

MARKETS IN ACTION

CHAPTER 6

Objectives

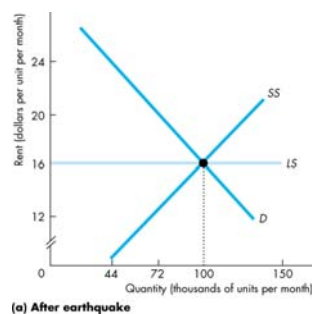
- Price ceiling and inefficiencies.
- Minimum wages and inefficiency.
- Sales tax
- Volatility of farm prices and revenues
- How production subsidies and quotas influence farm production, costs, and prices
- Markets for illegal goods

Housing Markets and Rent Ceilings

The Market Response to a Decrease in Supply

This graph shows the San Francisco housing market before the earthquake.

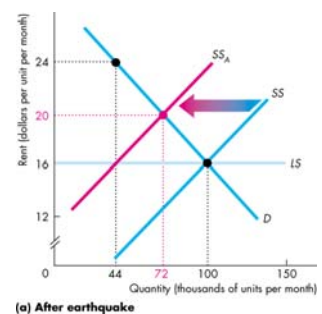
The quantity of housing was 100,000 units and the rent was \$16 a month at the intersection of D and SS .



Housing Markets and Rent Ceilings

The earthquake decreased the supply of housing and the supply curve shifted leftward to SS_A .

The rent increased to \$20 a month and the quantity decreased to 72,000 units.

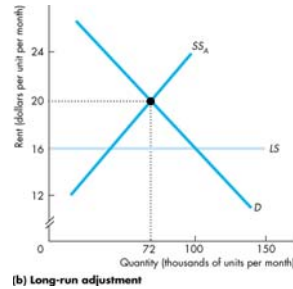


Housing Markets and Rent Ceilings

Long-Run Adjustments

The long-run supply of housing is perfectly elastic at \$16 a month.

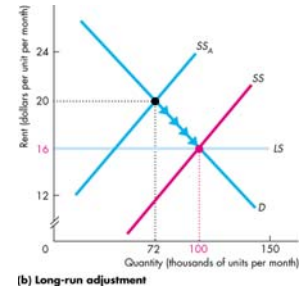
With the rent above \$16 a month, new houses and apartments are built.



Housing Markets and Rent Ceilings

The building program increases supply and the supply curve shifts rightward.

The quantity of housing increases and the rent falls to the pre-earthquake levels (other things remaining the same).



Housing Markets and Rent Ceilings

A Regulated Housing Market

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

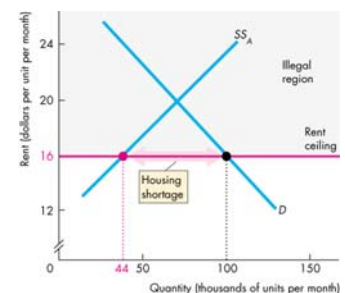
When a price ceiling is applied to a housing market it is called a **rent ceiling**.

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.

Housing Markets and Rent Ceilings

At the rent ceiling, the quantity of housing demanded exceeds the quantity supplied and there is a housing shortage.

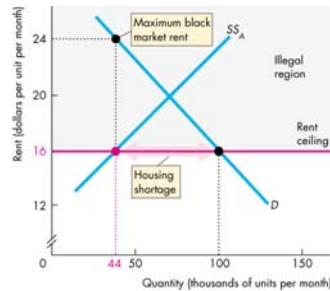


Housing Markets and Rent Ceilings

With a housing shortage, people are willing to pay \$24 a month.

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

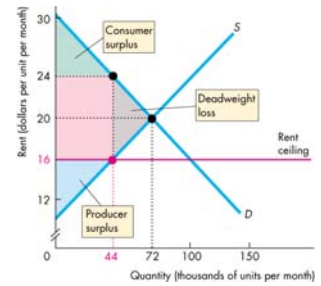
- search activity
- black markets



Housing Markets and Rent Ceilings

A rent ceiling

- decreases the quantity of rental housing,
- shrinks the producer and consumer surplus by using resources in search activity,
- creates a deadweight loss.



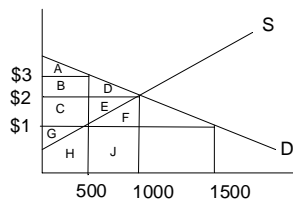
The Effects of Price Ceilings

In general, a "binding" price ceiling will result in:

- a. Consumers could be made better or worse off.
- b. Producers are worse off.
- c. A deadweight loss.

What is the dollar value of

- a.
- b.
- c.

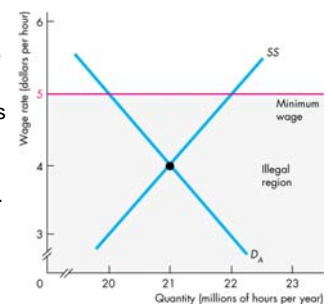


The Labor Market and the Minimum Wage

The equilibrium wage rate is \$4 an hour.

The minimum wage rate is set at \$5 an hour.

So the equilibrium wage rate is in the illegal region.

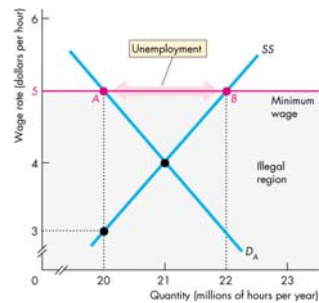


The Labor Market and the Minimum Wage

The quantity of labor employed is the quantity demanded.

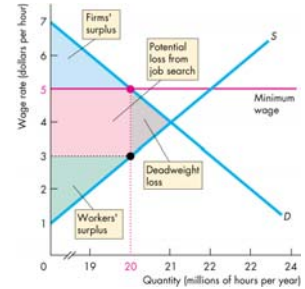
The quantity of labor supplied exceeds the quantity demanded.

Unemployment is the gap between the quantity demanded and the quantity supplied.



The Labor Market and the Minimum Wage

A minimum wage decreases the quantity of labor employed, shrinks the firms' and workers' surplus by using resources in job search activity, and creates a deadweight loss.



Minimum Wage

Why is there a minimum wage?

- efficiency versus equity
- who are beneficiaries of increased minimum wage?
- how does elasticity of labor demand affect desirability of minimum wage hike?

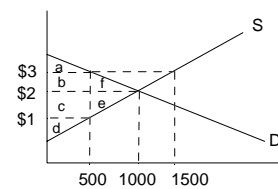
The Effect of Price Floors

In general, a "binding" price floor will result in:

- Buyers are worse off
- Producers could be better or worse off.
- A deadweight loss.

With a \$3 price floor, what is the dollar value of

-
-
-



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 the 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 the buyer and the seller.

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, the buyer pays the tax.

If the price rises by a lesser amount than the tax, the buyer and seller share the burden of the tax.

If the price doesn't rise at all, the seller pays the tax.

Taxes

Tax Incidence

Tax incidence doesn't depend on tax law.

The law might impose a tax on the buyer or the seller, 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, Mayor Bloomberg upped the cigarette tax in New York City from almost nothing to \$1.50 a pack.

Taxes

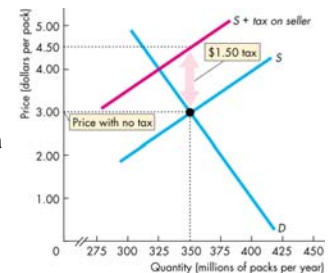
A Tax on Sellers

This graph shows the effects of this tax.

With no tax, the equilibrium price is \$3 a pack.

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

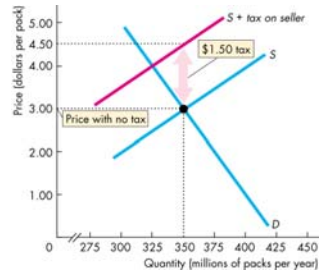
The curve $S + \text{tax on seller}$ shows the new supply curve.



Taxes

The vertical distance between the original supply curve and the supply curve with the tax is equal to the amount of the tax--\$1.50.

Buyers would have to pay \$4.50 a pack to induce firms to offer the original quantity for sale.

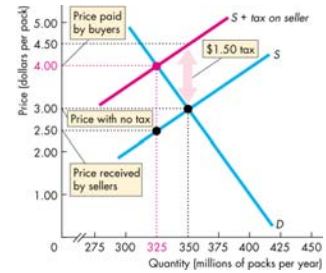


Taxes

The tax changes the equilibrium price and quantity.

The quantity decreases.

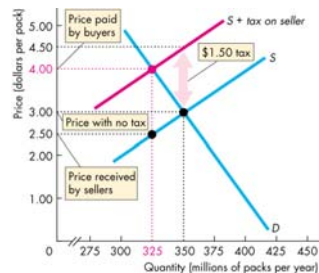
The price paid by the buyer rises to \$4 and the price received by the seller falls to \$2.50.



Taxes

So buyers pay \$1 of the tax.

Sellers pay the remaining 50¢.



Taxes

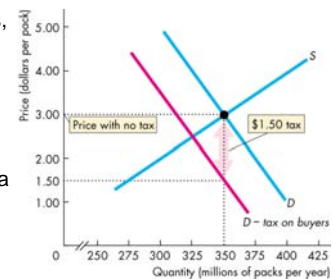
A Tax on Buyers

Now suppose that buyers, not sellers, are taxed \$1.50 a pack.

Again, with no tax, the equilibrium price is \$3 a pack.

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

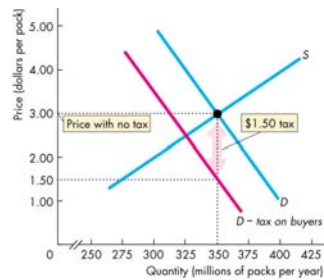
The curve $D - \text{tax on buyer}$ shows the new demand curve.



Taxes

The vertical distance between the original demand curve and the demand curve minus the tax is equal to the amount of the tax--\$1.50.

Sellers would have to accept \$1.50 a pack to induce people to buy the original quantity.

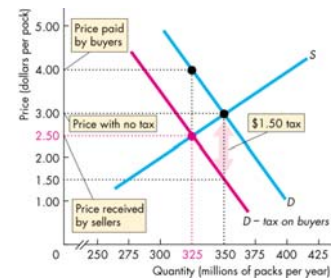


Taxes

The tax changes the equilibrium price and quantity.

The quantity decreases.

The price paid by the buyer rises to \$4 and the price received by the seller falls to \$2.50.



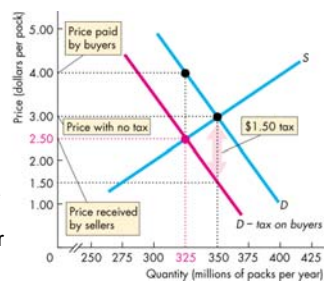
Taxes

So, exactly as before when the seller was taxed:

The buyer pays \$1 of the tax.

The seller pays the other 50¢ of the tax.

Tax incidence is the same regardless of whether the law says the seller pays or the buyer pays.



Taxes

The division of the tax between the buyer and the seller depends on the elasticities of demand and supply.

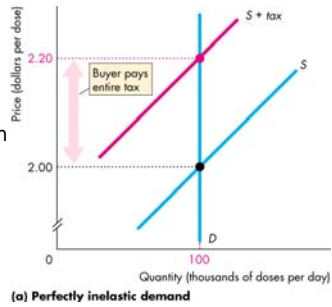
Tax Division and Elasticity of Demand

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

- Perfectly inelastic demand: the buyer pays the entire tax.
- Perfectly elastic demand: the seller pays the entire tax.
- The more inelastic the demand, the larger is the buyers' share of the tax.

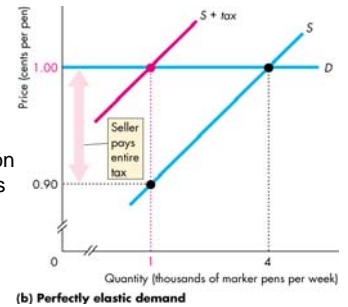
Taxes

In this figure, demand is perfectly inelastic—the demand curve is vertical. When a tax is imposed on this good, the buyer pays the entire tax.



Taxes

In this figure, demand is perfectly elastic—the demand curve is horizontal. When a tax is imposed on this good, the seller pays the entire tax.



Taxes

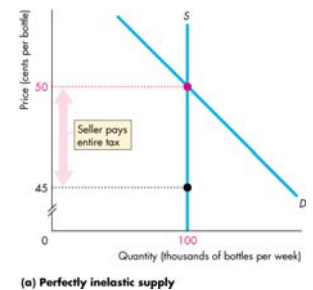
Tax Division and Elasticity of Supply

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: the seller pays the entire tax.
- Perfectly elastic supply: the buyer pays the entire tax.
- The more elastic the supply, the larger is the buyers' share of the tax.

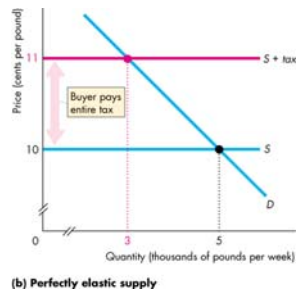
Taxes

In this figure, supply is perfectly inelastic—the supply curve is vertical. When a tax is imposed on this good, the seller pays the entire tax.



Taxes

In this figure, supply is perfectly elastic—the supply curve is horizontal. When a tax is imposed on this good, the buyer pays the entire tax.



Taxes

Taxes in Practice

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

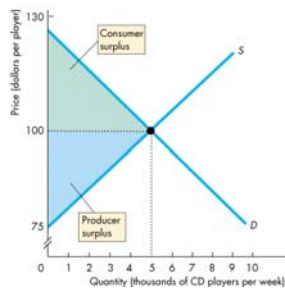
Alcohol, tobacco, and gasoline have inelastic demand, so the buyers of these items pay most of the tax on them.

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

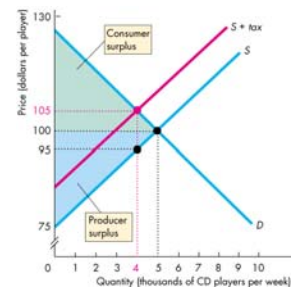
Except in the extreme cases of perfectly inelastic demand or supply when the quantity remains the same, imposing a tax creates inefficiency.



Taxes

With no tax, the market is efficient and the sum of consumer surplus and producer surplus is maximized.

A tax shifts the supply curve, decreases the equilibrium quantity, raises the price to the buyer, and lowers the price to the seller.

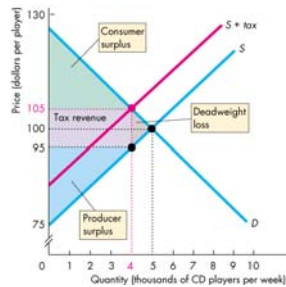


Taxes

The tax revenue takes part of the consumer surplus and producer surplus.

The decreased quantity creates a deadweight loss.

The deadweight loss caused by a tax is often called the “excess burden” of the tax.



Subsidies and Quotas

Fluctuations in the weather bring big fluctuations in farm output.

How do changes in farm output affect the prices of farm products and farm revenues?

How might farmers be helped by intervention in markets for farm products?

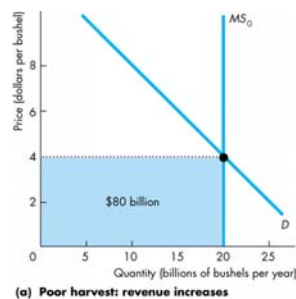
Stabilizing Farm Revenues

Harvest Fluctuations

Market for wheat.

Once the crop is planted, supply is perfectly inelastic along the momentary supply curve MS_0 .

The price is \$4 a bushel and farm total revenue is \$80 billion.



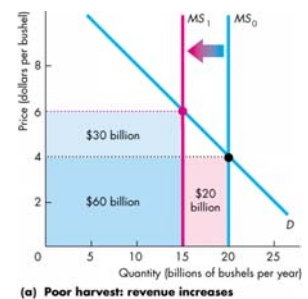
Stabilizing Farm Revenues

A poor harvest decreases supply.

Farmers lose \$20 billion of total revenue on the decreased quantity sold.

But they gain \$30 billion from the higher price.

Because demand is inelastic, total revenue increases—to \$90 billion.



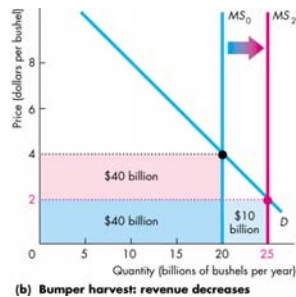
Stabilizing Farm Revenues

Now a bumper harvest increases supply.

Farmers lose \$40 billion of total revenue on the original quantity because the price falls.

They gain only \$10 billion from the increased quantity.

Because demand is inelastic, total revenue decreases—to \$50 billion.



Stabilizing Farm Revenues

Intervention in markets for farm products takes two main forms:

- Subsidies
- Production quotas

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

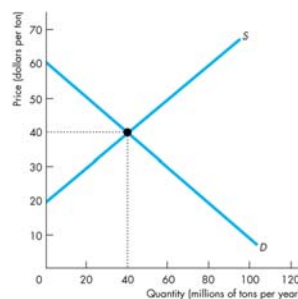
A **production quota** is an upper limit to the quantity of a good that may be produced during a specified period.

Stabilizing Farm Revenues

Subsidies

The producers of peanuts, sugarbeets, milk, wheat, and many other farm products receive subsidies.

With no subsidy, the price is \$40 and the quantity is 40 million tons a year



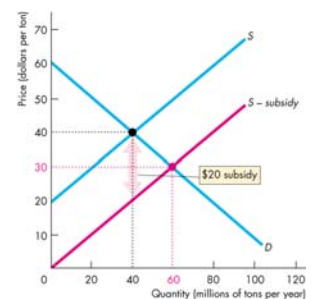
Stabilizing Farm Revenues

Subsidies

A subsidy of \$20 a ton is introduced.

Marginal cost minus subsidy falls by \$20 and the new supply curve is $S - \text{subsidy}$.

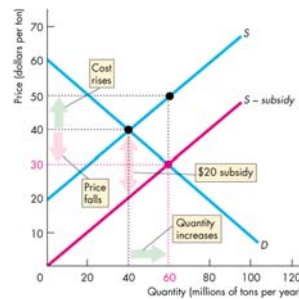
The new equilibrium is at 60 million tons and \$30 a ton.



Stabilizing Farm Revenues

Subsidies

The equilibrium quantity increases.
The equilibrium price falls.
The farmer receives more on each ton sold--\$50 a ton in this example.
Effect on consumer surplus?
Effect on producer surplus?
Cost to taxpayers?
Deadweight loss?

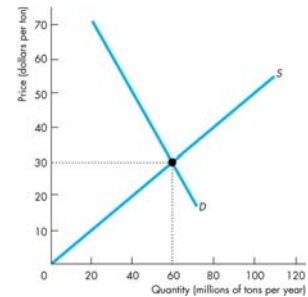


Stabilizing Farm Revenues

Production Quotas

The markets for sugarbeets, tobacco leaf, and cotton, among others, are regulated with production quotas.

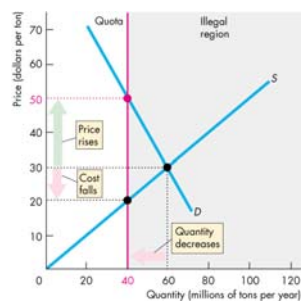
With no quota, the price is \$30 and the quantity is 60 million tons a year.



Stabilizing Farm Revenues

Production Quotas

A production quota limits total production to 40 million tons a year.
The equilibrium quantity decreases to this amount.
The price rises to \$50 a ton and marginal cost falls to \$20 a ton.
How does the quota affect consumer's surplus?
Producer's surplus?
What is the deadweight loss?



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?

A Free Market for Drugs

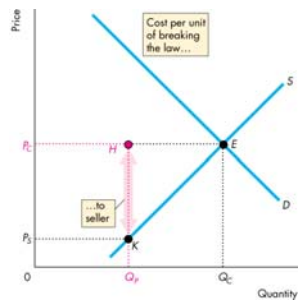
To see how the market for an illegal good works, we begin by looking at a free market and see the changes that occur when the good is made illegal.

Markets for Illegal Goods

A Market for Illegal Drugs

Prohibiting transactions in a good or service raises the cost of such trading.

If sellers (drug dealers) are penalized, we must add the cost of breaking the law to the minimum supply price.

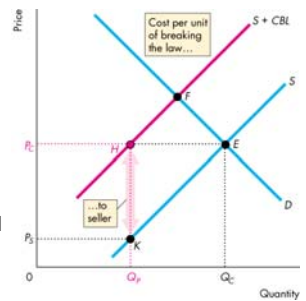


Markets for Illegal Goods

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

A new supply curve passes through point H .

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

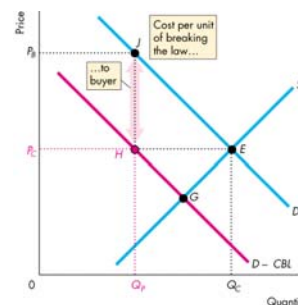


Markets for Illegal Goods

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

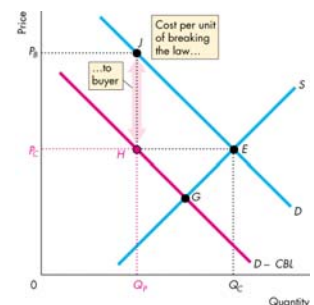
A new demand curve passes through point H .

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



Markets for Illegal Goods

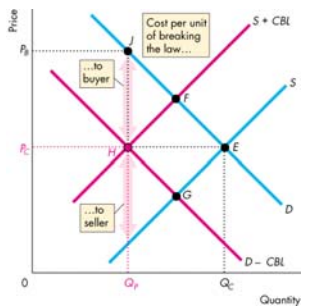
But the opportunity cost of buying this illegal good rises because the buyer pays the market price plus the cost of breaking the law.



Markets for Illegal Goods

Now suppose that both buyers and sellers are penalized for trading in the illegal drug.

We add the cost of breaking the law to the minimum supply price and get a new supply curve.



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 .

