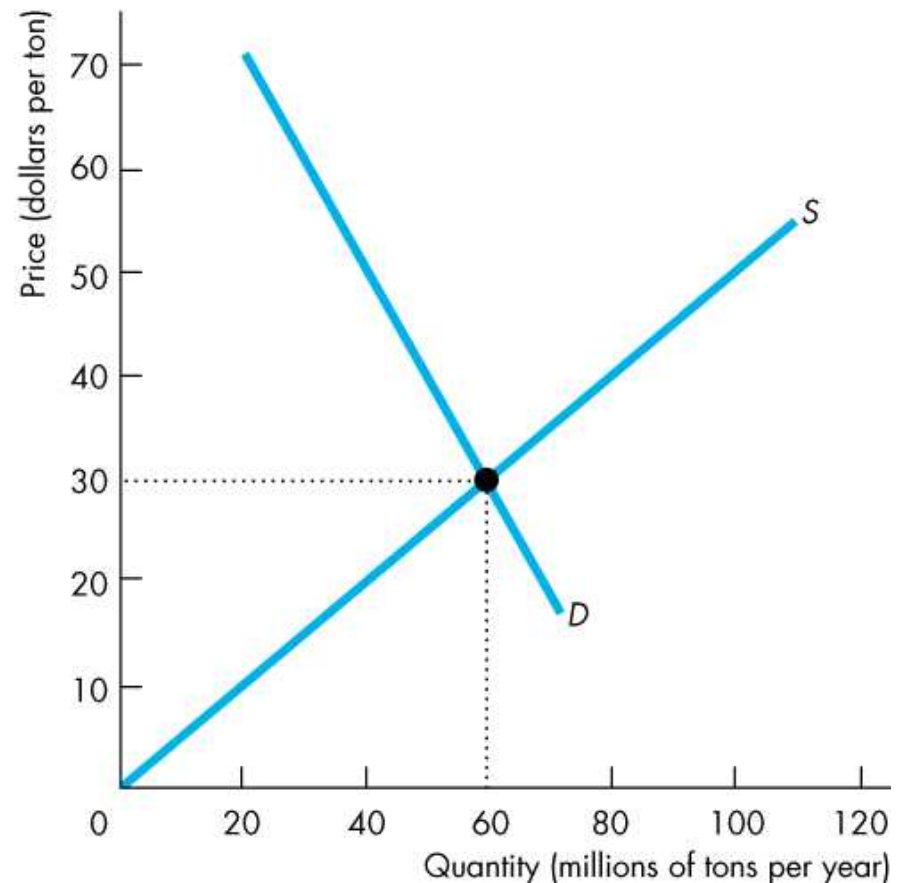
Production Quotas and Subsidies

Inefficiency

At the quantity produced,

- marginal social benefit equal market price, which has increased.
- marginal social cost has decreased.

Production is inefficient and producers have an incentive to cheat.



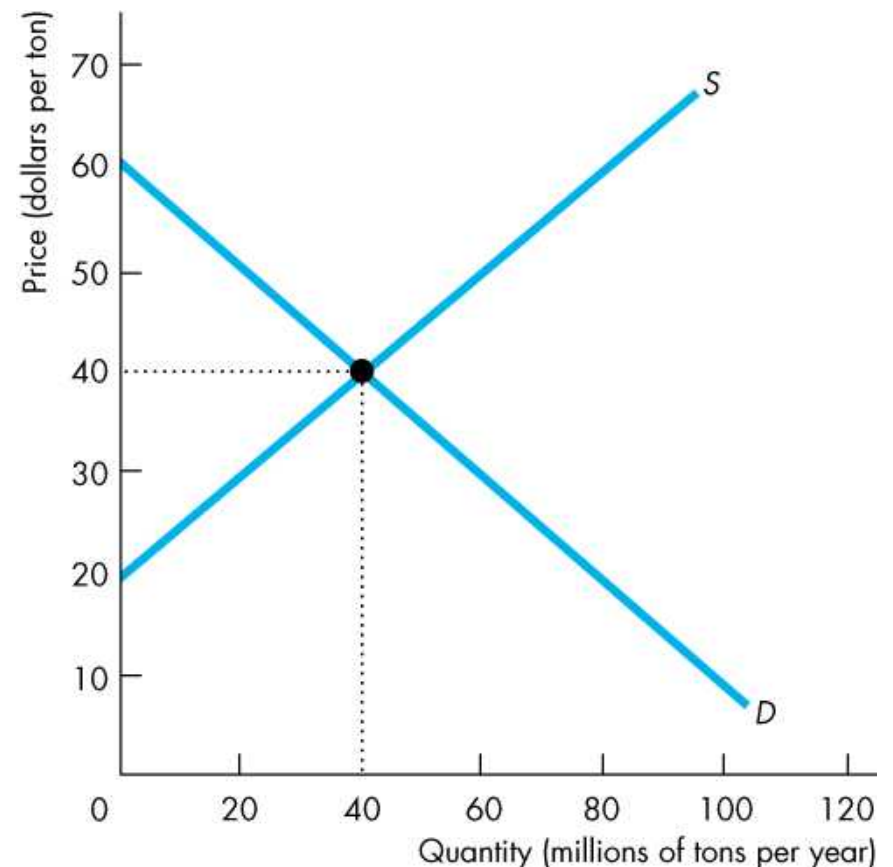
Production Quotas and Subsidies

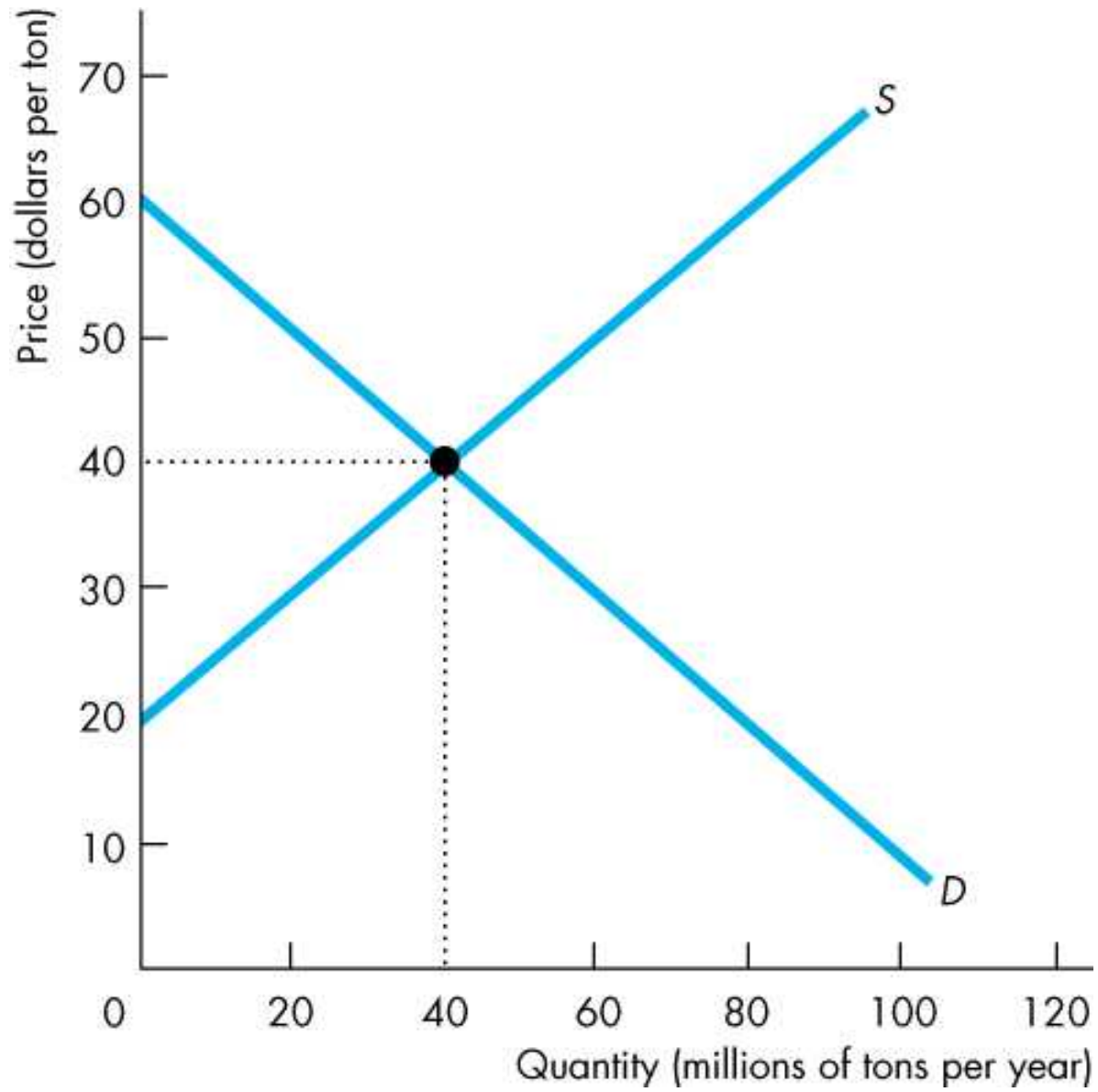


Subsidies

With no subsidy, the price is \$40 a ton and 40 million tons a year are produced.

With a subsidy of \$20 a ton, marginal cost minus subsidy falls by \$20 a ton and the new supply curve is $S - \text{subsidy}$.



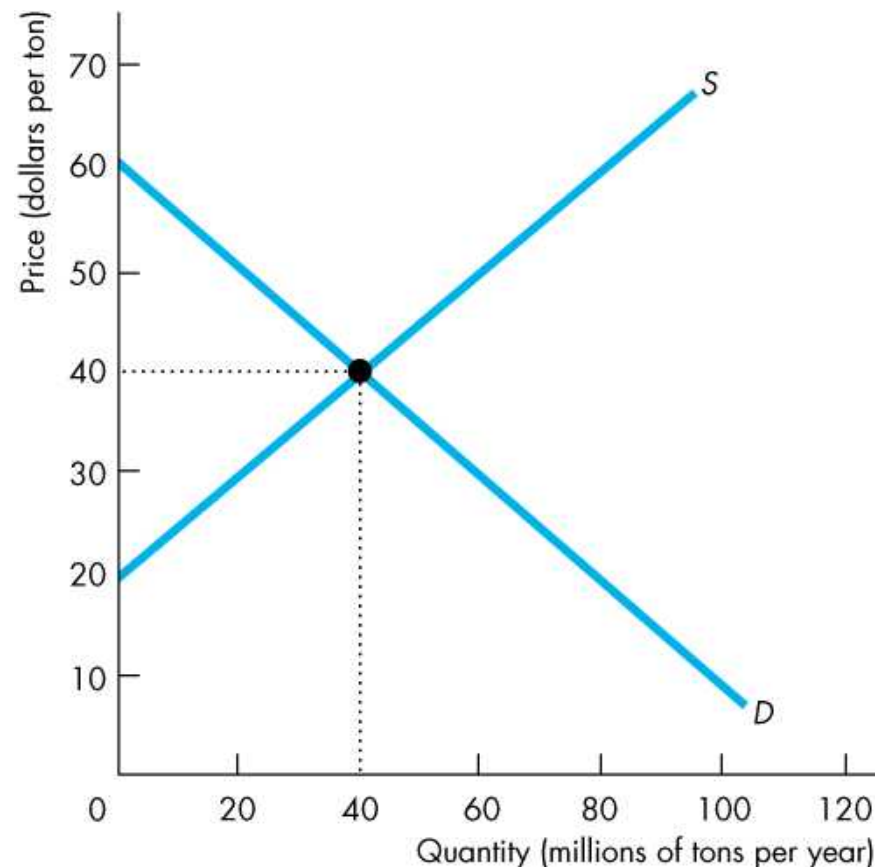


◆ Production Quotas and Subsidies

The market price falls to \$30 a ton and farmers increase the quantity to 60 million tons a year.

But farmers' marginal cost increases to \$50 a ton.

With the subsidy, farmers receive more on each ton sold—the price of \$30 a ton plus the subsidy of \$20 a ton, which is \$50 a ton.

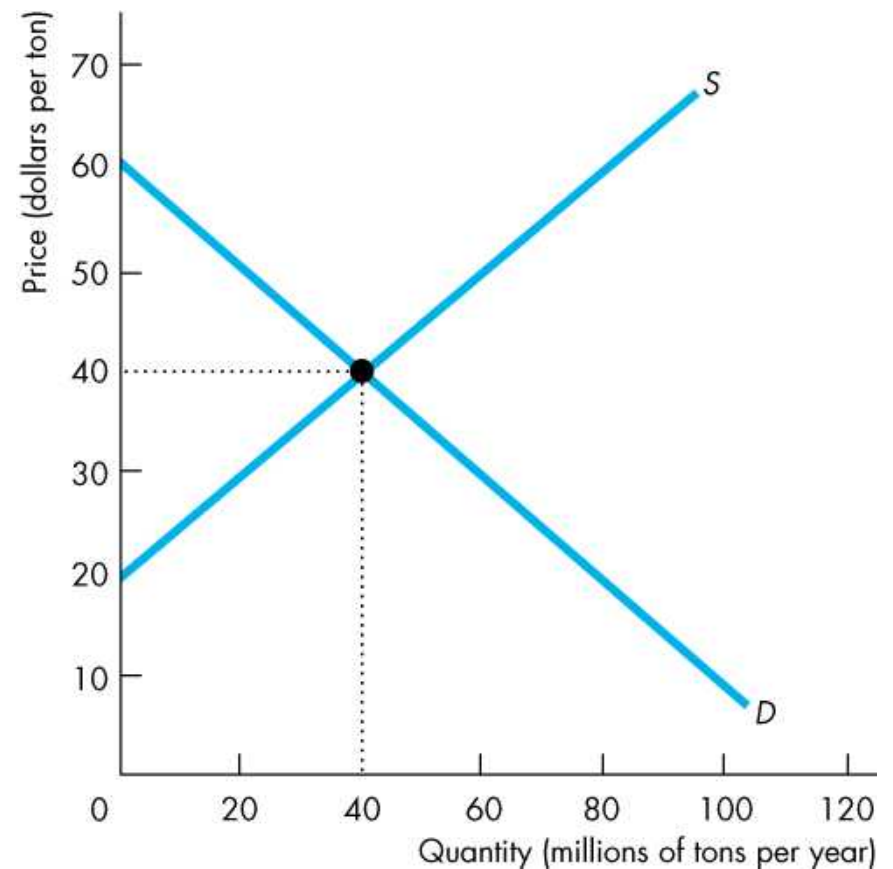


Production Quotas and Subsidies

Inefficient Overproduction

At the quantity produced:

- marginal social benefit equals the market price, which has fallen.
- marginal social cost has increased and exceeds marginal social benefit.



Markets for Illegal Goods

The U.S. government prohibits trade of some goods, such as illegal drugs.

Yet, markets exist for illegal goods and services.

How does the market for an illegal good work?

To see how the market for an illegal good works, we begin by looking at a free market and see the changes that occur when the good is made illegal.

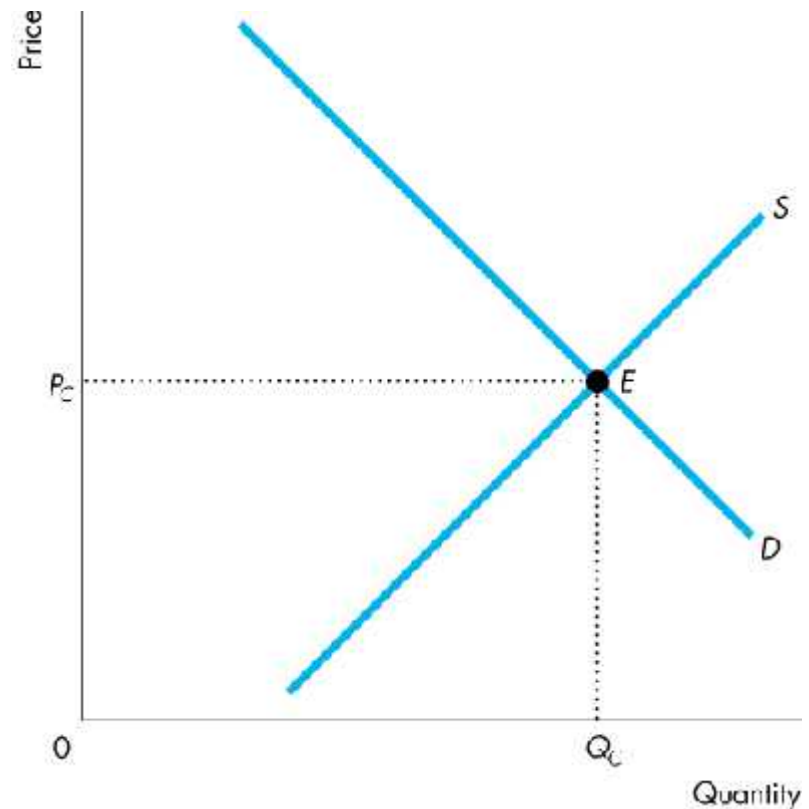
◆ Markets for Illegal Goods

A Free Market for a Drug

Figure 6.13 shows the market for a drug such as marijuana.

Market equilibrium is at point E .

The price is P_C and the quantity is Q_C .



Markets for Illegal Goods

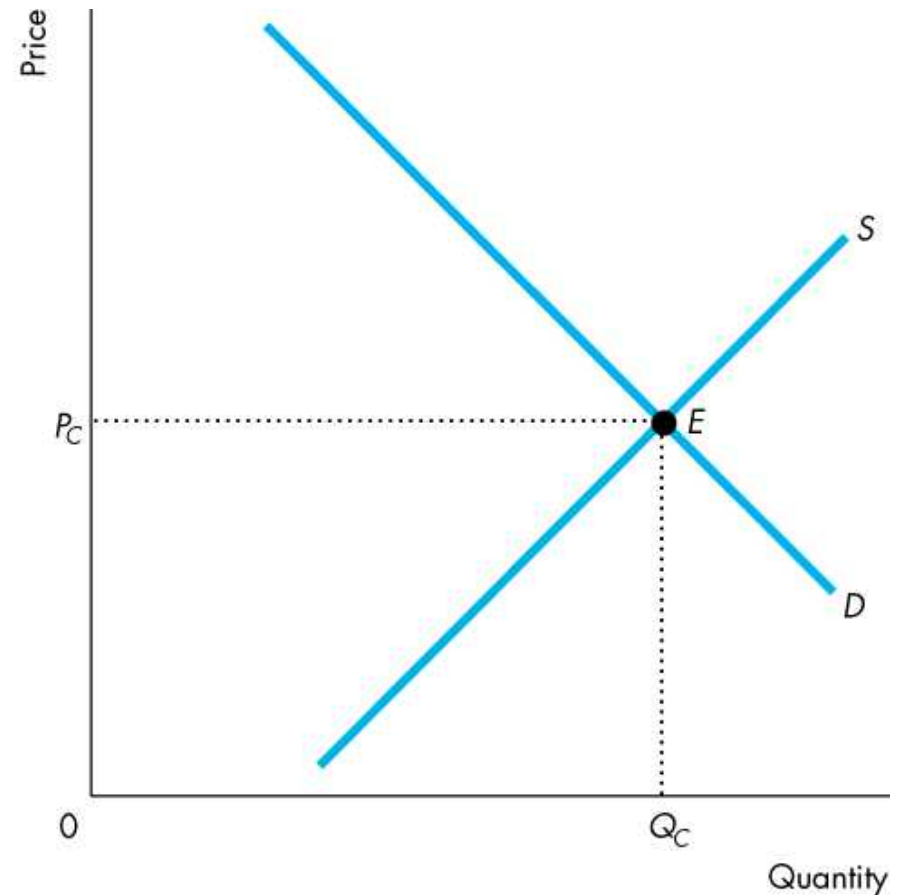


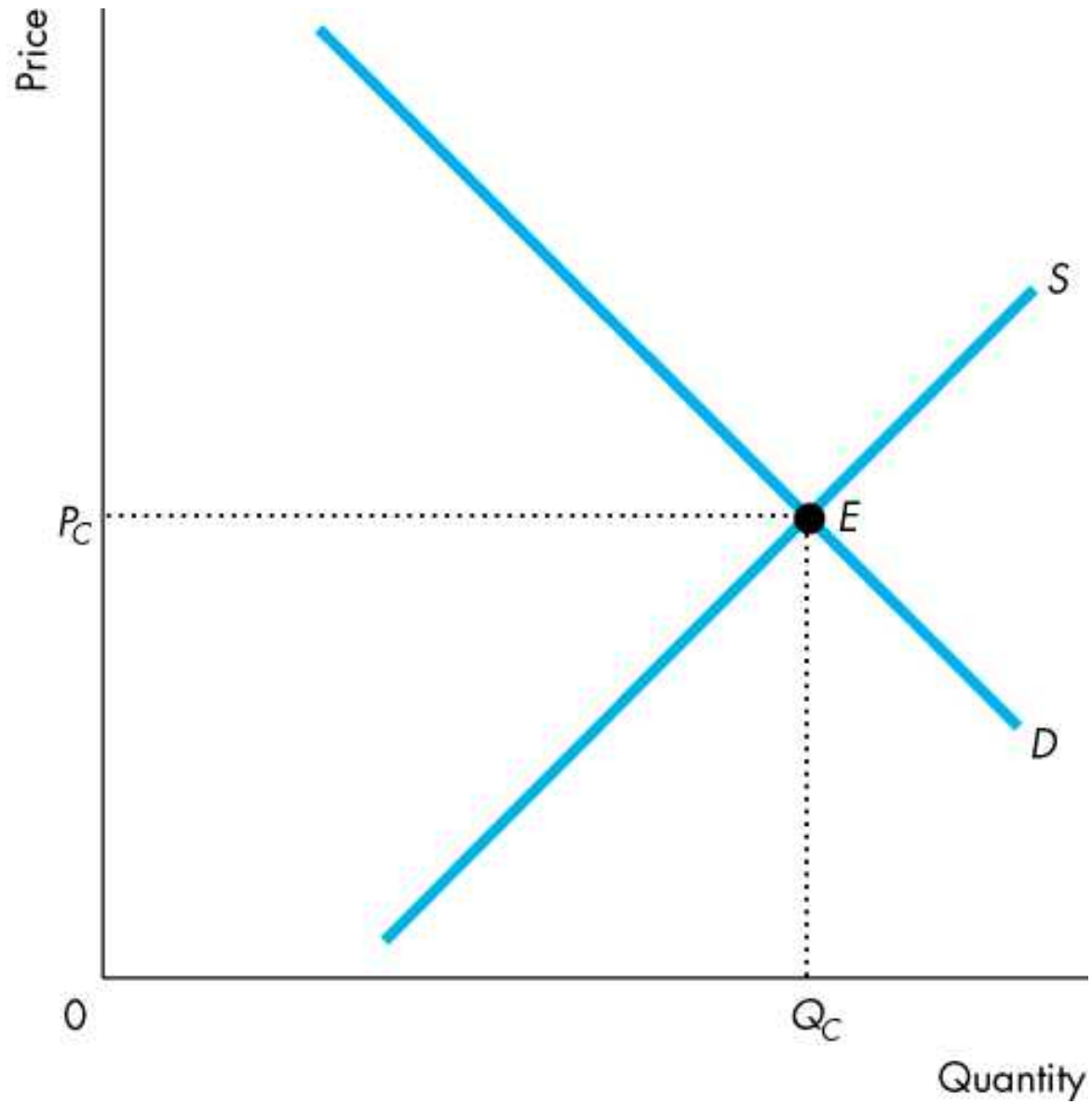
Penalties on Sellers

If the penalty on the seller is the amount HK , then the quantity supplied at a market price of P_C is Q_P .

Supply of the drug decreases to $S + CBL$.

The new equilibrium is at point F . The price rises and the quantity decreases.





Markets for Illegal Goods

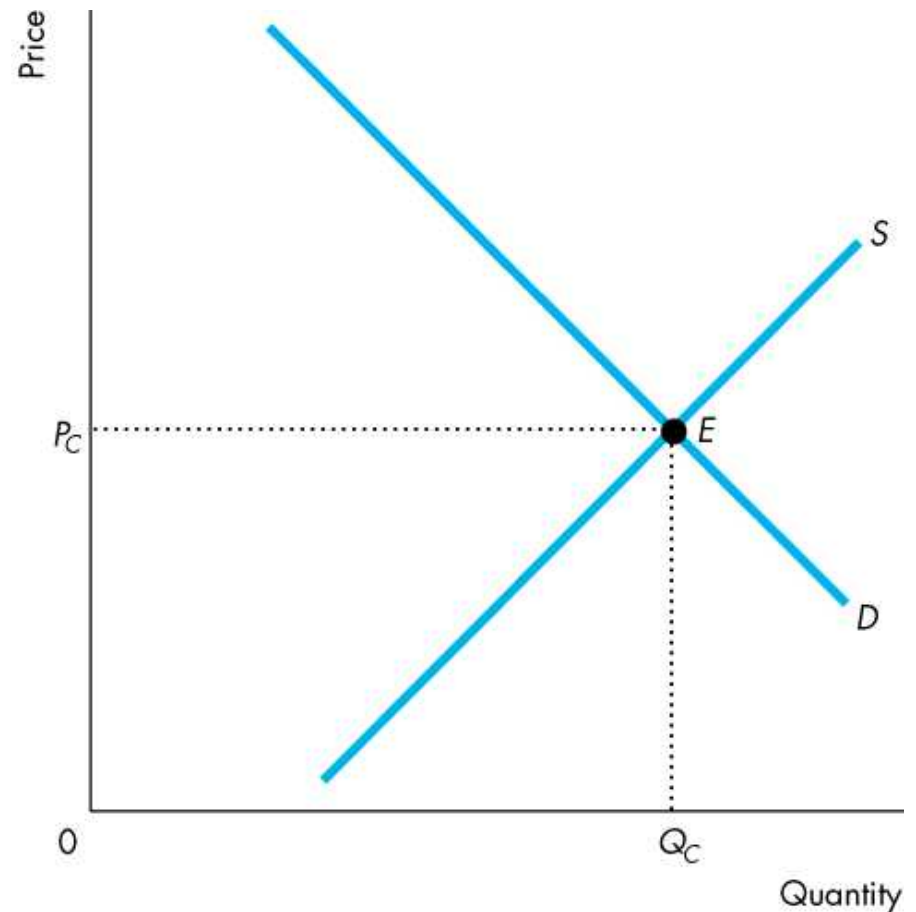


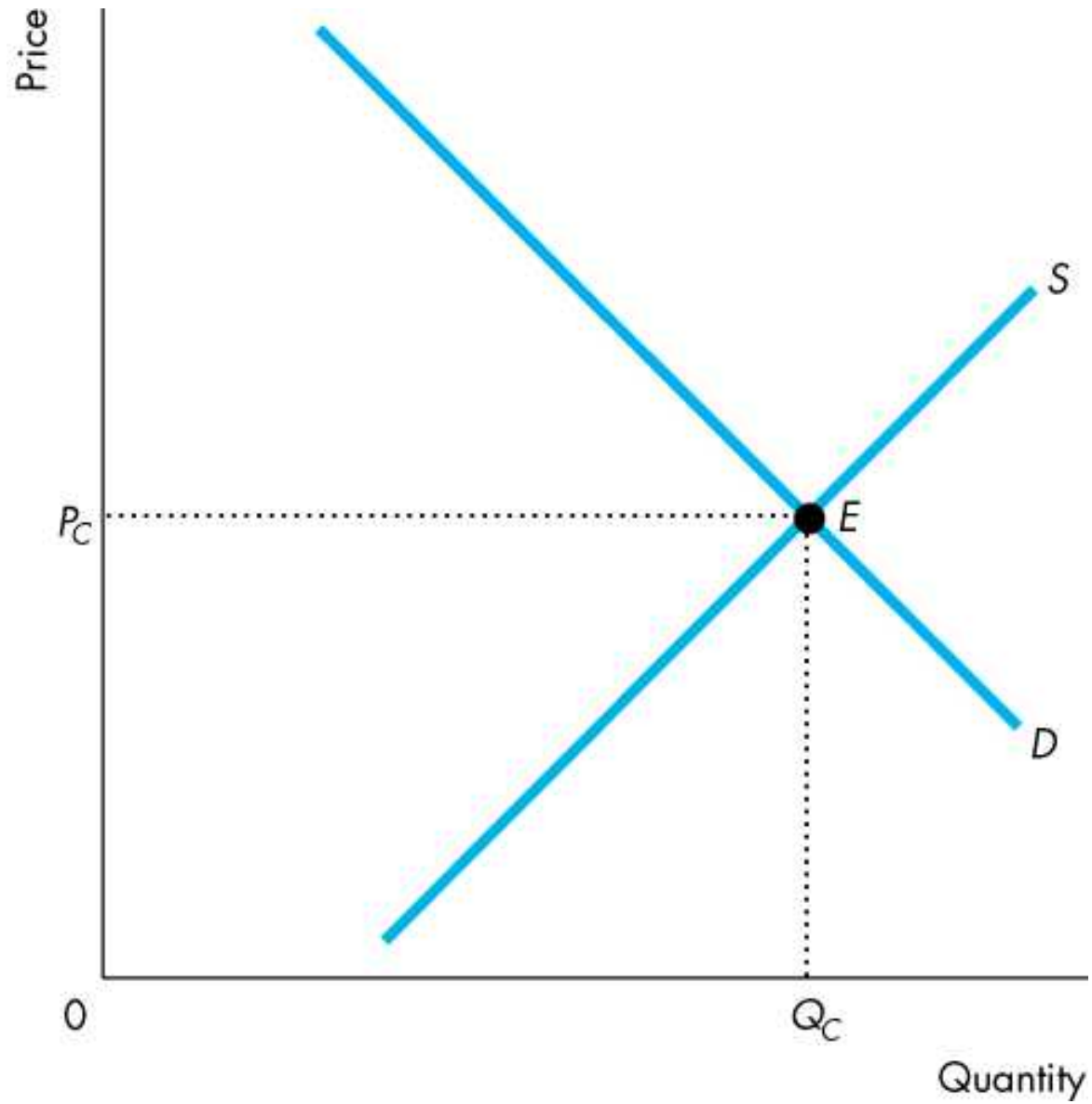
Penalties on Buyers

If the penalty on the buyer is the amount JH , the quantity demanded at a market price of P_C is Q_P .

Demand for the drug decreases to $D - CBL$.

The new equilibrium is at point G . The market price falls and the quantity decreases.

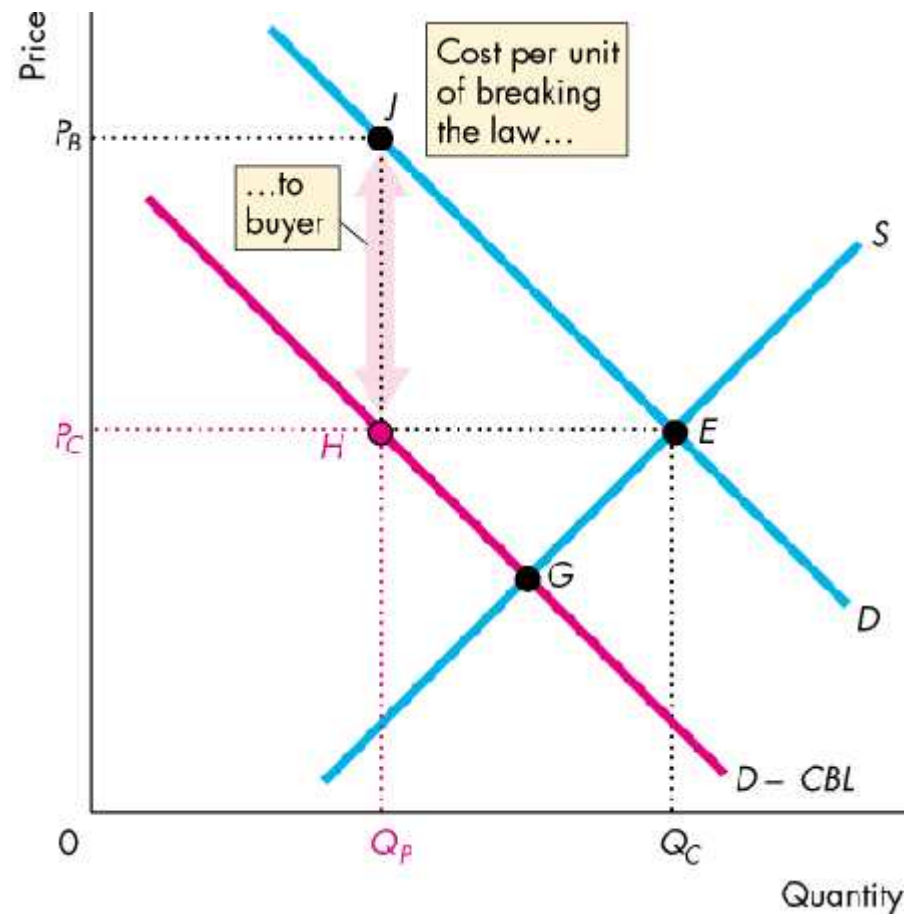




Markets for Illegal Goods

But the opportunity cost of buying this illegal good rises above P_C because

the buyer pays the market price **plus** the cost of breaking the law.



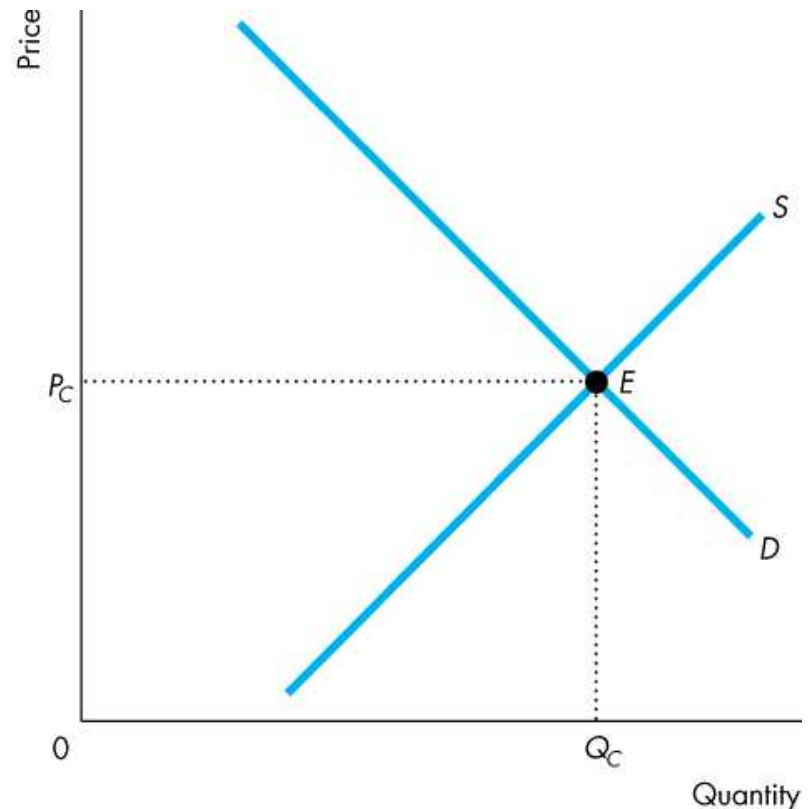
◆ Markets for Illegal Goods

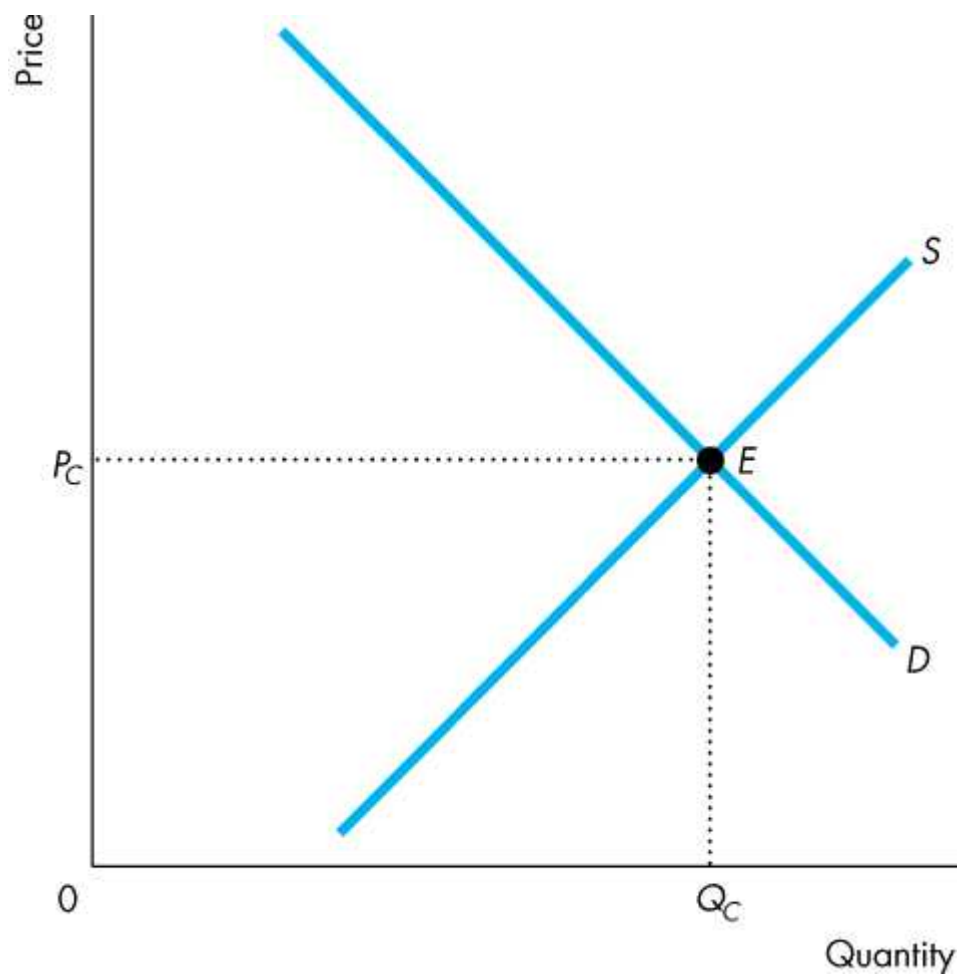


Penalties on Both Sellers and Buyers

With both sellers and buyers penalized for trading in the illegal drug,

both the demand for the drug and the supply of the drug decrease.





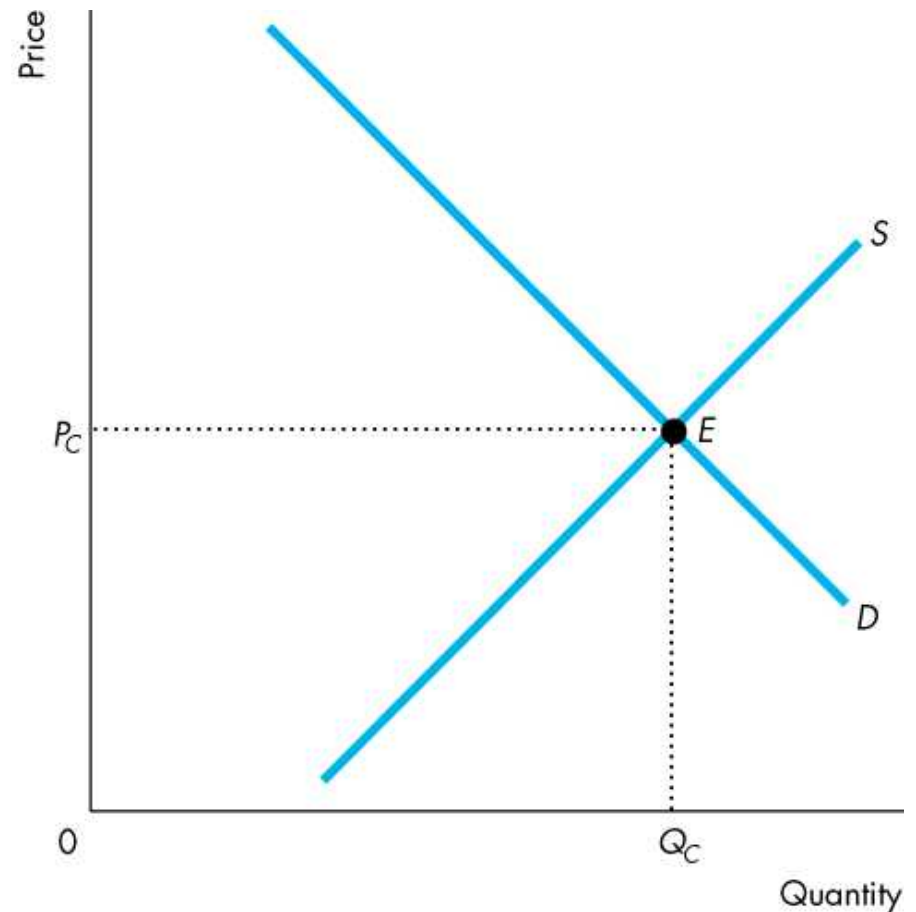
◆ Markets for Illegal Goods

The new equilibrium is at point H .

The quantity decreases to Q_P .

The market price is P_C .

The buyer pays P_B and the seller receives P_S .



Markets for Illegal Goods

Legalizing and Taxing Drugs

An illegal good can be legalized and taxed.

A high enough tax rate would decrease consumption to the level that occurs when trade is illegal.

Arguments that extend beyond economics surround this choice.