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MICROECONOMICS

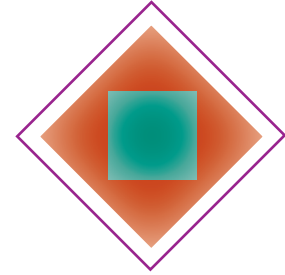
14th
Edition

Michael Parkin



MICROECONOMICS

FOURTEENTH EDITION
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MICHAEL PARKIN

University of Western Ontario



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Are Rent Ceilings Fair?

Rent ceilings might be inefficient, but don't they achieve a fairer allocation of scarce housing? Let's explore this question.

Chapter 5 (pp. 150–152) reviews two key ideas about fairness. According to the *fair-rules* view, anything that blocks voluntary exchange is unfair, so rent ceilings are unfair. But according to the *fair-result* view, a fair outcome is one that benefits the less well off. So according to this view, the fairest outcome is the one that allocates scarce housing to the poorest. To see whether rent ceilings help to achieve a fairer outcome in this sense, we need to consider how the market allocates scarce housing resources in the face of a rent ceiling.

Blocking rent adjustments doesn't eliminate scarcity. Rather, because it decreases the quantity of housing available, it creates an even bigger challenge for the housing market. Somehow, the market must ration a smaller quantity of housing and allocate that housing among the people who demand it.

When the rent is not permitted to allocate scarce housing, what other mechanisms are available, and are *they* fair? Some possible mechanisms are

- A lottery
- First-come, first-served
- Discrimination

A lottery allocates housing to those who are lucky, not to those who are poor. First-come, first-served (a method used to allocate housing in England after World War II) allocates housing to those who have the greatest foresight and who get their names on a list first, not to the poorest. Discrimination allocates scarce housing based on the views and self-interest of the owner of the housing. In the case of public housing, what counts is the self-interest of the bureaucracy that administers the allocation.

In principle, self-interested owners and bureaucrats could allocate housing to satisfy some criterion of fairness, but that isn't the usual outcome. Discrimination based on friendship, family ties, and criteria such as race, ethnicity, or sex is more likely to enter the equation. We might make such discrimination illegal, but we cannot prevent it from occurring.

It is hard, then, to make a case for rent ceilings on the basis of fairness. When rent adjustments are blocked, other methods of allocating scarce housing resources operate that do not produce a fair outcome.

ECONOMICS IN ACTION

Rent Control Winners: The Rich and Famous

New York, San Francisco, London, and Paris, four of the world's great cities, have rent ceilings in some part of their housing markets. Boston had rent ceilings for many years but abolished them in 1997. Many other U.S. cities do not have, and have never had, rent ceilings. Among them are Atlanta, Baltimore, Chicago, Dallas, Philadelphia, Phoenix, and Seattle.

To see the effects of rent ceilings in practice we can compare the housing markets in cities with ceilings with those without ceilings. We learn two main lessons from such a comparison.

First, rent ceilings definitely create a housing shortage. Second, they do lower the rents for some but raise them for others.

A survey* conducted in 1997 showed that the rents of housing units *actually available for rent* were 2.5 times the average of all rents in New York but equal to the average rent in Philadelphia. The winners from rent ceilings are the families that have lived in a city for a long time. In New York, these families include some rich and famous ones. The voting power of the winners keeps the rent ceilings in place. Mobile newcomers are the losers in a city with rent ceilings.

The bottom line is that, in principle and in practice, rent ceilings are inefficient and unfair.

*William Tucker, "How Rent Control Drives Out Affordable Housing," Cato Policy Analysis No. 274, May 21, 1997, Cato Institute.

REVIEW QUIZ

- 1 What is a rent ceiling and what are its effects if it is set above the equilibrium rent?
- 2 What are the effects of a rent ceiling that is set below the equilibrium rent?
- 3 How are scarce housing resources allocated when a rent ceiling is in place?
- 4 Why does a rent ceiling create an inefficient and unfair outcome in the housing market?

You now know how a price ceiling (rent ceiling) works. Next, we'll learn about the effects of a price floor by studying a minimum wage in a labor market.

A Labor Market with a Minimum Wage

For each one of us, the labor market is the market that influences the jobs we get and the wages we earn. Firms decide how much labor to demand, and the lower the wage rate, the greater is the quantity of labor demanded. Households decide how much labor to supply, and the higher the wage rate, the greater is the quantity of labor supplied. The wage rate adjusts to make the quantity of labor demanded equal to the quantity supplied.

When wage rates are low, or when they fail to keep up with rising prices, labor unions might turn to governments and lobby for a higher wage rate.

A government regulation that makes it illegal to charge a price lower than a specified level is called a **price floor**.

The effects of a price floor on a market depend crucially on whether the floor is imposed at a level that is above or below the equilibrium price.

A price floor set *below the equilibrium price* has no effect. The reason is that the price floor does not constrain the market forces. The force of the law and the market forces are not in conflict. But a price floor set *above the equilibrium price* has powerful effects on a market. The reason is that the price floor attempts to prevent the price from regulating the quantities demanded and supplied. The force of the law and the market forces are in conflict.

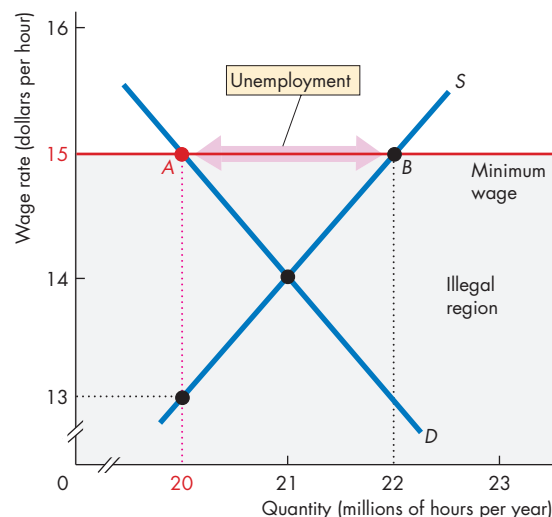
When a price floor is applied to a labor market, it is called a **minimum wage**. A minimum wage imposed at a level that is above the equilibrium wage creates unemployment. Let's look at the effects of a minimum wage.

Minimum Wage Brings Unemployment

At the equilibrium price, the quantity demanded equals the quantity supplied. In a labor market, when the wage rate is at the equilibrium level, the quantity of labor supplied equals the quantity of labor demanded: There is neither a shortage of labor nor a surplus of labor.

But at a wage rate above the equilibrium wage, the quantity of labor supplied exceeds the quantity of labor demanded—there is a surplus of labor. So when a minimum wage is set above the equilibrium wage, there is a surplus of labor. The demand for labor determines the level of employment, and the surplus of labor is unemployed.

FIGURE 6.3 Minimum Wage and Unemployment



The minimum wage rate is set at \$15 an hour. Any wage rate below \$15 an hour is illegal (in the gray-shaded illegal region). At the minimum wage of \$15 an hour, businesses hire 20 million hours of labor, but 22 million hours are available. Unemployment—AB—of 2 million hours a year is created. With only 20 million hours demanded, someone is willing to supply the 20 millionth hour for \$13.

Figure 6.3 illustrates the effect of the minimum wage on unemployment. The demand for labor curve is *D* and the supply of labor curve is *S*. The horizontal red line shows the minimum wage set at \$15 an hour. A wage rate below \$15 an hour is illegal, in the gray-shaded illegal region of the figure. At the minimum wage rate (\$15 an hour), 20 million hours of labor are demanded (point *A*) and 22 million hours of labor are supplied (point *B*), so 2 million hours of available labor are unemployed.

With only 20 million hours demanded, someone is willing to supply that 20 millionth hour for \$13. Frustrated unemployed workers spend time and other resources searching for hard-to-find jobs.

Is the Minimum Wage Fair?

The minimum wage is unfair on both views of fairness: It delivers an unfair *result* and imposes an unfair *rule*.

The *result* is unfair because only those people who have jobs and keep them benefit from the minimum

wage. The unemployed end up worse off than they would be with no minimum wage. Some of those who search for jobs and find them end up worse off because of the increased cost of job search they incur. Also those who search and find jobs aren't always the least well off. When the wage rate doesn't allocate labor, other mechanisms determine who finds a job. One such mechanism is discrimination, which is yet another source of unfairness.

The minimum wage imposes an unfair *rule* because it blocks voluntary exchange. Firms are willing to hire more labor and people are willing to work more, but they are not permitted by the minimum wage law to do so.

Inefficiency of a Minimum Wage

In the labor market, the supply curve measures the marginal social cost of labor to workers. This cost is leisure forgone. The demand curve measures the marginal social benefit from labor. This benefit is the value of the goods and services produced. An

unregulated labor market allocates the economy's scarce labor resources to the jobs in which they are valued most highly. The market is efficient.

The minimum wage frustrates the market mechanism and results in unemployment and increased job search. At the quantity of labor employed, the marginal social benefit of labor exceeds its marginal social cost and a deadweight loss shrinks the firms' surplus and the workers' surplus.

Figure 6.4 shows this inefficiency. The minimum wage (\$15 an hour) is above the equilibrium wage (\$14 an hour) and the quantity of labor demanded and employed (20 million hours) is less than the efficient quantity (21 million hours).

Because the quantity of labor employed is less than the efficient quantity, there is a deadweight loss, shown by the gray triangle. The firms' surplus shrinks to the blue triangle and the workers' surplus shrinks to the green triangle. The red rectangle shows the potential loss from increased job search borne by workers. The full loss from the minimum wage is the sum of the deadweight loss and the increased cost of job search.

AT ISSUE

Does the Minimum Wage Cause Unemployment?

In the United States, the federal government's Fair Labor Standards Act sets the federal minimum wage. In 2017, it was \$7.25 an hour, a level set in 2009. Most states have a minimum wage that exceeds the federal minimum.

Does the minimum wage result in unemployment? And if so, how much unemployment does it create?

No, It Doesn't

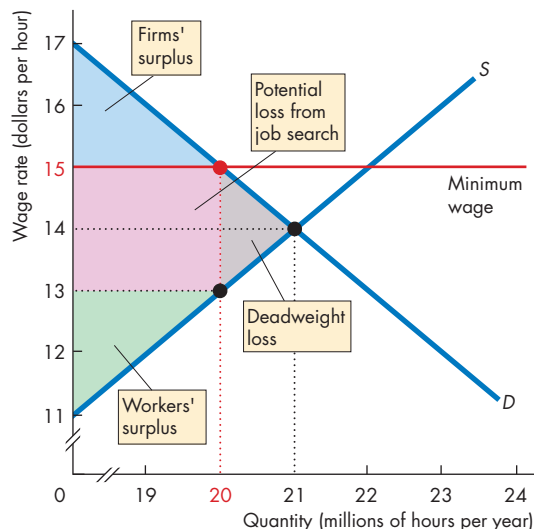
David Card of the University of California at Berkeley and Alan Krueger of Princeton University conducted a very large and carefully designed telephone survey of more than 400 employers of workers who earn the minimum wage. They say:

- An increase in the minimum wage *increases teenage employment* and *decreases unemployment*.
- Their study of minimum wages in California, New Jersey, and Texas found that the employment rate of low-income workers increased following an increase in the minimum wage.
- A higher wage *increases* employment by making workers more conscientious and productive as well as less likely to quit, which lowers unproductive labor turnover.
- A higher wage rate also encourages managers to seek ways to increase labor productivity.

Yes, It Does

- David Neumark of the University of California, Irvine, combined all the most recent studies and says they show that a 10 percent rise in the minimum wage *decreases teenage employment* by between 1 and 3 percent.
- Daniel Hamermesh of the University of Texas at Austin says that firms anticipate the rise and cut employment *before* the minimum wage goes up.
- Finis Welch of Texas A&M University and Kevin Murphy of the University of Chicago say regional differences in economic growth caused the employment effects that Card and Krueger found.
- Michael Luca of the Stanford Institute for Economic Policy Research used a huge dataset from online review resource Yelp and found that a higher minimum wage rate increases the business failure rate.

FIGURE 6.4 The Inefficiency of a Minimum Wage



A minimum wage decreases employment. Firms' surplus (blue area) and workers' surplus (green area) shrink and a deadweight loss (gray area) arises. Job search increases and the red area shows the loss from this activity. The full loss from the minimum wage is the sum of the deadweight loss and the increased cost of search.

REVIEW QUIZ

- 1 What is a minimum wage and what are its effects if it is set above the market equilibrium wage?
- 2 What are the effects of a minimum wage set below the market equilibrium wage?
- 3 Explain how scarce jobs are allocated when a minimum wage is in place.
- 4 Explain why a minimum wage creates an inefficient allocation of labor resources.
- 5 Explain why a minimum wage is unfair.

Next we're going to study a more widespread government action in markets: taxes. We'll see how taxes change prices and quantities. You will discover the surprising fact that while the government can impose a tax, it can't decide who will pay the tax! You will also see that a tax creates a deadweight loss.

Taxes

Everything you earn and almost everything you buy is taxed. Income taxes and Social Security taxes are deducted from your earnings and sales taxes are added to the bill when you buy something. Employers also pay their contribution of the Social Security tax for their workers, and producers of tobacco products, alcoholic drinks, and gasoline pay a tax every time they sell something.

Who really pays these taxes?

Because the income tax and Social Security tax are deducted from your pay, and the sales tax is added to the prices that you pay, isn't it obvious that you pay these taxes? And isn't it equally obvious that your employer pays the employer's contribution to the Social Security tax and that tobacco producers pay the tax on cigarettes?

You're going to discover that it isn't obvious who really pays a tax and that lawmakers don't make that decision.

When a transaction is taxed, there are two prices: the price that includes the tax and the price that excludes the tax. Buyers respond to the price that includes the tax and sellers respond to the price that excludes the tax.

You're about to discover that a tax is like a wedge between the price buyers pay and the price sellers receive, and that the elasticities of demand and supply determine who pays the tax, not the side of the market on which the government imposes the tax.

We begin with a definition of tax incidence.

Tax Incidence

Tax incidence is the division of the burden of a tax between buyers and sellers. When the government imposes a tax on the sale of a good (or service or a factor of production—land, labor, and capital), the price buyers pay might rise by the full amount of the tax, by a lesser amount, or not at all. If the price buyers pay rises by the full amount of the tax, then the burden of the tax falls entirely on buyers—the buyers pay the tax. If the price buyers pay rises by a lesser amount than the tax, then the burden of the tax falls partly on buyers and partly on sellers. And if the price buyers pay doesn't change at all, then the burden of the tax falls entirely on sellers.

Tax incidence does not depend on the tax law. The law might impose a tax on sellers or on buyers, but the outcome is the same in either case. To see why, let's look at a tax on cigarettes.

Equivalence of a Tax on Buyers and Sellers

The people of Maryland want to discourage cigarette smoking and impose a tax on cigarettes of \$3 a pack. They want to know whether to make producers pay the \$3 tax when they sell cigarettes, or to make smokers pay the \$3 tax when they buy cigarettes.

You're going to see that the effect of the tax is the same, regardless of the side of the market on which the tax is imposed. We begin by describing the market for cigarettes with no tax.

The Market With No Tax In Fig. 6.5(a), the demand curve is D and the supply curve is S . With no tax, the equilibrium price is \$6 per pack and 350 million packs a year are bought and sold.

A Tax on Sellers A tax on sellers is like a rise in their cost, so it decreases supply. To determine the position of the new supply curve, we add the tax to the minimum price that sellers are willing to accept for each quantity. You can see, in Fig. 6.5(a), that with no tax, sellers are willing to offer 350 million packs a year for \$6 a pack. So, with a \$3 tax, sellers will offer 350 million packs a year only if they get \$9 a pack. The supply curve shifts to the curve labeled $S + \text{tax on sellers}$.

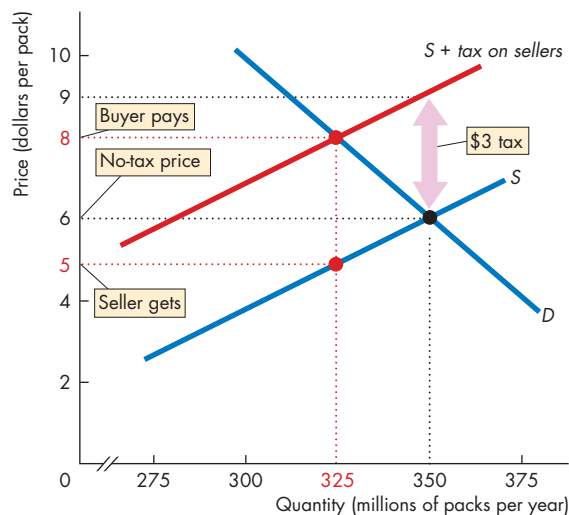
Equilibrium occurs where the new supply curve intersects the demand curve at 325 million packs a year. The price buyers pay rises by \$2 to \$8 a pack. And the price sellers receive falls by \$1 to \$5 a pack. So, buyers pay \$2 of the tax and sellers pay the other \$1.

Suppose that instead of taxing sellers, Maryland taxes cigarette buyers \$3 a pack.

A Tax on Buyers A tax on buyers lowers the amount they are willing to pay sellers, so it decreases demand and shifts the demand curve leftward. To determine the position of this new demand curve, we subtract the tax from the maximum price that buyers are willing to pay for each quantity bought. You can see, in Fig. 6.5(b), that without the tax, buyers are willing to buy 350 million packs a year for \$6 a pack. So, with a \$3 tax, they are willing to buy 350 million packs a year only if the price including the tax is \$6 a pack, which means that they're willing to pay sellers only \$3 a pack. The demand curve shifts to become the red curve labeled $D - \text{tax on buyers}$.

Equilibrium occurs where the new demand curve intersects the supply curve at a quantity of 325 million packs a year. Sellers receive \$5 a pack and buyers pay \$8 a pack.

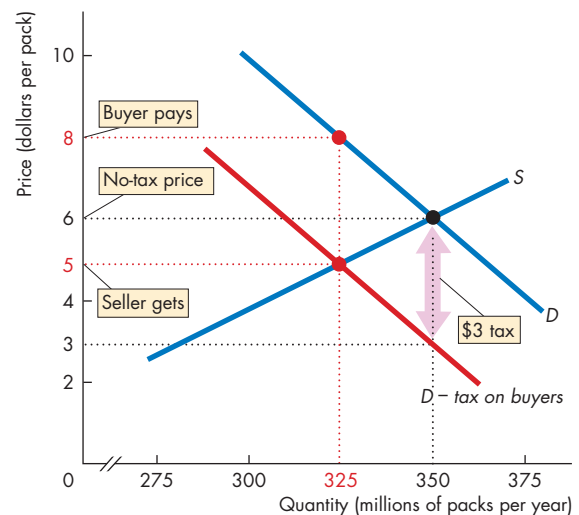
FIGURE 6.5 A Tax on Sellers or Buyers Is the Same Tax Wedge



(a) Tax on sellers

With no tax, 350 million packs a year are bought and sold at \$6 a pack.

In part (a), a \$3 tax on sellers shifts the supply curve to $S + \text{tax on sellers}$. The equilibrium quantity decreases to



(b) Tax on buyers

325 million packs a year, the price buyers pay rises to \$8 a pack, and the price sellers receive falls to \$5 a pack.

In part (b), a \$3 tax on buyers shifts the demand curve to $D - \text{tax on buyers}$. The equilibrium quantity decreases to

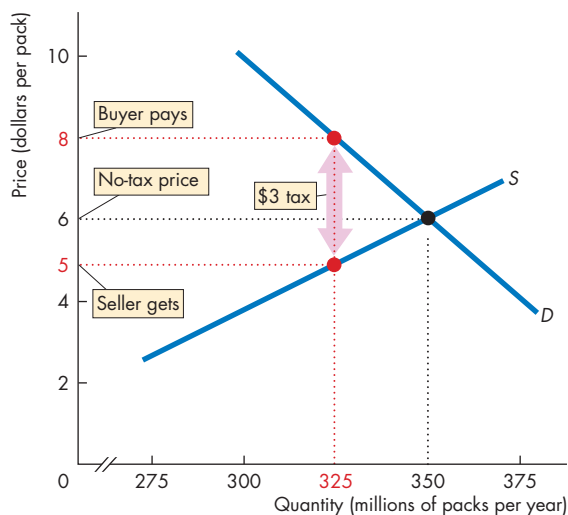
The Tax as a Wedge You can see that the \$3 tax on buyers in Fig. 6.5(b) has the same effects as the \$3 tax on sellers in Fig. 6.5(a). In both cases, the equilibrium quantity decreases to 325 million packs a year, the price buyers pay rises to \$8 a pack, and the price sellers receive falls to \$5 a pack. Buyers pay \$2 of the \$3 tax, and sellers pay the other \$1 of the tax.

In Fig. 6.5(c), the tax is like a wedge driven between the price the buyer pays and the price the seller gets. With a tax, the equilibrium quantity is no longer at the intersection of the demand and supply curves but at the quantity where the vertical gap between the curves equals the size of the tax.

Taxes and Efficiency

Because a tax drives a wedge between the price buyers pay and the price sellers receive, it results in inefficient underproduction. The price buyers pay is also the buyers' willingness to pay, which measures marginal social benefit. The price sellers receive is also the sellers' minimum supply-price, which equals marginal social cost.

A tax makes marginal social benefit exceed marginal social cost, shrinks the producer surplus and consumer surplus, and creates a deadweight loss.



(c) Tax wedge

325 million packs a year, the price buyers pay rises to \$8 a pack, and the price sellers receive falls to \$5 a pack.

In part (c), the \$3 tax drives a \$3 wedge between the price buyers pay and the price sellers receive.

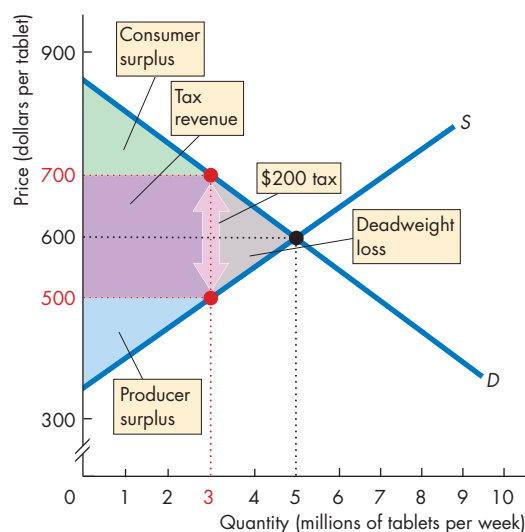
Figure 6.6 shows the inefficiency of a tax on tablet computers. The demand curve, D , shows marginal social benefit, and the supply curve, S , shows marginal social cost. With no tax, the equilibrium price is \$600 per tablet and the market produces the efficient quantity of 5 million tablets a week.

A \$200 tax drives a \$200 wedge between the price buyers pay and the price sellers receive. In this example, the price buyers pay rises by \$100 per tablet and the price sellers receive falls by \$100—they share the tax burden equally.

The equilibrium quantity decreases to 3 million tablets a week. Both consumer surplus and producer surplus shrink. Part of each surplus goes to the government in tax revenue—the purple area; part becomes a deadweight loss—the gray area.

In the cigarette tax example, buyers bear twice the burden of the tax borne by sellers. In the tablet computer example, the tax burden is shared equally. Why are they different? The division of the burden of a tax between buyers and sellers depends on the elasticities of demand and supply. And as you will now see, in special cases, either buyers or sellers bear the entire burden. Also, in special cases, a tax does not bring deadweight loss. We begin by seeing how the elasticity of demand influences tax incidence and inefficiency.

FIGURE 6.6 Taxes and Efficiency



A tax shrinks consumer surplus (green area) and producer surplus (blue area). Part of the loss of total surplus goes to the government as tax revenue (purple area) and part becomes a deadweight loss (gray area).